



Energy Efficiency Technical Reference Manual

Version 2.0

Submitted to Georgia Power Company

January 2019

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1 Introduction

1.1 Background

This Technical Reference Manual (“TRM”) has been developed at the request of Georgia Power Company (“Georgia Power” or “Company”), and as required in the Georgia Public Service Commission’s (“PSC”) Final Order in Dockets 40161 and 40162 (Georgia Power 2016 IRP and DSM Certification, respectively).

The Final Order specifies the following regarding the TRM:

Georgia Power will develop a Technical Reference Manual prior to the Company’s next IRP filing and will update it every three years thereafter. The Company will work closely with Staff and members of the DSMWG and DSMWG members may also propose new measures to be added at any point in the measure evaluation process. The DSM Program Planning Approach filed as Staff Exhibit_BSK8 will otherwise remain unchanged other than “Technology Catalog” will be replaced with “Technical Reference Manual” and the dates will be updated to reflect 2017 through 2019.

The measures and supporting data were developed collaboratively by Georgia Power (supported by Nexant), the PSC Staff, and members of the Georgia Demand Side Management Working Group (“DSMWG”).

1.2 Purpose

The purpose of this TRM is to develop and present information on energy efficiency measures that are suitable for Georgia Power customers, climate, residences, buildings, and facilities. According to the DSM Program Planning Process, once the Company’s initial TRM is developed, Georgia Power will propose the bundling of measures into programs. This TRM will be the starting point for the measure savings and impacts included in the initial phases of the program planning process in 2018.

Subsequent updates to measure savings during the DSM Program Planning Process and after will be incorporated in future versions of the Company’s TRM. For example, the Company will update the energy, demand, revenue, and cost impacts of each measure that will be included in the proposed programs prior to the Company’s January 2019 IRP and DSM Certification filings (Version 2.0). This step ensures that the costs and benefits of the energy efficiency programs are in sync with the forthcoming 2019 IRP filing. Further adjustments to measure savings may also be made after review and approval of the 2019 IRP and prior to program implementation in 2020.

1.3 TRM Development Process

The measures considered for this TRM include those from Georgia Power's 2016 EE Technology Catalog, supplemented with additional measures identified for the 2019 DSM planning process by Georgia Power, Nexant, and the DSMWG, leveraging regional, national, and international resources to create a comprehensive list of EE technologies.

The TRM seeks to capture measures that successfully achieve energy efficiency savings without energy services degradation. As energy efficiency technologies are tried and tested by consumers and markets, some technologies are updated or replaced by better versions. Other energy efficiency technologies do not perform well or degrade energy services to a point that is not acceptable to consumers and businesses. As an initial step in TRM development, the preliminary list of EE measures underwent a qualitative screening process to identify measures that should be excluded. Specific screening criteria were analyzed for each measure to enable a transparent process for conducting the qualitative screening:

- 1) Difficult to quantify savings; measure may not produce verifiable or persistent savings
- 2) Current practice (either through code requirements or natural market adoption)
- 3) Better measure or technology available
- 4) Immature or unproven technology, or not commercially available in Georgia Power's service territory
- 5) Limited applicability in Georgia Power's service territory
- 6) Poor customer acceptance
- 7) Health or environmental concerns
- 8) End-use service degradation

Measures that met one or more of these criteria were excluded from further consideration for the TRM. The list of measures failing the qualitative screen are included in Appendix A.

Measures passing the qualitative screening (126 residential and 260 non-residential) were identified for development in the TRM. Measure development included identifying measure descriptive information, such as baseline and efficiency case characteristics, as well as measure impacts. Energy and demand impacts were developed for each TRM measure using one of two methods:

- Energy simulation modeling was employed for many of the weather-sensitive measures using the Enersim© model. EnerSim is a building energy simulation model used to predict hourly energy consumption in buildings based on construction characteristics, insulation, occupancy, orientation, local weather, and other attributes. The simulation modeling included development of appropriate base case (standard efficiency) and change case (including the energy efficient measure) model runs for each measure to isolate the impacts of the EE improvement. The modeling resulted in hourly load shapes

for both the base and change case, and the difference in the two shapes resulted in annual energy savings and peak demand savings estimates.

- Energy savings algorithms were selected or developed for all other measures. Algorithms apply engineering-based calculations and specific input assumptions on measure and operating characteristics to estimate annual energy impacts. Algorithm development included referencing publicly available sources such as prior Georgia Power program evaluations, EPA's ENERGY STAR equipment calculators, and other technical reference manuals. Input assumptions were developed based on current codes and standards, estimated efficiency levels (tied to existing criteria such as ENERGY STAR standards, where applicable), and typical weather and customer characteristics appropriate for Georgia Power's service territory.

1.3.1 Update Summary – Version 2.0

The following updates are included in Version 2.0 of the TRM:

- Measure economics, including avoided cost, lost revenue, and bill savings, have been updated with current (B19) Company economic forecast data.
- Measure impacts have been updated based on the *Evaluation of Georgia Power's 2017 DSM Programs*, where applicable to TRM measures.
- Based on DSMWG feedback, measures have been re-organized by end-use within each sector in the TRM.
- Measures failing qualitative screen listed in Appendix A have been re-organized alphabetically within each sector.

1.4 Organization

The remainder of this TRM is organized as follows:

- Section 2: Glossary - Terms included in TRM
- Section 3: Residential Measures
- Section 4: Non-Residential Measures
- Appendix A: Qualitative Screening Matrix - List of Measures Failing Qualitative Screen

2 Glossary

The following list defines many of the key measure details included in the TRM.

Baseline and Efficiency Description: Additional details regarding assumed baseline and efficiency case characteristics

Baseline and Efficiency Values: Efficiency level or energy use assumptions, such as SEER value or wattage for baseline and efficiency cases, where applicable

Energy Savings Units and Unit Description: Unit values for estimated energy and demand impacts

EnerSim Model Inputs Base Case: Energy simulation modeling characteristics for base case facility

EnerSim Model Inputs Change Case: Energy simulation modeling characteristics for the change case facility.

Last Edit Date: Last measure revision

Measure Category: 1st level categorization of measure, typically aligned with end-use

Measure ID: Unique measure number

Measure Modeling Details: Savings algorithm(s), input assumptions, and references for estimating annual energy savings.

Measure Status: Current applicability of measure. Active measures are still relevant and applicable for current program planning activities. Inactive measures are no longer in use.

Measure Sub-Type: 3rd level categorization of measure

Measure Type: 2nd level categorization of measure

Modeled Building Segment: Building characteristics, such as facility type and fuel type for estimated energy and demand impacts

- **Non-Residential segments:** Amusement (AM), Data Center (DC), Education (ED), Grocery (GR), Healthcare (HS), Industrial (IN), Lodging (LG), Miscellaneous (MS), Office (OF), Public (GV), Religious (RL), Restaurant (RS), Retail (RT), Warehouse (WR)
- **Residential segments:** Single Family (SF), Multi-Family (MF), Manufactured Housing (MH)

Sector(s): Applicability of measure to Residential, Commercial, and/or Industrial sectors

Segment(s): Applicability of measure to specific customer segments, including the following:

Version: Current version of measure, updated with each measure revision

Vintage(s): Applicability of the installation of equipment measures (Burnout, Early Replacement, and New Construction) and non-equipment measures (Existing, New Construction)

3 Residential Measures

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TRM MEASURE DETAILS

General Information

Measure Name	Clothes Dryer - ENERGY STAR (residential)		
Measure ID	22	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	20% savings over standard		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Laundry Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Washing	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Clothes Dryer				
Baseline Value					
Efficiency Description	High efficiency clothes dryer meeting current ENERGY STAR specification (effective in 2015)				
Efficiency Value					
Annual Energy Savings	146	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	Pennsylvania PUC, EE Potential Study, Final Report, 2015, Appendix D				

Measure Economic Impacts

Incremental Cost	\$388.80		
Incremental Cost Reference	Regional Technical Forum, Residential Clothes Dryers V1.2		
TRC	0.14	Electric Avoided Cost (Lifetime, NPV)	\$55.28
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$136.62
PCT	0.35	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{Cycleswash} \times \% \text{dry/wash} \times \text{Loadavg} \times (1/\text{CEFbase} - 1/\text{CEFee})$$

Value		Description	Value	Units	Reference
Cycleswash	=	Number of washing machine cycles per year	271.00	cycles/year	1
%dry/wash	=	Percentage of homes with a dryer that use the dryer	95.00	%	2
Loadavg	=	Weight of average dryer load, in pounds per load	8.45	lbs/load	3
CEFbase	=	Combined Energy Factor of baseline dryer	3.11	lbs/kWh	4
CEFee	=	Combined Energy Factor of ENERGY STAR dryer	3.93	lbs/kWh	5
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	PA TRM, June 2016. TRM Reference from 2011-04 Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment.
3	Based on ENERGY STAR test procedures. https://www.energystar.gov/index.cfm?c=clothesdry.pr_crit_clothes_dryers
4	Federal Standard, Code of Federal Regulations, 10 CFR 430.32(h)(3)
5	https://www.energystar.gov/sites/default/files/specs/ENERGY%20STAR%20Final%20Version%201%200%20Clothes%20Dryers%20Pr



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TRM MEASURE DETAILS

General Information

Measure Name	Clothes Dryer - Heat Pump (residential)		
Measure ID	23	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Condensing dryer with internal heat pump to heat air for clothes drying		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Laundry Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Washing	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency electric clothes dryer				
Baseline Value					
Efficiency Description	Efficient heat pump clothes dryer				
Efficiency Value					
Annual Energy Savings	533	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	Based on other clothes dryer measure				

Measure Economic Impacts

Incremental Cost	\$775.93		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.26	Electric Avoided Cost (Lifetime, NPV)	\$202.66
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$500.97
PCT	0.65	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-AP-DRY02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,801.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	14.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,639.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

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TRM MEASURE DETAILS

General Information

Measure Name	Clothes Washer - ENERGY STAR		
Measure ID	24	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient clothes washer meeting current ENERGY STAR specifications, which use approx 20% less energy than conventional models.		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Laundry Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Washing	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency clothes washer, front load >2.5 ft3				
Baseline Value					
Efficiency Description	ENERGY STAR qualified clothes washer, front load >2.5 ft3				
Efficiency Value					
Annual Energy Savings	524	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$58.74		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.48	Electric Avoided Cost (Lifetime, NPV)	\$145.44
RIM	0.30	Electric Lost Revenue (Lifetime, NPV)	\$478.72
PCT	8.15	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = [(CAPY/MEF)_base - (CAPY/MEF)_efficient]*Cycles*ELEC Saturation

Value		Description	Value	Units	Reference
Cycles	=	the number of washer cycles observed annually	270.78	cycles	1
MEF_base	=	the efficiency of the washer	0.79	(ft3*cycle)/kWh	2
MEF_efficient	=	the efficiency of the washer	1.27	(ft3*cycle)/kWh	3
CAPY	=	the capacity of the washer	4.16	cubic feet	4
ELEC Saturation	=	Saturation of electric WH and/or electric dryers within	97.29	%	5
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	The “Residential Retrofit High Impact Measure Evaluation Report”, CPUC available at http://www2.epa.gov/sites/production/files/documents/CA_PUC_Assessment.pdf
3	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
4	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
5	Georgia Power 2013 Residential Appliance Saturation Study

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TRM MEASURE DETAILS

General Information

Measure Name	Cooktop - High-Efficiency Induction		
Measure ID	25	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Induction cooktop, which creates electromagnetic field that heat metallic pot or pan placed on it, 84% at energy transfer		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Kitchen Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency electric cooktop				
Baseline Value					
Efficiency Description	Cooktop - High-Efficiency Induction				
Efficiency Value					
Annual Energy Savings	534	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$434.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.48	Electric Avoided Cost (Lifetime, NPV)	\$207.39
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$448.03
PCT	1.03	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{kWbase} - \text{kWee}) \times \text{Hours} \times \text{Rapid_Cook_Factor} \times \text{HVAC_cooling}$$

Value		Description	Value	Units	Reference
kWbase	=	Deemed corresponding baseline wattage	5.10	kW	1
kWee	=	Deemed wattage for high-efficiency equipment	4.14	kW	2
Hours	=	Annual operating hours	540.20	hours	3
Rapid_Cook_Factor	=	Deemed savings from increased throughput	1.00		4
HVAC_cooling	=	Deemed cooling system savings from efficient cooking	1.03		5
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Food Service Technology Assessment Report, Fisher-Nickel, kW_EE is productivity enhancement adjusted.
2	Food Service Technology Assessment Report, Fisher-Nickel, kW_EE is productivity enhancement adjusted.
3	Americans' Eating Patterns and Time Spent on Food: the 2014 Eating & Health Module Data, U.S. Department of Agriculture, Karen S. Hamrick and Ket McClelland, July 2016.
4	Americans' Eating Patterns and Time Spent on Food: the 2014 Eating & Health Module Data, U.S. Department of Agriculture, Karen S. Hamrick and Ket McClelland, July 2016.
5	HVAC Interactive Factors developed based on the HVAC Interaction Factor extracted from the Arkansas Food Service Deemed Savings table.

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TRM MEASURE DETAILS

General Information

Measure Name	Dehumidifier - ENERGY STAR		
Measure ID	26	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Uses at least 15% less energy		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Miscellaneous Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Air Quality	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency dehumidifier				
Baseline Value					
Efficiency Description	High efficiency dehumidifier meeting ENERGY STAR v3.0 specification				
Efficiency Value					
Annual Energy Savings	214	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	ENERGY STAR Appliance Calculator, Updated Oct. 2016				

Measure Economic Impacts

Incremental Cost	\$27.07		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.67	Electric Avoided Cost (Lifetime, NPV)	\$72.34
RIM	0.35	Electric Lost Revenue (Lifetime, NPV)	\$204.28
PCT	7.55	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{CAPY} \times \text{Conv_L} / \text{Hrs}) \times \text{HOU} \times [(1/\text{EFFBASE}) - (1/\text{EFFEFF})]$$

Value		Description	Value	Units	Reference
CAPY	=	Dehumidifier Capacity	40.00	Pints/Day	1
HOU	=	Annual hours of operation = 68 days x 24 hours	1,632.00	Hours/Yr	2
EFFBASE	=	Baseline/Existing Dehumidifier Efficiency	1.50	liters/kWh	3
EFFEFF	=	Efficient Dehumidifier Efficiency	2.00	liters/kWh	4
Conv_L	=	Conversion Factor	0.47	liters/Pint	
Hrs	=	Hours Per Day	24.00	Hours per Day	
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Appliance Savings Calculator updated October, 2016, default value.
2	ENERGY STAR Appliance Savings Calculator updated October, 2016; Electricity Consumption by Small End Uses in Residential Buildings, U.S. Department of Energy, 1998
3	Federal standard, Code of Federal Regulations, Title 10, Part 430, Subpart C
4	Version 4.0 ENERGY STAR Program Requirements for Dehumidifiers, effective October 25, 2016



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TRM MEASURE DETAILS

General Information

Measure Name	Dehumidifier Recycling		
Measure ID	27	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Remove working dehumidifier		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Miscellaneous Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Air Quality	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing standard dehumidifier				
Baseline Value					
Efficiency Description	Dehumidifier Recycling				
Efficiency Value					
Annual Energy Savings	858	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	ENERGY STAR Appliance Calculator, Updated Oct. 2016				

Measure Economic Impacts

Incremental Cost	\$0.00			
Incremental Cost Reference	N/A			
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$338.40	
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$933.92	
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00	
Pass TRC?	Yes			

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{CAPY} \times \text{Conv_L} / \text{Hrs}) \times \text{HOU} \times (1/\text{EFFBASE})$$

Value		Description	Value	Units	Reference
CAPY	=	Dehumidifier Capacity	40.00	Pints/Day	1
HOU	=	Annual hours of operation = 68 days x 24 hours	1,632.00	Hours/Yr	2
EFFBASE	=	Baseline/Existing Dehumidifier Efficiency	1.50	liters/kWh	3
Conv_L	=	Conversion Factor	0.47	liters/Pint	
Hrs	=	Hours Per Day	24.00	Hours per Day	
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Appliance Savings Calculator updated October, 2016, default value.
2	ENERGY STAR Appliance Savings Calculator updated October, 2016; Electricity Consumption by Small End Uses in Residential Buildings, U.S. Department of Energy, 1998.
3	Federal standard, Code of Federal Regulations, Title 10, Part 430, Subpart C

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Efficient Refrigerator O&M		
Measure ID	37	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Includes turning off anti-sweat heater, keeping refrigerator between 35-38 F, placement (keep coils away from wall), not having ice-maker, coil cleaning and replacement		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Kitchen Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Refrigerated	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing efficient refrigerator meeting current federal standard				
Baseline Value					
Efficiency Description	Efficient Refrigerator O&M (no cost measures)				
Efficiency Value					
Annual Energy Savings	250	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	4	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$179.17		
Incremental Cost Reference	RSMeans labor estimate		
TRC	0.18	Electric Avoided Cost (Lifetime, NPV)	\$31.64
RIM	0.30	Electric Lost Revenue (Lifetime, NPV)	\$106.57
PCT	0.59	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-AP-BAS01	RC-S-E-HP-EC-AP-REF01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,183.00	19,933.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	14.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,672.00	1,650.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	5.56	5.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Battery Charging System (residential)		
Measure ID	39	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Uses 30% less energy than conventional models		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	Small Plug Load	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR model				
Baseline Value					
Efficiency Description	ENERGY STAR Battery Charging System meeting current v1.0 specification				
Efficiency Value					
Annual Energy Savings	14	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Device		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$41.27		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.06	Electric Avoided Cost (Lifetime, NPV)	\$2.33
RIM	0.32	Electric Lost Revenue (Lifetime, NPV)	\$7.21
PCT	0.17	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = kWh_deemed					

Value		Description	Value	Units	Reference
kWh_deemed	=	Deemed annual unit energy savings (small charger)	13.90	kWh/year	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	CEC Staff Analysis of Battery Chargers and Self-Contained Lighting Controls 2011; http://www.energy.ca.gov/2011publications/CEC-400-2011-001/CEC-400-2011-001-SF.pdf



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Compact Freezer (<7.75 cu. Ft.)		
Measure ID	40	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient compact freezer meeting current ENERGY STAR specifications		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Kitchen Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Refrigerated	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR compact freezer				
Baseline Value					
Efficiency Description	ENERGY STAR qualified compact freezer				
Efficiency Value					
Annual Energy Savings	72	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	7	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$110.35		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.16	Electric Avoided Cost (Lifetime, NPV)	\$17.58
RIM	0.35	Electric Lost Revenue (Lifetime, NPV)	\$50.94
PCT	0.46	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-AP-BAS06	RC-S-E-HP-EC-AP-FRZ02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,527.00	20,455.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,702.00	1,696.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	5.56	5.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Compact Refrigerator (<7.75 cu. ft.)		
Measure ID	41	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient compact refrigerator meeting current ENERGY STAR specifications		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Kitchen Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Refrigerated	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR compact refrigerator				
Baseline Value					
Efficiency Description	ENERGY STAR qualified compact refrigerator				
Efficiency Value					
Annual Energy Savings	80	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	9	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$9.29		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.48	Electric Avoided Cost (Lifetime, NPV)	\$23.02
RIM	0.33	Electric Lost Revenue (Lifetime, NPV)	\$69.13
PCT	7.44	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-AP-BAS03	RC-S-E-HP-EC-AP-CRF01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,564.00	20,484.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,706.00	1,699.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	5.56	5.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Computer (desktop or laptop) (residential)		
Measure ID	42	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Computer that meets current ENERGY STAR specifications		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	AV/Entertainment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR computer (desktop or laptop)				
Baseline Value					
Efficiency Description	ENERGY STAR qualified computer (desktop or laptop) meeting current v6.1 product specification				
Efficiency Value					
Annual Energy Savings	119	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	4	Years			
Equipment Life Reference	PA TRM Errata 2017 Appendix A				

Measure Economic Impacts

Incremental Cost	\$200.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.07	Electric Avoided Cost (Lifetime, NPV)	\$14.51
RIM	0.29	Electric Lost Revenue (Lifetime, NPV)	\$49.98
PCT	0.25	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [(P_{\text{Idle_Base}} - P_{\text{Idle_ES}}) \times \text{Hours_Idle} + (P_{\text{Sleep_Base}} - P_{\text{Sleep_ES}}) \times \text{Hours_Sleep} + (P_{\text{Off_Base}} - P_{\text{Off_ES}}) \times \text{Hours_Off}] / \text{WhperkWh}$$

Value		Description	Value	Units	Reference
Hours_Idle	=	Hours per year in idle mode	5,628.00	Hours	1
Hours_Sleep	=	Hours per year in sleep mode	806.00	Hours	2
Hours_Off	=	Hours per year off	2,326.00	Hours	3
P_Idle_Base	=	Baseline power use in idle mode	48.11	Watts	4
P_Sleep_Base	=	Baseline power use in sleep mode	2.31	Watts	5
P_Off_Base	=	Baseline power use in off mode	0.96	Watts	6
P_Idle_ES	=	Energy Star power use in idle mode	27.11	Watts	7
P_Sleep_ES	=	Energy Star power use in sleep mode	1.80	Watts	8
P_Off_ES	=	Energy Star power use in off mode	0.81	Watts	9
WhperkWh	=	Watt-hours per kilowatt-hour conversion factor	1,000.00	watt-hours/kWh	
	=				
	=				

References

1	ENERGY STAR Office Equipment Savings Calculator, October 2016; Office Technology Energy Use and Savings Potential in New York, Lawrence Berkeley Laboratory. LBL-36752.
2	ENERGY STAR Office Equipment Savings Calculator, October 2016; Office Technology Energy Use and Savings Potential in New York, Lawrence Berkeley Laboratory. LBL-36752.
3	ENERGY STAR Office Equipment Savings Calculator, October 2016; Office Technology Energy Use and Savings Potential in New York, Lawrence Berkeley Laboratory. LBL-36752.
4	ENERGY STAR Office Equipment Savings Calculator updated October 2016, default value. EPA research on available products, 2013
5	ENERGY STAR Office Equipment Savings Calculator updated October 2016, default value. EPA research on available products, 2013
6	ENERGY STAR Office Equipment Savings Calculator updated October 2016, default value. EPA research on available products, 2013
7	ENERGY STAR Office Equipment Savings Calculator updated October 2016, default value. ENERGY STAR Computer 6.1 Program Requirements.
8	ENERGY STAR Office Equipment Savings Calculator updated October 2016, default value. ENERGY STAR Computer 6.1 Program Requirements.
9	ENERGY STAR Office Equipment Savings Calculator updated October 2016, default value. ENERGY STAR Computer 6.1 Program Requirements.



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TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Cordless Phones		
Measure ID	43	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Cordless phone meeting current ENERGY STAR specification		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Computers and Office	Segment(s)	SF, MF, MH
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR cordless phone				
Baseline Value					
Efficiency Description	ENERGY STAR qualified cordless phone meeting current v3.0 specification				
Efficiency Value					
Annual Energy Savings	4	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Device		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$9.75		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.07	Electric Avoided Cost (Lifetime, NPV)	\$0.64
RIM	0.32	Electric Lost Revenue (Lifetime, NPV)	\$2.00
PCT	0.21	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = kWhbase - kWheff					

Value		Description	Value	Units	Reference
kWhbase	=	Annual conventional cordless phone energy consumption	6.40	kWh	1
kWheff	=	Annual ENERGY STAR cordless phone energy	2.60	kWh	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Consumer Electronics Savings Calculator updated December 2015, "additional handset" option
2	ENERGY STAR Consumer Electronics Savings Calculator updated December 2015, "additional handset" option



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR DVD		
Measure ID	45	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	When off, uses as little as one quarter of the energy used by standard models		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	AV/Entertainment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR DVD				
Baseline Value					
Efficiency Description	ENERGY STAR qualified DVD				
Efficiency Value					
Annual Energy Savings	5	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Device		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$6.67		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.13	Electric Avoided Cost (Lifetime, NPV)	\$0.84
RIM	0.33	Electric Lost Revenue (Lifetime, NPV)	\$2.52
PCT	0.38	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \{ [(\text{PON} \times \text{TON}) + (\text{PIDLE} \times \text{TIDLE}) + (\text{PSLEEP} \times \text{TSLEEP})] \text{BASE} - [(\text{PON} \times \text{TON}) + (\text{PIDLE} \times \text{TIDLE}) + (\text{PSLEEP} \times \text{TSLEEP})] \text{EFF} \} / \text{WhperkWh} \times \text{Days}$$

Value		Description	Value	Units	Reference
PONBASE	=	Baseline DVD//Blu-Ray Player Active Power	11.15	W	1
PIDLEBASE	=	Baseline DVD/Blu-Ray Player Idle Power	8.20	W	2
PSLEEPBASE	=	Baseline DVD/Blu-Ray Player Sleep Power	1.15	W	3
PONEFF	=	Efficient DVD/Blu-Ray Player Active Power	8.25	W	4
PIDLEEFF	=	Efficient DVD/Blu-Ray Player Idle Power	5.00	W	5
PSLEEPEFF	=	Efficient DVD/Blu-Ray Player Sleep Power	1.00	W	6
TON	=	Residential DVD/Blu-Ray Player System Active Time	0.70	Hours	7
TIDLE	=	Residential DVD/Blu-Ray Player System Idle Time	2.50	Hours	8
TSLEEP	=	Residential DVD/Blu-Ray Player System Sleep Time	20.80	Hours	9
WhperkWh	=	Watt-hours per kilowatt-hour conversion factor	1,000.00	watt-hours/kWh	
Days	=	Days per year	365.00	days/year	
	=				

References

1	ENERGY STAR Consumer Electronics Savings Calculator updated December 2015, default values for DVD and Blu-Ray players averaged.
2	ENERGY STAR Consumer Electronics Savings Calculator updated December 2015, default values for DVD and Blu-Ray players averaged.
3	ENERGY STAR Consumer Electronics Savings Calculator updated December 2015, default values for DVD and Blu-Ray players averaged.
4	ENERGY STAR version 3.0 Standards, https://www.energystar.gov/products/electronics/audiovideo/key_product_criteria
5	ENERGY STAR version 3.0 Standards, https://www.energystar.gov/products/electronics/audiovideo/key_product_criteria
6	ENERGY STAR version 3.0 Standards, https://www.energystar.gov/products/electronics/audiovideo/key_product_criteria
7	ENERGY STAR Consumer Electronics Savings Calculator updated December 2015, default value. Calculator reference: EPA, 2013
8	ENERGY STAR Consumer Electronics Savings Calculator updated December 2015, default value. Calculator reference: EPA, 2013
9	ENERGY STAR Consumer Electronics Savings Calculator updated December 2015, default value. Calculator reference: EPA, 2013



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TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Home Audio		
Measure ID	47	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ENERGY STAR certified audio/video equipment is up to 50% more efficient than conventional models		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	AV/Entertainment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency home audio				
Baseline Value					
Efficiency Description	ENERGY STAR qualified home audio				
Efficiency Value					
Annual Energy Savings	80	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Device		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$134.84		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.08	Electric Avoided Cost (Lifetime, NPV)	\$11.07
RIM	0.26	Electric Lost Revenue (Lifetime, NPV)	\$42.08
PCT	0.31	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [(P_{\text{Active_Base}} - P_{\text{Active_ES}}) \cdot H_{\text{Active}} + (P_{\text{Idle_Base}} - P_{\text{Idle_ES}}) \cdot H_{\text{Idle}} + (P_{\text{Sleep_Base}} - P_{\text{Sleep_ES}}) \cdot H_{\text{Sleep}}] / \text{WhperkWh}$$

Value		Description	Value	Units	Reference
P_Active_Base	=	Baseline Active Power	39.16	W	1
P_Idle_Base	=	Baseline Idle Power	33.99	W	2
P_Sleep_Base	=	Baseline Sleep Power	1.80	W	3
H_Active	=	Annual Active Hours	1,580.00	hours	4
H_Idle	=	Annual Idle Hours	730.00	hours	5
H_Sleep	=	Annual Sleep Hours	6,450.00	hours	6
P_Active_ES	=	Baseline Active Power	5.00	W	7
P_Idle_ES	=	Baseline Idle Power	5.00	W	8
P_Sleep_ES	=	Baseline Sleep Power	1.00	W	9
WhperkWh	=	Watt-hours per kilowatt-hour conversion factor	1,000.00	watt-hours/kWh	
	=				
	=				

References

1	Lawrence Berkeley National Laboratory Standby Power Study; http://standby.lbl.gov/summary-table.html
2	Lawrence Berkeley National Laboratory Standby Power Study; http://standby.lbl.gov/summary-table.html
3	Lawrence Berkeley National Laboratory Standby Power Study; http://standby.lbl.gov/summary-table.html
4	Energy Consumption by Consumer Electronics in US Residences. TIAX, LLC. January 2007
5	Energy Consumption by Consumer Electronics in US Residences. TIAX, LLC. January 2007
6	Energy Consumption by Consumer Electronics in US Residences. TIAX, LLC. January 2007
7	ENERGY STAR AV Version 3.0 Program Requirements (Rev Dec-2014)
8	ENERGY STAR AV Version 3.0 Program Requirements (Rev Dec-2014)
9	ENERGY STAR AV Version 3.0 Program Requirements (Rev Dec-2014)



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Imaging Equipment (residential)		
Measure ID	49	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	This include copiers, printers, scanner, all-in-ones, faxes, and mailing devices. Use 40-55% less energy than non-specified models as of 2014		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Computers and Office	Segment(s)	SF, MF, MH
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	ENERGY STAR imaging equipment (copiers, printers, scanners, all-in-ones, faxes, and mailing devices)				
Efficiency Value					
Annual Energy Savings	66	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$238.33		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.04	Electric Avoided Cost (Lifetime, NPV)	\$10.57
RIM	0.30	Electric Lost Revenue (Lifetime, NPV)	\$34.82
PCT	0.15	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh= Esav					

Value		Description	Value	Units	Reference
Esav	=	Average energy savings across all listed devices	66.33	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Office Equipment Calculator, updated October 2016. Savings estimate based on average of kWh savings, using default residential calculator settings.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Monitor (residential)		
Measure ID	50	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Monitor that meets current ENERGY STAR specifications		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	AV/Entertainment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR monitor				
Baseline Value					
Efficiency Description	ENERGY STAR qualified monitor				
Efficiency Value					
Annual Energy Savings	6	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	PA TRM Errata 2017 Appendix A				

Measure Economic Impacts

Incremental Cost	\$15.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.09	Electric Avoided Cost (Lifetime, NPV)	\$1.41
RIM	0.44	Electric Lost Revenue (Lifetime, NPV)	\$3.18
PCT	0.21	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [(P_Active_Base - P_Active_ES) * H_Active + (P_Idle_Base - P_Idle_ES) * H_Idle + (P_Sleep_Base - P_Sleep_ES) * H_Sleep] / WHperkWh$$

Value		Description	Value	Units	Reference
P_Active_Base	=	Baseline Monitor Active Power	27.61	W	1
H_Active	=	Residential Monitor Active Time	1,865.00	Hours	2
P_Idle_Base	=	Baseline Monitor Idle Power	1.38	W	3
H_Idle	=	Residential Monitor Idle Time	875.00	Hours	4
P_Sleep_Base	=	Baseline Monitor Sleep Power	1.13	W	5
H_Sleep	=	Residential Monitor Sleep Time	6,020.00	Hours	6
P_Active_ES	=	Efficient Monitor Active Power	27.61	W	7
P_Idle_ES	=	Efficient Monitor Idle Power	0.31	W	8
P_Sleep_ES	=	Efficient Monitor Sleep Power	0.21	W	9
WhperkWh	=	Watt-hours per kilowatt-hour conversion factor	1,000.00	watt-hours/kWh	
	=				
	=				

References

1	Lawrence Berkeley National Laboratory Standby Power Study
2	2011 IESO Quasi-Prescriptive Measures and Assumptions pg. 68
3	Lawrence Berkeley National Laboratory Standby Power Study
4	2011 IESO Quasi-Prescriptive Measures and Assumptions pg. 68
5	Lawrence Berkeley National Laboratory Standby Power Study
6	2011 IESO Quasi-Prescriptive Measures and Assumptions pg. 68
7	Lawrence Berkeley National Laboratory Standby Power Study (assumed consistent with baseline)
8	ENERGY STAR Certified Displays, Average of All Models
9	ENERGY STAR Certified Displays, Average of All Models



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Room Air Cleaner		
Measure ID	98	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Uses at least 40% less energy		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Miscellaneous Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Air Quality	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency room air cleaner				
Baseline Value					
Efficiency Description	High efficiency room air cleaner meeting ENERGY STAR v.1.2 specification				
Efficiency Value					
Annual Energy Savings	391	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Air Cleaner		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	9	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$116.83		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.99	Electric Avoided Cost (Lifetime, NPV)	\$115.39
RIM	0.35	Electric Lost Revenue (Lifetime, NPV)	\$330.13
PCT	2.83	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = kWhBase - kWhESTAR					

Value		Description	Value	Units	Reference
kWhBase	=	Baseline kWh consumption per year	587.00	kWh/year	1
kWhESTAR	=	ENERGY STAR kWh consumption per year	196.00	kWh/year	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Appliance Savings Calculator updated October, 2016, default value (CADR = 100 CFM). Efficiency based on EPA research on available models, 2011.
2	ENERGY STAR Appliance Savings Calculator updated October, 2016, default value (CADR = 100 CFM). Efficiency based on EPA research on available models, 2011.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Set-Top Boxes		
Measure ID	52	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Includes cable boxes, satellite receivers, Internet access devices, and video game consoles		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	AV/Entertainment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR Set-Top Boxes				
Baseline Value					
Efficiency Description	ENERGY STAR qualified Set-Top Boxes meeting current v5.0 specification				
Efficiency Value					
Annual Energy Savings	185	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Device		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	7	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$116.74		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.54	Electric Avoided Cost (Lifetime, NPV)	\$62.60
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$129.58
PCT	1.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [(\text{PONBASE} - \text{PONEFF}) \times \text{TON} + (\text{PSLEEPBASE} - \text{PSLEEPEFF}) \times \text{TSLEEP}] / \text{WhperkWh} \times 365$$

Value		Description	Value	Units	Reference
PONBASE	=	Baseline Set-Top Receiver Active Power	30.21	W	1
PSLEEPBASE	=	Baseline Set-Top Receiver Sleep Power	24.91	W	2
PONEFF	=	Efficient Set-Top Receiver Active Power	7.96	W	3
PSLEEPEFF	=	Efficient Set-Top Receiver Sleep Power	5.26	W	4
TON	=	Set-Top Receiver Active Time	14.00	Hours	5
TSLEEP	=	Set-Top Receiver Sleep Time	10.00	Hours	6
WhperkWh	=	Watt-hours per kilowatt-hour conversion factor	1,000.00	watt-hours/kWh	
365	=	Days per year	365.00	days/year	
	=				
	=				
	=				
	=				

References

1	Lawrence Berkeley National Laboratory Standby Power Study, http://standby.lbl.gov/summary-table.html , accessed 11/27/17
2	Lawrence Berkeley National Laboratory Standby Power Study, http://standby.lbl.gov/summary-table.html , accessed 11/27/17
3	ENERGY STAR version 5.1 Certified Set-top Boxes Qualified Products List, Accessed 11/27/17, Average of all models available
4	ENERGY STAR version 5.1 Certified Set-top Boxes Qualified Products List, Accessed 11/27/17, Average of all models available
5	ENERGY STAR Set-Top Boxes Final Specification https://www.energystar.gov/products/spec/set_top_box_specification_version_5_0_pdf Version5.1
6	ENERGY STAR Set-Top Boxes Final Specification https://www.energystar.gov/products/spec/set_top_box_specification_version_5_0_pdf Version5.1



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR TV		
Measure ID	54	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Uses 25% less energy than standard		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	AV/Entertainment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing TV meeting ENERGY STAR v6.1 specification				
Baseline Value					
Efficiency Description	ENERGY STAR qualified TV meeting current v7.0 specification				
Efficiency Value					
Annual Energy Savings	51	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	6	Years			
Equipment Life Reference	PA TRM Errata 2017 Appendix A				

Measure Economic Impacts

Incremental Cost	\$270.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.04	Electric Avoided Cost (Lifetime, NPV)	\$11.48
RIM	0.38	Electric Lost Revenue (Lifetime, NPV)	\$29.93
PCT	0.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{Wbase, active} - \text{Wee, active}) / (1000\text{W/kW}) * \text{HOUactive} * 365 \text{ (days/yr)}$$

Value		Description	Value	Units	Reference
Wbase,active	=	power use of baseline TV while on	72.00	Watts	1
Wee, active	=	Power use of ENERGY STAR Version 6.0 or ENERGY STAR	44.00	Watts	2
HOUactive	=	Number of hours per day that a typical TV is on	5.00	hours/day	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	PA TRM, June 2016, Errata Update February 2017,Table 2-99.
2	PA TRM, June 2016, Errata Update February 2017,Table 2-99.
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017,Table 2-98.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Convection Oven		
Measure ID	66	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Heated air is continuously circulated around the food being cooked for more even heat distribution. Temperature and cooking times will decrease.		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Kitchen Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency electric oven				
Baseline Value					
Efficiency Description	High Efficiency Convection Oven				
Efficiency Value					
Annual Energy Savings	96	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,873.89		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.02	Electric Avoided Cost (Lifetime, NPV)	\$44.85
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$94.18
PCT	0.05	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-AP-BAS01	RC-S-E-HP-EC-AP-COK01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,183.00	20,087.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,672.00	1,664.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	5.56	5.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Freezer - ENERGY STAR		
Measure ID	67	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient freezer meeting current ENERGY STAR specifications		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Kitchen Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Refrigerated	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR freezer		
Baseline Value			
Efficiency Description	ENERGY STAR qualified freezer		
Efficiency Value			
Annual Energy Savings	66	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Appliance	Modeled Building Segment	Existing SF Heat Pump
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	11	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$137.14		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.17	Electric Avoided Cost (Lifetime, NPV)	\$22.91
RIM	0.37	Electric Lost Revenue (Lifetime, NPV)	\$61.23
PCT	0.45	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = UEC_base - UEC_efficient					

Value		Description	Value	Units	Reference
UEC_base	=	Baseline unit energy consumption	565.40	kWh	1
UEC_efficient	=	Efficient unit energy consumption	499.80	kWh	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	PA TRM 2014 and Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	PA TRM 2014 and Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Refrigerator - ENERGY STAR (residential)		
Measure ID	69	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient refrigerator meeting current ENERGY STAR specifications		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Kitchen Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Refrigerated	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing non-ENERGY STAR refrigerator				
Baseline Value					
Efficiency Description	ENERGY STAR qualified refrigerator				
Efficiency Value					
Annual Energy Savings	134	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	14	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$20.21		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.71	Electric Avoided Cost (Lifetime, NPV)	\$54.71
RIM	0.35	Electric Lost Revenue (Lifetime, NPV)	\$158.01
PCT	7.82	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = UEC_base - UEC_efficient					

Value		Description	Value	Units	Reference
UEC_base	=	Baseline unit energy consumption	607.12	kWh	1
UEC_efficient	=	Efficient unit energy consumption	473.62	kWh	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	PA TRM 2014 and Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	PA TRM 2014 and Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Refrigerator/Freezer Recycling		
Measure ID	95	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Remove working refrigerator rather than it being stored/used in garage or basement		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Kitchen Appliance	Segment(s)	SF, MF, MH
Measure Sub-Type	Refrigerated	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing secondary refrigerator, still working				
Baseline Value					
Efficiency Description	Refrigerator/Freezer Recycling				
Efficiency Value					
Annual Energy Savings	1,070	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	PA TRM Errata 2017				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	N/A		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$264.55
RIM	0.33	Electric Lost Revenue (Lifetime, NPV)	\$805.70
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = In-Situ UEC * Part-Use Factor (U)					

Value		Description	Value	Units	Reference
In-Situ UEC -	=	Appliance unit energy consumption based on in situ	1,215.50	kWh	1
Part-Use Factor (U)	=	Fraction of the year that appliances would have been in use	0.88	N/A	2
In-Situ UEC -	=	Appliance unit energy consumption based on in situ	1,203.02	kWh	3
Part-Use Factor (U)	=	Fraction of the year that appliances would have been in use	0.84	N/A	4
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
2	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
3	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
4	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Smart strip surge protector (residential)		
Measure ID	102	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Stops or reduces idle current draw when electronics are not in use		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	Small Plug Load	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing conventional power strip				
Baseline Value					
Efficiency Description	Smart strip surge protector				
Efficiency Value					
Annual Energy Savings	54	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Device		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$20.50		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.44	Electric Avoided Cost (Lifetime, NPV)	\$8.99
RIM	0.32	Electric Lost Revenue (Lifetime, NPV)	\$28.48
PCT	1.39	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$kWh = ((kW_comp,idle \times HOU_comp,idle) + (kW_TV,idle \times HOU_TV,idle))/2 \times 365 \times ISR$$

Value		Description	Value	Units	Reference
KW_comp,idle	=	idle kW of computer system	0.01	kW	1
HOU_comp,idle	=	daily hours of computer idle time	20.00	hours	2
KW_TV,idle	=	idle kW of TV system	0.01	kW	3
HOU_TV,idle	=	daily hours of TV idle time	20.00	hours	4
365	=	days per year	365.00	days/year	
ISR	=	In service rate	1.00		
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.5.3, Table 2-104.
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.5.3, Table 2-104.
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.5.3, Table 2-104.
4	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.5.3, Table 2-104.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	TV Occupancy Sensor Power Strip		
Measure ID	116	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduces standby power of residential TVs		
Measure Category	Appliances and Plug Loads	Sector(s)	Residential
Measure Type	Electronics	Segment(s)	SF, MF, MH
Measure Sub-Type	AV/Entertainment	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No control				
Baseline Value					
Efficiency Description	TV Occupancy Sensor Power Strip				
Efficiency Value					
Annual Energy Savings	307	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$65.84		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.72	Electric Avoided Cost (Lifetime, NPV)	\$113.41
RIM	0.31	Electric Lost Revenue (Lifetime, NPV)	\$362.05
PCT	5.50	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{kWh}_{\text{tv}} \times \text{ESF} \times \text{ISR}$$

Value		Description	Value	Units	Reference
kWh_tv	=	Annual energy use of TV system	602.80	kWh	1
ESF	=	Energy savings factor - % of baseline energy	51.00	%	2
ISR	=	In service rate	1.00		3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017,Table 2-104.
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017,Table 2-104.
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017,Table 2-104, default value.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	A/C Filter Replacement/Cleaning		
Measure ID	1	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Can reduce A/C runtime		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	A/C filter replacement/cleaning				
Efficiency Value					
Annual Energy Savings	67	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Housing unit		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	1	Years			
Equipment Life Reference	Standard industry estimate				

Measure Economic Impacts

Incremental Cost	\$21.78		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.18	Electric Avoided Cost (Lifetime, NPV)	\$3.93
RIM	0.49	Electric Lost Revenue (Lifetime, NPV)	\$8.10
PCT	0.37	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-HV-SVC33
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,267.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,675.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.30
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	AC Package Systems, 16 SEER		
Measure ID	2	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient AC Package Systems meeting ENERGY STAR v5.0 specification		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	MF, MH
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard AC meeting current federal efficiency specifications		
Baseline Value	14 SEER		
Efficiency Description	Energy efficient AC Package Systems meeting ENERGY STAR v5.0 specification		
Efficiency Value	16 SEER		
Annual Energy Savings	283	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	3.11		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-tons	Modeled Building Segment	Existing SF Gas Home
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	14	Years	
Equipment Life Reference	PA TRM Errata 2017 Appendix A		

Measure Economic Impacts

Incremental Cost	\$501.75		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.52	Electric Avoided Cost (Lifetime, NPV)	\$259.90
RIM	0.63	Electric Lost Revenue (Lifetime, NPV)	\$413.14
PCT	0.82	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh}_{\text{cool}} = \text{CAPY}_{\text{cool}} / (1000 \text{ W/kW}) \times (1/\text{SEER}_{\text{base}} - 1/\text{SEER}_{\text{eff}}) \times \text{EFLH}_{\text{cool}}$$

Value		Description	Value	Units	Reference
CAPY_cool	=	The cooling capacity of the CAC or HP	38,800.13	btu	1
SEER_base	=	Seasonal Energy Efficiency Ratio baseline unit	14.00	N/A	2
SEER_eff	=	Seasonal Energy Efficiency Ratio EE unit	16.00	N/A	3
EFLH_cool	=	Equivalent Full Load Hours of operation - cooling	816.36	Hours	4
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	US Federal Standard
3	Measure specification
4	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	AC Split Systems, 16 SEER		
Measure ID	5	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient AC Split Systems meeting ENERGY STAR v5.0 specification		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard AC meeting current federal efficiency specifications				
Baseline Value	14 SEER				
Efficiency Description	Energy efficient AC Split Systems meeting ENERGY STAR v5.0 specification				
Efficiency Value	16 SEER				
Annual Energy Savings	283	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Based on Res. single or split package AC Unit, ASHRAE 2011 Life Estimate table.				

Measure Economic Impacts

Incremental Cost	\$376.99		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.73	Electric Avoided Cost (Lifetime, NPV)	\$276.05
RIM	0.64	Electric Lost Revenue (Lifetime, NPV)	\$433.24
PCT	1.15	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh}_{\text{cool}} = \text{CAPY}_{\text{cool}} / (1000 \text{ W/kW}) \times (1/\text{SEER}_{\text{base}} - 1/\text{SEER}_{\text{eff}}) \times \text{EFLH}_{\text{cool}}$$

Value		Description	Value	Units	Reference
CAPY_cool	=	The cooling capacity of the CAC or HP being installed	38,800.13	btu	1
SEER_base	=	Seasonal Energy Efficiency Ratio baseline	14.00	N/A	2
SEER_eff	=	Seasonal Energy Efficiency Ratio EE unit	16.00	N/A	3
EFLH_cool	=	Equivalent Full Load Hours of operation - cooling	816.36	Hours	4
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	US Federal Standard
3	Measure specification
4	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	AC Split Systems 18 SEER		
Measure ID	3	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient central air conditioning system exceeding ENERGY STAR specifications (Tier 2)		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard AC meeting current federal efficiency specifications				
Baseline Value	14 SEER				
Efficiency Description	Energy efficient AC Split Systems meeting CEE Tier II				
Efficiency Value	18 SEER				
Annual Energy Savings	503	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.50	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Based on Res. single or split package AC Unit, ASHRAE 2011 Life Estimate table.				

Measure Economic Impacts

Incremental Cost	\$1,848.06		
Incremental Cost Reference	Itron 2010 - 2012 Measure Cost Study Report, Appendix F		
TRC	0.27	Electric Avoided Cost (Lifetime, NPV)	\$490.44
RIM	0.64	Electric Lost Revenue (Lifetime, NPV)	\$769.88
PCT	0.42	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh}_{\text{cool}} = \text{CAPY}_{\text{cool}} / (1000 \text{ W/kW}) \times (1/\text{SEER}_{\text{base}} - 1/\text{SEER}_{\text{eff}}) \times \text{EFLH}_{\text{cool}}$$

Value		Description	Value	Units	Reference
CAPY_cool	=	The cooling capacity of the CAC or HP being installed	38,800.13	btu	1
SEER_base	=	Seasonal Energy Efficiency Ratio baseline	14.00	N/A	2
SEER_eff	=	Seasonal Energy Efficiency Ratio EE unit	18.00	N/A	3
EFLH_cool	=	Equivalent Full Load Hours of operation - cooling	816.36	Hours	4
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	US Federal Standard
3	Measure specification
4	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	AC Split Systems 21 SEER		
Measure ID	4	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Third tier high efficiency central A/C system; SEER level increased due to evolving codes and standards		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard room AC meeting current federal standard				
Baseline Value	14 SEER				
Efficiency Description	Third tier high efficiency AC split system				
Efficiency Value	21 SEER				
Annual Energy Savings	754	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.70	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Based on Res. single or split package AC Unit, ASHRAE 2011 Life Estimate table.				

Measure Economic Impacts

Incremental Cost	\$2,707.60		
Incremental Cost Reference	Itron 2010 - 2012 Measure Cost Study Report, Appendix F		
TRC	0.27	Electric Avoided Cost (Lifetime, NPV)	\$735.17
RIM	0.64	Electric Lost Revenue (Lifetime, NPV)	\$1,153.21
PCT	0.43	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh}_{\text{cool}} = \text{CAPY}_{\text{cool}} / (1000 \text{ W/kW}) \times (1/\text{SEER}_{\text{base}} - 1/\text{SEER}_{\text{eff}}) \times \text{EFLH}_{\text{cool}}$$

Value		Description	Value	Units	Reference
CAPY_cool	=	The cooling capacity of the CAC or HP being installed	38,800.13	btu	1
SEER_base	=	Seasonal Energy Efficiency Ratio baseline	14.00	N/A	2
SEER_eff	=	Seasonal Energy Efficiency Ratio EE unit	21.00	N/A	3
EFLH_cool	=	Equivalent Full Load Hours of operation - cooling	816.36	Hours	4
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	US Federal Standard
3	Measure specification
4	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Active solar space heating		
Measure ID	6	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Active solar heating systems use solar energy to heat a fluid -- either liquid or air -- and then transfer the solar heat directly to the interior space or to a storage system for later use.		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	New home with standard space heating system				
Baseline Value					
Efficiency Description	New home with active solar heating system				
Efficiency Value					
Annual Energy Savings	713	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	New Const SF Heat	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	1.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$6,677.52		
Incremental Cost Reference	RSMeans cost estimator		
TRC	0.06	Electric Avoided Cost (Lifetime, NPV)	\$379.14
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$666.56
PCT	0.10	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-N-HP-EC-HV-BAS01	RC-S-N-HP-EC-HV-OTH02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	13,331.00	12,618.00
Estimated Summer Peak kW	2.40	2.40
Estimated Winter Peak kW	5.50	4.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,153.00	1,110.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	38.00	38.00
Ceiling R	38.00	38.00
Wall R	20.00	20.00
Floor R	19.00	19.00
Door R	5.00	5.00
Window R	2.86	2.86
Window Coeff	30.00	30.00
Duct Leakage	2.50	2.50
Infiltration (cfm)	88.00	88.00
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	11.80
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,959.17	13,959.17
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Air Source Heat Pump, 18 SEER		
Measure ID	7	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient Air Source Heat Pump exceeding ENERGY STAR specifications (Tier 2)		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	ASHP meeting current federal efficiency specifications				
Baseline Value	14 SEER				
Efficiency Description	Energy efficient ASHP (Tier 2)				
Efficiency Value	18 SEER				
Annual Energy Savings	877	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Based on Res. single or split package AC Unit, ASHRAE 2011 Life Estimate table.				

Measure Economic Impacts

Incremental Cost	\$1,100.10		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.51	Electric Avoided Cost (Lifetime, NPV)	\$564.35
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$1,023.41
PCT	0.93	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh_cool} = \text{CAPY_cool} / (1000 \text{ W/kW}) \times (1/\text{SEER_base} - 1/\text{SEER_eff}) \times \text{EFLH_cool}$$

$$\text{kWh_heat} = \text{CAPY_heat} / (1000 \text{ W/kW}) \times (1/\text{HSPF_base} - 1/\text{HSPF_eff}) \times \text{EFLH_heat}$$

$$\text{kWh_total} = \text{kWh_cool} + \text{kWh_heat}$$

Value		Description	Value	Units	Reference
CAPY_cool	=	The cooling capacity of the CAC or HP	35,825.50	btu	1
CAPY_heat	=	The heating capacity of the CAC or HP being installed	33,973.32	btu	2
SEER_base	=	Seasonal Energy Efficiency Ratio baseline	14.00	N/A	3
SEER_eff	=	Seasonal Energy Efficiency Ratio EE unit	18.00	N/A	4
HSPF_base	=	Heating Seasonal Performance Factor baseline	8.20	N/A	5
HSPF_eff	=	Heating Seasonal Performance Factor EE unit	9.50	N/A	6
EFLH_cool	=	Equivalent Full Load Hours of operation - cooling	816.36	Hours	7
EFLH_heat	=	Equivalent Full Load Hours of operation - heating	728.70	Hours	8
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
2	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
3	US Federal Standard
4	Measure specification
5	US Federal Standard
6	Measure specification
7	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
8	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Air Source Heat Pump, 21 SEER		
Measure ID	8	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Third tier high efficiency central heat pump system		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	ASHP meeting current federal efficiency specifications				
Baseline Value	14 SEER				
Efficiency Description	Third tier high efficiency Air Source Heat Pump				
Efficiency Value	21 SEER				
Annual Energy Savings	1,240	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.50	kW	Winter Peak Demand Savings	0.30	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Based on Res. single or split package AC Unit, ASHRAE 2011 Life Estimate table.				

Measure Economic Impacts

Incremental Cost	\$2,922.56		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.27	Electric Avoided Cost (Lifetime, NPV)	\$797.58
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$1,456.68
PCT	0.50	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh_cool} = \text{CAPY_cool} / (1000 \text{ W/kW}) \times (1/\text{SEER_base} - 1/\text{SEER_eff}) \times \text{EFLH_cool}$$

$$\text{kWh_heat} = \text{CAPY_heat} / (1000 \text{ W/kW}) \times (1/\text{HSPF_base} - 1/\text{HSPF_eff}) \times \text{EFLH_heat}$$

$$\text{kWh_total} = \text{kWh_cool} + \text{kWh_heat}$$

Value		Description	Value	Units	Reference
CAPY_cool	=	The cooling capacity of the CAC or HP	35,825.50	btu	1
CAPY_heat	=	The heating capacity of the CAC or HP being installed	33,973.32	btu	2
SEER_base	=	Seasonal Energy Efficiency Ratio baseline	14.00	N/A	3
SEER_eff	=	Seasonal Energy Efficiency Ratio EE unit	21.00	N/A	4
HSPF_base	=	Heating Seasonal Performance Factor baseline	8.20	N/A	5
HSPF_eff	=	Heating Seasonal Performance Factor EE unit	10.00	N/A	6
EFLH_cool	=	Equivalent Full Load Hours of operation - cooling	816.36	Hours	7
EFLH_heat	=	Equivalent Full Load Hours of operation - heating	728.70	Hours	8
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
2	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
3	US Federal Standard
4	Measure specification
5	US Federal Standard
6	Measure specification
7	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
8	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Air Source Heat Pump Package System, 16 SEER		
Measure ID	9	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient Air Source Heat Pump meeting ENERGY STAR specifications (Tier 1)		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	ASHP meeting current federal efficiency specifications				
Baseline Value	14 SEER				
Efficiency Description	ENERGY STAR ASHP (Tier 1)				
Efficiency Value	16 SEER				
Annual Energy Savings	602	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.40	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$828.82		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.58	Electric Avoided Cost (Lifetime, NPV)	\$481.14
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$809.59
PCT	0.98	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh_cool} = \text{CAPY_cool} / (1000 \text{ W/kW}) \times (1/\text{SEER_base} - 1/\text{SEER_eff}) \times \text{EFLH_cool}$$

$$\text{kWh_heat} = \text{CAPY_heat} / (1000 \text{ W/kW}) \times (1/\text{HSPF_base} - 1/\text{HSPF_eff}) \times \text{EFLH_heat}$$

$$\text{kWh_total} = \text{kWh_cool} + \text{kWh_heat}$$

Value		Description	Value	Units	Reference
CAPY_cool	=	The cooling capacity of the CAC or HP	36,801.44	btu	1
CAPY_heat	=	The heating capacity of the furnace or HP	32,986.81	btu	2
SEER_base	=	Seasonal Energy Efficiency Ratio of the baseline unit	14.00	N/A	3
SEER_eff	=	Seasonal Energy Efficiency Ratio of the EE unit	16.00	N/A	4
HSPF_base	=	Heating Seasonal Performance Factor baseline	8.00	N/A	5
HSPF_eff	=	Heating Seasonal Performance Factor EE unit	9.00	N/A	6
EFLH_cool	=	Equivalent Full Load Hours of operation - cooling	816.36	Hours	7
EFLH_heat	=	Equivalent Full Load Hours of operation - heating	728.70	Hours	8
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
3	US Federal Standard
4	Measure specification
5	US Federal Standard
6	Measure specification
7	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
8	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Air Source Heat Pump Split System, 16 SEER		
Measure ID	10	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient Air Source Heat Pump meeting ENERGY STAR specifications (Tier 1)		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	ASHP meeting current federal efficiency specifications				
Baseline Value	14 SEER				
Efficiency Description	ENERGY STAR ASHP (Tier 1)				
Efficiency Value	16 SEER				
Annual Energy Savings	529	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$979.84		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.41	Electric Avoided Cost (Lifetime, NPV)	\$402.80
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$687.31
PCT	0.70	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh_cool} = \text{CAPY_cool} / (1000 \text{ W/kW}) \times (1/\text{SEER_base} - 1/\text{SEER_eff}) \times \text{EFLH_cool}$$

$$\text{kWh_heat} = \text{CAPY_heat} / (1000 \text{ W/kW}) \times (1/\text{HSPF_base} - 1/\text{HSPF_eff}) \times \text{EFLH_heat}$$

$$\text{kWh_total} = \text{kWh_cool} + \text{kWh_heat}$$

Value		Description	Value	Units	Reference
CAPY_cool	=	The cooling capacity of the CAC or HP	35,825.50	btu	1
CAPY_heat	=	The heating capacity of the CAC or HP being installed	33,973.32	btu	2
SEER_base	=	Seasonal Energy Efficiency Ratio baseline	14.00	N/A	3
SEER_eff	=	Seasonal Energy Efficiency Ratio EE unit	16.00	N/A	4
HSPF_base	=	Heating Seasonal Performance Factor baseline	8.20	N/A	5
HSPF_eff	=	Heating Seasonal Performance Factor EE unit	9.00	N/A	6
EFLH_cool	=	Equivalent Full Load Hours of operation - cooling	816.36	Hours	7
EFLH_heat	=	Equivalent Full Load Hours of operation - heating	728.70	Hours	8
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
2	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.
3	US Federal Standard
4	Measure specification
5	US Federal Standard
6	Measure specification
7	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
8	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Attic Knee Wall - insulation and air sealing		
Measure ID	11	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Apply insulation and air sealing to attic knee walls with attic-side air barrier to reduce heat loss and air movement between conditioned and unconditioned spaces in home		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Attic knee wall - insulation and air sealing				
Efficiency Value					
Annual Energy Savings	582	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.70	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$396.00		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	1.53	Electric Avoided Cost (Lifetime, NPV)	\$606.03
RIM	0.75	Electric Lost Revenue (Lifetime, NPV)	\$805.54
PCT	2.03	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-OTH21
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,752.00
Estimated Summer Peak kW	4.40	4.20
Estimated Winter Peak kW	14.20	13.50
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,635.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	30.00
Ceiling R	19.00	30.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Attic Tent		
Measure ID	12	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Attic stair encapsulation provides thermal resistance for attic access points		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF
Measure Sub-Type	Shell	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Attic Tent				
Efficiency Value					
Annual Energy Savings	90	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Tent		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	25	Years			
Equipment Life Reference	Measure Life Report, GDS Associates, 2007				

Measure Economic Impacts

Incremental Cost	\$122.20		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.80	Electric Avoided Cost (Lifetime, NPV)	\$98.17
RIM	0.76	Electric Lost Revenue (Lifetime, NPV)	\$129.23
PCT	1.06	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-IFR08
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,244.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,675.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.03
Ceiling R	19.00	19.03
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	151.95
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ceiling Insulation R0 - R38		
Measure ID	15	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Updated for 2015 IECC Code; for gas heat in GA, ENERGY STAR website recommends R-22 to R-38		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Insulation	Vintage(s)	Burnout

Measure Savings Impacts

Baseline Description	Uninsulated ceiling				
Baseline Value	R-0				
Efficiency Description	Add insulation to the ceiling				
Efficiency Value	R22- R38				
Annual Energy Savings	4,146	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.60	kW	Winter Peak Demand Savings	0.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,958.00		
Incremental Cost Reference	RSMMeans cost estimator for additional R-value		
TRC	1.88	Electric Avoided Cost (Lifetime, NPV)	\$3,673.32
RIM	0.65	Electric Lost Revenue (Lifetime, NPV)	\$5,643.13
PCT	2.88	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-ATI03	RC-S-E-HP-EC-SH-ATI03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	23,677.00	19,531.00
Estimated Summer Peak kW	4.70	4.10
Estimated Winter Peak kW	14.20	13.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,940.00	1,617.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	5.00	38.00
Ceiling R	5.00	38.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ceiling Insulation R11 - R38		
Measure ID	16	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Updated for 2015 IECC Code; for gas heat in GA, ENERGY STAR website recommends R-22 to R-38		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Insulation	Vintage(s)	Burnout

Measure Savings Impacts

Baseline Description	Existing insulated ceiling				
Baseline Value	R-11				
Efficiency Description	Add insulation to the ceiling				
Efficiency Value	R22-R38				
Annual Energy Savings	1,863	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.60	kW	Winter Peak Demand Savings	0.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,386.00		
Incremental Cost Reference	RSMMeans cost estimator for additional R-value		
TRC	1.34	Electric Avoided Cost (Lifetime, NPV)	\$1,853.93
RIM	0.72	Electric Lost Revenue (Lifetime, NPV)	\$2,569.00
PCT	1.85	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-CEI01	RC-S-E-HP-EC-SH-CEI01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	21,394.00	19,531.00
Estimated Summer Peak kW	4.70	4.10
Estimated Winter Peak kW	14.20	13.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,765.00	1,617.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	11.00	38.00
Ceiling R	11.00	38.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ceiling Insulation R19 - R38		
Measure ID	17	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Updated for 2015 IECC Code; for gas heat in GA, ENERGY STAR website recommends R-22 to R-38		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Insulation	Vintage(s)	Burnout

Measure Savings Impacts

Baseline Description	Existing insulated ceiling				
Baseline Value	R-19				
Efficiency Description	Add insulation to the ceiling				
Efficiency Value	R22-R38				
Annual Energy Savings	803	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$968.00		
Incremental Cost Reference	RSMeans cost estimator for additional R-value		
TRC	0.86	Electric Avoided Cost (Lifetime, NPV)	\$829.45
RIM	0.74	Electric Lost Revenue (Lifetime, NPV)	\$1,114.01
PCT	1.15	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-CEI04
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,531.00
Estimated Summer Peak kW	4.40	4.10
Estimated Winter Peak kW	14.20	13.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,617.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	38.00
Ceiling R	19.00	38.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ceiling Insulation R30 - R38		
Measure ID	18	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Updated for 2015 IECC Code; for gas heat in GA, ENERGY STAR website recommends R-22 to R-38		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing insulated ceiling				
Baseline Value	R-30				
Efficiency Description	Add insulation to the ceiling				
Efficiency Value	R38				
Annual Energy Savings	221	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$814.00		
Incremental Cost Reference	RSMeans cost estimator for additional R-value		
TRC	0.27	Electric Avoided Cost (Lifetime, NPV)	\$223.42
RIM	0.72	Electric Lost Revenue (Lifetime, NPV)	\$308.46
PCT	0.38	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-CEI03	RC-S-E-HP-EC-SH-CEI06
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,752.00	19,531.00
Estimated Summer Peak kW	4.20	4.10
Estimated Winter Peak kW	13.50	13.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,635.00	1,617.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	30.00	38.00
Ceiling R	30.00	38.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ceiling Insulation R38 - R49		
Measure ID	19	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Updated for 2015 IECC Code; for gas heat in GA, ENERGY STAR website recommends R-22 to R-38		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing insulated ceiling				
Baseline Value	R-38				
Efficiency Description	Add insulation to the ceiling				
Efficiency Value	R49				
Annual Energy Savings	191	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$968.00		
Incremental Cost Reference	RSMeans cost estimator for additional R-value		
TRC	0.43	Electric Avoided Cost (Lifetime, NPV)	\$415.59
RIM	0.72	Electric Lost Revenue (Lifetime, NPV)	\$573.38
PCT	0.59	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RC-S-E-HP-EC-SH-CEI06	RC-S-E-HP-EC-SH-CEI05
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,531.00	19,340.00
Estimated Summer Peak kW	4.10	4.00
Estimated Winter Peak kW	13.30	13.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,617.00	1,602.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	38.00	49.00
Ceiling R	38.00	49.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Central A/C / Heat Pump Quality Installation Verification (QIV)		
Measure ID	20	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Quality Installation and Verification (QIV) is a standard developed by the Air Conditioning Contractors of America (ACCA) to ensure quality installation of central air conditioners, heat pumps and furnaces.		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Central A/C / Heat Pump Quality Installation Verification (QIV)				
Efficiency Value					
Annual Energy Savings	183	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Labor hours		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$145.40		
Incremental Cost Reference	RSMeans labor estimate		
TRC	0.49	Electric Avoided Cost (Lifetime, NPV)	\$71.67
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$149.38
PCT	1.03	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS03	RC-S-E-HP-EC-HV-OTH08
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,226.00	19,043.00
Estimated Summer Peak kW	3.70	3.60
Estimated Winter Peak kW	14.00	14.00
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,572.46	1,559.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	12.00
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Dual Fuel Heat Pump Package System, 16 SEER		
Measure ID	30	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Entire heat pump is dual fuel; e.g. no electric resistance backup		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Heat Pump meeting current federal efficiency specifications				
Baseline Value	14 SEER				
Efficiency Description	ENERGY STAR Dual Fuel Heat Pump Package System				
Efficiency Value	16 SEER				
Annual Energy Savings	1,345	kWh	Annual Natural Gas Savings	-50.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	10.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	PA TRM Errata 2017 Appendix A				

Measure Economic Impacts

Incremental Cost	\$2,409.36		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.39	Electric Avoided Cost (Lifetime, NPV)	\$1,112.76
RIM	0.98	Electric Lost Revenue (Lifetime, NPV)	\$1,133.16
PCT	0.40	Other Utility Avoided Cost (Lifetime, NPV)	-\$418.24
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS03	RC-S-E-HP-EC-HV-DHP03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,226.00	17,881.00
Estimated Summer Peak kW	3.70	3.60
Estimated Winter Peak kW	14.00	4.00
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,572.46	1,487.00
Total Therms	0.00	50.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	12.30
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Dual Fuel Heat Pump Split System, 16 SEER		
Measure ID	31	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Entire heat pump is dual fuel; e.g. no electric resistance backup		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Heat Pump meeting current federal efficiency specifications				
Baseline Value	14 SEER				
Efficiency Description	ENERGY STAR Dual Fuel Heat Pump Package System				
Efficiency Value	16 SEER				
Annual Energy Savings	1,544	kWh	Annual Natural Gas Savings	-50.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	10.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,858.23		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.70	Electric Avoided Cost (Lifetime, NPV)	\$1,651.49
RIM	1.05	Electric Lost Revenue (Lifetime, NPV)	\$1,573.69
PCT	0.67	Other Utility Avoided Cost (Lifetime, NPV)	-\$507.25
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS03	RC-S-E-HP-EC-HV-DHP02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,226.00	17,682.00
Estimated Summer Peak kW	3.70	3.50
Estimated Winter Peak kW	14.00	4.00
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,572.46	1,469.00
Total Therms	0.00	50.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	12.80
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Duct design/compact ducts		
Measure ID	32	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Duct system designed with right-sized ducts to maximize efficiency and balance airflow		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Ventilation Systems	Segment(s)	SF, MF, MH
Measure Sub-Type	Ducts	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Typical new home				
Baseline Value					
Efficiency Description	New home with right-sized ducts to maximize efficiency and balance airflow				
Efficiency Value					
Annual Energy Savings	681	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	1.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	18	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$210.79		
Incremental Cost Reference	RSMeans cost estimator		
TRC	2.96	Electric Avoided Cost (Lifetime, NPV)	\$623.90
RIM	0.76	Electric Lost Revenue (Lifetime, NPV)	\$822.66
PCT	3.90	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-DUC04
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,653.00
Estimated Summer Peak kW	4.40	4.20
Estimated Winter Peak kW	14.20	13.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,632.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	1.50
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Duct insulation		
Measure ID	33	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Installing insulation on existing ductwork in home to reduce heating and cooling losses to unconditioned space		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Ventilation Systems	Segment(s)	SF, MF, MH
Measure Sub-Type	Ducts	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing home with leaky duct work				
Baseline Value	R-0				
Efficiency Description	Insulated ductwork throughout home				
Efficiency Value	R-8				
Annual Energy Savings	696	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	1.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	18	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,315.80		
Incremental Cost Reference	RSMeans cost estimator		
TRC	0.49	Electric Avoided Cost (Lifetime, NPV)	\$651.28
RIM	0.75	Electric Lost Revenue (Lifetime, NPV)	\$874.14
PCT	0.66	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-DUC01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,638.00
Estimated Summer Peak kW	4.40	4.20
Estimated Winter Peak kW	14.20	13.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,629.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	25.00
Ceiling R	19.00	25.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	4.00
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Duct Sealing		
Measure ID	34	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Improving HVAC system efficiency through sealing air leaks in ducts throughout unconditioned space in home		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Ventilation Systems	Segment(s)	SF, MF, MH
Measure Sub-Type	Ducts	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing home with leaky duct work				
Baseline Value					
Efficiency Description	Reduced duct leakage in home				
Efficiency Value					
Annual Energy Savings	1,921	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.50	kW	Winter Peak Demand Savings	3.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	18	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$928.87		
Incremental Cost Reference	Regional Technical Forum - Residential: Heating/Cooling - Duct Sealing SF V2.0		
TRC	1.90	Electric Avoided Cost (Lifetime, NPV)	\$1,762.73
RIM	0.76	Electric Lost Revenue (Lifetime, NPV)	\$2,323.25
PCT	2.50	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for duct sealing treatment	1,921.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2010 Residential DSM Programs. Nexant, July 2011.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ECM Motor for HVAC equip (A/C, HP, & furnace)		
Measure ID	36	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ECM motors can save over 60% of electricity used by standard motors		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard motor for HVAC equip(A/C,HP, & furnace)				
Baseline Value					
Efficiency Description	ECM Motor for HVAC equip (A/C, HP, & furnace)				
Efficiency Value					
Annual Energy Savings	183	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Motor		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$48.18		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.19	Electric Avoided Cost (Lifetime, NPV)	\$105.43
RIM	0.53	Electric Lost Revenue (Lifetime, NPV)	\$199.12
PCT	4.13	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS03	RC-S-E-HP-EC-HV-OTH03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,226.00	19,043.00
Estimated Summer Peak kW	3.70	3.60
Estimated Winter Peak kW	14.00	14.00
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,572.46	1,559.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	12.00
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR glass door		
Measure ID	46	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient glass door meeting current ENERGY STAR specifications		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Doors	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard door				
Baseline Value					
Efficiency Description	high efficiency glass door meeting current ENERGY STAR specification				
Efficiency Value					
Annual Energy Savings	270	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Door		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$273.92		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.90	Electric Avoided Cost (Lifetime, NPV)	\$245.87
RIM	0.74	Electric Lost Revenue (Lifetime, NPV)	\$332.50
PCT	1.21	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS07	RC-S-E-HP-EC-SH-DOR03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,458.00	20,188.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,689.00	1,671.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	4.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	146.67
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Reflective Roof Products		
Measure ID	51	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Can reduce peak cooling demand by 15-20%		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Shell	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard roof products				
Baseline Value					
Efficiency Description	ENERGY STAR Reflective Roof Products				
Efficiency Value					
Annual Energy Savings	306	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.50	kW	Winter Peak Demand Savings	0.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$726.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.77	Electric Avoided Cost (Lifetime, NPV)	\$561.12
RIM	1.68	Electric Lost Revenue (Lifetime, NPV)	\$334.22
PCT	0.46	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-RRP01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,028.00
Estimated Summer Peak kW	4.40	3.90
Estimated Winter Peak kW	14.20	13.90
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,659.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR skylight		
Measure ID	53	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install skylight or tubular skylight that meets current ENERGY STAR specifications		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard skylight				
Baseline Value					
Efficiency Description	high efficiency skylight meeting current ENERGY STAR v6.0 specification				
Efficiency Value					
Annual Energy Savings	158	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Skylight		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$119.32		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.12	Electric Avoided Cost (Lifetime, NPV)	\$134.22
RIM	0.75	Electric Lost Revenue (Lifetime, NPV)	\$179.33
PCT	1.50	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS09	RC-S-E-HP-EC-SH-SKY01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,176.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,672.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	2.50
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Thermal Door		
Measure ID	112	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Insulated wooden door - core filled with either fiberglass or rigid foam insulation		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Doors	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard door				
Baseline Value					
Efficiency Description	ENERGY STAR thermal door				
Efficiency Value					
Annual Energy Savings	88	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Door		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$232.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.32	Electric Avoided Cost (Lifetime, NPV)	\$73.63
RIM	0.71	Electric Lost Revenue (Lifetime, NPV)	\$103.34
PCT	0.45	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-TDR01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,246.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,676.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	4.83
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Windows (U=.30 SHGC=.25)		
Measure ID	56	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient windows meeting ENERGY STAR specifications (spec. updated 2016)		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard windows				
Baseline Value					
Efficiency Description	high efficiency windows meeting current ENERGY STAR v6.0 specification				
Efficiency Value					
Annual Energy Savings	837	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	20.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Windows		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$520.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.46	Electric Avoided Cost (Lifetime, NPV)	\$761.18
RIM	0.62	Electric Lost Revenue (Lifetime, NPV)	\$1,218.78
PCT	2.34	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-WIN05
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,497.00
Estimated Summer Peak kW	4.40	4.10
Estimated Winter Peak kW	14.20	13.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,610.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	2.85
Window Coeff	50.00	30.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Floor Insulation R0 - R19		
Measure ID	57	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Add floor insulation		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value	R11 or R13 (depending on north or south)				
Efficiency Description	high efficiency floor insulation				
Efficiency Value	R13 or R25 (depending north or south)				
Annual Energy Savings	4,283	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.60	kW	Winter Peak Demand Savings	3.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,782.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.89	Electric Avoided Cost (Lifetime, NPV)	\$3,374.08
RIM	0.67	Electric Lost Revenue (Lifetime, NPV)	\$5,039.72
PCT	2.83	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-FLI01	RC-S-E-HP-EC-SH-FLI01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	21,930.00	17,647.00
Estimated Summer Peak kW	4.60	4.00
Estimated Winter Peak kW	14.20	10.60
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,783.00	1,510.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	2.84	19.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Foundation/Slab Insulation		
Measure ID	58	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Proper insulation installed on concrete slab foundation to reduce heat loss and improve home comfort		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Uninsulated concrete slab				
Baseline Value	R-0				
Efficiency Description	Proper insulation installed on concrete slab foundation to reduce heat loss and improve home comfort				
Efficiency Value	R-10				
Annual Energy Savings	1,194	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	1.50	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,320.00		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.73	Electric Avoided Cost (Lifetime, NPV)	\$969.87
RIM	0.69	Electric Lost Revenue (Lifetime, NPV)	\$1,404.65
PCT	1.06	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-FLI02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,140.00
Estimated Summer Peak kW	4.40	4.20
Estimated Winter Peak kW	14.20	12.70
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,606.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	6.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Geothermal Heat Pump, Closed Loop 3.6 COP/17.1 EER ENERGY STAR		
Measure ID	59	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ENERGY STAR Spec has evolved to Tier 3 since 2012.		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency HP				
Baseline Value	Existing non-ENERGY STAR Geothermal Heat Pump				
Efficiency Description	ENERGY STAR qualified Geothermal Heat Pump meeting Tier 3 specification				
Efficiency Value	17.1 EER and 3.6 COP for closed loop water to air systems				
Annual Energy Savings	4,850	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	1.30	kW	Winter Peak Demand Savings	9.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	22	Years			
Equipment Life Reference	Nexant market research, 2017				

Measure Economic Impacts

Incremental Cost	\$22,480.47		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.21	Electric Avoided Cost (Lifetime, NPV)	\$4,798.42
RIM	0.71	Electric Lost Revenue (Lifetime, NPV)	\$6,765.07
PCT	0.30	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS03	RC-S-E-HP-EC-HV-GHP01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,226.00	14,376.00
Estimated Summer Peak kW	3.70	2.40
Estimated Winter Peak kW	14.00	4.70
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,572.46	1,209.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	0.00
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.00
HVAC SEER	11.80	0.00
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	0.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Geothermal Heat Pump, DX 3.6 COP/16 SEER ENERGY STAR		
Measure ID	60	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ENERGY STAR high efficiency Geothermal Heat Pump		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency HP				
Baseline Value	Existing non-ENERGY STAR Geothermal Heat Pump				
Efficiency Description	ENERGY STAR qualified Geothermal Heat Pump meeting requirements effected in 2012				
Efficiency Value	2012 DGX requirement:				
Annual Energy Savings	4,742	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	1.20	kW	Winter Peak Demand Savings	9.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	22	Years			
Equipment Life Reference	Nexant market research, 2017				

Measure Economic Impacts

Incremental Cost	\$20,260.47		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.23	Electric Avoided Cost (Lifetime, NPV)	\$4,677.45
RIM	0.71	Electric Lost Revenue (Lifetime, NPV)	\$6,556.48
PCT	0.32	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS03	RC-S-E-HP-EC-HV-GHP02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,226.00	14,484.00
Estimated Summer Peak kW	3.70	2.50
Estimated Winter Peak kW	14.00	4.70
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,572.46	1,222.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	0.00
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.00
HVAC SEER	11.80	0.00
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	0.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Geothermal Heat Pump, Open Loop 4.1 COP/21.1 EER ENERGY STAR		
Measure ID	61	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ENERGY STAR high efficiency Geothermal Heat Pump		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency HP		
Baseline Value	Existing non-ENERGY STAR Geothermal Heat Pump		
Efficiency Description	ENERGY STAR qualified Geothermal Heat Pump meeting requirements effected in 2012		
Efficiency Value	Open Loop water to air specification is 21.1 EER/ 4.1 COP		
Annual Energy Savings	5,578	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	2.97		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-tons	Modeled Building Segment	Existing SF Heat Pump
Summer Peak Demand Savings	1.60	kW	Winter Peak Demand Savings 10.10 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	22	Years	
Equipment Life Reference	Nexant market research, 2017		

Measure Economic Impacts

Incremental Cost	\$19,048.07		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.29	Electric Avoided Cost (Lifetime, NPV)	\$5,456.60
RIM	0.70	Electric Lost Revenue (Lifetime, NPV)	\$7,846.97
PCT	0.41	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS03	RC-S-E-HP-EC-HV-GHP03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,226.00	13,648.00
Estimated Summer Peak kW	3.70	2.10
Estimated Winter Peak kW	14.00	3.90
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,572.46	1,150.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	0.00
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	2.97
HVAC SEER	11.80	0.00
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	0.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Performance Windows (U=.22 SHGC=.20, low-e)		
Measure ID	70	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Low Solar Gain, Exceeding ENERGY STAR, suitable for warm climate		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard windows				
Baseline Value					
Efficiency Description	high efficiency windows exceeding ENERGY STAR				
Efficiency Value					
Annual Energy Savings	892	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	20.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Windows		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	1.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$6,220.80		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.13	Electric Avoided Cost (Lifetime, NPV)	\$803.71
RIM	0.63	Electric Lost Revenue (Lifetime, NPV)	\$1,283.81
PCT	0.21	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-WIN02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,442.00
Estimated Summer Peak kW	4.40	4.10
Estimated Winter Peak kW	14.20	13.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,607.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	3.12
Window Coeff	50.00	30.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Highly Insulating Windows (R5+)		
Measure ID	71	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Windows which have U-values of <0.2		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard windows				
Baseline Value					
Efficiency Description	Highly Insulating Windows (R5+)				
Efficiency Value					
Annual Energy Savings	981	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	20.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Windows		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	1.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$4,784.60		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.17	Electric Avoided Cost (Lifetime, NPV)	\$791.81
RIM	0.69	Electric Lost Revenue (Lifetime, NPV)	\$1,153.28
PCT	0.24	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-WIN07
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,353.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	12.90
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,619.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	5.00
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Home Energy Management System		
Measure ID	72	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Central control system installed in home to control multiple end-use systems (typically HVAC, lighting, etc.)		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	System Control and Management	Segment(s)	SF, MF, MH
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Install Home Energy Management System				
Efficiency Value					
Annual Energy Savings	407	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$351.00		
Incremental Cost Reference	Illinois 2015 Statewide TRM		
TRC	0.43	Electric Avoided Cost (Lifetime, NPV)	\$149.42
RIM	0.38	Electric Lost Revenue (Lifetime, NPV)	\$394.46
PCT	1.12	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-OTH09
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,927.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	14.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,647.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	HVAC Diagnostics and Servicing Heat Pump		
Measure ID	75	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Same as ID# 60 but for Heat Pump systems		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	HVAC Diagnostics and Servicing Heat Pump				
Efficiency Value					
Annual Energy Savings	1,193	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Labor hours		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.70	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$284.05		
Incremental Cost Reference	Illinois 2015 Statewide TRM		
TRC	2.27	Electric Avoided Cost (Lifetime, NPV)	\$645.06
RIM	0.56	Electric Lost Revenue (Lifetime, NPV)	\$1,156.13
PCT	4.07	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS05	RC-S-E-HP-EC-HV-OTH06
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	21,527.00	20,334.00
Estimated Summer Peak kW	5.10	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,791.00	1,682.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	7.70	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	30,205.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	HVAC Diagnostics and Servicing		
Measure ID	74	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	HVAC maintenance on existing HVAC system to optimize unit efficiency		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing HVAC system				
Baseline Value					
Efficiency Description	HVAC maintenance				
Efficiency Value					
Annual Energy Savings	717	kWh	Annual Natural Gas Savings	134.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Service		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.70	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$284.05		
Incremental Cost Reference	Illinois 2015 Statewide TRM		
TRC	5.03	Electric Avoided Cost (Lifetime, NPV)	\$482.90
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$824.92
PCT	6.24	Other Utility Avoided Cost (Lifetime, NPV)	\$946.56
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-HV-BAS04	RC-S-E-GH-EC-HV-SVC01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	11,493.00	10,776.00
Estimated Summer Peak kW	4.90	4.20
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,130.00	1,048.00
Total Therms	937.00	803.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	7.70	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Infiltration Reduction Air Sealing (residential)		
Measure ID	76	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduces the amount of air leaking in and out of a home through identifying and sealing cracks and openings		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Ventilation Systems	Segment(s)	SF, MF, MH
Measure Sub-Type	Infiltration	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Typical existing home infiltration rate				
Baseline Value					
Efficiency Description	Reduce infiltration rate				
Efficiency Value					
Annual Energy Savings	3,037	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.80	kW	Winter Peak Demand Savings	5.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$716.00		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	2.15	Electric Avoided Cost (Lifetime, NPV)	\$1,541.65
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$2,614.40
PCT	3.65	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for air sealing treatment	3,037.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2010 Residential DSM Programs. Nexant, July 2011.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Programmable Thermostat		
Measure ID	91	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Thermostat that can be programmed to adjust cooling and heating set points at different times		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	System Control and Management	Segment(s)	SF, MF, MH
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard manual thermostat				
Baseline Value					
Efficiency Description	Programmable Thermostat				
Efficiency Value					
Annual Energy Savings	529	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Thermostat		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	5.90	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$18.57		
Incremental Cost Reference	Nexant market research, 2017		
TRC	14.34	Electric Avoided Cost (Lifetime, NPV)	\$266.21
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$565.09
PCT	30.43	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for programmable thermostat	528.50	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Radiant Barrier		
Measure ID	92	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Highly reflective material that reflects radiant heat		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Shell	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Radiant Barrier				
Efficiency Value					
Annual Energy Savings	325	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,034.00		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.33	Electric Avoided Cost (Lifetime, NPV)	\$341.16
RIM	0.76	Electric Lost Revenue (Lifetime, NPV)	\$449.15
PCT	0.43	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-RAD01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,009.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	14.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,656.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	24.00
Ceiling R	19.00	24.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	RIM Joists Insulation		
Measure ID	96	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Insulating and air sealing RIM joists to minimize heat loss and air leaks		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Uninsulated Rim Joints				
Baseline Value	R-0				
Efficiency Description	Insulating and air sealing RIM joists to minimize heat loss and air leaks				
Efficiency Value	Minimum R-10 continuous insulation, or R-13 cavity insulation				
Annual Energy Savings	357	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	132.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.40	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$658.68		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.45	Electric Avoided Cost (Lifetime, NPV)	\$297.30
RIM	0.71	Electric Lost Revenue (Lifetime, NPV)	\$419.52
PCT	0.64	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-RIM01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,977.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	13.80
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,659.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.43
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Room AC Recycling		
Measure ID	97	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Removed working Room AC		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Air Conditioner	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard room AC meeting current federal standard				
Baseline Value					
Efficiency Description	Room AC Recycling				
Efficiency Value					
Annual Energy Savings	304	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Service		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	4	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$129.00		
Incremental Cost Reference	Delaware TRM, 2012		
TRC	0.57	Electric Avoided Cost (Lifetime, NPV)	\$73.52
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$159.44
PCT	1.24	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-HV-BAS06	RC-S-E-GH-EC-HV-RAC01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	11,293.00	10,989.00
Estimated Summer Peak kW	4.60	4.30
Estimated Winter Peak kW	1.40	1.40
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,093.00	1,058.00
Total Therms	784.00	784.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	5.26	5.26
HVAC SEER	9.20	10.00
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Room Air Conditioners ENERGY STAR - Reverse Cycle/Heat Pump		
Measure ID	99	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Same as Room Air conditioner with the additional feature of reverse cycle for heating.		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard room AC meeting current federal standard and electric resistance heating				
Baseline Value	Varies based on unit size				
Efficiency Description	Room Air Conditioners - Reverse Cycle/Heat Pump meeting current ENERGY STAR specification				
Efficiency Value	Varies based on unit size				
Annual Energy Savings	8,635	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	-1.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	9	Years			
Equipment Life Reference	PA TRM Errata 2017 Appendix A				

Measure Economic Impacts

Incremental Cost	\$1,663.42		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.28	Electric Avoided Cost (Lifetime, NPV)	\$2,128.55
RIM	0.38	Electric Lost Revenue (Lifetime, NPV)	\$5,570.04
PCT	3.35	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-EF-EC-HV-BAS02	RC-S-E-HP-EC-HV-RAC02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	28,431.00	19,796.00
Estimated Summer Peak kW	3.90	3.90
Estimated Winter Peak kW	12.30	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	2,132.00	1,620.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	10.80	10.80
Heating Fuel	Electric	Electric
Heating BTU/kW	34,130.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Room/PTAC AC ENERGY STAR (residential)		
Measure ID	100	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ENERGY STAR level is 10% greater than federal standard		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard room AC meeting current federal standard				
Baseline Value	Varies based on unit size				
Efficiency Description	ENERGY STAR qualified Room/PTAC				
Efficiency Value	Varies based on unit size				
Annual Energy Savings	158	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	9	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$217.70		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.67	Electric Avoided Cost (Lifetime, NPV)	\$145.20
RIM	0.63	Electric Lost Revenue (Lifetime, NPV)	\$230.81
PCT	1.06	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-HV-BAS01	RC-S-E-GH-EC-HV-CAC07
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	9,979.00	9,821.00
Estimated Summer Peak kW	3.50	3.40
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	957.00	939.00
Total Therms	788.00	788.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	12.50
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Sealed Crawlspace Encapsulation		
Measure ID	101	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduces humidity, extends HVAC equipment life, and reduces temperatures in crawlspace		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF
Measure Sub-Type	Shell	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value	R-0				
Efficiency Description	Sealed Crawlspace Encapsulation				
Efficiency Value	Minimum R-10 continuous insulation, or R-13 cavity insulation				
Annual Energy Savings	2,755	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.50	kW	Winter Peak Demand Savings	3.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	Based on other air sealing measures				

Measure Economic Impacts

Incremental Cost	\$968.00		
Incremental Cost Reference	RSMeans cost estimator		
TRC	1.32	Electric Avoided Cost (Lifetime, NPV)	\$1,274.58
RIM	0.58	Electric Lost Revenue (Lifetime, NPV)	\$2,186.73
PCT	2.26	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS99	RC-S-E-HP-EC-SH-SCS01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,728.00	17,973.00
Estimated Summer Peak kW	4.70	4.20
Estimated Winter Peak kW	14.20	10.60
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,722.00	1,545.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	19.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	8.50	8.50
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Smart, Wi-Fi-Enabled Thermostat (residential)		
Measure ID	103	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Includes built-in occupancy sensors, Wi-Fi/Remote Control, Demand Response capabilities, and Auxiliary Heat Optimization; features of market products still evolving		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	System Control and Management	Segment(s)	SF, MF, MH
Measure Sub-Type	Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard manual thermostat				
Baseline Value					
Efficiency Description	Smart, Wi-Fi-Enabled Thermostat meeting current ENERGY STAR V1.0 specification				
Efficiency Value					
Annual Energy Savings	424	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Thermostat		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	4.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	Pennsylvania PUC, EE Potential Study, Final Report, 2015, Appendix D				

Measure Economic Impacts

Incremental Cost	\$136.90		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.22	Electric Avoided Cost (Lifetime, NPV)	\$166.51
RIM	0.37	Electric Lost Revenue (Lifetime, NPV)	\$452.22
PCT	3.30	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for smart thermostat	423.98	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Solar Attic Vent		
Measure ID	104	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install solar-powered attic fan to exhaust warm, humid air in attic		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Shell	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard attic fan				
Baseline Value					
Efficiency Description	Solar-powered attic fan				
Efficiency Value					
Annual Energy Savings	122	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	25	Years			
Equipment Life Reference	Nexant market research, 2017				

Measure Economic Impacts

Incremental Cost	\$289.84		
Incremental Cost Reference	FSEC, "Performance Assessment of Photovoltaic Attic Ventilator Fans". May, 2000.		
TRC	0.63	Electric Avoided Cost (Lifetime, NPV)	\$182.94
RIM	0.70	Electric Lost Revenue (Lifetime, NPV)	\$261.82
PCT	0.90	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS11	RC-S-E-HP-EC-SH-VFN02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,456.00	20,334.00
Estimated Summer Peak kW	4.50	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,696.00	1,682.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Spray-in foam insulation		
Measure ID	107	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Major Remodel or New Construction, lowers infiltration and increase the R-value.		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Typical insulation for existing home				
Baseline Value	R-19				
Efficiency Description	Spray-in foam insulation				
Efficiency Value	R-45, eliminate duct leakage				
Annual Energy Savings	1,745	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.60	kW	Winter Peak Demand Savings	2.50	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,586.00		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.49	Electric Avoided Cost (Lifetime, NPV)	\$1,770.03
RIM	0.76	Electric Lost Revenue (Lifetime, NPV)	\$2,337.75
PCT	0.65	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-OTH02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	18,589.00
Estimated Summer Peak kW	4.40	3.80
Estimated Winter Peak kW	14.20	11.70
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,548.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	45.00
Ceiling R	19.00	45.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	0.00
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Storm Door		
Measure ID	109	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Effective measure for wooden doors		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Doors	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard door				
Baseline Value					
Efficiency Description	Install storm door				
Efficiency Value					
Annual Energy Savings	410	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Door		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.70	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$60.96		
Incremental Cost Reference	Nexant market research, 2017		
TRC	6.09	Electric Avoided Cost (Lifetime, NPV)	\$370.97
RIM	0.72	Electric Lost Revenue (Lifetime, NPV)	\$515.96
PCT	8.46	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-DOR02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,924.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	13.50
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,653.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	3.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	132.00
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Storm Windows (single pane base)		
Measure ID	110	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install storm windows on existing single-pane windows to reduce air movement in and out of existing windows.		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Single pane windows				
Baseline Value					
Efficiency Description	Storm Windows (single pane base)				
Efficiency Value					
Annual Energy Savings	1,411	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	20.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Windows		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	2.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,849.40		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.66	Electric Avoided Cost (Lifetime, NPV)	\$1,225.37
RIM	0.70	Electric Lost Revenue (Lifetime, NPV)	\$1,760.33
PCT	0.95	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-WIN06
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	18,923.00
Estimated Summer Peak kW	4.40	4.10
Estimated Winter Peak kW	14.20	12.00
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,584.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	2.00
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	88.00
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Variable Refrigerant Flow Heat Pump (residential)		
Measure ID	117	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Used to cool and heat homes where there is no existing ductwork. Dual-zone or triple-zone systems have two or three indoor units attached to one outdoor unit to cool large homes, Four zone VRV heat pump 3 ton, 15 SEER		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Cooling and Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Heat Pump				
Baseline Value	14 SEER				
Efficiency Description	Variable Refrigerant Flow Heat Pump				
Efficiency Value	Four zone VRV heat pump 3 ton, 15 SEER				
Annual Energy Savings	1,008	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	3.11		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-tons		Modeled Building Segment	New Const SF Heat	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,772.70		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.21	Electric Avoided Cost (Lifetime, NPV)	\$378.68
RIM	0.38	Electric Lost Revenue (Lifetime, NPV)	\$990.60
PCT	0.56	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Weighted Average of Verified energy savings for VRF heat	1,008.43	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Wall Insulation R0 - R20		
Measure ID	118	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Current code		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF
Measure Sub-Type	Insulation	Vintage(s)	Burnout

Measure Savings Impacts

Baseline Description					
Baseline Value	R-0				
Efficiency Description	Current code				
Efficiency Value	R-20				
Annual Energy Savings	3,477	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,812.00		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.88	Electric Avoided Cost (Lifetime, NPV)	\$2,487.67
RIM	0.61	Electric Lost Revenue (Lifetime, NPV)	\$4,067.35
PCT	1.45	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-WLI02	RC-S-E-HP-EC-SH-WLI02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	23,137.00	19,660.00
Estimated Summer Peak kW	4.60	4.30
Estimated Winter Peak kW	14.20	13.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,858.00	1,639.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	4.00	20.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Wall Insulation R16 - R20		
Measure ID	119	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	2012 IECC Residential Code		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value	R-16				
Efficiency Description	2012 IECC Residential Code				
Efficiency Value	R-20				
Annual Energy Savings	205	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$596.60		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.27	Electric Avoided Cost (Lifetime, NPV)	\$161.57
RIM	0.67	Electric Lost Revenue (Lifetime, NPV)	\$240.90
PCT	0.40	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-WLI03	RC-S-E-HP-EC-SH-WLI03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	19,865.00	19,660.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	13.60	13.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,652.00	1,639.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	16.00	20.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Weatherization Measures kit		
Measure ID	125	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Provide customers kits containing weather stripping, door sweeps, caulk, foam sealant, and clear patch tape		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Ventilation Systems	Segment(s)	SF, MF, MH
Measure Sub-Type	Infiltration	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Weatherization Measures kit				
Efficiency Value					
Annual Energy Savings	1,160	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Kit		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	1.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$80.79		
Incremental Cost Reference	Nexant market research, 2017		
TRC	7.30	Electric Avoided Cost (Lifetime, NPV)	\$589.48
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$1,001.20
PCT	12.39	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-IFR03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,174.00
Estimated Summer Peak kW	4.40	4.10
Estimated Winter Peak kW	14.20	12.30
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,598.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	73.33
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Window and Wall A/C winterization kit		
Measure ID	126	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install winterization kits for low-income customers		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Ventilation Systems	Segment(s)	SF, MF, MH
Measure Sub-Type	Infiltration	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Install winterization kits for low-income customers				
Efficiency Value					
Annual Energy Savings	359	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Kit		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$80.79		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.29	Electric Avoided Cost (Lifetime, NPV)	\$185.32
RIM	0.60	Electric Lost Revenue (Lifetime, NPV)	\$306.91
PCT	3.80	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-IFR02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,975.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	13.60
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,656.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	132.00
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Window Film (residential)		
Measure ID	127	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Apply window film to existing windows to reduce heat loss in winter and solar heat gain in summer		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard windows				
Baseline Value					
Efficiency Description	Apply window film to existing windows				
Efficiency Value					
Annual Energy Savings	97	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	20.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Windows		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$450.60		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.21	Electric Avoided Cost (Lifetime, NPV)	\$95.84
RIM	0.43	Electric Lost Revenue (Lifetime, NPV)	\$220.81
PCT	0.49	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-WIN03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,237.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,657.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	30.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Window Sun Screens		
Measure ID	128	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Made from fabric and installed on the exterior window can absorb 65 to 70 percent of the solar heat		
Measure Category	HVAC	Sector(s)	Residential
Measure Type	Shell/Envelope	Segment(s)	SF, MF, MH
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Install window sun screens				
Efficiency Value					
Annual Energy Savings	97	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,342.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.07	Electric Avoided Cost (Lifetime, NPV)	\$95.84
RIM	0.43	Electric Lost Revenue (Lifetime, NPV)	\$220.81
PCT	0.16	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-WIN77
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,237.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,657.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	30.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ceramic Metal Halide (residential)		
Measure ID	21	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Replacing incandescent, halogen, or halogen infrared fixtures		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing incandescent, halogen, or halogen infrared fixtures				
Baseline Value					
Efficiency Description	Ceramic Metal Halide				
Efficiency Value					
Annual Energy Savings	52	kWh	Annual Natural Gas Savings	-15.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixture		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$7.41		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.02	Electric Avoided Cost (Lifetime, NPV)	\$2.69
RIM	0.04	Electric Lost Revenue (Lifetime, NPV)	\$68.44
PCT	0.41	Other Utility Avoided Cost (Lifetime, NPV)	-\$159.07
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS01	RC-S-E-GH-EC-LI-CMH01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,850.00	10,798.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,055.00	1,050.00
Total Therms	926.00	941.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Energy efficiency kits (LEDs, furnace whistles)		
Measure ID	38	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Kit with various energy efficient devices to give away		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Lamps	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Kit with various energy efficient devices to give away				
Efficiency Value					
Annual Energy Savings	599	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Kit		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$39.93		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.68	Electric Avoided Cost (Lifetime, NPV)	\$106.85
RIM	0.34	Electric Lost Revenue (Lifetime, NPV)	\$317.92
PCT	7.96	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-SH-OTH07
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,735.00
Estimated Summer Peak kW	4.40	4.30
Estimated Winter Peak kW	14.20	14.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,628.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.30
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Decorative Light Strings		
Measure ID	44	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Primarily LEDs - save 75% over incandescent lights		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard incandescent decorative light strings				
Baseline Value					
Efficiency Description	LED decorative light strings				
Efficiency Value					
Annual Energy Savings	56	kWh	Annual Natural Gas Savings	-3.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixture		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3.28		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.65	Electric Avoided Cost (Lifetime, NPV)	\$15.21
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$42.46
PCT	1.82	Other Utility Avoided Cost (Lifetime, NPV)	-\$20.08
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS05	RC-S-E-GH-EC-LI-DEC01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,832.00	10,776.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,051.00	1,048.00
Total Therms	939.00	942.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	HID Fixtures - pulse start (residential)		
Measure ID	65	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Includes metal halide and high-pressure sodium replacing incandescent or mercury vapor fixtures		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing incandescent or mercury vapor fixtures				
Baseline Value	Wattage varies				
Efficiency Description	HID Fixtures - pulse start				
Efficiency Value	Wattage varies				
Annual Energy Savings	256	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixture		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$119.25		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.93	Electric Avoided Cost (Lifetime, NPV)	\$110.97
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$306.10
PCT	2.57	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS04	RC-S-E-GH-EC-LI-OUT05
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	11,146.00	10,890.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,079.00	1,057.00
Total Therms	942.00	942.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED Hard-Wired Fixture, Exterior (residential)		
Measure ID	79	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	LED fixture; EISA-compliant baseline		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	EISA Compliant Halogen Lamps				
Baseline Value	Wattage varies				
Efficiency Description	LED Hard-Wired Fixture, Exterior				
Efficiency Value	Wattage varies				
Annual Energy Savings	318	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixture		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	PA TRM Errata 2017				

Measure Economic Impacts

Incremental Cost	\$72.23		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.90	Electric Avoided Cost (Lifetime, NPV)	\$137.58
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$380.14
PCT	5.26	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS04	RC-S-E-GH-EC-LI-LED05
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	11,146.00	10,828.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,079.00	1,052.00
Total Therms	942.00	942.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED Hard-Wired Fixture, Interior (residential)		
Measure ID	80	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	LED fixture; EISA-compliant baseline		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	EISA Compliant Halogen Lamps				
Baseline Value	Wattage varies				
Efficiency Description	LED Hard-Wired Fixture, Interior				
Efficiency Value	Wattage varies				
Annual Energy Savings	123	kWh	Annual Natural Gas Savings	-3.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixture		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	PA TRM Errata 2017				

Measure Economic Impacts

Incremental Cost	\$49.99		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.08	Electric Avoided Cost (Lifetime, NPV)	\$81.92
RIM	0.53	Electric Lost Revenue (Lifetime, NPV)	\$153.53
PCT	2.02	Other Utility Avoided Cost (Lifetime, NPV)	-\$26.13
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS12	RC-S-E-GH-EC-LI-LED04
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,914.00	10,791.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,060.00	1,049.00
Total Therms	939.00	942.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED replacement for incandescent bulbs (residential)		
Measure ID	81	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	LED lamps		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	EISA-compliant lamp				
Baseline Value	60W equivalent (approx. 43W)				
Efficiency Description	LED lamps				
Efficiency Value	Approx 9W-11W				
Annual Energy Savings	33	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamp		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1.65		
Incremental Cost Reference	Nexant market research, 2019		
TRC	8.68	Electric Avoided Cost (Lifetime, NPV)	\$14.33
RIM	0.35	Electric Lost Revenue (Lifetime, NPV)	\$41.45
PCT	25.12	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for LED standard lamps	32.93	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED replacement for incandescent bulbs, Exterior (residential)		
Measure ID	82	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	LED lamp; EISA-compliant baseline		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	EISA-2020 Compliant Incandescent Lamp				
Baseline Value					
Efficiency Description	LED replacement for incandescent bulbs, Exterior				
Efficiency Value					
Annual Energy Savings	318	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	4.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamp		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	PA TRM Errata 2017				

Measure Economic Impacts

Incremental Cost	\$6.08		
Incremental Cost Reference	Nexant market research, 2017		
TRC	22.63	Electric Avoided Cost (Lifetime, NPV)	\$137.58
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$380.14
PCT	62.52	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS04	RC-S-E-GH-EC-LI-LED03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	11,146.00	10,828.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,079.00	1,052.00
Total Therms	942.00	942.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED replacement for T8 (residential)		
Measure ID	83	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	LED fixture/lamp replacing standard T8		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard T8 fixture/lamp				
Baseline Value					
Efficiency Description	LED fixture/lamp				
Efficiency Value					
Annual Energy Savings	35	kWh	Annual Natural Gas Savings	-1.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamp		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	PA TRM Errata 2017				

Measure Economic Impacts

Incremental Cost	\$2.23		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.35	Electric Avoided Cost (Lifetime, NPV)	\$22.72
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$42.28
PCT	4.37	Other Utility Avoided Cost (Lifetime, NPV)	-\$7.44
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS14	RC-S-E-GH-EC-LI-LED06
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,877.00	10,842.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,057.00	1,054.00
Total Therms	940.00	941.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED task lights (residential)		
Measure ID	84	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Replacement of non-GSL incandescent lights		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Incandescent bulbs				
Baseline Value	Wattage varies				
Efficiency Description	LED task lights				
Efficiency Value	Wattage varies				
Annual Energy Savings	42	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixture		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.01	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$7.62		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.99	Electric Avoided Cost (Lifetime, NPV)	\$30.44
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$56.13
PCT	7.37	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for LED specialty lamps	42.20	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 DSM Programs. Nexant, August 2018.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Occupancy sensor (residential)		
Measure ID	87	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Switch mounted sensor occupancy / vacancy controller that turns lights on when motion is detected and off when motion is no longer detected		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing lights without occupancy sensor				
Baseline Value					
Efficiency Description	Install occupancy sensor				
Efficiency Value					
Annual Energy Savings	402	kWh	Annual Natural Gas Savings	-5.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Sensor		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$56.11		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.83	Electric Avoided Cost (Lifetime, NPV)	\$196.28
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$492.82
PCT	4.59	Other Utility Avoided Cost (Lifetime, NPV)	-\$51.25
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS07	RC-S-E-GH-EC-LI-SEN01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	11,175.00	10,773.00
Estimated Summer Peak kW	4.20	4.20
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,082.00	1,048.00
Total Therms	933.00	938.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Photocells (residential)		
Measure ID	88	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Light sensors Photocell controllers to shut off exterior lights in the daytime		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing exterior lights without photocells				
Baseline Value					
Efficiency Description	Install photocells				
Efficiency Value					
Annual Energy Savings	326	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Sensor		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$47.03		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.01	Electric Avoided Cost (Lifetime, NPV)	\$141.38
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$391.46
PCT	8.32	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS04	RC-S-E-GH-EC-LI-OUT02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	11,146.00	10,820.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,079.00	1,051.00
Total Therms	942.00	942.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Solar powered exterior lighting		
Measure ID	105	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Replace outdoor lighting with solar powered exterior lighting		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard outdoor lights				
Baseline Value					
Efficiency Description	Solar powered exterior lighting				
Efficiency Value					
Annual Energy Savings	57	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamp		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$11.84		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.19	Electric Avoided Cost (Lifetime, NPV)	\$14.14
RIM	0.33	Electric Lost Revenue (Lifetime, NPV)	\$43.11
PCT	3.64	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Watts x HOU x Days / WhperkWh					

Value		Description	Value	Units	Reference
Watts	=	Baseline light fixture wattage	40.00	W	1
HOU	=	Average hours of use per day	3.90	hours/day	2
Days	=	Days per year	365.00	days	
WhperkWh	=	Watt-hours per kilowatt-hour conversion factor	1,000.00	kWh	
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Nexant research on available fixtures, November 2017
2	PA TRM, June 2016, Errata Update February 2017, Section 2.1.1, Table 2-5.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	T8 Premium lamp, replacing standard T8 (residential)		
Measure ID	111	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Replace standard 32W T8 lamps with premium T8 lamps in existing fixture		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Fixtures	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard 32W T8 lamps in existing fixture				
Baseline Value	32W				
Efficiency Description	Premium T8 lamps in existing fixture				
Efficiency Value	28W				
Annual Energy Savings	116	kWh	Annual Natural Gas Savings	-2.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamp		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2.38		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.31	Electric Avoided Cost (Lifetime, NPV)	\$26.36
RIM	0.43	Electric Lost Revenue (Lifetime, NPV)	\$61.27
PCT	5.37	Other Utility Avoided Cost (Lifetime, NPV)	-\$9.02
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-LI-BAS03	RC-S-E-GH-EC-LI-FIX03
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,914.00	10,798.00
Estimated Summer Peak kW	4.30	4.30
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,060.00	1,050.00
Total Therms	939.00	941.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Torchiere Floor Lamps (ENERGY STAR)		
Measure ID	115	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ENERGY STAR torchiere floor lamp fixture		
Measure Category	Lighting	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	EISA-compliant bulb				
Baseline Value					
Efficiency Description	ENERGY STAR torchiere floor lamp fixture				
Efficiency Value					
Annual Energy Savings	86	kWh	Annual Natural Gas Savings	-2.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamp		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$46.05		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.28	Electric Avoided Cost (Lifetime, NPV)	\$14.64
RIM	0.32	Electric Lost Revenue (Lifetime, NPV)	\$45.53
PCT	0.86	Other Utility Avoided Cost (Lifetime, NPV)	-\$6.88
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-GH-EC-HV-BAS03	RC-S-E-GH-EC-LI-TOR01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,773.00	10,687.00
Estimated Summer Peak kW	4.20	4.20
Estimated Winter Peak kW	1.10	1.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,048.00	1,040.00
Total Therms	938.00	940.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	80,000.00	80,000.00
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW	22,572.00	22,572.00
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Ceiling Fan		
Measure ID	14	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient ceiling fan meeting current ENERGY STAR v3.0 specifications.		
Measure Category	Miscellaneous	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Equipment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard non-ENERGY STAR ceiling fan				
Baseline Value					
Efficiency Description	ENERGY STAR qualified ceiling fan meeting current ENERGY STAR v3.0 specification				
Efficiency Value					
Annual Energy Savings	36	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fan		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$74.97		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.53	Electric Avoided Cost (Lifetime, NPV)	\$39.42
RIM	0.73	Electric Lost Revenue (Lifetime, NPV)	\$54.35
PCT	0.72	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-HV-BAS06	RC-S-E-HP-EC-HV-FAN01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,407.00	20,371.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,688.00	1,685.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Ventilation Fan		
Measure ID	55	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Range hoods, bathroom/utility room vent fans, in-line vent fans		
Measure Category	Miscellaneous	Sector(s)	Residential
Measure Type	Interior	Segment(s)	SF, MF, MH
Measure Sub-Type	Equipment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency ventilation fan				
Baseline Value					
Efficiency Description	High efficiency ventilation fan meeting current ENERGY STAR v.2.3 criteria				
Efficiency Value					
Annual Energy Savings	89	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fan		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$39.80		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.84	Electric Avoided Cost (Lifetime, NPV)	\$33.47
RIM	0.44	Electric Lost Revenue (Lifetime, NPV)	\$76.47
PCT	1.92	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{CFM} * [(1/\text{EFFBASE}) - (1/\text{EFFEFF})] / \text{WhperkWh} * \text{HOU}$$

Value		Description	Value	Units	Reference
CFM	=	Normal capacity of the exhaust fan	50.00	CFM	1
EFFBASE	=	Average efficiency for baseline fan	3.10	CFM/Watt	2
EFFEFF	=	Average efficiency for efficient fan	8.30	CFM/Watt	3
HOU	=	Assumed annual run hours	8,760.00	Hours	
WhperkWh	=	Watt-hours per kilowatt-hour conversion factor	1,000.00	watt-hours/kWh	
	=				
	=				
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References

1	Illinois TRM, Version 5.0,Volume 3: Residential Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 5.3.9.
2	Illinois TRM, Version 5.0,Volume 3: Residential Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 5.3.9.
3	Illinois TRM, Version 5.0,Volume 3: Residential Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 5.3.9.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Heat Pump Pool Heater		
Measure ID	63	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Heat Pump Swimming Pool Heater		
Measure Category	Miscellaneous	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Pool	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Electric Resistance Pool Heater				
Baseline Value					
Efficiency Description	Heat Pump Pool Heater				
Efficiency Value	COP = 5.0				
Annual Energy Savings	9,412	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Unit		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	5.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	http://www.aquacal.com/what-is-the-average-lifespan-of-a-swimming-pool-heat-pump/				

Measure Economic Impacts

Incremental Cost	\$1,140.54		
Incremental Cost Reference	Nexant market research, 2017		
TRC	6.24	Electric Avoided Cost (Lifetime, NPV)	\$7,115.23
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$12,969.69
PCT	11.37	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Esav					

Value		Description	Value	Units	Reference
Esav	=	Heat Pump Pool Heater Energy Savings	9,411.76	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	US Department of Energy, Energy Saver, Heat Pump Swimming Pool Heaters, https://energy.gov/energysaver/heat-pump-swimming-pool-heaters . Accessed 11/20/17



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High efficiency pool pump (single speed, two speed, variable speed)		
Measure ID	68	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	30-70% more efficient than standard		
Measure Category	Miscellaneous	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Pool	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency pool pump				
Baseline Value					
Efficiency Description	High Efficiency Pool Pump (single speed, two speed, variable speed)				
Efficiency Value					
Annual Energy Savings	2,048	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Pool		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	1.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$436.44		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	2.47	Electric Avoided Cost (Lifetime, NPV)	\$1,079.77
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$2,121.81
PCT	4.86	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{PFRconv} \times 60 \times ((\text{Vpool} \times \text{PT}) / (\text{PFRconv} \times 60)) \times \text{days}) / (\text{EFconv} \times 1000) - ((\text{PFRHS} \times 60 \times \text{hoursHS} \times \text{days}) / (\text{EFHS} \times 1000)) \\ + ((\text{Vpool} / (\text{tturnover} \times 60) \times 60 \times \text{hoursLS} \times \text{days}) / (\text{EFLS} \times 1000))$$

Value		Description	Value	Units	Reference
hoursHS	=	Pump high speed daily operating hours	2.00	hours	1
hoursLS	=	Pump low speed daily operating hours	10.00	hours	2
days	=	Operating days per year	212.80	days	3
PFRconv	=	Single-speed pump flow rate (1 hp)	60.10	gal/min	4
PFRHS	=	Pump high speed flow rate	50.00	gal/min	5
EFconv	=	Single-speed pump energy factor	2.40	gal/W·hr	6
EFHS	=	Pump high speed energy factor	3.75	gal/W·hr	7
EFLS	=	Pump low speed energy factor	7.26	gal/W·hr	8
Vpool	=	Pool volume	22,000.00	gal	9
PT	=	Pool turnovers per day	1.50		10
tturnover	=	Pump time to complete 1 turnover	12.00	hours	11
1000	=	Conversion from kilowatts to watts	1,000.00	W/kW	

References

1	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
2	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
3	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
4	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
5	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
6	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
7	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
8	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
9	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
10	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
11	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Pool Pump Timer		
Measure ID	90	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Set timer to run off-peak		
Measure Category	Miscellaneous	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Pool	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Set timer to run off-peak				
Efficiency Value					
Annual Energy Savings	1,537	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Pool		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$64.25		
Incremental Cost Reference	Nexant market research, 2017		
TRC	8.45	Electric Avoided Cost (Lifetime, NPV)	\$542.90
RIM	0.34	Electric Lost Revenue (Lifetime, NPV)	\$1,592.64
PCT	24.79	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{kWh}_{\text{annual}} \times (1 - \text{SavingsFactor})$$

Value		Description	Value	Units	Reference
kWh_annual	=	Annual conventional pump energy consumption	3,843.00	kWh	1
SavingsFactor	=	Energy savings percentage due to timer use	60.00	%	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Pool Pump Savings Calculator updated December 2013, default conventional pump value for Georgia.
2	U.S. Department of Energy website https://energy.gov/energysaver/installing-and-operating-efficient-swimming-pool-pump . Accessed 11/20/17

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Reduce Pool Filtration Pump runtime seasonally		
Measure ID	94	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduce filtration run time (needs to run a minimum of approximately four hours per day)		
Measure Category	Miscellaneous	Sector(s)	Residential
Measure Type	Exterior	Segment(s)	SF, MF, MH
Measure Sub-Type	Pool	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Reduce Pool Filtration Pump runtime seasonally				
Efficiency Value					
Annual Energy Savings	1,281	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Pool		Modeled Building Segment	Existing SF Gas Home	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	N/A		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$325.57
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$913.15
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{kWh/day} \times (\text{DAYsbase} - \text{DAYseff})$$

Value		Description	Value	Units	Reference
kWh/day	=	Pump energy use per day	10.50	kWh	1
DAYsbase	=	Annual number of days pump operates for Georgia	365.00	days	2
DAYseff	=	National average number of days pump operates	243.00	days	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Pool Pump Savings Calculator updated December 2013, default value. Reference to EPA research on available models, 2013.
2	ENERGY STAR Pool Pump Savings Calculator updated December 2013; Reference to CEE High Efficiency Residential Swimming Pool Initiative, January 2013.
3	ENERGY STAR Pool Pump Savings Calculator updated December 2013; Reference to CEE High Efficiency Residential Swimming Pool Initiative, January 2013.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Drain Heat Exchanger (residential)		
Measure ID	29	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Hot Water Loop with 50 Gallon Electric Resistance Heater and Drain Water Heat Exchanger		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Conservation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Drain Heat Exchanger				
Efficiency Value					
Annual Energy Savings	556	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	29	Years			
Equipment Life Reference	Nexant market research, 2017				

Measure Economic Impacts

Incremental Cost	\$731.20		
Incremental Cost Reference	U.S. DOE, ENERGY SAVER, "Drain-Water Heat Recovery"		
TRC	0.53	Electric Avoided Cost (Lifetime, NPV)	\$384.72
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$923.27
PCT	1.26	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-WA-BAS01	RC-S-E-HP-EC-WA-OTH01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	19,778.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.00
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,638.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ECM circulating pumps		
Measure ID	35	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ECM motor on recirculating DHW pump		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF
Measure Sub-Type	Operational Efficiency	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	ECM circulating pumps				
Efficiency Value					
Annual Energy Savings	79	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	18	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$522.15		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.08	Electric Avoided Cost (Lifetime, NPV)	\$41.23
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$102.26
PCT	0.20	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-WA-BAS05	RC-S-E-HP-EC-WA-PMP01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,597.00	20,518.00
Estimated Summer Peak kW	4.40	4.40
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,703.00	1,696.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	GSHP desuperheater		
Measure ID	62	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Uses heat pump waste heat for water heating		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Conservation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Ground Source Heat Pump				
Baseline Value					
Efficiency Description	high efficiency Geothermal Heat Pump model with desuperheater function				
Efficiency Value					
Annual Energy Savings	440	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	14	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$976.80		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.20	Electric Avoided Cost (Lifetime, NPV)	\$197.56
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$469.15
PCT	0.48	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EFDSH x 1/Efbase x HW x 365 x 8.3 x 1 x (Thot - Tcold) /3412

Value		Description	Value	Units	Reference
EFDSH	=	Savings factor per desuperheater	0.17		1
Efbase	=	Residential baseline or existing water heater efficiency,	0.94		2
HW	=	Residential Annual Gallons of Hot Water Use	50.00	gallon	3
Thot	=	Temperature of hot water	119.00	deg F	4
Tcold	=	Temperature of cold water supply	63.90	deg F	5
365	=	Days per year	365.00	days/year	
8.3	=	Water density	8.30	lbs/gallon	
1	=	Specific heat of water	1.00	Btu/lbs - deg F	
3412	=	British thermal units per kilowatt hour	3,412.00	Btu/kWh	
	=				
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.2.1, deemed value.
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.2.1, default value.
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.2.1, default value.
4	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.3.2, default value.
5	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Heat Pump Water Heater (ENERGY STAR) (residential)		
Measure ID	78	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ENERGY STAR water heating unit that includes the water storage tank and heat pump		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Water Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Type of Water Heater	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Tank Water Heater				
Baseline Value	EF = 0.904				
Efficiency Description	Integral Heat Pump Water Heater meeting current ENERGY STAR v3.0 specification				
Efficiency Value	EF >= 2.0				
Annual Energy Savings	1,479	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.03	kW	Winter Peak Demand Savings	0.40	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$694.40		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.66	Electric Avoided Cost (Lifetime, NPV)	\$456.01
RIM	0.37	Electric Lost Revenue (Lifetime, NPV)	\$1,238.10
PCT	1.78	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [((1/\text{EF_base}) - (1/(\text{EF_eff} * \text{F_derate}))) * \text{HW} * 365 * 8.3 * (\text{water temp})]/3412 \text{ btu/kWh}$$

Value		Description	Value	Units	Reference
EF_base	=	Baseline unit energy factor	0.90	N/A	1
EF_eff	=	Qualifying unit energy factor	2.00	N/A	2
F_derate	=	COP derate factor	0.85	N/A	3
water temp	=	Water temperature delta between inlet and outlet	58.00	deg F	4
HW	=	Hot water daily usage	55.17	gallons	5
365	=	Days per year	365.00	days/year	
8.3	=	Water density	8.30	lbs/gallon	
3412	=	British thermal units per kilowatt hour	3,412.00	Btu/kWh	
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.
2	Pennsylvania 2016 TRM
3	Pennsylvania 2016 TRM
4	EnoScientific
5	Evaluation of Georgia Power Company's 2014 Residential DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Heat Recovery Water Heater With Heat Pump		
Measure ID	64	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Water heater with heat recovery system connected to home's heat pump to utilize heat from heat pump to pre-heat incoming water to the water heater		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Water Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Type of Water Heater	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Tank Water Heater				
Baseline Value	EF = 0.904				
Efficiency Description	Heat Recovery Water Heater With Heat Pump				
Efficiency Value	EF >= 2.0				
Annual Energy Savings	2,390	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.80	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	14	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,052.90		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.54	Electric Avoided Cost (Lifetime, NPV)	\$1,098.91
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$2,621.93
PCT	1.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-WA-BAS03	RC-S-E-HP-EC-WA-OTH02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,453.00	18,063.00
Estimated Summer Peak kW	4.40	4.20
Estimated Winter Peak kW	13.20	12.40
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,706.00	1,518.00
Total Therms	0.00	0.00
Total Gallons	54,102.00	54,102.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	90.00
Water Heater BTU/kW	13,890.91	19,342.98
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Instantaneous Hot Water System		
Measure ID	77	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Also known as tankless water heater		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Water Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Type of Water Heater	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Tank Water Heater		
Baseline Value	EF = 0.904		
Efficiency Description	Instantaneous Hot Water System		
Efficiency Value	EF >= 0.90		
Annual Energy Savings	163	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	4.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Water heater	Modeled Building Segment	Existing SF Heat Pump
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	20	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$670.56		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.13	Electric Avoided Cost (Lifetime, NPV)	\$85.56
RIM	0.39	Electric Lost Revenue (Lifetime, NPV)	\$218.09
PCT	0.33	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (1/\text{EF}_{\text{base}} - 1/\text{EF}_{\text{efficient}}) * (\text{GPD} * \text{Household} * 365 * y_{\text{Water}} * (\text{TOUT} - \text{Tin}) * 1.0)/3,412$$

Value		Description	Value	Units	Reference
EFbase	=	Energy Factor rating for baseline equipment	0.92		1
EFefficient	=	Energy Factor Rating for efficient equipment	0.98		2
GPD	=	Gallons Per Day of hot water use per person	17.30	gallons	3
Household	=	Average number of people per household	2.73		4
TOUT	=	Tank temperature	125.00	deg F	5
Tin	=	Average temperature of water entering the house	63.90	deg F	6
365	=	Days per year, on average	365.00		
y_Water	=	Density of water	8.33	pounds per gallon	
1	=	Heat Capacity of water (1 Btu/lb*°F)	1.00		
3412	=	Btu per kWh	3,412.00		
	=				
	=				

References

1	Federal minimum uniform energy factor for a 40 gallon electric storage water heater with a medium draw pattern = 0.9307-(.0002*40)
2	Electric Tankless Water Heating: Competitive Assessment, EPRI Retail Technology Application Centers, March 2005.
3	Residential End Uses of Water, Version 2. Water Research Foundation, April 2016, http://www.waterrf.org/PublicReportLibrary/4309A.pdf .
4	Number of persons per household in Georgia, Households and Families: 2011-2015, U.S. Census Bureau Quick Facts July 2016, https://www.census.gov/quickfacts/GA
5	Illinois TRM, Version 5.0, Volume 3: Residential Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 5.4.2, page 167
6	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Pipe insulation (residential)		
Measure ID	89	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Installing insulation on exposed hot water pipes leaving water heater		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Heat Conservation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Hot water pipe insulation				
Efficiency Value					
Annual Energy Savings	160	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$14.15		
Incremental Cost Reference	Pennsylvania Public Utility Commission 2013 Incremental Cost Database		
TRC	8.75	Electric Avoided Cost (Lifetime, NPV)	\$123.84
RIM	0.74	Electric Lost Revenue (Lifetime, NPV)	\$167.86
PCT	11.86	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = ((1/\text{Rexist} - 1/\text{Rnew}) * (\text{L} * \text{C}/12) * \text{T} * \text{Hours}) / \text{RE_DHW} / \text{BTU_conv}$$

Value		Description	Value	Units	Reference
Rexist	=	Assumed R-value of existing uninsulated piping	1.00	hr-deg F-ft/Btu	1
Rnew	=	R-value of existing pipe plus installed insulation	5.00	hr-deg F-ft/Btu	2
L	=	Length of piping insulated	6.00	ft	3
C	=	Circumference of piping	2.36	inches	4
T	=	Temperature difference between water in pipe and	65.00	deg F	5
RE_DHW	=	DHW Recovery efficiency	0.98		6
BTU_conv	=	Conversion factor	3,412.00	BTU/kWh	
Hours	=	Hours per year	8,760.00	hours	
	=				
	=				
	=				
	=				

References

1	Navigant Consulting Inc., April 2009; "Measures and Assumptions for Demand Side Management (DSM) Planning; Appendix C Substantiation Sheets", p77.
2	Estimated value based on recommendation of Illinois TRM. Supported by minimum set by 2012 IECC = R-3. U.S. Department of Energy, August 2012.
3	Default assumed value used in Illinois TRM.
4	Assumes 3/4" diameter pipe.
5	Assumes 125 F water leaving the hot water tank and average temperature of basement of 65 F.
6	Electric water heaters have recovery efficiency of 98%.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Solar Water Heater (residential)		
Measure ID	106	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Solar water heating system replacing electric water heater		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Water Heating Equipment	Segment(s)	SF, MF, MH
Measure Sub-Type	Type of Water Heater	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Tank Water Heater				
Baseline Value	EF = 0.904				
Efficiency Description	Solar Water Heater				
Efficiency Value	EF = 1.84				
Annual Energy Savings	1,259	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,648.52		
Incremental Cost Reference	RSMeans cost estimator		
TRC	0.22	Electric Avoided Cost (Lifetime, NPV)	\$578.09
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$1,429.93
PCT	0.54	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$kWh = [(1/EF_{base} - 1/EF_{fee}) \times HW \times 365 \times 8.3 \times 1 \times (T_{hot} - T_{cold})] / 3412$$

Value		Description	Value	Units	Reference
EFbase	=	Residential baseline or existing water heater efficiency,	0.94		1
EFfee	=	Efficient Solar Water Heater Energy Factor	1.84		2
HW	=	Residential Daily Gallons of Hot Water Use	50.00	gallon	3
Thot	=	Temperature of hot water	119.00	deg F	4
Tcold	=	Temperature of cold water supply	63.90	deg F	5
365	=	Days per year	365.00	days/year	
8.3	=	Water density	8.30	lbs/gallon	
1	=	Specific heat of water	1.00	Btu/lbs - deg F	
3412	=	British thermal units per kilowatt hour	3,412.00	Btu/kWh	
	=				
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.3.2, default value.
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.3.2, default value.
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.3.2, default value.
4	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.3.2, default value.
5	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Storage Water Heater (off-peak heating)		
Measure ID	108	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Timer controls on water heater to prioritize off-peak water heating		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Load Control	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Tank Water Heater with no controls				
Baseline Value					
Efficiency Description	Storage Water Heater (off-peak heating)				
Efficiency Value					
Annual Energy Savings	51	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	-2.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$170.48		
Incremental Cost Reference	RSMeans cost estimator		
TRC	0.00	Electric Avoided Cost (Lifetime, NPV)	-\$91.39
RIM	0.00	Electric Lost Revenue (Lifetime, NPV)	\$64.04
PCT	0.24	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-WA-BAS04	RC-S-E-HP-EC-WA-CTL02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,283.00
Estimated Summer Peak kW	4.40	4.20
Estimated Winter Peak kW	14.20	16.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,677.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

Storage Water Heater (off-peak heating)

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Thermostatic Shower Restriction Valve		
Measure ID	113	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Hot Water Loop with 50 Gallon Electric Resistance Heater and Pressure Balance Shower Valves		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Water Use Reduction	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Thermostatic Shower Restriction Valve				
Efficiency Value					
Annual Energy Savings	113	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Valve		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	PA TRM Errata 2017				

Measure Economic Impacts

Incremental Cost	\$103.75		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.09	Electric Avoided Cost (Lifetime, NPV)	\$9.02
RIM	0.10	Electric Lost Revenue (Lifetime, NPV)	\$94.34
PCT	0.91	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{GPM_base} / 60 \times \text{UH} \times \text{UE} \times (\text{T_out} - \text{T_in}) \times (\text{N_persons} \times \text{N_showers-day}) / (\text{S/home}) \\ \times \text{WasteSeconds} / \text{RE} \times 365$$

Value		Description	Value	Units	Reference
GPM_base	=	Gallons per minute of baseline showerhead	2.50	gal/min	1
T_out	=	Assumed temperature of water used by showerhead	104.00	deg F	2
T_in	=	Assumed temperature of water entering house	63.90	deg F	3
N_persons	=	Average number of persons per household	2.73	persons/household	4
N_showers-day	=	Average number of showers per person per day	0.60	showers/day/person	5
S/home	=	Average number of showerhead fixtures per home	1.30	showerheads/home	6
WasteSeconds	=	Time that water runs without being used	59.00	sec	7
RE	=	Recovery efficiency of electric water heaters	0.98		8
60	=	Unit conversion	60.00	sec/min	
UH	=	Unit conversion	8.30	BTU/gal - deg F	
UE	=	Unit conversion	0.000293	kWh/Btu	
365	=	Days per year	365.00	days/year	

References

1	PA TRM, June 2016, Errata Update February 2017, Table 2-68.
2	PA TRM, June 2016, Errata Update February 2017, Table 2-68.
3	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
4	Number of persons per household in Georgia, Households and Families: 2011-2015, U.S. Census Bureau Quick Facts July 2016, https://www.census.gov/quickfacts/GA
5	PA TRM, June 2016, Errata Update February 2017, Table 2-68.
6	PA TRM, June 2016, Errata Update February 2017, Table 2-68.
7	PA TRM, June 2016, Errata Update February 2017, Table 2-68.
8	PA TRM, June 2016, Errata Update February 2017, Table 2-68, default value.

Thermostatic Shower Restriction Valve



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Timer for recirculation pump (residential)		
Measure ID	114	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduces usage of recirculation pump by timer control		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Timer for recirculation pump				
Efficiency Value					
Annual Energy Savings	327	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$189.63		
Incremental Cost Reference	Nexant market research and RSMeans labor estimate, 2017		
TRC	0.45	Electric Avoided Cost (Lifetime, NPV)	\$84.99
RIM	0.28	Electric Lost Revenue (Lifetime, NPV)	\$302.19
PCT	1.59	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = kWh_constant - kWh_demand					

Value		Description	Value	Units	Reference
kWh_constant	=	Annual pump energy use without controls	350.00	kWh	1
kWh_demand	=	Annual pump energy use with demand controls	23.00	kWh	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	2013 Residential ACM Reference Manual: Water Heating Calculation Method, Table RE-6.
2	2013 Residential ACM Reference Manual: Water Heating Calculation Method, Table RE-6.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Water Heater Audit - Aerator		
Measure ID	121	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Audit of water heating system, including installation of water conservation and energy savings measures such as low-flow showerheads, water heater insulating jackets, and pipe insulation		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Water Use Reduction	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No aerator				
Baseline Value					
Efficiency Description	Aerator				
Efficiency Value					
Annual Energy Savings	43	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Unit		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$7.99		
Incremental Cost Reference	Nexant market research, 2017		
TRC	11.38	Electric Avoided Cost (Lifetime, NPV)	\$90.90
RIM	0.39	Electric Lost Revenue (Lifetime, NPV)	\$231.03
PCT	28.91	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \left[\left((\text{GPM}_{\text{base}} - \text{GPM}_{\text{low}}) \times \text{T}_{\text{person/day}} \times \text{N}_{\text{persons}} \times 365 \times \text{DF} \times (\text{T}_{\text{out}} - \text{T}_{\text{in}}) \right) \times 8.3 (\text{Btu}/(\text{gal} \cdot \text{deg F})) / (\# \text{faucets} \times 3412 (\text{Btu}/\text{kWh}) \times \text{RE}) \right]$$

Value		Description	Value	Units	Reference
GPM _{base}	=	Average baseline flow rate of aerator (GPM)	2.20	gallons/min	1
GPM _{low}	=	Average post measure flow rate of aerator (GPM)	1.50	gallons/min	2
T _{person/day}	=	Average time of hot water usage per person per day	4.50	minutes/day	3
N _{persons}	=	Average number of persons per household	2.73	persons/house	4
DF	=	Percentage of water flowing down drain	75.00	%	5
T _{out}	=	Average mixed water faucet temperature (F)	93.00	deg F	6
T _{in}	=	Average temperature of water entering the house	63.90	deg F	7
#faucets	=	Average number of faucets in the home	4.00	faucets/house	8
RE	=	Recovery efficiency of electric water heater	0.98		9
8.3	=	Density of water	8.30	lbs/gal	
3412	=	Btu per kWh	3,412.00	BTU/kWh	
365	=	Days per year	365.00	days	

References

1	PA TRM, June 2016, Errata Update February 2017, Table 2-66, default value.
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-66, default value.
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-66, default value.
4	Number of persons per household in Georgia, Households and Families: 2011-2015, U.S. Census Bureau Quick Facts July 2016, https://www.census.gov/quickfacts/GA
5	Illinois TRM Effective June 1, 2013.
6	PA TRM, June 2016, Errata Update February 2017, Table 2-66, kitchen value used.
7	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
8	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-66, unknown single family home value used.
9	AHRI Directory. All electric storage water heaters have a recovery efficiency of .98. https://www.ahridirectory.org/ahridirectory/pages/rwh/defaultSearch.aspx



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Water Heater Audit - Insulated Jacket		
Measure ID	120	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Audit of water heating system, including installation of water conservation and energy savings measures such as low-flow showerheads, water heater insulating jackets, and pipe insulation		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Water Use Reduction	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Water heater - no jacket				
Baseline Value					
Efficiency Description	Insulated jacket				
Efficiency Value					
Annual Energy Savings	227	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Unit		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$16.50		
Incremental Cost Reference	Nexant market research, 2017		
TRC	5.51	Electric Avoided Cost (Lifetime, NPV)	\$90.90
RIM	0.39	Electric Lost Revenue (Lifetime, NPV)	\$231.03
PCT	14.00	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \{[(U_BASE \times A_BASE) - (U_INSUL \times A_INSUL)] \times (T_setpoint - T_ambient) / (3412 \times \text{Eff_elect})\} \times \text{HOU}$$

Value		Description	Value	Units	Reference
A_base	=	Surface Area of Unwrapped Water Heater Tank	23.18	ft ²	1
R_base	=	Unwrapped WH resistance to heat flow, 1 /U_base	8.30	Hr- deg F-ft ² /BTU	2
U_base	=	Heat Transfer Coefficient of Unwrapped Tank	0.12	BTU/Hr-deg F-ft ²	3
A_insul	=	Surface Area of Wrapped Water Heater Tank	25.31	ft ²	4
R_insul	=	Resistance to heat flow of insulated unit, 1 /U_insul	20.00	Hr-deg F-ft ² /BTU	5
U_Insul	=	Heat Transfer Coefficient of Wrapped Tank	0.05	BTU/Hr-deg F-ft ²	6
T_setpoint	=	Water Heater Temperature Setpoint	119.00	deg F	7
T_ambient	=	Temperature of Ambient Air	63.90	deg F	8
Eff_elect	=	Electric Resistance Water Heater Baseline Efficiency	0.95		9
HOU	=	Piping and Insulation Hours of Use	8,760.00	Hours	10
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-63, assumed 40 gallon tank.
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-62 default assumed value
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-62 default assumed value
4	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-63, assumed 40 gallon tank
5	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-62 default assumed value
6	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-62 default assumed value
7	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-62 default assumed value
8	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F
9	IECC2012
10	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Table 2-62 default assumed value



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Water Heater Audit - Low-flow Showerhead		
Measure ID	122	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Audit of water heating system, including installation of water conservation and energy savings measures such as low-flow showerheads, water heater insulating jackets, and pipe insulation		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Water Use Reduction	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard flow showerhead				
Baseline Value					
Efficiency Description	Low flow showerhead				
Efficiency Value					
Annual Energy Savings	357	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Unit		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$38.99		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.33	Electric Avoided Cost (Lifetime, NPV)	\$90.90
RIM	0.39	Electric Lost Revenue (Lifetime, NPV)	\$231.03
PCT	5.93	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [((\text{GPM}_{\text{base}} - \text{GPM}_{\text{low}}) \times \text{T}_{\text{person/day}} \times \text{N}_{\text{persons}} \times \text{N}_{\text{showers/day}} \times 365 \times (\text{T}_{\text{out}} - \text{T}_{\text{in}})) \times 8.3(\text{Btu}/(\text{gal-deg F})) / (\# \text{showers} \times 3412(\text{Btu/kWh}) \times \text{RE})]$$

Value		Description	Value	Units	Reference
GPM _{base}	=	Gallons per minute of baseline showerhead	2.50	gallons/min	1
GPM _{low}	=	Gallons per minute of low flow showerhead	1.50	gallons/min	2
T _{person/day}	=	Average time of shower usage per person	7.80	minutes/day	3
N _{persons}	=	Average number of persons per household	2.73	persons/house	4
N _{showers/day}	=	Average number of showers per person per day	0.60	showers/person/day	5
T _{out}	=	Assumed temperature of water used by showerhead	104.00	deg F	6
T _{in}	=	Assumed temperature of water entering house	63.90	deg F	7
#showers	=	Average number of showers in the home	1.30	showers/house	8
RE	=	Recovery efficiency of electric water heater	0.98		9
8.3	=	Density of water	8.30	lbs/gal	
3412	=	Btu per kWh	3,412.00	BTU/kWh	
365	=	Days per year	365.00	days	

References

1	PA TRM, June 2016, Errata Update February 2017, Table 2-67, default value.
2	PA TRM, June 2016, Errata Update February 2017, Table 2-67, default value.
3	PA TRM, June 2016, Errata Update February 2017, Table 2-67, default value.
4	Number of persons per household in Georgia, Households and Families: 2011-2015, U.S. Census Bureau Quick Facts July 2016, https://www.census.gov/quickfacts/GA
5	PA TRM, June 2016, Errata Update February 2017, Table 2-67, default value.
6	PA TRM, June 2016, Errata Update February 2017, Table 2-68.
7	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
8	PA TRM, June 2016, Errata Update February 2017, Table 2-67, default value for single family home.
9	PA TRM, June 2016, Errata Update February 2017, Table 2-67, default value.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Water heater Direct Load Control		
Measure ID	123	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Water heater with demand control capability for participation in utility demand response initiatives		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Load Control	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Water Heater Direct Load Control				
Efficiency Value					
Annual Energy Savings	25	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	N/A		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$44.94
RIM	1.13	Electric Lost Revenue (Lifetime, NPV)	\$39.95
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-WA-BAS01	RC-S-E-HP-EC-WA-CTL01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	20,309.00
Estimated Summer Peak kW	4.40	4.20
Estimated Winter Peak kW	14.20	14.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,679.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Water Heater Timer		
Measure ID	124	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Turns water heater off at night and on in the morning		
Measure Category	Water Heating	Sector(s)	Residential
Measure Type	Performance	Segment(s)	SF, MF, MH
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Water Heater Timer				
Efficiency Value					
Annual Energy Savings	219	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water heater		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$65.38		
Incremental Cost Reference	Nexant market research, 2017		
TRC	5.46	Electric Avoided Cost (Lifetime, NPV)	\$357.20
RIM	1.88	Electric Lost Revenue (Lifetime, NPV)	\$190.08
PCT	2.91	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \{(1/\text{EF_elec}) \times [\text{HW} \times 365 \times 1 \times 8.3 \times (\text{T_hot} - \text{T_cold})] / 3412\} \times \text{Savings_factor}$$

Value		Description	Value	Units	Reference
EF_elec	=	Energy factor of water heater	0.95		1
HW	=	Hot water used per day	50.00	gal	2
T_hot	=	Temperature of hot water	119.00	deg F	3
T_cold	=	Temperature of cold water supply	63.90	deg F	4
Savings_factor	=	Percent savings from timer	8.50	%	5
365	=	Days per year	365.00		
1	=	Specific heat of water	1.00	BTU/lb-deg F	
8.3	=	Density of water	8.30	lbs/gal	
3412	=	Btu per kWh	3,412.00	BTU/kWh	
	=				
	=				
	=				

References

1	PA TRM, June 2016, Errata Update February 2017,Table 2-67, default value.
2	PA TRM, June 2016, Errata Update February 2017,Table 2-67, default value.
3	PA TRM, June 2016, Errata Update February 2017,Table 2-67, default value.
4	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
5	ENERGYSTAR website, accessed 11/21/17. https://energystar.zendesk.com/hc/en-us/articles/212111687-Are-there-timers-for-hot-water-heaters-Are-they-beneficial-



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Behavioral changes from utility-provided information		
Measure ID	13	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Information is sent to homeowners comparing their consumption with homes in their neighborhood, which can influence their behavior		
Measure Category	Whole Building	Sector(s)	Residential
Measure Type	Information-based	Segment(s)	SF, MF, MH
Measure Sub-Type	Monitoring	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Behavioral changes from utility-provided information				
Efficiency Value					
Annual Energy Savings	225	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Home		Modeled Building Segment	Existing SF Heat Pump	
Summer Peak Demand Savings	0.04	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	1	Years			
Equipment Life Reference	Standard industry estimate				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	N/A		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$7.90
RIM	0.27	Electric Lost Revenue (Lifetime, NPV)	\$29.43
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = kWh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Annual kWh consumption for baseline HP home	225.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Georgia Power Behavioral Pilot Program Impact and Process Evaluation, Illume Advising, LLC, July 7, 2018



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR HOME EarthCents Home		
Measure ID	48	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	At least 15% more energy efficient than homes built to current Georgia code		
Measure Category	Whole Building	Sector(s)	Residential
Measure Type	Construction and Design	Segment(s)	SF, MF, MH
Measure Sub-Type	EarthCents Home	Vintage(s)	New

Measure Savings Impacts

Baseline Description	New home built to Residential Code				
Baseline Value					
Efficiency Description	New home built 15% more efficient than Residential Code				
Efficiency Value					
Annual Energy Savings	2,469	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	New Const SF Heat	
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	2.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$7,939.19		
Incremental Cost Reference	Based on GPC program experience		
TRC	0.22	Electric Avoided Cost (Lifetime, NPV)	\$1,746.72
RIM	0.53	Electric Lost Revenue (Lifetime, NPV)	\$3,299.71
PCT	0.42	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-N-HP-EC-HV-BAS01	RC-S-N-HP-EC-CO-OTH04
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	13,331.00	10,862.00
Estimated Summer Peak kW	2.40	2.10
Estimated Winter Peak kW	5.50	3.50
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,153.00	965.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	38.00	49.00
Ceiling R	38.00	49.00
Wall R	20.00	19.00
Floor R	19.00	19.00
Door R	5.00	5.00
Window R	2.86	2.86
Window Coeff	30.00	30.00
Duct Leakage	2.50	2.50
Infiltration (cfm)	88.00	29.33
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	11.80
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	100.00
Water Heater BTU/kW	13,959.17	62,287.25
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	New Home - 30% above code		
Measure ID	85	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	30% more efficient than current Georgia code		
Measure Category	Whole Building	Sector(s)	Residential
Measure Type	Construction and Design	Segment(s)	SF
Measure Sub-Type	EarthCents Home	Vintage(s)	New

Measure Savings Impacts

Baseline Description	New home built meeting current Residential Code				
Baseline Value					
Efficiency Description	New Home - 30% above code				
Efficiency Value					
Annual Energy Savings	3,649	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	6,180.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	New Const SF Heat	
Summer Peak Demand Savings	0.70	kW	Winter Peak Demand Savings	2.40	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$14,150.47		
Incremental Cost Reference	Based on GPC program experience, scaled for higher efficiency		
TRC	0.24	Electric Avoided Cost (Lifetime, NPV)	\$2,571.90
RIM	0.50	Electric Lost Revenue (Lifetime, NPV)	\$5,097.87
PCT	0.42	Other Utility Avoided Cost (Lifetime, NPV)	\$845.96
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-N-HP-EC-HV-BAS01	RC-S-N-HP-EC-CO-OTH05
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	13,331.00	9,682.00
Estimated Summer Peak kW	2.40	1.70
Estimated Winter Peak kW	5.50	3.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,153.00	858.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	45,219.00
Envelope		
Attic R	38.00	45.00
Ceiling R	38.00	45.00
Wall R	20.00	30.00
Floor R	19.00	24.00
Door R	5.00	5.00
Window R	2.86	3.00
Window Coeff	30.00	30.00
Duct Leakage	2.50	0.00
Infiltration (cfm)	88.00	29.33
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	13.70
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,959.17	13,959.17
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	New Home - 50% above code		
Measure ID	86	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	50% more efficient than current Georgia code		
Measure Category	Whole Building	Sector(s)	Residential
Measure Type	Construction and Design	Segment(s)	SF
Measure Sub-Type	EarthCents Home	Vintage(s)	New

Measure Savings Impacts

Baseline Description	New home built meeting current Residential Code				
Baseline Value					
Efficiency Description	New Home - 50% above code				
Efficiency Value					
Annual Energy Savings	6,456	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,200.00		Annual Water Savings	6,180.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	New Const SF Heat	
Summer Peak Demand Savings	0.90	kW	Winter Peak Demand Savings	3.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$19,727.47		
Incremental Cost Reference	Based on GPC program experience, scaled for higher efficiency		
TRC	0.26	Electric Avoided Cost (Lifetime, NPV)	\$4,365.47
RIM	0.49	Electric Lost Revenue (Lifetime, NPV)	\$8,955.99
PCT	0.50	Other Utility Avoided Cost (Lifetime, NPV)	\$845.96
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-N-HP-EC-HV-BAS01	RC-S-N-HP-EC-CO-OTH11
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	13,331.00	6,875.00
Estimated Summer Peak kW	2.40	1.50
Estimated Winter Peak kW	5.50	2.20
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,153.00	636.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	45,219.00
Envelope		
Attic R	38.00	45.00
Ceiling R	38.00	45.00
Wall R	20.00	30.00
Floor R	19.00	24.00
Door R	5.00	5.00
Window R	2.86	3.00
Window Coeff	30.00	30.00
Duct Leakage	2.50	0.00
Infiltration (cfm)	88.00	29.33
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	11.80	14.10
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	90.00
Water Heater BTU/kW	13,959.17	9,332.54
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Real-Time Information Monitoring (residential)		
Measure ID	93	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Real-Time Information Monitoring System on typical residence		
Measure Category	Whole Building	Sector(s)	Residential
Measure Type	Information-based	Segment(s)	SF, MF, MH
Measure Sub-Type	Monitoring	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Real-Time Information Monitoring				
Efficiency Value					
Annual Energy Savings	1,524	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	System		Modeled Building Segment	Existing SF	Heat Pump
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	1	Years			
Equipment Life Reference	Standard industry estimate				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	N/A		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$67.29
RIM	0.35	Electric Lost Revenue (Lifetime, NPV)	\$194.56
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	RB-S-E-HP-EC-SH-BAS01	RC-S-E-HP-EC-CO-OPR02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	20,334.00	18,810.00
Estimated Summer Peak kW	4.40	4.10
Estimated Winter Peak kW	14.20	14.10
Electric Rate Used	R-22__NoFuel&FF	R-22__NoFuel&FF
Base Revenue - Electric (1st year)	1,682.00	1,526.00
Total Therms	0.00	0.00
Total Gallons	51,399.00	51,399.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW	33,635.00	33,635.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	50.00	50.00
Water Heater BTU/kW	13,890.91	13,890.91
Water Temp Set Point	125.00	125.00
Water Heater Location	Unconditioned	Unconditioned

4 Non-Residential Measures

Measure Name	Page Number
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GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Clothes Dryer - ENERGY STAR (non-residential)		
Measure ID	143	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Clothes dryer meeting current ENERGY STAR specification		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Laundry Appliance	Segment(s)	ED, HS, LG, SO
Measure Sub-Type	Washing	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Clothes Dryer				
Baseline Value					
Efficiency Description	ENERGY STAR Clothes Dryer				
Efficiency Value					
Annual Energy Savings	505	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Unit		Modeled Building Segment	Small Office	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$360.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.00	Electric Avoided Cost (Lifetime, NPV)	\$361.38
RIM	0.24	Electric Lost Revenue (Lifetime, NPV)	\$1,510.12
PCT	4.19	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-E-SO-HV-GR-HP-SH-DRY01	NC-E-SO-HV-GR-HP-SH-DRY01
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	29,662.00	29,157.00
Estimated Summer Peak kW	8.63	8.63
Estimated Winter Peak kW	12.18	12.18
Electric Rate Used	PLS-11-C__NoFuel&FF	PLS-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	4,060.75	3,900.13
Total Therms	0.00	0.00
Total Gallons	22,910.00	22,910.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Clothes Dryer - Heat Pump (non-residential)		
Measure ID	144	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Efficient heat pump clothes dryer		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Laundry Appliance	Segment(s)	ED, HS, LG, SO
Measure Sub-Type	Washing	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Heat Pump Dryer				
Baseline Value					
Efficiency Description	High Efficiency Heat Pump Dryer				
Efficiency Value					
Annual Energy Savings	1,262	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Units		Modeled Building Segment	Small Office	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,321.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.68	Electric Avoided Cost (Lifetime, NPV)	\$903.61
RIM	0.21	Electric Lost Revenue (Lifetime, NPV)	\$4,210.87
PCT	3.19	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-E-SO-HV-GR-HP-SH-DRY01	NC-E-SO-HV-GR-HP-SH-DRY02
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	29,662.00	28,400.00
Estimated Summer Peak kW	8.63	8.63
Estimated Winter Peak kW	12.18	12.18
Electric Rate Used	PLS-11-C__NoFuel&FF	PLS-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	4,060.75	3,608.72
Total Therms	0.00	0.00
Total Gallons	22,910.00	22,910.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Commercial Clothes Washer - ENERGY STAR		
Measure ID	147	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Residential-style clothes washer meeting current ENERGY STAR specification		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Laundry Appliance	Segment(s)	ED, HS, LG, RS
Measure Sub-Type	Washing	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Residential Washer				
Baseline Value					
Efficiency Description	ENERGY STAR Washer				
Efficiency Value					
Annual Energy Savings	1,060	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$51.93		
Incremental Cost Reference	Nexant market research, 2017		
TRC	7.09	Electric Avoided Cost (Lifetime, NPV)	\$368.37
RIM	0.77	Electric Lost Revenue (Lifetime, NPV)	\$478.62
PCT	9.22	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \left[\left(\frac{\text{CAPbase}}{\text{MEFb}} \right) - \left(\frac{\text{CAPe}}{\text{MEFp}} \right) \right] * N$$

Value		Description	Value	Units	Reference
N	=	Number of cycles per year	2,190.00		1
MEFb	=	Base Federal Standard Modified Energy Factor	1.60		2
MEFp	=	Modified Energy Factor of ENERGY STAR Washing	2.20		3
Capbase	=	Capacity of baseline clothes washer	2.84	ft3	4
Capee	=	Capacity of efficient clothes washer	2.84	ft3	5
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016: U.S. Department of Energy. Commercial Clothes Washer Supplemental Notice of Proposed Rulemaking, Chapter 6.
2	“Energy Conservation Program: Energy Conservation Standards . . .”, 75 Federal Register 5 (8 January 2010), pp. 1123
3	ENERGY STAR. U.S. EPA and U.S. DoE. “ENERGY STAR Program Requirements Product Specification for Clothes Washers.” V6.1 Clothes Washers Specification (Jan. 2013)
4	California Energy Commission (“CEC”) Appliance Efficiency database, http://www.appliances.energy.ca.gov/QuickSearch.aspx
5	California Energy Commission (“CEC”) Appliance Efficiency database, http://www.appliances.energy.ca.gov/QuickSearch.aspx



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Commercial Hot Food Holding Cabinets (ENERGY STAR)		
Measure ID	149	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Hot food holding cabinet meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, GR, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Hot Food Holding Cabinet				
Baseline Value					
Efficiency Description	ENERGY STAR Hot Food Holding Cabinet				
Efficiency Value					
Annual Energy Savings	2,000	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.40	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$832.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.08	Electric Avoided Cost (Lifetime, NPV)	\$897.84
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$1,952.70
PCT	2.35	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for Hot Food Holding Cabinets	2,000.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 Commercial DSM Programs. Nexant, Aug 2018.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Commercial Solid Door Refrigerator & Freezer (ENERGY STAR)		
Measure ID	150	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Glass door refrigerator meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Refrigerated	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Glass Door Refrigerator				
Baseline Value					
Efficiency Description	ENERGY STAR Glass Door Refrigerator				
Efficiency Value					
Annual Energy Savings	1,000	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	5.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,729.93		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.23	Electric Avoided Cost (Lifetime, NPV)	\$396.80
RIM	0.58	Electric Lost Revenue (Lifetime, NPV)	\$683.52
PCT	0.40	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for Door Gaskets per linear foot	1,000.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Commercial DSM Programs. Nexant, July 2015.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Commercial Steam Cookers (ENERGY STAR)		
Measure ID	151	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	4-Pan electric steamer meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, GR, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Economy-Grade Steamer				
Baseline Value					
Efficiency Description	ENERGY STAR Steamer				
Efficiency Value					
Annual Energy Savings	7,787	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	1.10	kW	Winter Peak Demand Savings	0.70	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,053.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.13	Electric Avoided Cost (Lifetime, NPV)	\$3,438.05
RIM	0.38	Electric Lost Revenue (Lifetime, NPV)	\$9,154.30
PCT	3.00	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$kWh = kWh_{base, total} - kWh_{eff, total}$

$kWh(base, total \text{ or } eff, total) = LB_{food} * E_{food} / CookEff * 365 + (1 - \%Steam) * IdleEnergy * (12 \text{ hrs/day} - LB_{food} / Capacity - PHTime / 60)$

$* 365 + (\%Steam) * ((Capacity * E_{food}) / CookEff) * (12 \text{ hrs/day} - LB_{food} / Capacity - PHTime / 60) * 365 + PHEnergy * 365$

Value		Description	Value	Units	Reference
LBfood, base and eff	=	Food cooked per day	150.00	lb/day	1
Efood	=	ASTM defined Energy to Food	0.03	kWh/lb	2
CookEffbase	=	Cooking energy efficiency (%) - baseline model	26.00	%	3
CookEffeff	=	Cooking energy efficiency (%) - efficient model	50.00	%	4
%Steambase	=	Constant Steam Energy Use - baseline model	90.00	%	5
%Steameff	=	Constant Steam Energy Use - efficient model	10.00	%	6
IdleEnergybase	=	Idle energy rate - baseline model	0.33	kW/pan	7
IdleEnergyeff	=	Idle energy rate - efficient model	0.13	kW/pan	8
Capacitybase	=	Production capacity - baseline model	23.33	lbs./hr/pan	9
Capacityeff	=	Production capacity - efficient model	16.67	lbs./hr/pan	10
PHTime	=	Steam Cooker Preheat time	15.00	min	11
PHEnergy	=	kWh/day - baseline model	1.50	kWh/day	12

References

1	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
2	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
3	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
4	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
5	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
6	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
7	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
8	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
9	ENERGY STAR
10	ENERGY STAR
11	Food Service Technology Center 2011 Savings Calculator, assumed 12 hrs/day of operation
12	ENERGY STAR

Commercial Steam Cookers (ENERGY STAR)



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Connectionless (Boilerless) Steamers		
Measure ID	154	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Electric steamer meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, GR, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Economy-Grade Steamer				
Baseline Value					
Efficiency Description	ENERGY STAR Steamer				
Efficiency Value					
Annual Energy Savings	3,266	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Steamers		Modeled Building Segment	Restaurant	
Summer Peak Demand Savings	0.50	kW	Winter Peak Demand Savings	0.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,202.67		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.20	Electric Avoided Cost (Lifetime, NPV)	\$1,442.16
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$3,413.60
PCT	2.84	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Rest-BAS02	NC-B-RS-4-CA-RT-GH-CO-STM038
Home/Facility Square Footage	4,060.88	4,060.88
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	710,987.00	707,721.00
Estimated Summer Peak kW	111.85	111.37
Estimated Winter Peak kW	58.85	58.56
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	52,658.51	52,379.53
Total Therms	825.00	825.00
Total Gallons	1,241,479.00	1,241,479.00
Envelope		
Attic R	1.89	1.89
Ceiling R	1.89	1.89
Wall R	40.00	40.00
Floor R	1.87	1.87
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	385.46	385.46
HVAC Type		
HVAC Tonnage	46.25	46.25
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	115.00	115.00
Water Heater BTU/kW		
Water Temp Set Point	160.00	160.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Data Center - Energy efficient design (even loading on servers, HVAC system)		
Measure ID	157	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Construction of data center to optimize HVAC and server efficiency		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	DC
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Data Center Design				
Baseline Value					
Efficiency Description	Efficiency Data Center Design				
Efficiency Value					
Annual Energy Savings	1,033,072	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	50.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Hours		Modeled Building Segment	Datacenter	
Summer Peak Demand Savings	68.50	kW	Winter Peak Demand Savings	68.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	Industry estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$25,000.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	6.30	Electric Avoided Cost (Lifetime, NPV)	\$157,551.38
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$268,820.04
PCT	10.75	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-DataCntr-OT-BAS	NC-B-DC-2-OA-CH-GH-OT-DAT018
Home/Facility Square Footage	57,600.00	57,600.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	6,861,547.00	5,828,475.00
Estimated Summer Peak kW	1,486.82	1,418.28
Estimated Winter Peak kW	1,207.81	1,139.26
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	472,289.93	441,946.01
Total Therms	0.00	0.00
Total Gallons	165,341.00	165,341.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	960.00	960.00
HVAC Type		
HVAC Tonnage	810.00	810.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	65.00	65.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Data Center - Energy efficient servers		
Measure ID	158	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Server meeting ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	DC, GV, HS, LG, OF, RT
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Server		
Baseline Value			
Efficiency Description	ENERGY STAR Server		
Efficiency Value			
Annual Energy Savings	452,465	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Server	Modeled Building Segment	Datacenter
Summer Peak Demand Savings	107.70	kW	Winter Peak Demand Savings 107.70 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	5	Years	
Equipment Life Reference	Industry estimate from Nexant market research		

Measure Economic Impacts

Incremental Cost	\$2,524.24		
Incremental Cost Reference	Nexant market research, 2017		
TRC	33.62	Electric Avoided Cost (Lifetime, NPV)	\$84,875.07
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$185,662.24
PCT	73.55	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-DataCntr-OT-BAS	NC-B-DC-2-OA-CH-GH-OT-DAT017
Home/Facility Square Footage	57,600.00	57,600.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	6,861,547.00	6,409,082.00
Estimated Summer Peak kW	1,486.82	1,379.11
Estimated Winter Peak kW	1,207.81	1,100.10
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	472,289.93	443,974.98
Total Therms	0.00	0.00
Total Gallons	165,341.00	165,341.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	960.00	960.00
HVAC Type		
HVAC Tonnage	810.00	810.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	65.00	65.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Data Center - Server/Storage consolidation		
Measure ID	159	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Consolidate servers to optimize energy efficiency		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	DC, GV, HS, LG, OF, RT
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	N/A - Retrofit Only				
Baseline Value					
Efficiency Description	Data Center Server Consolidation				
Efficiency Value					
Annual Energy Savings	2,378,209	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Facility		Modeled Building Segment		Datacenter
Summer Peak Demand Savings	557.20	kW	Winter Peak Demand Savings	520.40	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	Industry estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$82,050.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	5.41	Electric Avoided Cost (Lifetime, NPV)	\$443,972.08
RIM	0.44	Electric Lost Revenue (Lifetime, NPV)	\$998,394.32
PCT	12.17	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-DataCntr-OT-BAS	NC-B-DC-2-OA-CH-GH-OT-DAT015
Home/Facility Square Footage	57,600.00	57,600.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	6,861,547.00	4,483,338.00
Estimated Summer Peak kW	1,486.82	929.61
Estimated Winter Peak kW	1,207.81	687.46
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	472,289.93	318,484.62
Total Therms	0.00	0.00
Total Gallons	165,341.00	165,341.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	960.00	960.00
HVAC Type		
HVAC Tonnage	810.00	810.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	65.00	65.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Data Center - Server/Storage virtualization		
Measure ID	160	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Partitioning a physical server into a number of small, virtual servers		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	DC, GV, HS, LG, OF, RT
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	N/A - Retrofit Only				
Baseline Value					
Efficiency Description	Data Center Server Virtualization				
Efficiency Value					
Annual Energy Savings	2,378,209	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Server System		Modeled Building Segment		Datacenter
Summer Peak Demand Savings	557.20	kW	Winter Peak Demand Savings	520.40	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	Industry estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$8,039.03		
Incremental Cost Reference	ENERGY STAR, "12 Ways to Save Energy in Data Centers and Server Rooms", Server Virtualization		
TRC	55.23	Electric Avoided Cost (Lifetime, NPV)	\$443,972.08
RIM	0.44	Electric Lost Revenue (Lifetime, NPV)	\$998,394.32
PCT	124.19	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-DataCntr-OT-BAS	NC-B-DC-2-OA-CH-GH-OT-DAT016
Home/Facility Square Footage	57,600.00	57,600.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	6,861,547.00	4,483,338.00
Estimated Summer Peak kW	1,486.82	929.61
Estimated Winter Peak kW	1,207.81	687.46
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	472,289.93	318,484.62
Total Therms	0.00	0.00
Total Gallons	165,341.00	165,341.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	960.00	960.00
HVAC Type		
HVAC Tonnage	810.00	810.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	65.00	65.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR commercial dishwasher		
Measure ID	179	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Dishwasher meeting current ENERGY STAR Requirements		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Dishwasher				
Baseline Value					
Efficiency Description	ENERGY STAR Commercial Dishwasher				
Efficiency Value					
Annual Energy Savings	8,945	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.50	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$826.81		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.64	Electric Avoided Cost (Lifetime, NPV)	\$3,839.06
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$9,181.94
PCT	11.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$kWh = BldgEnergy + BoosterEnergy + IdleEnergy$

$BldgEnergy, BoosterEnergy = [(WUB * RW * D) * (Tin * Twash * 8.3 / EffHt / 3412)] - [(WaterUseESTAR * RW * D) * (Tin * 1 * 8.3 / EffHt / 3,412)]$

$IdleEnergy = [IdleDrawBase * (Hours * D - D * RW * Twash / 60)] - [IdleDrawESTAR * (Hours * D - D * RW * Twash / 60)]$

Value		Description	Value	Units	Reference
WUB	=	Water use per rack (gal) of baseline dishwasher	1.29	gal	1
RW	=	Number of racks washed per day	280.00		2
D	=	Annual days of dishwasher operation	365.00	days	3
Tin	=	Inlet water temperature increase	40.00	deg F	4
EFFHt	=	Efficiency of water heater	0.98		5
WaterUseESTAR	=	Water use per rack (gal) of ENERGY STAR dishwasher	0.89	gal	6
IdleDrawBase	=	Idle power draw (kW) of baseline dishwasher	0.87	kW	7
IdleDrawESTAR	=	Idle power draw (kW) of ENERGY STAR dishwasher	0.70	kW	8
Hours	=	Average daily hours of dishwasher operation	18.00	hours	9
Twash	=	Typical wash time	1.00	min	10
8.3	=	Specific weight of water	8.30	lbs/gal	
3412	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	

References

1	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
2	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
3	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
4	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
5	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
6	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
7	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
8	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
9	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
10	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Imaging Equipment (non-residential)		
Measure ID	180	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install ENERGY STAR imaging equipment		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	AM, ED, GR, GV, HS, LG, OF, RT
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Imaging Equipment				
Baseline Value					
Efficiency Description	ENERGY STAR Imaging Equipment				
Efficiency Value					
Annual Energy Savings	130	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	4	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$391.50		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.04	Electric Avoided Cost (Lifetime, NPV)	\$17.15
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$41.50
PCT	0.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh= Esav					

Value		Description	Value	Units	Reference
Esav	=	Energy Savings	130.22	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Office Equipment Calculator, updated October 2016. Savings estimate based on average of kWh savings for all devices assuming 60 images per minute.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Monitor (non-residential)		
Measure ID	181	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Computer Monitor meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	AM,DC,ED,GR,GV,HS,LG,SO,RL,RS,RT,WR,MS
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Monitor				
Baseline Value					
Efficiency Description	ENERGY STAR Monitor				
Efficiency Value					
Annual Energy Savings	1,009	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Units		Modeled Building Segment	Hospital	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	Pennsylvania Statewide TRM Errata 2017 Appendix A				

Measure Economic Impacts

Incremental Cost	\$15.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	12.03	Electric Avoided Cost (Lifetime, NPV)	\$180.51
RIM	0.66	Electric Lost Revenue (Lifetime, NPV)	\$275.18
PCT	18.35	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Hosp-COM-BAS	NC-E-GH-Hosp-COM-ESMON
Home/Facility Square Footage	241,120.00	241,120.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,359,266.00	10,358,257.00
Estimated Summer Peak kW	2,012.87	2,012.67
Estimated Winter Peak kW	1,194.63	1,194.43
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	627,174.88	627,142.50
Total Therms	363,089.00	363,089.00
Total Gallons	6,825,500.00	6,825,500.00
Envelope		
Attic R	10.00	10.00
Ceiling R	10.00	10.00
Wall R	13.00	13.00
Floor R	1.00	1.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	12,056.00	12,056.00
HVAC Type		
HVAC Tonnage	2,000.00	2,000.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	397.00	397.00
Water Heater BTU/kW	1,600,000.00	1,600,000.00
Water Temp Set Point	160.00	160.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Personal Computer (desktop or laptop) (non-residential)		
Measure ID	182	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Personal computer meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	AM,DC,ED,GR,GV,HS,LG,SO,RL,RS,RT,WR,MS
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Personal Computer				
Baseline Value					
Efficiency Description	ENERGY STAR Personal Computer				
Efficiency Value					
Annual Energy Savings	28,240	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	237.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Units		Modeled Building Segment	Hospital	
Summer Peak Demand Savings	5.60	kW	Winter Peak Demand Savings	5.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	4	Years			
Equipment Life Reference	Pennsylvania Statewide TRM Errata 2017 Appendix A				

Measure Economic Impacts

Incremental Cost	\$47,400.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.08	Electric Avoided Cost (Lifetime, NPV)	\$3,947.17
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$8,507.01
PCT	0.18	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Hosp-COM-BAS	NC-E-GH-Hosp-COM-ESCOM
Home/Facility Square Footage	241,120.00	241,120.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,359,266.00	10,331,026.00
Estimated Summer Peak kW	2,012.87	2,007.27
Estimated Winter Peak kW	1,194.63	1,189.03
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	627,174.88	625,652.42
Total Therms	363,089.00	363,089.00
Total Gallons	6,825,500.00	6,825,500.00
Envelope		
Attic R	10.00	10.00
Ceiling R	10.00	10.00
Wall R	13.00	13.00
Floor R	1.00	1.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	12,056.00	12,056.00
HVAC Type		
HVAC Tonnage	2,000.00	2,000.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	397.00	397.00
Water Heater BTU/kW	1,600,000.00	1,600,000.00
Water Temp Set Point	160.00	160.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Uninterruptable Power Supply		
Measure ID	184	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Standard Desktop Plugged into Energy Star Uninterruptable Power Supply at 25% Load		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	DC, ED, GV, HS
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description					
Baseline Value					
Efficiency Description	Energy Star Uninterruptable Power Supply				
Efficiency Value					
Annual Energy Savings	5,974	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	30.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	kW controlled		Modeled Building Segment	Datacenter	
Summer Peak Demand Savings	0.70	kW	Winter Peak Demand Savings	0.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	Based on other Battery measures				

Measure Economic Impacts

Incremental Cost	\$1,478.70		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.66	Electric Avoided Cost (Lifetime, NPV)	\$976.75
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$2,098.60
PCT	1.42	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-HP-RTU-DataCntr-BAS	NC-N-HP-RTU-DataCntr-ESUPS
Home/Facility Square Footage	57,600.00	57,600.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	8,015,487.00	8,009,513.00
Estimated Summer Peak kW	1,810.24	1,809.50
Estimated Winter Peak kW	1,496.88	1,496.24
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	552,517.44	552,221.57
Total Therms	0.00	0.00
Total Gallons	165,341.00	165,341.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	960.00	960.00
HVAC Type		
HVAC Tonnage	1,049.64	1,049.64
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	65.00	65.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ENERGY STAR Water Cooler		
Measure ID	185	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Storage type hot/cold water cooler unit meeting ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	AM, GR, GV, HS, LG, OF, RT, WR
Measure Sub-Type	Refrigerated	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Water Cooler				
Baseline Value					
Efficiency Description	ENERGY STAR Water Cooler				
Efficiency Value					
Annual Energy Savings	548	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	Engineering estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$85.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.21	Electric Avoided Cost (Lifetime, NPV)	\$357.62
RIM	1.11	Electric Lost Revenue (Lifetime, NPV)	\$322.87
PCT	3.80	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{ENERGYBASE} - \text{ENERGYEFF}) \times 365$$

Value		Description	Value	Units	Reference
ENERGYBASE	=	Baseline Water Cooler Energy Consumption	2.19	kWh/day	1
ENERGYEFF	=	Efficient Water Cooler Energy Consumption	0.69	kWh/day	2
365	=	Days per year	365.00	days/year	
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.4.9, Table 2-94, Page 165
2	ENERGY STAR Certified Water Coolers Qualified Products List, Average of all models, Accessed 1/4/16



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Battery Charging System (non-residential)		
Measure ID	177	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	3-phase high frequency battery charger		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Electronics	Segment(s)	AM, GR, GV, HS, LG, OF, RT
Measure Sub-Type	Small Plug Load	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Battery Charging System				
Baseline Value					
Efficiency Description	ENERGY STAR Battery Charging System				
Efficiency Value					
Annual Energy Savings	5,562	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Charging Units		Modeled Building Segment		
Summer Peak Demand Savings	1.00	kW	Winter Peak Demand Savings	0.70	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$200.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.82	Electric Avoided Cost (Lifetime, NPV)	\$964.15
RIM	0.44	Electric Lost Revenue (Lifetime, NPV)	\$2,194.63
PCT	10.97	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [\text{hourscharge} (\text{Wchargepre} - \text{Wchargepost}) + \text{hoursidle} (\text{Widlepre} - \text{Widlepost})] / \text{WHperKWH}$$

Value		Description	Value	Units	Reference
hourscharge	=	annual hours system is actively charging	8,234.00	hours	1
hoursidle	=	annual hours the system is operating with no load or in	526.00	hours	2
Wchargepre	=	wattage draw of the charging system in active charging	5,785.00	W	3
Wchargepost	=	wattage draw of the charging system in active charging	5,111.00	W	4
Widlepre	=	wattage draw of the system operating with no load or in	34.00	W	5
Widlepost	=	wattage draw of the system with no load or in	10.00	W	6
WHperKWH	=	Conversion from kilowatts to watts	1,000.00	Wh/kWh	
	=				
	=				
	=				
	=				
	=				

References

1	Arkansas TRM Version 6.1, Section 3.7.14, Table 405. TRM Reference: Battery Charger California Title 20 CASE, Analysis of Standard Options for Battery Charger Systems.
2	Arkansas TRM Version 6.1, Section 3.7.14, Table 405. TRM Reference: Battery Charger California Title 20 CASE, Analysis of Standard Options for Battery Charger Systems.
3	Arkansas TRM Version 6.1, Section 3.7.14, Table 405. TRM Reference: Battery Charger California Title 20 CASE, Analysis of Standard Options for Battery Charger Systems.
4	Arkansas TRM Version 6.1, Section 3.7.14, Table 405. TRM Reference: Battery Charger California Title 20 CASE, Analysis of Standard Options for Battery Charger Systems.
5	Arkansas TRM Version 6.1, Section 3.7.14, Table 405. TRM Reference: Battery Charger California Title 20 CASE, Analysis of Standard Options for Battery Charger Systems.
6	Arkansas TRM Version 6.1, Section 3.7.14, Table 405. TRM Reference: Battery Charger California Title 20 CASE, Analysis of Standard Options for Battery Charger Systems.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Combination Oven - ENERGY STAR		
Measure ID	208	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Combination oven meeting current ENERGY STAR Requirements		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, GR, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Electric Oven				
Baseline Value					
Efficiency Description	ENERGY STAR High Efficiency Combination Oven				
Efficiency Value					
Annual Energy Savings	4,860	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.80	kW	Winter Peak Demand Savings	0.40	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,099.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.97	Electric Avoided Cost (Lifetime, NPV)	\$2,165.57
RIM	0.53	Electric Lost Revenue (Lifetime, NPV)	\$4,069.29
PCT	3.70	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{ENERGY}_{\text{base}} - \text{ENERGY}_{\text{eff}}) \times \text{DAYS}$$

Value		Description	Value	Units	Reference
ENERGYbase	=	Estimated baseline oven energy consumption	50.00	kWh/day	1
ENERGYeff	=	Estimated efficient combination oven energy	35.00	kWh/day	2
Days	=	Days of operation per year	324.00	days	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Certified Commercial Kitchen Equipment Calculator, Updated February 2015; one 12-pan combination oven meeting ENERGY STAR 2.0 standards, 55% efficient
2	ENERGY STAR Certified Commercial Kitchen Equipment Calculator, Updated February 2015; assumed one 12-pan standard, economy-grade combination oven, 49% efficient
3	Regional Technical Forum, Commercial: Cooking Equipment - Combination Ovens 2.0



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Fryers - ENERGY STAR		
Measure ID	210	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Standard vat electric fryer meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, GR, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Economy-Grade Standard Vat Electric Fryer				
Baseline Value					
Efficiency Description	ENERGY STAR Fryer				
Efficiency Value					
Annual Energy Savings	330	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$276.00		
Incremental Cost Reference	ENERGY STAR Commercial Kitchen Calculator, October 2016		
TRC	0.55	Electric Avoided Cost (Lifetime, NPV)	\$151.06
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$328.51
PCT	1.19	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{kWh}_{\text{base}} - \text{kWh}_{\text{eff}}$$

$$\text{kWh}(\text{base or eff}) = [(\text{LB} * (\text{E}_{\text{food}} / \text{CookEff})) * \text{D}] + [\text{IdleEnergy} * (\text{DailyHrs} - (\text{LB} / \text{Capacity}) - (\text{PreheatTime} / 60)) * \text{D}] + [\text{PreHtE} * \text{D}]$$

Value		Description	Value	Units	Reference
Daily Hrs	=	Daily Operating Hours	12.00	hours	1
Preheat Time	=	Time for Fryer to Preheat	15.00	min	2
Efood	=	ASTM defined Energy to Food	0.02	kWh/lb	3
D	=	Number of days of operation	365.00	days	4
CookEffbase	=	Cooking baseline energy efficiency	70.00	%	5
CookEffEff	=	Energy efficient cooking efficiency	80.00	%	6
IdleEnergy	=	Idle energy rate (same for Base & Eff)	1.05	kW	7
Capacitybase	=	Production capacity	100.00	lbs./hr	8
CapacityEff	=	Production capacity	110.00	lbs./hr	9
PreHtEbase	=	Preheating energy	2.30	kWh/day	10
PreHtEEff	=	Preheating energy	1.70	kWh/day	11
LB	=	Food cooked per day	150.00	lb/day	12

References

1	Food Service Technology Center 2011 Savings Calculator
2	Food Service Technology Center 2011 Savings Calculator
3	Food Service Technology Center 2011 Savings Calculator
4	Food Service Technology Center 2011 Savings Calculator
5	ENERGY STAR
6	ENERGY STAR
7	ENERGY STAR
8	Arkansas TRM, Version 6.1, Section 3.8.6, Table 437
9	Arkansas TRM, Version 6.1, Section 3.8.6, Table 437
10	Arkansas TRM, Version 6.1, Section 3.8.6, Table 437
11	Arkansas TRM, Version 6.1, Section 3.8.6, Table 437
12	Arkansas TRM, Version 6.1, Section 3.8.6, Table 437



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Griddle		
Measure ID	212	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Griddle meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, GR, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Conventional Griddle				
Baseline Value					
Efficiency Description	ENERGY STAR Griddle				
Efficiency Value					
Annual Energy Savings	1,909	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$860.00		
Incremental Cost Reference	ENERGY STAR Commercial Kitchen Calculator, October 2016		
TRC	0.98	Electric Avoided Cost (Lifetime, NPV)	\$843.61
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$1,658.47
PCT	1.93	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{ENERGY}_{\text{base}} - \text{ENERGY}_{\text{eff}}) \times \text{DAYS}$$

Value		Description	Value	Units	Reference
ENERGYbase	=	Estimated baseline griddle energy consumption	43.33	kWh/day	1
ENERGYeff	=	Estimated efficient griddle energy consumption	38.10	kWh/day	2
Days	=	Days of operation per year	365.00	days	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Certified Commercial Kitchen Equipment Calculator, Updated February 2015; assumed one griddle meeting ENERGY STAR 1.2 standards, 70% efficient
2	ENERGY STAR Certified Commercial Kitchen Equipment Calculator, Updated February 2015; assumed one conventional griddle with 65% efficiency
3	ENERGY STAR Certified Commercial Kitchen Equipment Calculator, Updated February 2015



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Ice Makers - ENERGY STAR		
Measure ID	217	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Continuous self-contained ice maker meeting current ENERGY STAR standards		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Refrigerated	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Ice Maker				
Baseline Value					
Efficiency Description	ENERGY STAR Ice Machine				
Efficiency Value					
Annual Energy Savings	948	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$330.01		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.94	Electric Avoided Cost (Lifetime, NPV)	\$309.82
RIM	0.56	Electric Lost Revenue (Lifetime, NPV)	\$550.09
PCT	1.67	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$kWh = (kWh_{base} - kWh_{ee})/100 \times H \times 365 \times DC$$

Value		Description	Value	Units	Reference
kWhbase	=	Baseline ice machine energy usage per 100 lbs. of ice	6.18	kWh/100lbs	1
kWhee	=	High-efficiency ice machine energy usage per 100 lbs. of	5.47	kWh/100lbs	2
H	=	Ice harvest rate per 24 hrs	650.00	lbs/day	3
DC	=	Duty cycle of ice maker - percentage of time machine	57.00	%	4
365	=	Days per year	365.00	days/year	
100	=	Conversion to obtain energy per pound of ice	100.00	lbs/100lbs	
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Federal energy conservation standard for automatic commercial ice makers. http://www1.eere.energy.gov/buildings/appliance_standards/product.aspx/productid/21
2	Commercial Ice Maker Key Product Criteria Version 2.0 https://www.energystar.gov/index.cfm?c=comm_ice_machines.pr_crit_comm_ice_machines
3	Engineering Assumption
4	This value from study in Vermont, Wisconsin, and New York. State of OH EE TRM cites a default duty cycle of 40% as a conservative value. Other studies range as high as 75%.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Induction Cooking		
Measure ID	218	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Induction instead of conduction cooking		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, GR, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Stove				
Baseline Value					
Efficiency Description	High Efficiency Induction Stove				
Efficiency Value					
Annual Energy Savings	1,802	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.40	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Engineering estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$2,236.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.29	Electric Avoided Cost (Lifetime, NPV)	\$654.87
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$1,633.19
PCT	0.73	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{kWbase} - \text{kWee}) \times \text{Hours} \times \text{Rapid_Cook_Factor} \times \text{HVAC_cooling}$$

Value		Description	Value	Units	Reference
kWbase	=	Deemed corresponding wattage of baseline technology	5.10	kW	1
kWee	=	Deemed wattagefor high-efficiency equipment	4.14	kW	2
Hours	=	Deemed annual operating hours by building type	1,822.00	Hours	3
Rapid_Cook_Factor	=	Deemed increased savings from increased throughput	1.00		4
HVAC_cooling	=	Deemed cooling system energy savings factor from	1.03		5
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Food Service Technology Assessment Report, Fisher-Nickel, kW_EE is productivity enhancement adjusted.
2	Food Service Technology Assessment Report, Fisher-Nickel, kW_EE is productivity enhancement adjusted.
3	Minnesota TRM version 2.1, Commercial Food Service - Electric Oven and Range, Table 3
4	Food Service Technology Assessment Report, Fisher-Nickel, kW_EE is productivity enhancement adjusted.
5	HVAC Interactive Factors developed based on the HVAC Interaction Factor extracted from the Arkansas Food Service Deemed Savings table.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Network PC Power Management		
Measure ID	356	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Attach computer equipment to centralized energy management system that controls when desktop computers and monitors plugged into a network power down to lower power states.		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	DC, GV, HS, LG, OF, RT
Measure Sub-Type	Equipment and Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Manually Controlled Equipment				
Baseline Value					
Efficiency Description	Network PC Power Management				
Efficiency Value					
Annual Energy Savings	805	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	94.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Units		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	http://www.ohio.edu/sustainability/greenpc/				

Measure Economic Impacts

Incremental Cost	\$1,410.00		
Incremental Cost Reference	Pennsylvania Public Utility Commission, EE Potential Study Final Report, 2015, Appendix E		
TRC	0.10	Electric Avoided Cost (Lifetime, NPV)	\$134.63
RIM	0.50	Electric Lost Revenue (Lifetime, NPV)	\$268.43
PCT	0.19	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = Wsavings*W					

Value		Description	Value	Units	Reference
Wsavings	=	annual energy savings per workstation	161.00	kWh	1
W	=	number of controlled workstations	5.00		2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Illinois TRM, Version 5.0,Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.8.3, page 490
2	Engineering Assumption



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Office Load Control (shed)		
Measure ID	360	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Load shedding measure to keep customer in lower tier of rates		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Computers and Office	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Operations and Management	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Load Control		
Baseline Value			
Efficiency Description	Office Load Control (shed)		
Efficiency Value			
Annual Energy Savings	747	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Controller	Modeled Building Segment	Office
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	16	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$2,973.20		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.15	Electric Avoided Cost (Lifetime, NPV)	\$441.51
RIM	1.18	Electric Lost Revenue (Lifetime, NPV)	\$373.20
PCT	0.13	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgOffice-OT-BAS	NC-B-OF-2-OA-CH-GH-LC-LDC094
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,971,917.00	2,971,170.00
Estimated Summer Peak kW	785.93	785.93
Estimated Winter Peak kW	222.24	222.24
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,179.07	257,167.99
Total Therms	7,696.00	7,696.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ozone commercial laundry system		
Measure ID	363	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install ozone commerical laundry system		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Laundry Appliance	Segment(s)	HS, LG
Measure Sub-Type	Washing	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Commerical Laundry System				
Baseline Value					
Efficiency Description	Ozone Commercial Laundry System				
Efficiency Value					
Annual Energy Savings	746	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Unit (assume 50 lb capacity)		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,992.00		
Incremental Cost Reference	Illinois 2015 Statewide TRM, Section 4.3.6		
TRC	0.06	Electric Avoided Cost (Lifetime, NPV)	\$259.26
RIM	0.75	Electric Lost Revenue (Lifetime, NPV)	\$343.72
PCT	0.09	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWhPUMP = HP * 0.746 * Hours * %water_savings

Value		Description	Value	Units	Reference
HP	=	Brake horsepower of boiler feed water pump	5.00	HP	1
Hours	=	Actual associated boiler feed water pump hours	800.00	hour	2
%water_savings	=	Water reduction factor for ozone injection washing	0.25		3
0.746	=	Conversion from HP to kW	0.75	kW/hp	
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Assumed average horsepower for boilers connected to applicable washer
2	Illinois Statewide TRM, 2015.
3	Illinois Statewide TRM, 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Smart strip surge protector (non-residential)		
Measure ID	379	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Use smart plug load power strips with a motion sensor that is incorporated with a plug load surge suppressor. Inactive equipment can be shut down when the cubicle/office is unoccupied.		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Electronics	Segment(s)	AM,DC,ED,GR,GV,HS,LG,SO,RL,RS,RT,WR,MS
Measure Sub-Type	Small Plug Load	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard plug strip/outlet				
Baseline Value					
Efficiency Description	Smart Strip Plug Outlet				
Efficiency Value					
Annual Energy Savings	120	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Controllers		Modeled Building Segment		
Summer Peak Demand Savings	0.02	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$19.45		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.07	Electric Avoided Cost (Lifetime, NPV)	\$20.78
RIM	0.43	Electric Lost Revenue (Lifetime, NPV)	\$48.75
PCT	2.51	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for Smart Power Strips	120.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 Commercial DSM Programs. Nexant, Aug 2018.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Solid-state temperature controls		
Measure ID	383	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Solid-state thermostats with precise temperature control		
Measure Category	Appliances and Plug Loads	Sector(s)	Commercial
Measure Type	Kitchen Appliance	Segment(s)	ED, GR, HS, LG, RS
Measure Sub-Type	Cooking	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Conventional temperature controls				
Baseline Value					
Efficiency Description	Solid-state temperature controls				
Efficiency Value					
Annual Energy Savings	9,028	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	12.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Units		Modeled Building Segment	Restaurant	
Summer Peak Demand Savings	1.60	kW	Winter Peak Demand Savings	0.40	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,700.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.49	Electric Avoided Cost (Lifetime, NPV)	\$4,036.43
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$7,803.80
PCT	2.89	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Rest-BAS02	NC-B-RS-4-CA-RT-GH-CO-OTH047
Home/Facility Square Footage	4,060.88	4,060.88
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	710,987.00	701,959.00
Estimated Summer Peak kW	111.85	110.26
Estimated Winter Peak kW	58.85	58.43
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	52,658.51	52,065.00
Total Therms	825.00	825.00
Total Gallons	1,241,479.00	1,241,479.00
Envelope		
Attic R	1.89	1.89
Ceiling R	1.89	1.89
Wall R	40.00	40.00
Floor R	1.87	1.87
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	385.46	385.46
HVAC Type		
HVAC Tonnage	46.25	46.25
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	115.00	115.00
Water Heater BTU/kW		
Water Temp Set Point	160.00	160.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Active chilled beam cooling		
Measure ID	129	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Use active chilled beam cooling for HVAC system		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF, RL
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Variable Air Volume System				
Baseline Value					
Efficiency Description	Active Chilled Beam Cooling				
Efficiency Value					
Annual Energy Savings	64,968	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	57,600.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Office	
Summer Peak Demand Savings	27.90	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	25	Years			
Equipment Life Reference	Engineering estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$225,216.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.27	Electric Avoided Cost (Lifetime, NPV)	\$59,736.40
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$144,129.20
PCT	0.64	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-EF-LgOffice-CH-BAS	NC-N-OF-2-HV-CH-EF-HV-OTH252
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,099,878.00	3,034,910.00
Estimated Summer Peak kW	774.68	746.79
Estimated Winter Peak kW	711.77	711.77
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	256,455.40	248,237.89
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Adjustable Speed Drives (ASD)		
Measure ID	130	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install variable speed drives on pumps		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	System Control and Management	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Pumps with Valve Control				
Baseline Value					
Efficiency Description	Pumps with VFD Controls				
Efficiency Value					
Annual Energy Savings	1,306	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	75.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Hp		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$4,330.35		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.14	Electric Avoided Cost (Lifetime, NPV)	\$590.34
RIM	0.62	Electric Lost Revenue (Lifetime, NPV)	\$955.74
PCT	0.22	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for Adustable Speed Drive	1,305.90	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Commercial DSM Programs. Nexant, July 2015.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ASD HVAC Fan		
Measure ID	133	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Heat Pump Circulating Fan equipped with shaded-pole motor with VFD control		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Ventilation Systems	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Fans	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Constant Speed Fan				
Baseline Value					
Efficiency Description	ASD HVAC Fan				
Efficiency Value					
Annual Energy Savings	1,304	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	5.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Hp		Modeled Building Segment		
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,011.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.59	Electric Avoided Cost (Lifetime, NPV)	\$600.66
RIM	0.60	Electric Lost Revenue (Lifetime, NPV)	\$993.49
PCT	0.98	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for ASD HVAC fan	1,304.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Commercial DSM Programs. Nexant, July 2015.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Bipolar Ionization		
Measure ID	136	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Use ionization field to reduce demand for outside air		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,OF,WR,MS
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	N/A		
Baseline Value			
Efficiency Description	Bipolar Ionization		
Efficiency Value			
Annual Energy Savings	3,249	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Units	Modeled Building Segment	Office
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	based on 10,000 hour operation before maintenance		

Measure Economic Impacts

Incremental Cost	\$613.77		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.29	Electric Avoided Cost (Lifetime, NPV)	\$2,018.37
RIM	0.68	Electric Lost Revenue (Lifetime, NPV)	\$2,948.09
PCT	4.80	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-OTH100
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	3,110,549.00
Estimated Summer Peak kW	778.75	778.75
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	257,488.12
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ceiling Insulation (non-residential)		
Measure ID	138	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Increased ceiling insulation		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Minimum Ceiling Insulation		
Baseline Value	R-30		
Efficiency Description	Increased Ceiling Insulation		
Efficiency Value	R-40		
Annual Energy Savings	58,303	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	75,621.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Roof square feet	Modeled Building Segment	Retail
Summer Peak Demand Savings	16.70	kW	Winter Peak Demand Savings 76.50 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	20	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$62,009.22		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.84	Electric Avoided Cost (Lifetime, NPV)	\$52,305.84
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$109,472.71
PCT	1.77	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-SH-RFI178
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,860,749.00
Estimated Summer Peak kW	394.52	377.85
Estimated Winter Peak kW	554.49	477.96
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	119,084.32
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	30.00
Ceiling R	11.00	30.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Chilled Water Reset, Optimizer System for Chiller(s)		
Measure ID	140	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Chiller with fixed differential pressure setpoint and reset of chilled water temperature setpoint		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	System Control and Management	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Chiller with Fixed Chilled Water Temperature		
Baseline Value			
Efficiency Description	Chilled Water Temperature Reset		
Efficiency Value			
Annual Energy Savings	45,406	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	5.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Labor Hours	Modeled Building Segment	Office
Summer Peak Demand Savings	19.70	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$680.00		
Incremental Cost Reference	RSMeans cost calculator		
TRC	31.00	Electric Avoided Cost (Lifetime, NPV)	\$21,081.77
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$57,986.12
PCT	85.27	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-CHW059
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	3,068,392.00
Estimated Summer Peak kW	778.61	758.95
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	251,855.65
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Chiller Early Retirement		
Measure ID	141	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Replace old code compliant chiller with current code compliant chiller.		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Chiller	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Legacy Chiller				
Baseline Value					
Efficiency Description	Code-Compliant Chiller				
Efficiency Value					
Annual Energy Savings	139,086	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	810.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment	Office	
Summer Peak Demand Savings	60.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$233,251.88		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.48	Electric Avoided Cost (Lifetime, NPV)	\$112,503.98
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$280,372.56
PCT	1.20	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-E-OF-2-HV-CH-EF-HV-CHW060
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	2,974,712.00
Estimated Summer Peak kW	778.61	718.36
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	239,727.42
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Chiller Tune Up / Diagnostics		
Measure ID	142	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Perform diagnostics and tune-up of existing chiller		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Chiller		
Baseline Value			
Efficiency Description	Chiller Tune Up / Diagnostics		
Efficiency Value			
Annual Energy Savings	97,852	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	5.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Labor Hours	Modeled Building Segment	Office
Summer Peak Demand Savings	2.10	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$32,640.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.10	Electric Avoided Cost (Lifetime, NPV)	\$35,824.52
RIM	0.87	Electric Lost Revenue (Lifetime, NPV)	\$41,361.47
PCT	1.27	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-E-OF-2-HV-CH-EF-HV-CHW061
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	3,015,946.00
Estimated Summer Peak kW	778.61	776.50
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	255,359.58
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	3,645.83
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Commercial energy recovery ventilation systems		
Measure ID	148	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Unitary cooling equipment that incorporates energy recovery		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Energy Recovery				
Baseline Value					
Efficiency Description	Commercial Energy Recovery Ventilation Systems				
Efficiency Value					
Annual Energy Savings	5,613	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,624.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cfm		Modeled Building Segment	Small Office	
Summer Peak Demand Savings	10.80	kW	Winter Peak Demand Savings	51.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	14	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$10,391.04		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.23	Electric Avoided Cost (Lifetime, NPV)	\$12,820.66
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$26,680.03
PCT	2.57	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-SmOffice-RTU-BAS	NC-B-SO-2-HV-RT-HP-HV-OTH251
Home/Facility Square Footage	31,250.00	31,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	998,250.00	992,637.00
Estimated Summer Peak kW	226.99	216.20
Estimated Winter Peak kW	232.10	180.91
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	67,881.36	65,435.32
Total Therms	0.00	0.00
Total Gallons	57,716.00	57,716.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	20.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	2,187.50	2,187.50
HVAC Type		
HVAC Tonnage	105.26	105.26
HVAC SEER	9.30	10.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	120.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Commercial Windows, 2012 IECC Standard, SHGC 0.25		
Measure ID	152	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Window meeting current ENERGY STAR requirements		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Window		
Baseline Value			
Efficiency Description	ENERGY STAR Window		
Efficiency Value			
Annual Energy Savings	11,810	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1,322.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Window square feet	Modeled Building Segment	Lodging
Summer Peak Demand Savings	5.50	kW	Winter Peak Demand Savings 0.80 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	20	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$7,436.25		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.33	Electric Avoided Cost (Lifetime, NPV)	\$9,889.46
RIM	0.50	Electric Lost Revenue (Lifetime, NPV)	\$19,616.69
PCT	2.64	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-Lodge-PT-BAS	NC-B-LG-2-HV-PT-HP-SH-WIN183
Home/Facility Square Footage	25,023.95	25,023.95
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	278,071.00	266,261.00
Estimated Summer Peak kW	51.93	46.46
Estimated Winter Peak kW	61.51	60.76
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	23,532.20	22,336.45
Total Therms	0.00	0.00
Total Gallons	947,540.00	947,540.00
Envelope		
Attic R	11.00	11.00
Ceiling R	11.00	11.00
Wall R	10.00	10.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.86
Window Coeff	81.00	25.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	478.01	478.01
HVAC Type		
HVAC Tonnage	47.62	47.62
HVAC SEER	8.00	8.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	370.00	370.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Cooling Tower Optimization		
Measure ID	155	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Perform diagnostics and tune-up of existing cooling tower		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Cooling Tower		
Baseline Value			
Efficiency Description	Cooling Tower Optimization		
Efficiency Value			
Annual Energy Savings	62,797	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	40.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Labor Hours	Modeled Building Segment	Office
Summer Peak Demand Savings	16.30	kW	Winter Peak Demand Savings 1.50 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$164,920.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.15	Electric Avoided Cost (Lifetime, NPV)	\$24,332.21
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$57,516.85
PCT	0.35	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-CLT062
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	3,051,001.00
Estimated Summer Peak kW	778.61	762.33
Estimated Winter Peak kW	711.62	710.12
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	252,402.89
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Dehumidification system		
Measure ID	161	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduce load on central cooling coil with dehumidification system		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, WR
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Dehumidification System				
Baseline Value					
Efficiency Description	High Efficiency Dehumidification System				
Efficiency Value					
Annual Energy Savings	1,516	kWh	Annual Natural Gas Savings	-3.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	System		Modeled Building Segment	Retail	
Summer Peak Demand Savings	0.80	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,167.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.24	Electric Avoided Cost (Lifetime, NPV)	\$751.60
RIM	0.33	Electric Lost Revenue (Lifetime, NPV)	\$2,299.04
PCT	0.72	Other Utility Avoided Cost (Lifetime, NPV)	-\$25.60
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-WLHP-LgRtl-BAS	NC-B-RT-4-HV-WS-GH-HV-OTH009
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,778,346.00	1,776,830.00
Estimated Summer Peak kW	316.45	315.62
Estimated Winter Peak kW	263.27	263.17
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	108,297.88	108,055.82
Total Therms	10,142.00	10,145.00
Total Gallons	38,175.00	38,175.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	284.22	284.22
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Demand controlled ventilation		
Measure ID	163	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduce ventilation based on facility demand with CO2 sensors		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Ventilation Systems	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls and Optimization	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Constant Ventilation				
Baseline Value					
Efficiency Description	Demand Control Ventilation				
Efficiency Value					
Annual Energy Savings	134,320	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	120.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Zones		Modeled Building Segment	Office	
Summer Peak Demand Savings	-0.80	kW	Winter Peak Demand Savings	35.50	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$66,720.00		
Incremental Cost Reference	Illinois 2015 Statewide TRM, Section 4.4.19		
TRC	0.86	Electric Avoided Cost (Lifetime, NPV)	\$57,709.80
RIM	1.17	Electric Lost Revenue (Lifetime, NPV)	\$49,232.09
PCT	0.74	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-OTH071
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	2,979,478.00
Estimated Summer Peak kW	778.61	779.41
Estimated Winter Peak kW	711.62	676.09
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	255,423.36
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	3,645.83
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Duct Testing & Sealing (non-residential)		
Measure ID	167	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduce duct leakage		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Ventilation Systems	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Ducts	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Testing or Sealing				
Baseline Value					
Efficiency Description	Duct Testing & Sealing				
Efficiency Value					
Annual Energy Savings	33,767	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,500.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Linear Feet		Modeled Building Segment		Retail
Summer Peak Demand Savings	10.20	kW	Winter Peak Demand Savings	62.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	18	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$7,240.00		
Incremental Cost Reference	RSMeans cost calculator		
TRC	4.27	Electric Avoided Cost (Lifetime, NPV)	\$30,909.16
RIM	0.67	Electric Lost Revenue (Lifetime, NPV)	\$46,185.25
PCT	6.38	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-RT-4-HV-RT-HP-HV-SVC283	NC-B-RT-4-HV-RT-HP-HV-SVC283
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,957,138.00	1,923,371.00
Estimated Summer Peak kW	406.16	395.95
Estimated Winter Peak kW	626.39	563.49
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	129,201.62	126,310.78
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	6.25	2.50
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ductless Mini-Split AC, 4 Ton, 16 SEER		
Measure ID	168	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Ductless Mini-Split AC, 4 Ton, 16 SEER		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM, DC, ED, LG, RL, RS, RT, SO, WR
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant AC Unit, 4 Tons, 16 SEER		
Baseline Value			
Efficiency Description	Ductless Mini-Split AC, 4 Ton, 16 SEER		
Efficiency Value			
Annual Energy Savings	28,955	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	4.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons	Modeled Building Segment	Small Office
Summer Peak Demand Savings	13.50	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	Based on similar HVAC measures		

Measure Economic Impacts

Incremental Cost	\$2,603.09		
Incremental Cost Reference	Nexant market research, 2017		
TRC	7.57	Electric Avoided Cost (Lifetime, NPV)	\$19,706.00
RIM	0.43	Electric Lost Revenue (Lifetime, NPV)	\$45,744.10
PCT	17.57	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-GH-SmOffice-RTU-BAS	NC-N-GH-SmOffice-DL-SEER
Home/Facility Square Footage	31,250.00	31,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	923,551.00	894,596.00
Estimated Summer Peak kW	207.78	194.33
Estimated Winter Peak kW	83.59	83.59
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	62,548.87	59,102.33
Total Therms	3,484.00	3,484.00
Total Gallons	57,716.00	57,716.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	2,187.50	2,187.50
HVAC Type		
HVAC Tonnage	105.26	105.26
HVAC SEER	11.00	12.60
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ductless Mini-Split HP, 4 Ton, 16 SEER, 9 HSPF		
Measure ID	169	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Ductless Mini-Split HP, 4 Ton, 16 SEER, 9 HSPF		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM, DC, ED, LG, RL, RS, RT, SO, WR
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant ASHP, 4 Tons, 16 SEER, 9.6 HSPF				
Baseline Value					
Efficiency Description	Ductless Mini-Split HP, 4 Ton, 16 SEER, 9 HSPF				
Efficiency Value					
Annual Energy Savings	40,311	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	4.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment	Small Office	
Summer Peak Demand Savings	18.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Based on similar HVAC measures				

Measure Economic Impacts

Incremental Cost	\$2,603.09		
Incremental Cost Reference	Nexant market research, 2017		
TRC	10.29	Electric Avoided Cost (Lifetime, NPV)	\$26,782.05
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$64,103.01
PCT	24.63	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-HP-SmOffice-RTU-BAS	NC-N-HP-SmOffice-DL-SEER
Home/Facility Square Footage	31,250.00	31,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	959,407.00	919,096.00
Estimated Summer Peak kW	158.96	140.63
Estimated Winter Peak kW	220.20	220.20
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	64,474.55	59,637.14
Total Therms	0.00	0.00
Total Gallons	56,535.00	56,535.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	2,187.50	2,187.50
HVAC Type		
HVAC Tonnage	105.26	105.26
HVAC SEER	10.00	12.60
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Energy Management System		
Measure ID	176	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy management system control for building HVAC		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	System Control and Management	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Manual HVAC Control		
Baseline Value			
Efficiency Description	Energy Management System		
Efficiency Value			
Annual Energy Savings	107,148	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	245.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons	Modeled Building Segment	Retail
Summer Peak Demand Savings	27.50	kW	Winter Peak Demand Savings 6.20 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	20	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$30,580.90		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.12	Electric Avoided Cost (Lifetime, NPV)	\$64,753.57
RIM	0.91	Electric Lost Revenue (Lifetime, NPV)	\$71,296.47
PCT	2.33	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-HV-EMS068
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,811,904.00
Estimated Summer Peak kW	394.52	367.05
Estimated Winter Peak kW	554.49	548.25
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	123,639.49
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Facility Commissioning		
Measure ID	189	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Perform facility commissioning		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	System Control and Management	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Services	Vintage(s)	New Const.

Measure Savings Impacts

Baseline Description	N/A - New Construction Only		
Baseline Value			
Efficiency Description	Facility Commissioning		
Efficiency Value			
Annual Energy Savings	259,995	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	57,600.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Square feet	Modeled Building Segment	Office
Summer Peak Demand Savings	67.40	kW	Winter Peak Demand Savings 27.30 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$46,875.00		
Incremental Cost Reference	FEMP Operations and Maintenance Best Practices Guide, Release 3.0, Chapter 7		
TRC	2.02	Electric Avoided Cost (Lifetime, NPV)	\$94,863.75
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$235,122.71
PCT	5.02	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-EF-LgOffice-CH-BAS	NC-N-OF-2-HV-CH-EF-HV-OTH078
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,099,878.00	2,839,883.00
Estimated Summer Peak kW	774.68	707.24
Estimated Winter Peak kW	711.77	684.50
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	256,455.40	234,583.92
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Fan Motor - correct sizing		
Measure ID	191	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install properly sized fans to maximize efficiency		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Ventilation Systems	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Fans	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Oversized Fan Motor		
Baseline Value			
Efficiency Description	Correct Size Fan Motor		
Efficiency Value			
Annual Energy Savings	47,625	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	100.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Hp	Modeled Building Segment	Office
Summer Peak Demand Savings	5.20	kW	Winter Peak Demand Savings 3.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$10,000.00		
Incremental Cost Reference	RSMeans cost calculator		
TRC	2.06	Electric Avoided Cost (Lifetime, NPV)	\$20,550.56
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$39,695.32
PCT	3.97	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-FMO076
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	3,066,173.00
Estimated Summer Peak kW	778.61	773.42
Estimated Winter Peak kW	711.62	708.63
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	255,420.33
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Full Thermal Energy Storage		
Measure ID	195	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Thermal Energy Storage sized to meet entire load		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Performance	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	N/A		
Baseline Value			
Efficiency Description	Full Thermal Energy Storage		
Efficiency Value			
Annual Energy Savings	208,071	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	106.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Refrigeration Tons	Modeled Building Segment	Office
Summer Peak Demand Savings	87.10	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	20	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$56,160.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.01	Electric Avoided Cost (Lifetime, NPV)	\$169,089.96
RIM	0.33	Electric Lost Revenue (Lifetime, NPV)	\$513,381.12
PCT	9.14	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-THS089
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	2,905,727.00
Estimated Summer Peak kW	778.61	691.51
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	TOU-GSD-10__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	223,281.54
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Green roof - vegetated rooftop		
Measure ID	197	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Vegetated roof surface on top of standard roof		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Shell	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Black Roof				
Baseline Value					
Efficiency Description	Green roof - vegetated rooftop				
Efficiency Value					
Annual Energy Savings	3,410	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,716.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Roof square feet		Modeled Building Segment	Lodging	
Summer Peak Demand Savings	2.10	kW	Winter Peak Demand Savings	2.50	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Engineering estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$45,384.36		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.06	Electric Avoided Cost (Lifetime, NPV)	\$2,884.16
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$6,983.59
PCT	0.15	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-Lodge-PT-BAS	NC-B-LG-2-HV-PT-HP-SH-RFI247
Home/Facility Square Footage	25,023.95	25,023.95
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	278,071.00	274,661.00
Estimated Summer Peak kW	51.93	49.88
Estimated Winter Peak kW	61.51	58.97
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	23,532.20	22,975.59
Total Therms	0.00	0.00
Total Gallons	947,540.00	947,540.00
Envelope		
Attic R	11.00	21.00
Ceiling R	11.00	21.00
Wall R	10.00	10.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	478.01	478.01
HVAC Type		
HVAC Tonnage	47.62	47.62
HVAC SEER	8.00	8.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	370.00	370.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Greenhouse Heat Curtain		
Measure ID	198	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Thermal curtain is deployed at night to reduce heat required for freeze protection		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	WR
Measure Sub-Type	Shell	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Thermal Curtain		
Baseline Value			
Efficiency Description	Greenhouse Heat Curtain		
Efficiency Value			
Annual Energy Savings	261,995	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	200,000.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Square feet	Modeled Building Segment	Warehouse
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings 67.40 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$500,000.00		
Incremental Cost Reference	Virginia Cooperative Extension Fact sheet: https://pubs.ext.vt.edu/430/430-101/430-101.html		
TRC	0.18	Electric Avoided Cost (Lifetime, NPV)	\$88,456.37
RIM	0.70	Electric Lost Revenue (Lifetime, NPV)	\$126,079.17
PCT	0.25	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-E-WR-2-MO-RT-GH-HV-OTH140	NC-B-WR-2-MO-RT-GH-HV-OTH140
Home/Facility Square Footage	200,000.00	200,000.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,834,560.00	2,572,565.00
Estimated Summer Peak kW	712.68	712.52
Estimated Winter Peak kW	1,097.08	1,029.69
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	239,383.01	231,092.94
Total Therms	0.00	0.00
Total Gallons	1,539.00	1,539.00
Envelope		
Attic R	0.00	0.00
Ceiling R	5.00	5.00
Wall R	2.00	2.00
Floor R	1.23	1.23
Door R	0.00	0.00
Window R	1.00	5.00
Window Coeff	88.00	50.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	11,166.67	11,166.67
HVAC Type		
HVAC Tonnage	263.13	263.13
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ground Source Heat Pump		
Measure ID	199	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install high efficiency ground source heat pump		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Ground Source Heat Pump		
Baseline Value			
Efficiency Description	High Efficiency Ground Source Heat Pump		
Efficiency Value			
Annual Energy Savings	519,783	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	462.55		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons	Modeled Building Segment	Datacenter
Summer Peak Demand Savings	117.90	kW	Winter Peak Demand Savings 128.62 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	22	Years	
Equipment Life Reference	http://www.geothermal-heat-pump-resource.org/		

Measure Economic Impacts

Incremental Cost	\$541,673.81		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.67	Electric Avoided Cost (Lifetime, NPV)	\$364,255.69
RIM	0.60	Electric Lost Revenue (Lifetime, NPV)	\$602,668.36
PCT	1.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-DataCntr-WSHP	NC-B-DC-2-HV-WS-GH-HV-GHP244
Home/Facility Square Footage	57,600.00	57,600.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	7,003,393.00	6,483,610.00
Estimated Summer Peak kW	1,445.48	1,327.56
Estimated Winter Peak kW	1,385.65	1,257.03
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	468,555.63	439,014.12
Total Therms	0.00	0.00
Total Gallons	165,341.00	165,341.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	960.00	960.00
HVAC Type		
HVAC Tonnage	462.55	462.55
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	65.00	65.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency ASD Chiller		
Measure ID	205	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency water cooled chiller		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Chiller	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Chiller		
Baseline Value			
Efficiency Description	High Efficiency ASD Chiller		
Efficiency Value			
Annual Energy Savings	100,747	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1,470.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment Office
Summer Peak Demand Savings	43.60	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	20	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$33,430.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.44	Electric Avoided Cost (Lifetime, NPV)	\$81,458.32
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$203,182.89
PCT	6.08	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-CHL052
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	3,013,051.00
Estimated Summer Peak kW	778.61	734.97
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	244,690.99
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Chiller (air cooled)		
Measure ID	206	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Air cooled positive displacement chiller with integral VFD		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Chiller	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Air Cooled Chiller (100 tons)				
Baseline Value					
Efficiency Description	High Efficiency Air Cooled Chiller (100 tons)				
Efficiency Value					
Annual Energy Savings	79,583	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1,470.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment	Office	
Summer Peak Demand Savings	20.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$25,000.00		
Incremental Cost Reference	Florida Power & Light Technical Primer: Air-Cooled Chillers		
TRC	2.61	Electric Avoided Cost (Lifetime, NPV)	\$65,287.25
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$115,170.60
PCT	4.61	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-CHL057
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	3,034,215.00
Estimated Summer Peak kW	778.61	758.56
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	251,040.85
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Chiller (water cooled)		
Measure ID	207	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Water cooled positive displacement chiller with integral VFD		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Chiller	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Water Cooled Chiller (175 tons)				
Baseline Value					
Efficiency Description	High Efficiency Water Cooled Chiller (175 tons)				
Efficiency Value					
Annual Energy Savings	208,071	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1,470.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment	Office	
Summer Peak Demand Savings	87.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$33,430.00		
Incremental Cost Reference	Florida Power & Light Technical Primer: Water-Cooled Chillers (Rotary or Screw Compressor)		
TRC	5.06	Electric Avoided Cost (Lifetime, NPV)	\$169,089.96
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$407,494.37
PCT	12.19	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-CHW058
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	2,905,727.00
Estimated Summer Peak kW	778.61	691.51
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	231,730.57
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency CRAC Unit		
Measure ID	209	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Computer Room Air Conditioning Unit (SCOP = 2.85)		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Computer Room Air Conditioning Unit (SCOP = 2.10)		
Baseline Value			
Efficiency Description	High Efficiency CRAC Unit		
Efficiency Value			
Annual Energy Savings	126,144	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	100,000.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Square feet	Modeled Building Segment	Datacenter
Summer Peak Demand Savings	14.40	kW	Winter Peak Demand Savings 14.40 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	Based on similar HVAC measures		

Measure Economic Impacts

Incremental Cost	\$145,000.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.39	Electric Avoided Cost (Lifetime, NPV)	\$56,682.28
RIM	0.64	Electric Lost Revenue (Lifetime, NPV)	\$87,978.65
PCT	0.61	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-EF-DataCntr-CH-CRAC-BAS	NC-N-EF-DataCntr-CH-CRAC
Home/Facility Square Footage	57,600.00	57,600.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	7,181,230.00	7,055,086.00
Estimated Summer Peak kW	1,512.48	1,498.08
Estimated Winter Peak kW	1,390.16	1,375.76
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	481,997.54	477,390.25
Total Therms	0.00	0.00
Total Gallons	165,341.00	165,341.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	960.00	960.00
HVAC Type		
HVAC Tonnage	810.00	810.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	65.00	65.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Heat Pump - Air Cooled 11.5 EER 3.2 COP		
Measure ID	213	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency heat pump - air cooled (135,000-250,000 Btu/h)		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant ASHP		
Baseline Value			
Efficiency Description	High Efficiency ASHP		
Efficiency Value			
Annual Energy Savings	65,757	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	810.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons	Modeled Building Segment	Retail
Summer Peak Demand Savings	42.90	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$25,769.10		
Incremental Cost Reference	RSMeans cost calculator		
TRC	1.95	Electric Avoided Cost (Lifetime, NPV)	\$50,260.04
RIM	0.99	Electric Lost Revenue (Lifetime, NPV)	\$50,872.00
PCT	1.97	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-HV-AHP049
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,853,295.00
Estimated Summer Peak kW	394.52	351.65
Estimated Winter Peak kW	554.49	554.49
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	123,193.17
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	11.50
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Heat Pump - Air Cooled 14 SEER		
Measure ID	215	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency heat pump - air cooled (<65,000 Btu/h)		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant ASHP		
Baseline Value			
Efficiency Description	High Efficiency ASHP		
Efficiency Value			
Annual Energy Savings	72,342	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	810.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons	Modeled Building Segment	Retail
Summer Peak Demand Savings	47.20	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$38,653.65		
Incremental Cost Reference	RSMeans cost calculator		
TRC	1.43	Electric Avoided Cost (Lifetime, NPV)	\$55,293.66
RIM	1.03	Electric Lost Revenue (Lifetime, NPV)	\$53,835.74
PCT	1.39	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-HV-AHP050
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,846,710.00
Estimated Summer Peak kW	394.52	347.36
Estimated Winter Peak kW	554.49	554.49
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	123,110.43
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	11.80
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Heat Pump - Water Cooled 14 EER 4.6 COP		
Measure ID	216	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency water source heat pump		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant WSHP				
Baseline Value					
Efficiency Description	High Efficiency WSHP				
Efficiency Value					
Annual Energy Savings	44,902	kWh	Annual Natural Gas Savings	2,625.00	Therms
Energy Savings Units	810.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment	Retail	
Summer Peak Demand Savings	27.20	kW	Winter Peak Demand Savings	6.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$24,255.00		
Incremental Cost Reference	RSMMeans cost calculator		
TRC	2.71	Electric Avoided Cost (Lifetime, NPV)	\$33,002.49
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$70,838.33
PCT	4.27	Other Utility Avoided Cost (Lifetime, NPV)	\$32,713.85
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-WLHP-LgRtl-BAS	NC-B-RT-4-HV-WS-GH-HV-GHP075
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,778,346.00	1,733,444.00
Estimated Summer Peak kW	316.45	289.25
Estimated Winter Peak kW	263.27	256.69
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	108,297.88	102,959.17
Total Therms	10,142.00	7,517.00
Total Gallons	38,175.00	38,175.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,803.29	3,601.10
HVAC Type		
HVAC Tonnage	284.22	285.79
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency HVAC System Design		
Measure ID	203	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency HVAC system design		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency HVAC System				
Baseline Value					
Efficiency Description	High Efficiency HVAC System				
Efficiency Value					
Annual Energy Savings	73,261	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	57,600.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment		Retail
Summer Peak Demand Savings	36.10	kW	Winter Peak Demand Savings	104.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$28,800.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.29	Electric Avoided Cost (Lifetime, NPV)	\$37,044.37
RIM	0.36	Electric Lost Revenue (Lifetime, NPV)	\$104,073.49
PCT	3.61	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-HP-LgRtl-RTU-BAS	NC-N-RT-4-HV-RT-HP-HV-OTH065
Home/Facility Square Footage	94,747.50	94,747.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,679,894.00	1,606,633.00
Estimated Summer Peak kW	318.80	282.67
Estimated Winter Peak kW	452.36	347.75
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	108,627.03	97,780.28
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	9,818.39	9,818.39
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	11.00	13.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Packaged AC - Air Cooled 11.0 EER		
Measure ID	219	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient packaged AC (65,000-135,000 Btu/h)		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Packaged AC		
Baseline Value			
Efficiency Description	High Efficiency Packaged AC		
Efficiency Value			
Annual Energy Savings	51,884	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	810.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons	Modeled Building Segment	Retail
Summer Peak Demand Savings	33.80	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$23,429.35		
Incremental Cost Reference	RSMMeans cost calculator		
TRC	1.70	Electric Avoided Cost (Lifetime, NPV)	\$39,921.83
RIM	1.64	Electric Lost Revenue (Lifetime, NPV)	\$24,299.64
PCT	1.04	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-EF-HV-CAC054
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,171,161.00	2,119,277.00
Estimated Summer Peak kW	393.29	359.45
Estimated Winter Peak kW	690.66	690.66
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	156,658.56	155,917.60
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	11.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Packaged AC - Air Cooled 11.5 EER		
Measure ID	220	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient packaged AC (135,000-250,000 Btu/h)		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Packaged AC		
Baseline Value			
Efficiency Description	High Efficiency Packaged AC		
Efficiency Value			
Annual Energy Savings	63,972	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	810.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons	Modeled Building Segment	Retail
Summer Peak Demand Savings	41.70	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$31,237.50		
Incremental Cost Reference	RSMeans cost calculator		
TRC	1.58	Electric Avoided Cost (Lifetime, NPV)	\$49,234.50
RIM	1.64	Electric Lost Revenue (Lifetime, NPV)	\$29,960.43
PCT	0.96	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-EF-HV-CAC053
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,171,161.00	2,107,189.00
Estimated Summer Peak kW	393.29	351.57
Estimated Winter Peak kW	690.66	690.66
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	156,658.56	155,744.98
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	11.50
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Packaged AC - Air Cooled 14.0 SEER		
Measure ID	221	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient packaged AC (<65,000 Btu/h)		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Packaged AC		
Baseline Value			
Efficiency Description	High Efficiency Packaged AC		
Efficiency Value			
Annual Energy Savings	70,518	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	810.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Cap-Tons	Modeled Building Segment	Retail
Summer Peak Demand Savings	46.00	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$46,856.25		
Incremental Cost Reference	RSMeans cost calculator		
TRC	1.16	Electric Avoided Cost (Lifetime, NPV)	\$54,279.77
RIM	1.64	Electric Lost Revenue (Lifetime, NPV)	\$33,026.70
PCT	0.70	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-EF-HV-CAC055
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,171,161.00	2,100,643.00
Estimated Summer Peak kW	393.29	347.30
Estimated Winter Peak kW	690.66	690.66
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	156,658.56	155,651.47
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	11.80
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Ventilation Hoods		
Measure ID	225	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Kitchen ventilation with automatically adjusting fan controls		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Ventilation Systems	Segment(s)	ED, GR, GV, HS, OF, RT, SO
Measure Sub-Type	Controls and Optimization	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Ventilation with constant speed motor				
Baseline Value					
Efficiency Description	Solid State Cooking Hood Controls				
Efficiency Value					
Annual Energy Savings	4,393	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Hoods		Modeled Building Segment		Retail
Summer Peak Demand Savings	0.90	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$205.72		
Incremental Cost Reference	RSMeans cost calculator		
TRC	9.16	Electric Avoided Cost (Lifetime, NPV)	\$1,884.57
RIM	1.01	Electric Lost Revenue (Lifetime, NPV)	\$1,864.43
PCT	9.06	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-RT-4-HV-RT-HP-HV-OTH037	NC-B-RT-4-HV-RT-HP-HV-OTH037
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,940,990.00	1,936,597.00
Estimated Summer Peak kW	399.39	398.44
Estimated Winter Peak kW	555.51	555.30
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	127,258.24	127,180.03
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Ventilation System Design		
Measure ID	226	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency ventilation system design		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Ventilation Systems	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls and Optimization	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Ventilation System		
Baseline Value			
Efficiency Description	High Efficiency Ventilation System		
Efficiency Value			
Annual Energy Savings	37,622	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	57,600.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Square feet	Modeled Building Segment	Retail
Summer Peak Demand Savings	15.60	kW	Winter Peak Demand Savings 104.60 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$11,520.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.72	Electric Avoided Cost (Lifetime, NPV)	\$19,813.54
RIM	0.34	Electric Lost Revenue (Lifetime, NPV)	\$58,969.91
PCT	5.12	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-HP-LgRtl-RTU-BAS	NC-N-RT-4-HV-RT-HP-HV-OTH066
Home/Facility Square Footage	94,747.50	94,747.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,679,894.00	1,642,272.00
Estimated Summer Peak kW	318.80	303.20
Estimated Winter Peak kW	452.36	347.75
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	108,627.03	102,359.38
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	9,818.39	9,818.39
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	11.00	11.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Hotel Key Card Room Energy Control System		
Measure ID	228	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	3-Ton Guest Room HVAC Unit Controlled by Hotel-Key-Card Activated Energy Control System		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	System Control and Management	Segment(s)	LG
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	3-Ton Guest Room HVAC Unit, Manually Controlled by Guest				
Baseline Value					
Efficiency Description	Hotel Key Card Room Energy Control System				
Efficiency Value					
Annual Energy Savings	7,347	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Units per room		Modeled Building Segment	Lodging	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	based on 5 year product warranty				

Measure Economic Impacts

Incremental Cost	\$85.26		
Incremental Cost Reference	Nexant market research, 2017 and RSMeans labor estimate		
TRC	19.32	Electric Avoided Cost (Lifetime, NPV)	\$1,647.39
RIM	0.24	Electric Lost Revenue (Lifetime, NPV)	\$6,985.70
PCT	81.93	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-Lodge-PT-BAS	NC-E-HP-Lodge-PT-Key
Home/Facility Square Footage	25,023.95	25,023.95
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	278,071.00	270,724.00
Estimated Summer Peak kW	51.93	51.94
Estimated Winter Peak kW	61.69	61.69
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	23,532.20	22,194.97
Total Therms	0.00	0.00
Total Gallons	947,540.00	947,540.00
Envelope		
Attic R	11.00	11.00
Ceiling R	11.00	11.00
Wall R	10.00	10.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	478.01	478.01
HVAC Type		
HVAC Tonnage	47.62	47.62
HVAC SEER	8.00	8.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	370.00	370.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	HVAC Diagnostic/Air Conditioner Tune Up		
Measure ID	231	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Perform HVAC diagnostics and tune up on air conditioner		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No HVAC Diagnostics or Tune Up				
Baseline Value					
Efficiency Description	HVAC Diagnostic/Air Conditioner Tune Up				
Efficiency Value					
Annual Energy Savings	24,443	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	194.76		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment		Retail
Summer Peak Demand Savings	15.90	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,358.95		
Incremental Cost Reference	RSMeans cost calculator		
TRC	3.94	Electric Avoided Cost (Lifetime, NPV)	\$13,228.71
RIM	1.56	Electric Lost Revenue (Lifetime, NPV)	\$8,475.30
PCT	2.52	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-EF-HV-SVC084
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	C:
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,171,161.00	2,146,718.00
Estimated Summer Peak kW	393.29	377.35
Estimated Winter Peak kW	690.66	690.66
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	156,658.56	156,309.49
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	10.00
Heating Fuel	Electric	Electric
Heating BTU/kW	221,845.00	221,845.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW	55,290.60	55,290.60
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	HVAC Diagnostic/Heat Pump Tune Up		
Measure ID	232	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Perform HVAC diagnostics and tune up on heat pump		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No HVAC Diagnostics or Tune Up				
Baseline Value					
Efficiency Description	HVAC Diagnostic/Air Conditioner Tune Up				
Efficiency Value					
Annual Energy Savings	92,690	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	810.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment	Retail	
Summer Peak Demand Savings	20.20	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$4,101.30		
Incremental Cost Reference	RSMeans cost calculator		
TRC	8.12	Electric Avoided Cost (Lifetime, NPV)	\$33,301.54
RIM	0.69	Electric Lost Revenue (Lifetime, NPV)	\$48,458.10
PCT	11.82	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-HV-SVC085
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,826,362.00
Estimated Summer Peak kW	394.52	374.31
Estimated Winter Peak kW	554.49	554.30
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	122,626.43
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	10.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Hydronic Economizer		
Measure ID	233	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Waterside economizer between CW and CHW loops		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Economizer				
Baseline Value					
Efficiency Description	Hydronic Economizer				
Efficiency Value					
Annual Energy Savings	64,770	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1,800.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Gpm		Modeled Building Segment	Office	
Summer Peak Demand Savings	28.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$86,776.00		
Incremental Cost Reference	RSMeans cost calculator		
TRC	0.60	Electric Avoided Cost (Lifetime, NPV)	\$52,337.62
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$130,482.22
PCT	1.50	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-CHW063
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	3,049,028.00
Estimated Summer Peak kW	778.61	750.55
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	249,370.03
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Infiltration reduction (non-residential)		
Measure ID	322	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduce infiltration		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	RT, SO
Measure Sub-Type	Shell	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No infiltration reduction				
Baseline Value					
Efficiency Description	Infiltration reduction				
Efficiency Value					
Annual Energy Savings	1,279	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	4.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment	Small Office	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	2.70	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	18	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$169.52		
Incremental Cost Reference	Nexant market research, 2017		
TRC	6.31	Electric Avoided Cost (Lifetime, NPV)	\$1,069.63
RIM	0.26	Electric Lost Revenue (Lifetime, NPV)	\$4,124.84
PCT	24.33	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-E-SO-HV-GR-HP-SH-BAS	NC-E-SO-HV-GR-HP-SH-INF100
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	27,140.00	25,861.00
Estimated Summer Peak kW	8.63	8.44
Estimated Winter Peak kW	12.18	9.51
Electric Rate Used	PLS-11-C__NoFuel&FF	PLS-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	3,309.28	2,999.22
Total Therms	0.00	0.00
Total Gallons	22,910.00	22,910.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	29.33
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Insulation for Built-Up Roofing (BUR) system		
Measure ID	326	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Insulation for built-up roof systems on flat/low slope roofs		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	AM, ED, GR, GV, HS, LG, RL, RS, RT, SO, WR
Measure Sub-Type	Insulation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code Minimum Ceiling Insulation				
Baseline Value					
Efficiency Description	Increased Insulation for BUR				
Efficiency Value					
Annual Energy Savings	692	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	94,747.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment		Retail
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	1.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,842.41		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.22	Electric Avoided Cost (Lifetime, NPV)	\$615.28
RIM	0.22	Electric Lost Revenue (Lifetime, NPV)	\$2,848.82
PCT	1.00	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-HP-LgRtl-RTU-BAS	NC-N-HP-LgRtl-Ins-BUR
Home/Facility Square Footage	94,747.50	94,747.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,679,894.00	1,679,202.00
Estimated Summer Peak kW	318.80	318.67
Estimated Winter Peak kW	452.36	451.34
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	108,627.03	108,421.01
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.34
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	9,818.39	9,818.39
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	11.00	11.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Large Commercial Building Re-Commissioning		
Measure ID	330	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Perform facility retro-commissioning		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	System Control and Management	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR
Measure Sub-Type	Services	Vintage(s)	Existing

Measure Savings Impacts

Baseline Description	No Retro-commissioning				
Baseline Value					
Efficiency Description	Retro-Commissioning				
Efficiency Value					
Annual Energy Savings	84,120	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	30,000.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Retail	
Summer Peak Demand Savings	37.50	kW	Winter Peak Demand Savings	184.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$40,000.00		
Incremental Cost Reference	FEMP Operations and Maintenance Best Practices Guide, Release 3.0, Chapter 7		
TRC	1.07	Electric Avoided Cost (Lifetime, NPV)	\$42,715.30
RIM	0.56	Electric Lost Revenue (Lifetime, NPV)	\$76,192.03
PCT	1.90	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-SH-SVC080
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,834,932.00
Estimated Summer Peak kW	394.52	357.00
Estimated Winter Peak kW	554.49	369.86
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	118,928.33
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	0.00
Infiltration (cfm)	10,803.29	3,601.10
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	10.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Light Colored Roofs and Walls/Cool Roofs		
Measure ID	339	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reflective roof treatment		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Shell	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Black Roof				
Baseline Value					
Efficiency Description	Reflective Roof Treatment				
Efficiency Value					
Annual Energy Savings	3,530	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2,716.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Roof square feet		Modeled Building Segment	Lodging	
Summer Peak Demand Savings	2.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	6	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$787.64		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.26	Electric Avoided Cost (Lifetime, NPV)	\$994.31
RIM	0.22	Electric Lost Revenue (Lifetime, NPV)	\$4,527.59
PCT	5.75	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-Lodge-PT-BAS	NC-B-LG-2-HV-PT-HP-SH-OTH181
Home/Facility Square Footage	25,023.95	25,023.95
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	278,071.00	274,541.00
Estimated Summer Peak kW	51.93	49.67
Estimated Winter Peak kW	61.59	61.59
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	23,532.20	22,782.96
Total Therms	0.00	0.00
Total Gallons	947,540.00	947,540.00
Envelope		
Attic R	11.00	11.00
Ceiling R	11.00	11.00
Wall R	10.00	10.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	478.01	478.01
HVAC Type		
HVAC Tonnage	47.62	47.62
HVAC SEER	8.00	8.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	370.00	370.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Outside Air Economizer		
Measure ID	362	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install air-side economizer		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Performance	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Economizer				
Baseline Value					
Efficiency Description	Air-side Economizer				
Efficiency Value					
Annual Energy Savings	5,846	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cfm		Modeled Building Segment	Retail	
Summer Peak Demand Savings	-0.60	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$710.63		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.22	Electric Avoided Cost (Lifetime, NPV)	\$869.83
RIM	10.30	Electric Lost Revenue (Lifetime, NPV)	\$84.43
PCT	0.12	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-HV-OTH064
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,913,206.00
Estimated Summer Peak kW	394.52	395.15
Estimated Winter Peak kW	554.49	554.49
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	126,169.59
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Partial Thermal Energy Storage		
Measure ID	365	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Thermal Energy Storage sized to meet entire load		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	DC, GV, HS, OF
Measure Sub-Type	Performance	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	N/A		
Baseline Value			
Efficiency Description	Partial Thermal Energy Storage		
Efficiency Value			
Annual Energy Savings	208,071	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	106.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Refrigeration Tons	Modeled Building Segment	Office
Summer Peak Demand Savings	87.10	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	20	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$16,835.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	10.04	Electric Avoided Cost (Lifetime, NPV)	\$169,089.96
RIM	0.33	Electric Lost Revenue (Lifetime, NPV)	\$513,381.12
PCT	30.49	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-B-OF-2-HV-CH-EF-HV-THS089
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	2,905,727.00
Estimated Summer Peak kW	778.61	691.51
Estimated Winter Peak kW	711.62	711.62
Electric Rate Used	PLL-11-C__NoFuel&FF	TOU-GSD-10__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	223,281.54
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Reduction/Optimization in Fan Flowrate		
Measure ID	369	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduce fan flowrate		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Ventilation Systems	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls and Optimization	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Fan				
Baseline Value					
Efficiency Description	High Volume Low Speed Fan (HVLS)				
Efficiency Value					
Annual Energy Savings	23,434	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	810.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment		Retail
Summer Peak Demand Savings	3.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,614.15		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.93	Electric Avoided Cost (Lifetime, NPV)	\$7,651.94
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$13,860.14
PCT	5.30	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-HV-FMO069
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,895,618.00
Estimated Summer Peak kW	394.52	391.37
Estimated Winter Peak kW	554.49	554.44
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	124,959.83
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.30
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Reduction/Optimization of Outside Air Ventilation		
Measure ID	370	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduce ventilation based on facility demand with CO2 sensors		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Ventilation Systems	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls and Optimization	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Constant Ventilation				
Baseline Value					
Efficiency Description	Demand Control Ventilation				
Efficiency Value					
Annual Energy Savings	51,710	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	50.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment		Retail
Summer Peak Demand Savings	19.00	kW	Winter Peak Demand Savings	59.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,383.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	9.85	Electric Avoided Cost (Lifetime, NPV)	\$23,466.32
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$45,595.08
PCT	19.13	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-HV-OTH070
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,867,342.00
Estimated Summer Peak kW	394.52	375.52
Estimated Winter Peak kW	554.49	494.62
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	121,809.01
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Room/PTAC AC ENERGY STAR (non-residential)		
Measure ID	377	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	ENERGY STAR room air conditioner		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	ED, HS, LG, SO
Measure Sub-Type	Air Conditioner	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Room AC		
Baseline Value			
Efficiency Description	ENERGY STAR Room AC		
Efficiency Value			
Annual Energy Savings	58,924	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	125.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Units	Modeled Building Segment	Small Office
Summer Peak Demand Savings	26.90	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	Pennsylvania Statewide TRM		

Measure Economic Impacts

Incremental Cost	\$21,250.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.87	Electric Avoided Cost (Lifetime, NPV)	\$39,771.51
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$94,616.99
PCT	4.45	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-SmOffice-RTU-BAS	NC-B-SO-2-HV-RT-GH-HV-CAC055
Home/Facility Square Footage	31,250.00	31,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	963,950.00	905,026.00
Estimated Summer Peak kW	174.64	147.77
Estimated Winter Peak kW	83.67	83.67
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	68,026.84	60,870.26
Total Therms	3,880.00	3,880.00
Total Gallons	56,535.00	56,535.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	2,187.50	2,187.50
HVAC Type		
HVAC Tonnage	105.26	105.26
HVAC SEER	9.20	11.80
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Set-Back Programmable Thermostat		
Measure ID	378	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Standard heating and cooling system with programmable thermostat		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	System Control and Management	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Manual Thermostat				
Baseline Value					
Efficiency Description	Programmable Thermostat				
Efficiency Value					
Annual Energy Savings	3,322	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Zones		Modeled Building Segment		
Summer Peak Demand Savings	1.40	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$69.31		
Incremental Cost Reference	Nexant market research, 2017		
TRC	31.76	Electric Avoided Cost (Lifetime, NPV)	\$2,201.00
RIM	99.99	Electric Lost Revenue (Lifetime, NPV)	-\$1,740.00
PCT	-25.10	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for programmable thermostat	3,322.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Commercial DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Smart, Wifi-enabled Thermostat (non-residential)		
Measure ID	381	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Standard heating and cooling system with smart thermostat		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	System Control and Management	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Manual Thermostat				
Baseline Value					
Efficiency Description	Smart Thermostat				
Efficiency Value					
Annual Energy Savings	1,443	kWh	Annual Natural Gas Savings	74.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Thermostat		Modeled Building Segment	Small Office	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	-0.20	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	Based on programmable thermostat				

Measure Economic Impacts

Incremental Cost	\$184.51		
Incremental Cost Reference	Nexant market research, 2017		
TRC	8.55	Electric Avoided Cost (Lifetime, NPV)	\$868.83
RIM	1.19	Electric Lost Revenue (Lifetime, NPV)	\$731.88
PCT	7.81	Other Utility Avoided Cost (Lifetime, NPV)	\$709.05
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-E-SO-HV-GR-GH-HV-THM100	NC-E-SO-HV-GR-GH-HV-THM100
Home/Facility Square Footage	2,200.00	2,200.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	24,235.00	22,792.00
Estimated Summer Peak kW	8.71	8.72
Estimated Winter Peak kW	1.94	2.12
Electric Rate Used	PLS-11-C__NoFuel&FF	PLS-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	3,053.09	3,009.95
Total Therms	525.00	451.00
Total Gallons	22,910.00	22,910.00
Envelope		
Attic R	19.00	19.00
Ceiling R	19.00	19.00
Wall R	11.00	11.00
Floor R	4.00	4.00
Door R	2.56	2.56
Window R	1.23	1.23
Window Coeff	50.00	50.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	158.40	158.40
HVAC Type		
HVAC Tonnage	3.11	3.11
HVAC SEER	7.70	7.70
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	40.00	40.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Tinted Glass		
Measure ID	393	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Increase window reflectivity to reduce heat gain		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard glass				
Baseline Value					
Efficiency Description	Tinted Glass				
Efficiency Value					
Annual Energy Savings	2,456	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	567.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Window square feet		Modeled Building Segment	Retail	
Summer Peak Demand Savings	1.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,489.13		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.42	Electric Avoided Cost (Lifetime, NPV)	\$1,055.67
RIM	0.39	Electric Lost Revenue (Lifetime, NPV)	\$2,728.61
PCT	1.10	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-LgRtl-RTU-BAS	NC-B-RT-4-HV-RT-HP-SH-WIN186
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,919,052.00	1,916,596.00
Estimated Summer Peak kW	394.52	393.51
Estimated Winter Peak kW	554.98	554.98
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	126,019.47	125,751.05
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	33.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Variable Refrigerant Flow Heat Pump (non-residential)		
Measure ID	394	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Variable refrigerant flow heat pump		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Cooling and Heating Equipment	Segment(s)	AM, DC, ED, LG, OF, RL, RS, RT, WR
Measure Sub-Type	Heat Pump	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Constant Flow Heat Pump				
Baseline Value					
Efficiency Description	Variable Refrigerant Flow Heat Pump				
Efficiency Value					
Annual Energy Savings	13,645	kWh	Annual Natural Gas Savings	-190.00	Therms
Energy Savings Units	284.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cap-Tons		Modeled Building Segment	Retail	
Summer Peak Demand Savings	5.30	kW	Winter Peak Demand Savings	11.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	Nexant market research, 2017				

Measure Economic Impacts

Incremental Cost	\$93,663.20		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.09	Electric Avoided Cost (Lifetime, NPV)	\$8,149.02
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$16,812.91
PCT	0.18	Other Utility Avoided Cost (Lifetime, NPV)	-\$2,093.82
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-WLHP-LgRtl-BAS	NC-B-RT-4-HV-WS-GH-HV-AHP245
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,778,346.00	1,764,701.00
Estimated Summer Peak kW	316.45	311.10
Estimated Winter Peak kW	263.27	252.18
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	108,297.88	106,957.75
Total Therms	10,142.00	10,332.00
Total Gallons	38,175.00	38,175.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	284.22	284.22
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Window Film (non-residential)		
Measure ID	397	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Window film applied to standard window		
Measure Category	HVAC	Sector(s)	Commercial
Measure Type	Shell/Envelope	Segment(s)	AM, ED, GR, GV, HS, LG, OF, RL, RS, RT, SO
Measure Sub-Type	Windows	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Window with Code Minimum SHGC				
Baseline Value					
Efficiency Description	Window Film with Higher SHGC				
Efficiency Value					
Annual Energy Savings	136,821	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	802.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Window square feet		Modeled Building Segment	Office	
Summer Peak Demand Savings	37.60	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$69,198.40		
Incremental Cost Reference	2014 PA SWE Potential Study Measure Appendices		
TRC	0.84	Electric Avoided Cost (Lifetime, NPV)	\$57,962.03
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$140,426.34
PCT	2.03	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-EF-LgOffice-CH-BAS	NC-E-OF-2-HV-CH-EF-SH-WNF007
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	3,113,798.00	2,976,977.00
Estimated Summer Peak kW	778.61	740.98
Estimated Winter Peak kW	711.62	711.63
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,761.76	244,343.76
Total Therms	0.00	0.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	33.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Bi-Level Lighting Control		
Measure ID	135	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Bi-Level Controls on Interior Lighting, 500 Watts Controlled		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	500 Watts of Lighting, Manually Controlled				
Baseline Value					
Efficiency Description	Bi-Level Lighting Control				
Efficiency Value					
Annual Energy Savings	137,457	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	48.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		Retail
Summer Peak Demand Savings	1.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$4,700.08		
Incremental Cost Reference	Nexant market research, 2017		
TRC	6.65	Electric Avoided Cost (Lifetime, NPV)	\$31,251.10
RIM	0.84	Electric Lost Revenue (Lifetime, NPV)	\$37,089.63
PCT	7.89	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-HP-LgRtl-RTU-BAS	NC-N-HP-LgRtl-LI-BiL
Home/Facility Square Footage	94,747.50	94,747.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,679,894.00	1,542,437.00
Estimated Summer Peak kW	318.80	317.55
Estimated Winter Peak kW	455.68	455.68
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	108,627.03	107,014.56
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	9,818.39	9,818.39
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	11.00	11.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ceramic Metal Halide (non-residential)		
Measure ID	139	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Ceramic metal-halide replacing halogen fixtures		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM, RT, WR
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Existing halogen fixtures				
Baseline Value	75W				
Efficiency Description	Ceramic metal halide				
Efficiency Value	70W				
Annual Energy Savings	268,594	kWh	Annual Natural Gas Savings	-3,875.00	Therms
Energy Savings Units	430.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Warehouse	
Summer Peak Demand Savings	64.20	kW	Winter Peak Demand Savings	64.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$39,628.80		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.67	Electric Avoided Cost (Lifetime, NPV)	\$146,966.05
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$320,534.43
PCT	3.65	Other Utility Avoided Cost (Lifetime, NPV)	-\$48,302.25
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-RTU-Warehouse-LI-BAS	NC-E-WR-2-LH-RT-GH-LI-HID120
Home/Facility Square Footage	200,000.00	200,000.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,043,813.00	1,775,219.00
Estimated Summer Peak kW	706.92	642.74
Estimated Winter Peak kW	412.28	347.72
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	220,262.19	197,954.41
Total Therms	69,860.00	73,735.00
Total Gallons	1,539.00	1,539.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	2.00	2.00
Floor R	1.23	1.23
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	11,166.67	11,166.67
HVAC Type		
HVAC Tonnage	263.13	263.13
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Cold cathode screw-in bulb		
Measure ID	146	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Incandescent replaced with cold cathode bulb		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM, DC, HS, LG, RS, RT
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Incandescent Lamp				
Baseline Value	30W				
Efficiency Description	Cold Cathode lamp				
Efficiency Value	5W				
Annual Energy Savings	147,687	kWh	Annual Natural Gas Savings	-1,256.00	Therms
Energy Savings Units	1,039.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamps		Modeled Building Segment	Retail	
Summer Peak Demand Savings	35.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	3	Years			
Equipment Life Reference	Engineering estimate - 25,000 hour runtime				

Measure Economic Impacts

Incremental Cost	\$12,419.09		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.45	Electric Avoided Cost (Lifetime, NPV)	\$57,297.79
RIM	0.50	Electric Lost Revenue (Lifetime, NPV)	\$114,723.96
PCT	4.90	Other Utility Avoided Cost (Lifetime, NPV)	-\$10,981.36
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LD-RT-GH-LI-OTH012
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,985,692.00
Estimated Summer Peak kW	479.21	444.09
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	138,043.29
Total Therms	13,439.00	14,695.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Electrodeless Fluorescent		
Measure ID	173	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install electrodeless fluorescent lamp		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Fluorescent				
Baseline Value					
Efficiency Description	Electrodeless Fluorescent				
Efficiency Value					
Annual Energy Savings	10,566	kWh	Annual Natural Gas Savings	-84.00	Therms
Energy Savings Units	26.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Retail	
Summer Peak Demand Savings	2.50	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	29	Years			
Equipment Life Reference	Industry estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$5,998.40		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.16	Electric Avoided Cost (Lifetime, NPV)	\$8,985.91
RIM	0.50	Electric Lost Revenue (Lifetime, NPV)	\$17,801.75
PCT	2.29	Other Utility Avoided Cost (Lifetime, NPV)	-\$1,780.04
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LV-RT-GH-LI-FLR111
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	2,122,813.00
Estimated Summer Peak kW	479.21	476.68
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	147,280.60
Total Therms	13,439.00	13,523.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Exterior Bi-Level Lighting Control		
Measure ID	188	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install Exterior Bi-Level Lighting Control, 500 Watts Controlled		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	GV, HS, RT, SO
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	500 Watts of Lighting, Controlled Manually				
Baseline Value					
Efficiency Description	Exterior Bi-Level Lighting Control				
Efficiency Value					
Annual Energy Savings	2,971	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$95.92		
Incremental Cost Reference	Nexant market research, 2017		
TRC	7.37	Electric Avoided Cost (Lifetime, NPV)	\$707.13
RIM	0.84	Electric Lost Revenue (Lifetime, NPV)	\$841.80
PCT	8.78	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = KWControlled x Hours x ESF					

Value		Description	Value	Units	Reference
KWControlled	=	Total lighting load connected to the control in kilowatts	2.50	kW	1
Hours	=	Estimated Operating Hours prior to controls	3,833.00	hour	2
ESF	=	Energy Savings factor due to multi-level switching	0.31		3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Engineering assumption
2	Lawrence Berkeley National Laboratory. A Meta-Analysis of Energy Savings from Lighting Controls in Commercial Buildings. Page & Associates Inc. 2011
3	Lawrence Berkeley National Laboratory. A Meta-Analysis of Energy Savings from Lighting Controls in Commercial Buildings. Page & Associates Inc. 2011

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Halogen Lamp		
Measure ID	200	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Tungsten halogen lamps replacing incandescent lamps		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Incandescent Lamps				
Baseline Value					
Efficiency Description	Halogen Lamps				
Efficiency Value					
Annual Energy Savings	70,635	kWh	Annual Natural Gas Savings	-571.00	Therms
Energy Savings Units	2,538.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	lamps		Modeled Building Segment	Retail	
Summer Peak Demand Savings	16.80	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	2	Years			
Equipment Life Reference	based on expected lamp life of 2000-4000 hours				

Measure Economic Impacts

Incremental Cost	\$2,884.02		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.02	Electric Avoided Cost (Lifetime, NPV)	\$4,003.22
RIM	0.31	Electric Lost Revenue (Lifetime, NPV)	\$12,820.33
PCT	3.28	Other Utility Avoided Cost (Lifetime, NPV)	-\$1,026.45
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LD-RT-GH-LI-OTH124
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	2,062,744.00
Estimated Summer Peak kW	479.21	462.38
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	143,365.87
Total Therms	13,439.00	14,010.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	HID Lighting		
Measure ID	204	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Metal halide and high pressure sodium fixtures replaced with LED fixtures		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM, RT, WR
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	MH or HPS Fixture				
Baseline Value					
Efficiency Description	LED Fixture				
Efficiency Value					
Annual Energy Savings	138,084	kWh	Annual Natural Gas Savings	-1,958.00	Therms
Energy Savings Units	220.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Warehouse	
Summer Peak Demand Savings	32.80	kW	Winter Peak Demand Savings	33.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	16	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,230.80		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.84	Electric Avoided Cost (Lifetime, NPV)	\$79,411.45
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$169,987.95
PCT	6.07	Other Utility Avoided Cost (Lifetime, NPV)	-\$25,771.03
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-RTU-Warehouse-LI-BAS	NC-B-WR-2-LH-RT-GH-LI-HID117
Home/Facility Square Footage	200,000.00	200,000.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,043,813.00	1,905,729.00
Estimated Summer Peak kW	706.92	674.09
Estimated Winter Peak kW	412.28	379.28
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	220,262.19	208,965.45
Total Therms	69,860.00	71,818.00
Total Gallons	1,539.00	1,539.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	2.00	2.00
Floor R	1.23	1.23
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	11,166.67	11,166.67
HVAC Type		
HVAC Tonnage	263.13	263.13
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Hotels - lighting smart sensor		
Measure ID	229	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Shut down lighting in room when swiped with hotel key card as occupant leaves		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	LG
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Light Switch				
Baseline Value					
Efficiency Description	Hotels - Lighting Smart Sensor				
Efficiency Value					
Annual Energy Savings	39,417	kWh	Annual Natural Gas Savings	-111.00	Therms
Energy Savings Units	100.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Sensors		Modeled Building Segment	Office	
Summer Peak Demand Savings	11.70	kW	Winter Peak Demand Savings	2.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$15,244.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.77	Electric Avoided Cost (Lifetime, NPV)	\$12,373.17
RIM	0.37	Electric Lost Revenue (Lifetime, NPV)	\$33,618.60
PCT	2.10	Other Utility Avoided Cost (Lifetime, NPV)	-\$790.93
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgOffice-LI-BAS	NC-B-OF-2-LF-CH-GH-LI-OCS010
Home/Facility Square Footage	156,250.00	156,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,971,917.00	2,932,500.00
Estimated Summer Peak kW	785.80	774.15
Estimated Winter Peak kW	222.24	219.68
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	257,179.07	253,318.89
Total Therms	7,696.00	7,807.00
Total Gallons	346,298.00	346,298.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.27	1.27
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	10,937.50	10,937.50
HVAC Type		
HVAC Tonnage	500.00	500.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	120.00	120.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	HPS Lamps - Street		
Measure ID	230	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Metal halide street lamps replaced with high pressure sodium lamps		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	MH Lamps				
Baseline Value					
Efficiency Description	HPS Lamps				
Efficiency Value					
Annual Energy Savings	79	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	16	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$273.44		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.12	Electric Avoided Cost (Lifetime, NPV)	\$33.49
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$82.20
PCT	0.30	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$kWh = (kWbase - kWee) * [HOU * (1 - SVGbase)]$$

Value		Description	Value	Units	Reference
kWbase	=	Connected load of the base lighting (175w MH)	0.21	kW	1
kWee	=	Connected load of HPS lighting (150w HPS)	0.18	kW	2
HOU	=	Hours of Use	4,380.00	Hours/Year	3
SVGbase	=	Savings factor for existing lighting control	0.28		4
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/outdoor_area_lighting.pdf
2	https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/outdoor_area_lighting.pdf
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.3.1, Table 3-4
4	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.3.1, Table 3-4

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Incandescent to HID (outdoor)		
Measure ID	234	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	HID exterior lighting replacing incandescent lighting		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Incandescent Fixture				
Baseline Value	250W				
Efficiency Description	HID Fixture				
Efficiency Value	100W				
Annual Energy Savings	161	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	16	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$237.71		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.30	Electric Avoided Cost (Lifetime, NPV)	\$70.45
RIM	0.44	Electric Lost Revenue (Lifetime, NPV)	\$161.89
PCT	0.68	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{kWBASE} - \text{kWEFF}) \times \text{HOU}$$

Value		Description	Value	Units	Reference
kWBASE	=	Power of Lumen-Equivalent Incandescent fixture	0.25	kW	1
KWEFF	=	Power of Efficient Exterior Fixture	0.21	kW	2
HOU	=	Commercial Exterior Lighting Hours of Use	3,833.00	Hours	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	2016 PA TRM Appendix C - Lighting Audit & Design Tool for C&I Projects
2	2016 PA TRM Appendix C - Lighting Audit & Design Tool for C&I Projects
3	State of Ohio Energy Efficiency Technical Reference Manual, Vermont Energy Investment Corporation, August 6, 2010

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Indoor Daylight Sensors		
Measure ID	235	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install indoor daylight sensors		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Manual Controls				
Baseline Value					
Efficiency Description	Indoor Daylight Sensors				
Efficiency Value					
Annual Energy Savings	98,895	kWh	Annual Natural Gas Savings	-822.00	Therms
Energy Savings Units	156.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Sensors		Modeled Building Segment	Retail	
Summer Peak Demand Savings	21.80	kW	Winter Peak Demand Savings	1.50	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$5,943.48		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.53	Electric Avoided Cost (Lifetime, NPV)	\$29,896.33
RIM	0.49	Electric Lost Revenue (Lifetime, NPV)	\$61,614.21
PCT	5.22	Other Utility Avoided Cost (Lifetime, NPV)	-\$5,864.45
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-B-RT-4-LT-RT-GH-LI-DLT108
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	2,034,484.00
Estimated Summer Peak kW	479.21	457.46
Estimated Winter Peak kW	84.51	82.97
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	141,807.78
Total Therms	13,439.00	14,261.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Induction Lamps (baseline incandescent or mercury vapor)		
Measure ID	236	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Induction lamp and ballast replacing incandescent		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Incandescent or Mercury Vapor Lamp				
Baseline Value	250W				
Efficiency Description	Induction Lamps				
Efficiency Value	80W				
Annual Energy Savings	98,999	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	438.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		Retail
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	29	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$52,917.72		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.13	Electric Avoided Cost (Lifetime, NPV)	\$59,885.52
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$146,236.98
PCT	2.76	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LV-RT-GH-LI-IND119
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	2,034,380.00
Estimated Summer Peak kW	479.21	479.21
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	141,546.73
Total Therms	13,439.00	13,439.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Interior High Bay LED Fixture		
Measure ID	327	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Fluorescent high bay fixture replaced with High Bay LED fixture		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM, RT, WR
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	T8/T5 Fluorescent Fixture		
Baseline Value			
Efficiency Description	High Bay LED Fixture		
Efficiency Value			
Annual Energy Savings	947,762	kWh	Annual Natural Gas Savings -14,341.00
Energy Savings Units	122.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Units	Modeled Building Segment	Warehouse
Summer Peak Demand Savings	226.80	kW	Winter Peak Demand Savings 228.30 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	Based on similar LED measures		

Measure Economic Impacts

Incremental Cost	\$9,924.70		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.74	Electric Avoided Cost (Lifetime, NPV)	\$516,290.43
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$1,267,417.0
PCT	6.72	Other Utility Avoided Cost (Lifetime, NPV)	-\$178,734.65
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-RTU-Warehouse-LI-BAS	NC-E-GH-RTU-Warehouse-HBLED
Home/Facility Square Footage	200,000.00	200,000.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,043,813.00	1,096,051.00
Estimated Summer Peak kW	706.92	480.11
Estimated Winter Peak kW	412.28	183.98
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	220,262.19	128,731.76
Total Therms	69,860.00	84,201.00
Total Gallons	1,539.00	1,539.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	2.00	2.00
Floor R	1.23	1.23
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	11,166.67	11,166.67
HVAC Type		
HVAC Tonnage	263.13	263.13
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Interior High Bay Linear Fluorescent Fixture (T8 or T5 w/reflector)		
Measure ID	328	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High bay HID fixture replaced with high bay fluorescent fixture		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM, RT, WR
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	HID Fixture				
Baseline Value					
Efficiency Description	T5/T8 Fluorescent Fixture				
Efficiency Value					
Annual Energy Savings	274,581	kWh	Annual Natural Gas Savings	-3,963.00	Therms
Energy Savings Units	359.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Warehouse	
Summer Peak Demand Savings	65.60	kW	Winter Peak Demand Savings	66.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$29,032.33		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.72	Electric Avoided Cost (Lifetime, NPV)	\$114,835.07
RIM	0.44	Electric Lost Revenue (Lifetime, NPV)	\$263,942.53
PCT	3.95	Other Utility Avoided Cost (Lifetime, NPV)	-\$37,741.20
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-RTU-Warehouse-LI-BAS	NC-E-WR-2-LH-RT-GH-LI-FLR116
Home/Facility Square Footage	200,000.00	200,000.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,043,813.00	1,769,232.00
Estimated Summer Peak kW	706.92	641.29
Estimated Winter Peak kW	412.28	346.28
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	220,262.19	197,468.20
Total Therms	69,860.00	73,823.00
Total Gallons	1,539.00	1,539.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	2.00	2.00
Floor R	1.23	1.23
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	11,166.67	11,166.67
HVAC Type		
HVAC Tonnage	263.13	263.13
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Interior Metal Halide Pulse Start Fixtures		
Measure ID	329	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Metal halide pulse start fixtures replacing standard metal halide		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM, RT, WR
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard metal halide				
Baseline Value					
Efficiency Description	Interior Metal Halide Pulse Start Fixtures				
Efficiency Value					
Annual Energy Savings	268,594	kWh	Annual Natural Gas Savings	-3,875.00	Therms
Energy Savings Units	922.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Warehouse	
Summer Peak Demand Savings	64.20	kW	Winter Peak Demand Savings	64.60	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$55,273.90		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.33	Electric Avoided Cost (Lifetime, NPV)	\$130,541.75
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$290,994.93
PCT	2.97	Other Utility Avoided Cost (Lifetime, NPV)	-\$42,713.26
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-RTU-Warehouse-LI-BAS	NC-E-WR-2-LH-RT-GH-LI-MHL121
Home/Facility Square Footage	200,000.00	200,000.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,043,813.00	1,775,219.00
Estimated Summer Peak kW	706.92	642.74
Estimated Winter Peak kW	412.28	347.72
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	220,262.19	197,954.41
Total Therms	69,860.00	73,735.00
Total Gallons	1,539.00	1,539.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	2.00	2.00
Floor R	1.23	1.23
Door R	0.00	0.00
Window R	0.00	0.00
Window Coeff	0.00	0.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	11,166.67	11,166.67
HVAC Type		
HVAC Tonnage	263.13	263.13
HVAC SEER	9.20	9.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED Exit Sign, Replacing Incandescent		
Measure ID	331	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Single-sided LED exit sign		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Incandescent Exit Sign				
Baseline Value					
Efficiency Description	LED Exit Sign				
Efficiency Value					
Annual Energy Savings	275	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Signs		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	16	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$70.19		
Incremental Cost Reference	Michigan 2016 Statewide Master Measure Database		
TRC	2.28	Electric Avoided Cost (Lifetime, NPV)	\$159.84
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$297.18
PCT	4.23	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval x RR					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for LED Exit Sign	283.00	kWh	1
RR	=	2017 Evaluation CP Program recommended savings	0.97		2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Commercial DSM Programs. Nexant, July 2015.
2	Evaluation of Georgia Power Company's 2017 Commercial DSM Programs. Nexant, Aug 2018.



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TRM MEASURE DETAILS

General Information

Measure Name	LED exterior lighting (non-residential)		
Measure ID	332	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Exterior halogen light replaced with LED		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Exterior HID Area Light				
Baseline Value	109W				
Efficiency Description	LED Exterior Light				
Efficiency Value	284W				
Annual Energy Savings	672	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	26	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$6.87		
Incremental Cost Reference	Nexant market research, 2017		
TRC	55.67	Electric Avoided Cost (Lifetime, NPV)	\$382.47
RIM	0.40	Electric Lost Revenue (Lifetime, NPV)	\$950.76
PCT	138.39	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{kWBASE} - \text{kWEFF}) \times \text{HOU}$$

Value		Description	Value	Units	Reference
kWBASE	=	Power of Lumen-Equivalent Incandescent/HID Fixture	0.28	kW	1
KWEFF	=	Power of Efficient Exterior Fixture	0.11	kW	2
HOU	=	Commercial Exterior Lighting Hours of Use	3,833.00	Hours	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Assumptions for efficient measures are based upon DLC Qualifying Product Lists, PGE refrigerated case study, and manufacturer specification sheets.
2	Assumptions for efficient measures are based upon DLC Qualifying Product Lists, PGE refrigerated case study, and manufacturer specification sheets.
3	Osram Sylvania 's 2014-2015 Lamp and Ballast Catalog, and Pennsylvania 2016 Statewide TRM, Appendix C.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED or Equivalent Sign Lighting		
Measure ID	333	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	One Letter of LED Signage, < 2ft in Height		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	One Letter of Neon or Argon-mercury Signage, < 2ft in Height				
Baseline Value					
Efficiency Description	LED or Equivalent Sign Lighting				
Efficiency Value					
Annual Energy Savings	4,117	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	50,000 rated hours / 4,380				

Measure Economic Impacts

Incremental Cost	\$100.99		
Incremental Cost Reference	Nexant market research, 2017		
TRC	13.12	Electric Avoided Cost (Lifetime, NPV)	\$1,324.87
RIM	0.88	Electric Lost Revenue (Lifetime, NPV)	\$1,501.27
PCT	14.87	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{kWBASE} - \text{kWEFF}) \times \text{HOU}$$

Value		Description	Value	Units	Reference
kWBASE	=	Power of Neon or Argon-mercury Signage	1.08	kW	1
kWEFF	=	Power of Efficient LED Signage	0.14	kW	2
HOU	=	Annual hours of use	4,380.00	hours	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017Section 3.1.6, Table 3-21
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017Section 3.1.6, Table 3-21
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.1.1, Table 3-5

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED Overhead Lighting (replacing metal halide canopy lights)		
Measure ID	334	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Energy efficient LED canopy lamp replacing metal halide		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Metal Halide Canopy Lamp				
Baseline Value	400W				
Efficiency Description	LED Overhead Lighting				
Efficiency Value	65W				
Annual Energy Savings	102,709	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	100.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Retail	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	29	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$11,089.68		
Incremental Cost Reference	Nexant market research, 2017		
TRC	5.59	Electric Avoided Cost (Lifetime, NPV)	\$62,033.62
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$152,306.20
PCT	13.73	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LD-RT-GH-LI-LED003
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	2,030,670.00
Estimated Summer Peak kW	479.21	479.21
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	141,260.10
Total Therms	13,439.00	13,439.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED Replacement for T8 (non-residential)		
Measure ID	336	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Linear fluorescent fixture replaced with linear LED		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,OF,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	T8/T12 Fluorescent Fixture				
Baseline Value					
Efficiency Description	Linear LED				
Efficiency Value					
Annual Energy Savings	408,153	kWh	Annual Natural Gas Savings	-3,614.00	Therms
Energy Savings Units	98.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamps		Modeled Building Segment	Retail	
Summer Peak Demand Savings	97.70	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Based on similar LED measures				

Measure Economic Impacts

Incremental Cost	\$3,706.36		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.65	Electric Avoided Cost (Lifetime, NPV)	\$226,653.33
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$420,213.98
PCT	8.62	Other Utility Avoided Cost (Lifetime, NPV)	-\$45,044.49
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LT-RT-GH-LI-FLR329
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,725,226.00
Estimated Summer Peak kW	479.21	381.54
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	120,504.50
Total Therms	13,439.00	17,053.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED task lights (non-residential)		
Measure ID	337	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Incandescent lamp replaced with LED lamp		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Incandescent				
Baseline Value	100W				
Efficiency Description	Screw-in LED				
Efficiency Value	11W				
Annual Energy Savings	179,560	kWh	Annual Natural Gas Savings	-1,499.00	Therms
Energy Savings Units	756.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Retail	
Summer Peak Demand Savings	42.60	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	26	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$10,278.72		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.65	Electric Avoided Cost (Lifetime, NPV)	\$144,029.85
RIM	0.56	Electric Lost Revenue (Lifetime, NPV)	\$255,375.88
PCT	6.48	Other Utility Avoided Cost (Lifetime, NPV)	-\$29,150.73
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LD-RT-GH-LI-LED004
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,953,819.00
Estimated Summer Peak kW	479.21	436.62
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	135,963.87
Total Therms	13,439.00	14,938.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Light Pipes		
Measure ID	340	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Lighting tube providing sunlight from exterior into interior spaces.		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Delamping	Vintage(s)	New Const.

Measure Savings Impacts

Baseline Description	Interior Light Fixtures Only				
Baseline Value					
Efficiency Description	Light Pipes and Interior Fixtures				
Efficiency Value					
Annual Energy Savings	209,968	kWh	Annual Natural Gas Savings	-1,800.00	Therms
Energy Savings Units	355.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Light Pipes		Modeled Building Segment	Retail	
Summer Peak Demand Savings	46.00	kW	Winter Peak Demand Savings	3.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$81,238.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.27	Electric Avoided Cost (Lifetime, NPV)	\$139,528.45
RIM	0.56	Electric Lost Revenue (Lifetime, NPV)	\$247,924.29
PCT	2.26	Other Utility Avoided Cost (Lifetime, NPV)	-\$28,474.23
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-B-RT-4-LD-RT-GH-LI-OTH125
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,923,411.00
Estimated Summer Peak kW	479.21	433.22
Estimated Winter Peak kW	84.51	81.23
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	134,808.99
Total Therms	13,439.00	15,239.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Mercury Vapor to HID (outdoor)		
Measure ID	349	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reduced wattage exterior HID fixture replacing exterior mercury vapor fixture		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Mercury Vapor Fixture				
Baseline Value	250W				
Efficiency Description	Reduced Wattage HID Fixture				
Efficiency Value	100W				
Annual Energy Savings	314	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	9	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$83.26		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.01	Electric Avoided Cost (Lifetime, NPV)	\$84.36
RIM	0.38	Electric Lost Revenue (Lifetime, NPV)	\$219.15
PCT	2.63	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{kWBASE} - \text{kWEFF}) \times \text{HOU}$$

Value		Description	Value	Units	Reference
kWBASE	=	Power of Lumen-Equivalent Mercury Vapor fixture	0.29	kW	1
KWEFF	=	Power of Efficient Exterior Fixture	0.21	kW	2
HOU	=	Commercial Exterior Lighting Hours of Use	3,833.00	Hours	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	2016 PA TRM Appendix C - Lighting Audit & Design Tool for C&I Projects
2	2016 PA TRM Appendix C - Lighting Audit & Design Tool for C&I Projects
3	State of Ohio Energy Efficiency Technical Reference Manual, Vermont Energy Investment Corporation, August 6, 2010



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Occupancy Sensor (interior lighting) (non-residential)		
Measure ID	358	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Wall mounted occupancy sensor for fixture control		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Fixtures controlled by switches				
Baseline Value					
Efficiency Description	Fixtures controlled by occupancy sensors				
Efficiency Value					
Annual Energy Savings	345	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	106.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$60.63		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.71	Electric Avoided Cost (Lifetime, NPV)	\$103.38
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$252.34
PCT	4.16	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for Door Gaskets per linear foot	345.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Commercial DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Outdoor Motion Sensor		
Measure ID	361	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install Exterior Motion Sensor, 500 Watts Controlled		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	500 Watts of Lighting, Controlled Manually				
Baseline Value					
Efficiency Description	Outdoor Motion Sensor				
Efficiency Value					
Annual Energy Savings	1,457	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$95.92		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.06	Electric Avoided Cost (Lifetime, NPV)	\$293.65
RIM	0.73	Electric Lost Revenue (Lifetime, NPV)	\$403.40
PCT	4.21	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{kWCONTROLLED} \times \text{HOU} \times (\text{SVGBASE} - \text{SVGEFF})$$

Value		Description	Value	Units	Reference
KWCONTROLLED	=	Total Lighting Load Connected to Control	0.50	kW	1
HOU	=	Commercial Exterior Lighting Hours of Use	3,833.00	Hours	2
SVGBASE	=	Exterior Code Required Controls Saving Factor	1.00		3
SVGEFF	=	Occupancy Sensor Savings Factor	0.24		4
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Measure assumption - 500 watts controlled
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.1.1, Table 3-6
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.1.1, Table 3-4
4	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.1.1, Table 3-4



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Photocell Controls (outdoor) (non-residential)		
Measure ID	366	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install exterior photocell dimming controls		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Manual Controls				
Baseline Value					
Efficiency Description	Photocell Dimming Control				
Efficiency Value					
Annual Energy Savings	958	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	2.50	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$6.73		
Incremental Cost Reference	Nexant market research, 2017		
TRC	25.47	Electric Avoided Cost (Lifetime, NPV)	\$171.44
RIM	0.65	Electric Lost Revenue (Lifetime, NPV)	\$262.84
PCT	39.05	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{kWCONTROLLED} \times \text{HOU} \times (\text{SVGBASE} - \text{SVGEFF})$$

Value		Description	Value	Units	Reference
KWCONTROLLED	=	Total Lighting Load Connected to Control	0.50	kW	1
HOU	=	Commercial Exterior Lighting Hours of Use	3,833.00	Hours	2
SVGBASE	=	Exterior Code Required Controls Saving Factor	1.00		3
SVGEFF	=	Photocell Dimming Savings Factor	0.50		4
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Engineering assumption
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.1.1, Table 3-6
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.1.1, Table 3-4
4	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.1.1, Table 3-4

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Reflectors/Delamping		
Measure ID	371	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Reducing 4 lamp fixtures to either 3 or 2 lamp setting with reflectors.		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Delamping	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard 4 lamp fixtures				
Baseline Value					
Efficiency Description	Reflectors/Delamping				
Efficiency Value					
Annual Energy Savings	255,430	kWh	Annual Natural Gas Savings	-2,176.00	Therms
Energy Savings Units	1,410.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	fixtures		Modeled Building Segment	Retail	
Summer Peak Demand Savings	60.90	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,753.54		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.82	Electric Avoided Cost (Lifetime, NPV)	\$108,440.79
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$211,205.41
PCT	9.40	Other Utility Avoided Cost (Lifetime, NPV)	-\$20,724.27
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LT-RT-GH-LI-DLA105
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,877,949.00
Estimated Summer Peak kW	479.21	418.27
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	130,893.52
Total Therms	13,439.00	15,615.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	T5 Lighting (base T-8)		
Measure ID	387	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	T8 fluorescent lamp replaced with T5 fluorescent lamp		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	T8 Lamps				
Baseline Value					
Efficiency Description	T5 Lamps				
Efficiency Value	21W				
Annual Energy Savings	374,730	kWh	Annual Natural Gas Savings	-3,293.00	Therms
Energy Savings Units	2,837.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Retail	
Summer Peak Demand Savings	89.50	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$131,115.90		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.98	Electric Avoided Cost (Lifetime, NPV)	\$159,289.79
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$309,877.21
PCT	1.91	Other Utility Avoided Cost (Lifetime, NPV)	-\$31,359.14
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LT-RT-GH-LI-FLR127
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,758,649.00
Estimated Summer Peak kW	479.21	389.69
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	122,840.17
Total Therms	13,439.00	16,732.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	T8 High Performance Fixture		
Measure ID	388	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Replace standard T8 lamps with reduced wattage T8 lamps		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,OF,WR,MS
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard T8 Lamp				
Baseline Value					
Efficiency Description	Reduced Wattage T8 Lamp				
Efficiency Value					
Annual Energy Savings	533,532	kWh	Annual Natural Gas Savings	-4,995.00	Therms
Energy Savings Units	717.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Retail	
Summer Peak Demand Savings	128.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$27,841.11		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.02	Electric Avoided Cost (Lifetime, NPV)	\$227,450.44
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$443,137.37
PCT	5.88	Other Utility Avoided Cost (Lifetime, NPV)	-\$47,558.19
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LT-RT-GH-LI-FLR227
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,599,847.00
Estimated Summer Peak kW	479.21	350.90
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	111,899.20
Total Therms	13,439.00	18,434.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	T8 lamp (any length) electronic ballast		
Measure ID	389	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Replace T12 fluorescent lamps with T8 fluorescent lamps		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,OF,WR,MS
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	T12 Lamps				
Baseline Value					
Efficiency Description	T8 Lamps				
Efficiency Value					
Annual Energy Savings	228,264	kWh	Annual Natural Gas Savings	-1,930.00	Therms
Energy Savings Units	875.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Ballast		Modeled Building Segment	Retail	
Summer Peak Demand Savings	54.50	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$5,276.25		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.10	Electric Avoided Cost (Lifetime, NPV)	\$96,880.80
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$189,201.64
PCT	8.00	Other Utility Avoided Cost (Lifetime, NPV)	-\$18,380.39
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LT-RT-GH-LI-FLR327
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,905,115.00
Estimated Summer Peak kW	479.21	424.75
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	132,673.55
Total Therms	13,439.00	15,369.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	T8 Lamp High Performance		
Measure ID	390	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Standard T8 lamp to High Performance T8 lamp		
Measure Category	Lighting	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,OF,WR,MS
Measure Sub-Type	Lamps	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard T8 Lamp				
Baseline Value					
Efficiency Description	High Performance T8 Lamp				
Efficiency Value					
Annual Energy Savings	228,264	kWh	Annual Natural Gas Savings	-1,930.00	Therms
Energy Savings Units	717.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Lamp		Modeled Building Segment	Retail	
Summer Peak Demand Savings	54.50	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$4,122.75		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.31	Electric Avoided Cost (Lifetime, NPV)	\$96,880.80
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$189,201.64
PCT	8.41	Other Utility Avoided Cost (Lifetime, NPV)	-\$18,380.39
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-LgRtl-LI-BAS_1.9W-ft2	NC-E-RT-4-LT-RT-GH-LI-FLR328
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,133,379.00	1,905,115.00
Estimated Summer Peak kW	479.21	424.75
Estimated Winter Peak kW	84.51	84.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	148,130.59	132,673.55
Total Therms	13,439.00	15,369.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	CO sensors for parking garage exhaust fans		
Measure ID	145	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Enclosed parking garage exhaust with CO control		
Measure Category	Miscellaneous	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	GV, HS, OF, RT
Measure Sub-Type	Equipment	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Constant Volume Garage Exhaust				
Baseline Value					
Efficiency Description	CO Sensors on Garage Exhaust Fans				
Efficiency Value					
Annual Energy Savings	4,650	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	5.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Sensors		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$425.00		
Incremental Cost Reference	2013 California Utilities Statewide Codes and Standard Team: Garage Exhaust, September 2011		
TRC	2.37	Electric Avoided Cost (Lifetime, NPV)	\$1,008.78
RIM	0.72	Electric Lost Revenue (Lifetime, NPV)	\$1,396.67
PCT	3.29	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = AREA x SVGE					

Value		Description	Value	Units	Reference
AREA	=	Parking Garage Area	5,000.00	ft2	1
SVGE	=	Parking Garage Exhaust Energy Savings	0.93	kWh/ft2	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Engineering Assumption
2	2013 California Utilities Statewide Codes and Standard Team: Garage Exhaust, September 2011



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Efficient Pool Pump (VSD for Pump) (non-residential)		
Measure ID	172	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Variable speed drive for pool pump		
Measure Category	Miscellaneous	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	AM, LG, MS
Measure Sub-Type	Pool	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard efficiency pool pump				
Baseline Value					
Efficiency Description	Pool Pump with VFD				
Efficiency Value					
Annual Energy Savings	3,266	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Pumps		Modeled Building Segment		
Summer Peak Demand Savings	0.70	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	PG&E "Analysis of Standard Options for Res. Pool Pumps, Motors, and Controls", 2004				

Measure Economic Impacts

Incremental Cost	\$385.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.23	Electric Avoided Cost (Lifetime, NPV)	\$1,241.70
RIM	0.38	Electric Lost Revenue (Lifetime, NPV)	\$3,249.40
PCT	8.44	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{PFRconv} * 60 * ((\text{Vpool} * \text{PT}) / (\text{PFRconv} * 60)) * \text{days}) / (\text{EFconv} * 1000) - ((\text{PFRHS} * 60 * \text{hoursHS} * \text{days}) / (\text{EFHS} * 1000)) \\ + ((\text{Vpool} / (\text{turnover} * 60) * 60 * \text{hoursLS} * \text{days}) / (\text{EFLS} * 1000))$$

Value		Description	Value	Units	Reference
hoursHS	=	ENERGY STAR® variable speed pump high speed daily	6.00	hours	1
hoursLS	=	ENERGY STAR® variable speed pump low speed daily	18.00	hours	2
days	=	Operating days per year	212.80	days	3
PFRconv	=	Conventional single-speed pump flow rate (assume 1.5 hp)	64.40	gal/min	4
PFRHS	=	ENERGY STAR® variable speed pump high speed flow rate	50.00	gal/min	5
EFconv	=	Conventional single-speed pump energy factor	2.09	gal/W·hr	6
EFHS	=	ENERGY STAR® variable speed pump high speed energy	3.75	gal/W·hr	7
EFLS	=	ENERGY STAR® variable speed pump low speed energy	4.33	gal/W·hr	8
Vpool	=	Pool volume	22,000.00	gal	9
PT	=	Pool turnovers per day	3.00		10
tturnover	=	Variable speed pump time to complete 1 turnover	8.00	hours	11
1000	=	Conversion from kilowatts to watts	1,000.00	W/kW	

References

1	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
2	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
3	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
4	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
5	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
6	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
7	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
8	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
9	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
10	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013
11	Arkansas TRM, Version 6.1, Section 3.7.12, Table 399, based on ENERGY STAR Pool Pump Savings Calculator updated December 2013

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Elevators		
Measure ID	174	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Elevator with high efficiency motor.		
Measure Category	Miscellaneous	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	AM, ED, GV, HS, LG, OF, RL, RS, RT, WR
Measure Sub-Type	Equipment	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Motor				
Baseline Value					
Efficiency Description	High Efficiency Motor				
Efficiency Value					
Annual Energy Savings	5,817	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	7.50		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Hp		Modeled Building Segment		
Summer Peak Demand Savings	1.70	kW	Winter Peak Demand Savings	1.30	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,860.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.80	Electric Avoided Cost (Lifetime, NPV)	\$3,347.01
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$7,435.35
PCT	4.00	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = 0.746 \times \text{HP} \times (\text{LF}/\text{n_base} - \text{LF}/\text{n_ee}) \times \text{RHRS}$$

Value		Description	Value	Units	Reference
HP	=	Rated horsepower of the baseline and energy efficient	50.00	HP	1
LF	=	Load Factor - Ratio between the actual load and the rated	0.75		2
n_base	=	Efficiency of the baseline motor	0.89		3
n_ee	=	Efficiency of the energy-efficient motor	0.92		4
RHRS	=	Annual run hours of the motor	5,188.00	Hours/Year	5
0.746	=	Conversion from hp to kW	0.75	kW/hp	
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Nexant eQuest 2014; PA TRM, June 2016, Errata Update February 2017, Section 3.3.1, Table 3-57; PA TRM, June 2016, Errata Update February 2017, Section 3.3.1, Table 3-58
2	California Public Utility Commission. Database for Energy Efficiency Resources 2005.
3	Epact vs. NEMA Premium
4	Epact vs. NEMA Premium
5	PA TRM, June 2016, Errata Update February 2017, Section 3.3.1, Table 3-59; PA TRM, June 2016, Errata Update February 2017, Section 3.3.1, Table 3-63

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Energy Efficient Laboratory Fume Hood		
Measure ID	175	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install energy efficient laboratory fume hoods		
Measure Category	Miscellaneous	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	ED, GV, HS, RT
Measure Sub-Type	Process	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Constant Volume Conventional Bypass Fume Hood				
Baseline Value					
Efficiency Description	Energy Efficient Laboratory Fume Hood				
Efficiency Value					
Annual Energy Savings	7,651	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	500.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Cfm		Modeled Building Segment	Retail	
Summer Peak Demand Savings	0.40	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,849.44		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.15	Electric Avoided Cost (Lifetime, NPV)	\$4,438.29
RIM	1.32	Electric Lost Revenue (Lifetime, NPV)	\$3,372.72
PCT	0.88	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-RT-4-HV-RT-HP-HV-OTH290	NC-B-RT-4-HV-RT-HP-HV-OTH290
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,958,512.00	1,950,861.00
Estimated Summer Peak kW	402.60	402.21
Estimated Winter Peak kW	578.23	578.15
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	129,162.42	129,065.29
Total Therms	0.00	0.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.79	194.79
HVAC SEER	9.20	9.20
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Low-Pressure Impact Sprinkler Nozzle		
Measure ID	344	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Includes permanent, solid-set systems and portable, hand-move systems		
Measure Category	Miscellaneous	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	AM, ED, OF
Measure Sub-Type	Irrigation	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Sprinkler Nozzles				
Baseline Value					
Efficiency Description	Low Pressure Sprinkler Nozzles				
Efficiency Value					
Annual Energy Savings	46	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Nozzles		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$8.51		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.34	Electric Avoided Cost (Lifetime, NPV)	\$19.92
RIM	1.30	Electric Lost Revenue (Lifetime, NPV)	\$15.38
PCT	1.81	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Deemed Savings					

Value		Description	Value	Units	Reference
kWh	=	Nozzle Energy Savings	46.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	FinAnswer Express Market Characterization and Program Enhancements 2009, RTF

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Off Peak Battery Charging		
Measure ID	359	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Charge battery during off-peak hours		
Measure Category	Miscellaneous	Sector(s)	Commercial
Measure Type	Interior	Segment(s)	RT, WR
Measure Sub-Type	Process	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	On-Peak Battery Charging		
Baseline Value			
Efficiency Description	Off-Peak Battery Charging		
Efficiency Value			
Annual Energy Savings	9,125	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Equipment	Modeled Building Segment	Retail
Summer Peak Demand Savings	5.00	kW	Winter Peak Demand Savings 0.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	5	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	N/A		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$1,856.10
RIM	1.08	Electric Lost Revenue (Lifetime, NPV)	\$1,714.78
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-RT-4-MO-RT-GH-AP-OTH139	NC-B-RT-4-MO-RT-GH-AP-OTH139
Home/Facility Square Footage	104,127.50	104,127.50
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,819,656.00	1,810,531.00
Estimated Summer Peak kW	398.29	393.29
Estimated Winter Peak kW	89.51	89.51
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	125,570.95	125,448.63
Total Therms	16,865.00	16,865.00
Total Gallons	38,478.00	38,478.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	1.26	1.26
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	10,803.29	10,803.29
HVAC Type		
HVAC Tonnage	194.76	194.76
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	80.00	80.00
Water Heater BTU/kW		
Water Temp Set Point	130.00	130.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Sprinkler Irrigation to Micro Irrigation System		
Measure ID	384	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Micro-irrigation system - includes well and no well systems		
Measure Category	Miscellaneous	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	ED, OF, WR
Measure Sub-Type	Irrigation	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Sprinkler Irrigation				
Baseline Value					
Efficiency Description	Micro Irrigation System				
Efficiency Value					
Annual Energy Savings	41,664	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	150.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Acres		Modeled Building Segment		
Summer Peak Demand Savings	21.60	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Industry estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$89,400.00		
Incremental Cost Reference	RSMeans cost calculator		
TRC	0.24	Electric Avoided Cost (Lifetime, NPV)	\$21,481.92
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$46,754.64
PCT	0.52	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$\text{kWh (agriculture application)} = (\text{ACRES} * (\text{PSIbase} - \text{PSIeff}) * \text{GPM1}) / (1,714 * \text{n_motor}) * (0.746) * (\text{OPRHS})$					
$\text{kWh (golf course application)} = ((\text{PSIbase} - \text{PSIeff}) * \text{GPM2}) / (1,714 * \text{n_motor}) * 0.746 * \text{DHRS} * \text{MONTHS} * 30$					

Value		Description	Value	Units	Reference
ACRES	=	Number of acres irrigated	150.00	Acres	1
PSIbase	=	Baseline pump pressure	33.00	Pounds per square	2
PSIeff	=	Installed pump pressure	20.00	Pounds per square	3
GPM1	=	Pump flow rate per acre for agriculture applications	123.00	Gallons per minute	4
n_motor	=	Pump motor efficiency	0.90		5
OPRHS	=	Average irrigation hours per growing season for agriculture	387.00	Hours	6
GPM2	=	Pump flow rate for pumping system for golf courses	123.00	Gallons per minute	7
DHRS	=	Hours of watering per day for golf courses	4.00	Hours	8
MONTHS	=	Number of months of irrigation for golf courses	3.00	Months	9
1714	=	Conversion from hp to gpm-psi	1,714.00	gpm-psi/hp	
0.746	=	Conversion from hp to kW	0.75	kW/hp	
30	=	Average days per month	30.00	days/month	

References

1	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F.
2	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F.
3	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F.
4	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F.
5	Engineering Assumption	
6	Engineering Assumption	
7	Engineering Assumption	
8	Engineering Assumption	
9	Engineering Assumption	



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Tape drip irrigation		
Measure ID	391	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install tape drip irrigation		
Measure Category	Miscellaneous	Sector(s)	Commercial
Measure Type	Exterior	Segment(s)	ED, OF, WR
Measure Sub-Type	Irrigation	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Irrigation				
Baseline Value					
Efficiency Description	Tape drip irrigation				
Efficiency Value					
Annual Energy Savings	299	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Acres		Modeled Building Segment		
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Industry estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$1,306.80		
Incremental Cost Reference	RSMeans cost calculator		
TRC	0.12	Electric Avoided Cost (Lifetime, NPV)	\$162.82
RIM	0.49	Electric Lost Revenue (Lifetime, NPV)	\$334.76
PCT	0.26	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$\text{kWh (agriculture application)} = (\text{ACRES} * (\text{PSIbase} - \text{PSIeff}) * \text{GPM1}) / (1,714 * n_motor) * (0.746) * (\text{OPRHS})$

$\text{kWh (golf course application)} = ((\text{PSIbase} - \text{PSIeff}) * \text{GPM2}) / (1,714 * n_motor) * 0.746 * \text{DHRS} * \text{MONTHS} * 30$

Value		Description	Value	Units	Reference
PSIbase	=	Baseline pump pressure	33.00	Pounds per square	1
PSIeff	=	Installed pump pressure	20.00	Pounds per square	2
GPM1	=	Pump flow rate per acre for agriculture applications	123.00	Gallons per minute	3
GPM2	=	Pump flow rate for pumping system for golf courses	123.00	Gallons per minute	4
OPRHS	=	Average irrigation hours per growing season for agriculture	387.00	Hours	5
DHRS	=	Hours of watering per day for golf courses	4.00	Hours	6
MONTHS	=	Number of months of irrigation for golf courses	3.00	Months	7
n_motor	=	Pump motor efficiency	0.90		8
ACRES	=	Number of acres irrigated	1.00	Acres	
1714	=	Conversion from hp to gpm-psi	1,714.00	gpm-psi/hp	
0.746	=	Conversion from hp to kW	0.75	kW/hp	
30	=	Average days per month	30.00	days/month	

References

1	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F
2	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F
3	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F
4	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F
5	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F
6	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F
7	PA TRM, June 2016 & Alliant Energy program evaluation assumptions, Evaluation of Alliant Energy Agriculture Program, Appendix F, 2008.	F
8	Engineering Assumption	

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Compressed Air System Improvements		
Measure ID	153	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Improve compressed air system performance through leak repair, installing VSD compressors, increasing storage, etc.		
Measure Category	Process	Sector(s)	Commercial
Measure Type	Compressed Air	Segment(s)	HS, WR
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Compressed Air System				
Baseline Value					
Efficiency Description	Compressed Air System Improvements				
Efficiency Value					
Annual Energy Savings	5,446	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	8.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Labor Hours		Modeled Building Segment	Hospital	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,264.00		
Incremental Cost Reference	RSMeans cost calculator		
TRC	0.43	Electric Avoided Cost (Lifetime, NPV)	\$1,410.13
RIM	0.76	Electric Lost Revenue (Lifetime, NPV)	\$1,855.94
PCT	0.57	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-HS-8-MO-CH-GH-CA-CAS138	NC-B-HS-8-MO-CH-GH-CA-CAS138
Home/Facility Square Footage	241,120.00	241,120.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	10,232,085.00	10,226,639.00
Estimated Summer Peak kW	1,983.87	1,983.87
Estimated Winter Peak kW	1,165.63	1,165.63
Electric Rate Used	PLL-11-C__NoFuel&FF	PLL-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	619,558.76	619,481.30
Total Therms	363,089.00	363,089.00
Total Gallons	6,825,500.00	6,825,500.00
Envelope		
Attic R	10.00	10.00
Ceiling R	10.00	10.00
Wall R	13.00	13.00
Floor R	1.00	1.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	12,056.00	12,056.00
HVAC Type		
HVAC Tonnage	2,000.00	2,000.00
HVAC SEER	0.00	0.00
Heating Fuel		
Heating BTU/kW		
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	397.00	397.00
Water Heater BTU/kW		
Water Temp Set Point	160.00	160.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Air curtain technology		
Measure ID	131	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Place fan over a doorway to create a "curtain" of air to maintain the needed pressure to keep temperature controlled air inside the space.		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Large Storage	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Air Curtain				
Baseline Value					
Efficiency Description	Air Curtain Technology				
Efficiency Value					
Annual Energy Savings	4,656	kWh	Annual Natural Gas Savings	-82.00	Therms
Energy Savings Units	5.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Units		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	0.70	kW	Winter Peak Demand Savings	0.50	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,027.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.78	Electric Avoided Cost (Lifetime, NPV)	\$1,257.65
RIM	1.03	Electric Lost Revenue (Lifetime, NPV)	\$1,225.68
PCT	0.76	Other Utility Avoided Cost (Lifetime, NPV)	-\$587.90
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS Nolcemaker	NC-B-GR-4-RS-RT-GH-RF-DOR177
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,709,282.00	2,704,626.00
Estimated Summer Peak kW	463.37	462.65
Estimated Winter Peak kW	316.93	316.47
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	143,672.04	143,621.98
Total Therms	8,984.00	9,066.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Anti-Sweat Heat Control-Humidistat		
Measure ID	399	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Medium temperature reach-in case with anti-sweat heater controls		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Case without Anti-Sweat Heater Control				
Baseline Value					
Efficiency Description	Anti-Sweat Heat Control-Humidistat				
Efficiency Value					
Annual Energy Savings	1,023	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Door		Modeled Building Segment		
Summer Peak Demand Savings	0.02	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$106.99		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.10	Electric Avoided Cost (Lifetime, NPV)	\$331.20
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$577.95
PCT	5.40	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$kWh = kW_{cool,base} \times (8760 \times CHA_{off}) \times (1 + Rh / COP_{cool})$$

Value		Description	Value	Units	Reference
kW _{cooler,base}	=	Per door power consumption of ASHs without controls	0.11	kW	1
CHA _{off}	=	Percent of time ASH with controls will be off annually	85.00	%	2
Rh	=	Residual Heat Fraction	0.65		3
COP _{cool}	=	Coefficient of Performance	2.50		4
8760	=	Hours per year	8,760.00	hours/year	
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation, Business Programs Deemed Savings Manual, March 22, 2010.
2	State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation, Business Programs Deemed Savings Manual, March 22, 2010.
3	State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation, Business Programs Deemed Savings Manual, March 22, 2010.
4	State of Wisconsin, Public Service Commission of Wisconsin, Focus on Energy Evaluation, Business Programs Deemed Savings Manual, March 22, 2010.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Auto-Closers for Cooler or Freezer Doors		
Measure ID	134	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Medium temperature walk-In refrigerator door with auto-closer		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Doors	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Walk-In Refrigerator Door with No Auto-Closer				
Baseline Value					
Efficiency Description	Auto-Closers for Refrigerator Doors				
Efficiency Value					
Annual Energy Savings	99	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	doors		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$131.43		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.19	Electric Avoided Cost (Lifetime, NPV)	\$24.50
RIM	0.69	Electric Lost Revenue (Lifetime, NPV)	\$35.36
PCT	0.27	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{ENERGYBASE} - \text{ENERGYEFF}) \times \text{DAYS} \times (1 - \text{TIMEDOOR}) \times \text{TIMEUN}$$

Value		Description	Value	Units	Reference
ENERGYBASE	=	Baseline Medium-Temp Refrigerated Case Energy	12.07	kWh/day	1
ENERGYEFF	=	Efficient Medium-Temp Refrigerated Case Energy	10.93	kWh/day	2
TIMEDOOR	=	Estimated Refrigerated Case Door Open Time	5.00	%	3
TIMEUN	=	Estimated Unintentional Refrigerated Case Door Open	25.00	%	4
DAYS	=	Days per year	365.00	days/year	
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Regional Technical Forum, Commercial: Grocery - Door Gasket Replacement V1.3
2	Regional Technical Forum, Commercial: Grocery - Door Gasket Replacement V1.3
3	Regional Technical Forum, Commercial: Grocery - Door Gasket Replacement V1.3
4	Regional Technical Forum, Commercial: Grocery - Autoclosers V1.2

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TRM MEASURE DETAILS

General Information

Measure Name	Dock door seals		
Measure ID	165	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install dock door seals to reduce infiltration		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Large Storage	Segment(s)	GR, RT
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Dock Door Seal				
Baseline Value					
Efficiency Description	Dock Door Seals				
Efficiency Value					
Annual Energy Savings	51,711	kWh	Annual Natural Gas Savings	189.00	Therms
Energy Savings Units	4.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	doors		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	2.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,520.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.96	Electric Avoided Cost (Lifetime, NPV)	\$12,598.72
RIM	0.77	Electric Lost Revenue (Lifetime, NPV)	\$16,454.70
PCT	5.06	Other Utility Avoided Cost (Lifetime, NPV)	\$1,350.58
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS	NC-E-GH-Groc-DDS
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,773,833.00	2,722,122.00
Estimated Summer Peak kW	467.13	464.98
Estimated Winter Peak kW	317.99	317.99
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	145,280.01	144,308.45
Total Therms	9,123.00	8,934.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	4,979.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	51,195.00	51,195.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW	230,240.00	230,240.00
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	ECM Case Motors		
Measure ID	170	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Replace standard motors with ECM motors. Refrigerated case motors only (smaller).		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Small Storage	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Efficiency	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Motor				
Baseline Value					
Efficiency Description	ECM Case Motors				
Efficiency Value					
Annual Energy Savings	699	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Motor		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	16	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$75.56		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.65	Electric Avoided Cost (Lifetime, NPV)	\$351.57
RIM	0.61	Electric Lost Revenue (Lifetime, NPV)	\$575.88
PCT	7.62	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$\text{kWh (cooler)} = ((\text{Wbase} - \text{Wee}) / 1000 \times \text{LF} \times \text{DCevapcool} \times (1 + (1 / (\text{DG} \times \text{COPcooler})))) \times \text{Hours}$

$\text{kWh (freezer)} = ((\text{Wbase} - \text{Wee}) / 1000 \times \text{LF} \times \text{DCevapfreeze} \times (1 + (1 / (\text{DG} \times \text{COPfreezer})))) \times \text{Hours}$

Value		Description	Value	Units	Reference
Wbase	=	Input wattage of existing/baseline evaporator fan motor	93.00	W	1
Wee	=	Input wattage of new energy efficient evaporator fan	30.00	W	2
LF	=	Load factor of evaporator fan motor	0.90		3
DCevapcool	=	Duty cycle of evaporator fan motor for cooler	1.00		4
DCevapfreeze	=	Duty cycle of evaporator fan motor for freezer	0.94		5
DG	=	Degradation factor of compressor COP	0.98		6
COPcooler	=	Coefficient of performance of compressor in the cooler	2.50		7
COPfreezer	=	Coefficient of performance of compressor in the cooler	1.30		8
Hours	=	Hours per year	8,760.00	hours	
1000	=	Conversion from kilowatts to watts	1,000.00	W/kW	
	=				
	=				

References

1	Engineering Assumption
2	Engineering Assumption
3	"ActOnEnergy; Business Program-Program Year 2, June, 2009 through May, 2010. Technical Reference Manual, No. 2009-01." Published 12/15/2009.
4	"Efficiency Maine; Commercial Technical Reference User Manual No. 2007-1." Published 3/5/07.
5	"Efficiency Maine; Commercial Technical Reference User Manual No. 2007-1." Published 3/5/07.
6	Regional Technical Forum (RTF) as part of the Northwest Power & Conservation Council, Deemed Measures List. Grocery Display Case ECM, FY2010, V2. (RTF website)
7	"ActOnEnergy; Business Program-Program Year 2, June, 2009 through May, 2010. Technical Reference Manual, No. 2009-01." Published 12/15/2009.
8	"ActOnEnergy; Business Program-Program Year 2, June, 2009 through May, 2010. Technical Reference Manual, No. 2009-01." Published 12/15/2009.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Economizer for Walk-in Coolers		
Measure ID	171	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Use an economizer to constantly monitor exterior air temperature and automatically draw outside air into the cooler/freezer whenever it is cold enough to substitute for compressor-generated cooling.		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Large Storage	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Walk-In Cooler				
Baseline Value					
Efficiency Description	Walk-In Cool with Economizer				
Efficiency Value					
Annual Energy Savings	5,526	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	5.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Hp		Modeled Building Segment		
Summer Peak Demand Savings	0.90	kW	Winter Peak Demand Savings	0.50	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$152.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	12.23	Electric Avoided Cost (Lifetime, NPV)	\$1,858.62
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$3,352.34
PCT	22.05	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [\text{HP} * \text{kWhCond}] + [((\text{kWEvap} * \text{nFans}) - \text{kWCirc}) * \text{Hours} * \text{DCComp} * \text{BF}] - [\text{kWEcon} * \text{DCEcon} * \text{Hours}]$$

Value		Description	Value	Units	Reference
HP	=	Horsepower of Compressor	5.00	hp	1
kWhCond	=	Condensing unit savings, per hp	1,108.00	kWh/HP	2
Hours	=	Number of annual hours that economizer operates	1,968.00	Hours	3
DCComp	=	Duty cycle of the compressor	0.50		4
kWEvap	=	Connected load kW of each evaporator fan	0.12	kW	5
kWCirc	=	Connected load kW of the circulating fan	0.04	kW	6
nFans	=	Number of evaporator fans	2.00		7
DCEcon	=	Duty cycle of the economizer fan on operational days	0.63		8
BF	=	Bonus factor for reduced cooling load from evaporator	1.29		9
kWEcon	=	Connected load kW of the economizer fan	0.23	kW	10
	=				
	=				

References

1	Engineering Assumption
2	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.6.8, page 459
3	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.6.8, page 459
4	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.6.8, page 459
5	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.6.8, page 459
6	Wattage of fan used by Freeaire and Cooltrol. This fan is used to circulate air in the cooler when the evaporator fan is turned off.
7	Engineering Assumption
8	Average of two manufacturer estimates of 50% and 75%
9	Bonus factor (1+ 1/3.5) assumes COP of 3.5, based on the average of standard reciprocating and discus compressor efficiencies.
10	Calculated from the average of three manufacturers: Freeaire (186 Watts), Cooltrol (285 Watts), and Natural Cool (218 Watts).

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Evaporator Fan ECMotor Controller on Walk-ins		
Measure ID	187	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install a motor controller in a walk-in cooler or freezer to reduce the speed of (or turn off) the evaporator fan motors when the compressor is not operating.		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Large Storage	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Evaporator Fan without controller				
Baseline Value					
Efficiency Description	Evaporator Fan with ECM				
Efficiency Value					
Annual Energy Savings	293	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	controller		Modeled Building Segment		
Summer Peak Demand Savings	0.04	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	16	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$347.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.40	Electric Avoided Cost (Lifetime, NPV)	\$140.27
RIM	1.08	Electric Lost Revenue (Lifetime, NPV)	\$130.23
PCT	0.38	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$kWh = (W_{output}/EFF_{Base} - W_{output}/EFF_{EE})/WH_{perKWH} \times \text{Hours} \times DC \times LF \times (1 + 1/COP)$

Value		Description	Value	Units	Reference
Woutput	=	Output wattage of installed fan motor	14.95	W	1
EFFBase	=	Baseline motor efficiency	0.29		2
EFFEE	=	High performance motor efficiency	0.66		3
LF	=	Load Factor	0.90		4
DC	=	Duty cycle of an motor	1.00		5
COP	=	Coefficient of performance of cooler or freezer	3.50		6
Hours	=	Hours of operation	8,760.00	hours	
WHperKWH	=	Conversion from kilowatt hours to watt hours	1,000.00	Wh/kWh	
	=				
	=				
	=				
	=				

References

1	Wtd avg of motor wattages from EnergySmart Grocer program. RTF Unit Energy Savings (UES) Measures and Supporting Documentation: Grocery - ECMS for Display Cases v.3.1
2	Chapter 5 of Technical Support Document in support of DOE Notice of Proposed Rulemaking for Commercial Refrigeration Equipment 08/28/2013
3	Chapter 5 of Technical Support Document in support of DOE Notice of Proposed Rulemaking for Commercial Refrigeration Equipment 08/28/2013
4	Public Service Commission of Wisconsin, Focus on Energy Evaluation, Business Programs Deemed Savings Manual, March 22, 2010
5	Duty cycle from Efficiency Vermont October 22, 2015 TRM: "An evaporator fan in a cooler runs all the time, but a freezer only runs 8,273 hours per year due to defrost cycles".
6	COP values from Efficiency Vermont October 22, 2015 TRM



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Fast Acting Door		
Measure ID	192	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install fast acting doors to reduce HVAC load on conditioned spaces		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Large Storage	Segment(s)	GR, RT
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Door				
Baseline Value					
Efficiency Description	Fast Acting Door				
Efficiency Value					
Annual Energy Savings	962	kWh	Annual Natural Gas Savings	82.00	Therms
Energy Savings Units	4.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	doors		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$3,200.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.27	Electric Avoided Cost (Lifetime, NPV)	\$264.12
RIM	1.04	Electric Lost Revenue (Lifetime, NPV)	\$252.79
PCT	0.26	Other Utility Avoided Cost (Lifetime, NPV)	\$587.83
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS	NC-E-GH-Groc-FAD
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,773,833.00	2,772,871.00
Estimated Summer Peak kW	467.13	466.98
Estimated Winter Peak kW	317.99	317.90
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	145,280.01	145,269.69
Total Therms	9,123.00	9,041.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	51,195.00	51,195.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW	230,240.00	230,240.00
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Food Service Refrigeration: Cooler/Freezer Door Gaskets		
Measure ID	194	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Glass door refrigerator meeting current ENERGY STAR standards		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Doors	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Glass Door Refrigerator				
Baseline Value					
Efficiency Description	ENERGY STAR Glass-Door Refrigerator				
Efficiency Value					
Annual Energy Savings	100	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	LF of gasket		Modeled Building Segment		
Summer Peak Demand Savings	0.02	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	4	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$7.25		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.84	Electric Avoided Cost (Lifetime, NPV)	\$13.34
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$22.56
PCT	3.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for Door Gaskets per linear foot	100.00	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2017 Commercial DSM Programs. Nexant, Aug 2018.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Glass or Acrylic Doors: low temperature case		
Measure ID	196	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Glass door refrigerator meeting current ENERGY STAR standards		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Doors	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Glass Door Refrigerator				
Baseline Value					
Efficiency Description	ENERGY STAR Glass-Door Refrigerator				
Efficiency Value					
Annual Energy Savings	100,743	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	24.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	doors		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	9.90	kW	Winter Peak Demand Savings	4.80	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$6,634.56		
Incremental Cost Reference	Nexant market research, 2017		
TRC	5.68	Electric Avoided Cost (Lifetime, NPV)	\$37,678.48
RIM	0.64	Electric Lost Revenue (Lifetime, NPV)	\$58,446.63
PCT	8.81	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS	NC-B-GR-4-RD-RT-GH-RF-DOR154
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,773,833.00	2,673,090.00
Estimated Summer Peak kW	467.13	457.27
Estimated Winter Peak kW	317.99	313.23
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	145,280.01	141,787.42
Total Therms	9,123.00	9,123.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	51,195.00	51,195.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW	230,240.00	230,240.00
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Glass Doors		
Measure ID	211	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Door with higher U-value and SHGC than code		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Doors	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Door with Standard U-value and SHGC				
Baseline Value					
Efficiency Description	Door with High U-value and SHGC				
Efficiency Value					
Annual Energy Savings	100,743	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	20.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	doors		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	9.90	kW	Winter Peak Demand Savings	4.80	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$5,000.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	7.54	Electric Avoided Cost (Lifetime, NPV)	\$37,678.48
RIM	0.64	Electric Lost Revenue (Lifetime, NPV)	\$58,446.63
PCT	11.69	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS	NC-B-GR-4-RD-RT-GH-RF-DOR151
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,773,833.00	2,673,090.00
Estimated Summer Peak kW	467.13	457.27
Estimated Winter Peak kW	317.99	313.23
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	145,280.01	141,787.42
Total Therms	9,123.00	9,123.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	51,195.00	51,195.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW	230,240.00	230,240.00
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Packaged Refrigeration Equip		
Measure ID	222	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install high efficiency packaged refrigeration equipment		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Small Storage	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Efficiency	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Packaged Refrigeration Equipment				
Baseline Value					
Efficiency Description	High Efficiency Packaged Refrigeration Equipment				
Efficiency Value					
Annual Energy Savings	156,087	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	40.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Refrigeration Tons		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	19.10	kW	Winter Peak Demand Savings	10.10	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$15,737.60		
Incremental Cost Reference	Nexant market research, 2017		
TRC	3.81	Electric Avoided Cost (Lifetime, NPV)	\$59,970.10
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$100,880.82
PCT	6.41	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS	NC-B-GR-4-RL-RT-GH-RF-OTH164
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,773,833.00	2,617,746.00
Estimated Summer Peak kW	467.13	448.04
Estimated Winter Peak kW	317.99	307.87
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	145,280.01	138,741.59
Total Therms	9,123.00	9,123.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	51,195.00	51,195.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW	230,240.00	230,240.00
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Refrigeration Compressor		
Measure ID	223	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install high efficiency refrigeration compressor		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Small Storage	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Efficiency	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Compressor				
Baseline Value					
Efficiency Description	High Efficiency Refrigeration Compressor				
Efficiency Value					
Annual Energy Savings	93,590	kWh	Annual Natural Gas Savings	-1,297.00	Therms
Energy Savings Units	40.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Refrigeration Tons		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	36.70	kW	Winter Peak Demand Savings	2.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$4,815.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.53	Electric Avoided Cost (Lifetime, NPV)	\$45,913.10
RIM	0.42	Electric Lost Revenue (Lifetime, NPV)	\$109,989.85
PCT	6.06	Other Utility Avoided Cost (Lifetime, NPV)	-\$13,327.71
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS Nolcemaker	NC-B-GR-4-RS-RT-GH-RF-CMP148
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,709,282.00	2,615,692.00
Estimated Summer Peak kW	463.37	426.71
Estimated Winter Peak kW	316.93	314.94
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	143,672.04	134,378.61
Total Therms	8,984.00	10,281.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Insulation for bare suction lines		
Measure ID	325	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Insulation for bare suction lines		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Large Storage	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Insulation				
Baseline Value					
Efficiency Description	Insulation for Bare Suction Lines				
Efficiency Value					
Annual Energy Savings	384	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	20.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Feet Of Pipe		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$11.80		
Incremental Cost Reference	Nexant market research, 2017		
TRC	12.03	Electric Avoided Cost (Lifetime, NPV)	\$141.91
RIM	0.62	Electric Lost Revenue (Lifetime, NPV)	\$228.93
PCT	19.40	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{kW/ft}) * L * \text{Hours}$$

Value		Description	Value	Units	Reference
kW/ft	=	Annual energy savings per linear foot of insulation	0.00219	kWh/ft	1
L	=	Total insulation length	20.00	ft.	2
Hours	=	Total hours of operation	8,760.00	hours	
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	SCE Company, "Insulation of Bare Refrigeration Suction Lines", Work Paper WPSCNRRN0003; PA TRM, June 2016, Errata Update February 2017, Section 3.5.14, Table 3-120
2	Engineering Assumption



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED Refrigerated Case Door Lighting		
Measure ID	335	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	T8 refrigerated case light fixture replaced with LED strip		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Lighting	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	T8 Fluorescent Fixture				
Baseline Value					
Efficiency Description	Refrigerated Display Case LED				
Efficiency Value					
Annual Energy Savings	453	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Doors		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$192.00		
Incremental Cost Reference	Efficiency Maine 2016 Commercial Technical Reference Manual V2016.1, Appendix E		
TRC	0.62	Electric Avoided Cost (Lifetime, NPV)	\$118.55
RIM	0.62	Electric Lost Revenue (Lifetime, NPV)	\$191.43
PCT	1.00	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = Kwh_eval					

Value		Description	Value	Units	Reference
kWh_eval	=	Verified energy savings for LED case lighting	452.60	kWh	1
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Evaluation of Georgia Power Company's 2014 Commercial DSM Programs. Nexant, July 2015.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Night Covers for Display Cases		
Measure ID	357	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Open vertical case with night covers		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	GR
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Night Covers				
Baseline Value					
Efficiency Description	Vertical Night Covers				
Efficiency Value					
Annual Energy Savings	526	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	doors		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	based on similar refrigeration measures				

Measure Economic Impacts

Incremental Cost	\$128.79		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.68	Electric Avoided Cost (Lifetime, NPV)	\$87.58
RIM	0.53	Electric Lost Revenue (Lifetime, NPV)	\$165.14
PCT	1.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = W x SF x HOU					

Value		Description	Value	Units	Reference
W	=	Width of the opening that the night covers protect	12.00	ft	1
SF	=	Savings factor based on the temperature of the case	0.02	kW/ft	2
HOU	=	Annual hours that the night covers are in use	2,190.00	Hours/Year	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Data gathering and engineering assumptions
2	PA TRM, June 2016. TRM Reference: CL&P Program Savings Documentation for 2011 Program Year (2010)& other factors based on Southern California Edison (1997).
3	Data gathering and engineering assumptions



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Refrigerated Beverage Vending Machine (ENERGY STAR)		
Measure ID	372	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Refrigerated vending machine meeting current ENERGY STAR standards		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Small Storage	Segment(s)	AM, ED, GR, HS, LG, OF, RS, RT
Measure Sub-Type	Vending	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Refrigerated Vending Machine				
Baseline Value					
Efficiency Description	ENERGY STAR Vending Machine				
Efficiency Value					
Annual Energy Savings	8,736	kWh	Annual Natural Gas Savings	-82.00	Therms
Energy Savings Units	2.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Vending Machine		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	1.40	kW	Winter Peak Demand Savings	0.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$360.00		
Incremental Cost Reference	Pennsylvania Public Utility Commission 2013 Incremental Cost Database		
TRC	2.72	Electric Avoided Cost (Lifetime, NPV)	\$2,935.46
RIM	0.62	Electric Lost Revenue (Lifetime, NPV)	\$4,746.80
PCT	4.39	Other Utility Avoided Cost (Lifetime, NPV)	-\$720.12
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS Nolcemaker	NC-B-GR-4-RV-RT-GH-AP-OTH042
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,709,282.00	2,700,546.00
Estimated Summer Peak kW	463.37	462.01
Estimated Winter Peak kW	316.93	316.07
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	143,672.04	143,328.84
Total Therms	8,984.00	9,066.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Refrigerated Case Door Lighting - Electronic Ballasts		
Measure ID	373	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install T8 fluorescent lamp in refrigerator door		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Lighting	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Incandescent Lamp				
Baseline Value					
Efficiency Description	Fluorescent Lamp				
Efficiency Value					
Annual Energy Savings	89,480	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	25.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Fixtures		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	7.70	kW	Winter Peak Demand Savings	6.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,950.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	14.69	Electric Avoided Cost (Lifetime, NPV)	\$28,649.98
RIM	0.66	Electric Lost Revenue (Lifetime, NPV)	\$43,463.22
PCT	22.29	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS	NC-B-GR-4-RD-RT-GH-RF-OTH128
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,773,833.00	2,684,353.00
Estimated Summer Peak kW	467.13	459.45
Estimated Winter Peak kW	317.99	311.99
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	145,280.01	142,407.06
Total Therms	9,123.00	9,123.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	51,195.00	51,195.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW	230,240.00	230,240.00
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Refrigerated Case Special Doors with low/no anti-sweat heat		
Measure ID	374	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install door that requires minimum to no anti-sweat heat.		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Doors	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard refrigerated case doors				
Baseline Value					
Efficiency Description	Doors with low/no anti-sweat heat				
Efficiency Value					
Annual Energy Savings	767	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Doors		Modeled Building Segment		
Summer Peak Demand Savings	0.02	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$57.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.47	Electric Avoided Cost (Lifetime, NPV)	\$254.61
RIM	0.70	Electric Lost Revenue (Lifetime, NPV)	\$363.69
PCT	6.38	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh= kWhComp + kWhAsh					
kWhComp = 1/1000*(Qcooling*KASH/EER)*EFLH					
kWhASH = ASH/1000*t					

Value		Description	Value	Units	Reference
KASH	=	% cooling reduction due to low anti-sweat heater	1.50	%	1
EFLH	=	Equivalent full load annual operating hours	5,700.00	Hours/Year	2
ASH	=	Reduction in ASH power per door	83.00	W/door	3
t	=	Annual operating hours of Anti-sweat heater	8,760.00	Hours/Year	4
Qcooling	=	Case rating by manufacturer	3,979.00	(Btu/hr)*(1/door)	
EER	=	Compressor rating from manufacturer	8.51	Btu/hr/W	
1000	=	Conversion from kilowatts to watts	1,000.00	W/kW	
	=				
	=				
	=				
	=				
	=				

References

1	San Diego Gas & Electric Statewide Express Efficiency Program	https://www.sdge.com/sites/default/files/regulatory/Express%20and%20SBS%20Workpapers.pdf
2	San Diego Gas & Electric Statewide Express Efficiency Program	https://www.sdge.com/sites/default/files/regulatory/Express%20and%20SBS%20Workpapers.pdf
3	San Diego Gas & Electric Statewide Express Efficiency Program	https://www.sdge.com/sites/default/files/regulatory/Express%20and%20SBS%20Workpapers.pdf
4	San Diego Gas & Electric Statewide Express Efficiency Program	https://www.sdge.com/sites/default/files/regulatory/Express%20and%20SBS%20Workpapers.pdf

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TRM MEASURE DETAILS

General Information

Measure Name	Refrigerated Display Case Lighting Controls		
Measure ID	375	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Occupancy Sensors for Refrigerated Case Lighting		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	GR, RT
Measure Sub-Type	Lighting	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Market-Share Weighted Existing Linear Fluorescent Fixture				
Baseline Value					
Efficiency Description	Refrigerated Display Case Lighting Controls				
Efficiency Value					
Annual Energy Savings	345	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Doors		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	Pennsylvania 2016 Statewide TRM, Appendix A				

Measure Economic Impacts

Incremental Cost	\$104.14		
Incremental Cost Reference	Efficiency Maine 2016 Commercial Technical Reference Manual V2016.1, Appendix E		
TRC	0.89	Electric Avoided Cost (Lifetime, NPV)	\$92.74
RIM	0.82	Electric Lost Revenue (Lifetime, NPV)	\$113.15
PCT	1.09	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = ((\text{kWControlled} \times (1 - \% \text{Save})) \times (\text{Hours} \times \% \text{Controlled}) \times (1 + (0.8 / \text{COP})))$$

Value		Description	Value	Units	Reference
kWControlled	=	Connected load of controlled beverage or snack machine	0.18	kW	1
%Save	=	Percentage of full load wattage due to occupancy sensor	20.00	%	2
Hours	=	Estimate of Annual Operating Hours	6,575.00	hours	3
%Controlled	=	Percentage of time at reduced wattage due to occupancy	29.00	%	4
0.8	=	Percentage of heat from LED lighting	80.00	%	5
COP	=	Coefficient of performance	3.50		
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Controlled lighting load from Efficiency Vermont No. 2015-90 TRM, based on LED Refrig Lighting ERCO_Talking_Points v3, PG&E
2	Regional Technical Forum (RTF) Unit Energy Savings (UES) Measures and Supporting Documentation: Grocery – Display Case Motion Sensors v.3.1
3	Assumption for a business operating 18 hours per day
4	Regional Technical Forum (RTF) Unit Energy Savings (UES) Measures and Supporting Documentation: Grocery – Display Case Motion Sensors v.3.1
5	Controlled lighting load from Efficiency Vermont No. 2015-90 TRM, based on LED Refrig Lighting ERCO_Talking_Points v3, PG&E

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Retrofit open vertical refrigerated case with glass door		
Measure ID	376	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Retrofit refrigerated open display cases with glass doors to reduce energy consumption		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Display	Segment(s)	GR, RT
Measure Sub-Type	Doors	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Retrofit				
Baseline Value					
Efficiency Description	Retrofit with Glass Doors				
Efficiency Value					
Annual Energy Savings	389,015	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	24.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Doors		Modeled Building Segment	Grocery	
Summer Peak Demand Savings	59.60	kW	Winter Peak Demand Savings	32.30	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$30,953.52		
Incremental Cost Reference	Nexant market research, 2017		
TRC	4.99	Electric Avoided Cost (Lifetime, NPV)	\$154,612.80
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$270,804.62
PCT	8.75	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-Groc-RF-BAS	NC-B-GR-4-RS-RT-GH-RF-DOR001
Home/Facility Square Footage	44,178.00	44,178.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	2,773,833.00	2,384,818.00
Estimated Summer Peak kW	467.13	407.50
Estimated Winter Peak kW	317.99	285.66
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	145,280.01	126,869.78
Total Therms	9,123.00	9,123.00
Total Gallons	3,078.00	3,078.00
Envelope		
Attic R	0.00	0.00
Ceiling R	11.00	11.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	2.00	2.00
Infiltration (cfm)	5,154.10	5,154.10
HVAC Type		
HVAC Tonnage	81.55	81.55
HVAC SEER	9.30	9.30
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW	51,195.00	51,195.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	87.00	87.00
Water Heater BTU/kW	230,240.00	230,240.00
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Strip Curtains		
Measure ID	386	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install strip curtains in refrigerated spaces		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Large Storage	Segment(s)	AM, ED, GR, HS, LG, RS, RT
Measure Sub-Type	Equipment Peripherals	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Strip Curtains				
Baseline Value					
Efficiency Description	Strip Curtains				
Efficiency Value					
Annual Energy Savings	1,680	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	80.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet of curtain		Modeled Building Segment		
Summer Peak Demand Savings	0.30	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	4	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$272.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.82	Electric Avoided Cost (Lifetime, NPV)	\$223.71
RIM	0.93	Electric Lost Revenue (Lifetime, NPV)	\$239.93
PCT	0.88	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = kWh x A					

Value		Description	Value	Units	Reference
kWh	=	Strip Curtains Deemed Savings, per sqft of doorway	21.00	kWh/sqft	1
A	=	Avg Walk-in Refrigerator/Freezer Doorway Area (A)	80.00	sq. ft	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.5.9, Table 3-107
2	PA TRM, June 2016, Errata Update February 2017, Section 3.5.9, Table 3-108, Table 3-109, Table 3-110, & Table 3-111 & CLAMAC, ComFac_Evaluation_V1_Final_Report(2010).

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Vendor Miser		
Measure ID	395	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Non-ENERGY STAR beverage vending machine equipped with infrared occupancy sensing controls		
Measure Category	Refrigeration	Sector(s)	Commercial
Measure Type	Small Storage	Segment(s)	AM, ED, GR, HS, LG, OF, RS, RT
Measure Sub-Type	Vending	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Vending Machine with no controls				
Baseline Value					
Efficiency Description	Vending Machine with occupancy sensor				
Efficiency Value					
Annual Energy Savings	968	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Controller		Modeled Building Segment		
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	8	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$414.44		
Incremental Cost Reference	Nexant market research, 2017		
TRC	0.63	Electric Avoided Cost (Lifetime, NPV)	\$261.82
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$488.78
PCT	1.18	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = ENERGYBASE x DAYS x SVGE					

Value		Description	Value	Units	Reference
ENERGYBASE	=	Baseline Vending Machine Electric Demand	7.37	kWh/day	1
DAYS	=	Vending Machine Operating Days	365.00	days	2
SVGE	=	Vending Machine Controls Energy Savings Factor	0.36		3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	ENERGY STAR Program Requirements for Refrigerated Beverage Vending Machines V1.0
2	Engineering Assumption
3	Regional Technical Forum, Grocery - Vending Machine Controller V1.0

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Drain Heat Exchanger		
Measure ID	166	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Hot water loop with electric resistance heater and drain water heat exchanger		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	AM, DC, GR, GV, HS, LG, OF, RS, RT, WR, MS
Measure Sub-Type	Heat Conservation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Drain Water Heat Recovery				
Baseline Value					
Efficiency Description	Drain Water Heat Recovery				
Efficiency Value					
Annual Energy Savings	1,764	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Heat Exchangers		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.70	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	29	Years			
Equipment Life Reference	Engineering estimate from Nexant market research				

Measure Economic Impacts

Incremental Cost	\$5,847.00		
Incremental Cost Reference	RSMeans cost calculator		
TRC	0.22	Electric Avoided Cost (Lifetime, NPV)	\$1,303.56
RIM	1.06	Electric Lost Revenue (Lifetime, NPV)	\$1,231.64
PCT	0.21	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = [\text{HW} \times 8.3 \times (\text{THOT} - \text{TCOLD}) / \text{EFBASE}] / 3412 \times \text{SVGE}$$

Value		Description	Value	Units	Reference
HW	=	Annual Gallons of Hot Water Use	50,000.00	Gal	1
THOT	=	Water Heater Temperature Setpoint	119.00	deg F	2
TCOLD	=	Temperature of Cold Water	63.90	deg F	3
EFBASE	=	Electric Resistance WH Baseline Efficiency, 50 Gallon	0.95		4
SVGE	=	Drain Water Heat Recovery Energy Savings Factor	0.25		5
8.3	=	Specific weight of water	8.30	lbs/gal	
3412	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	
	=				
	=				
	=				
	=				
	=				

References

1	Engineering Assumption
2	Engineering Assumption
3	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
4	IECC 2012; Assumed 10% less efficient than baseline
5	Minnesota 2016 Statewide TRM V1.3, Residential Hot Water - Drainpipe Heat Exchanger with Electric Water Heater



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Faucet Aerator (non-residential)		
Measure ID	193	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Low-Flow faucet aerator		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	AM,DC,ED,GR,GV,HS,LG,OF,RL,RS,RT,WR,MS
Measure Sub-Type	Water Use Reduction	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Faucet Aerator				
Baseline Value					
Efficiency Description	Low-Flow Faucet Aerator				
Efficiency Value					
Annual Energy Savings	109	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Faucets		Modeled Building Segment		
Summer Peak Demand Savings	0.01	kW	Winter Peak Demand Savings	0.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$25.84		
Incremental Cost Reference	Nexant market research, 2017 and RSMeans labor estimate		
TRC	1.50	Electric Avoided Cost (Lifetime, NPV)	\$38.76
RIM	0.98	Electric Lost Revenue (Lifetime, NPV)	\$39.42
PCT	1.53	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$kWh = ((GPM_{base} - GPM_{low}) / GPM_{base}) \times Usage \times EP_{Electric}$

$EP_{Electric} = (8.33 \times 1.0 \times (WaterTemp - SupplyTemp)) / (RE_{electric} \times 3412)$

Value		Description	Value	Units	Reference
GPMbase	=	Average flow rate in gallons per minute of the baseline	1.39	gpm	1
GPMlow	=	Average flow rate of the low-flow faucet aerator	0.94	gpm	2
Usage	=	Estimated usage of mixed water per faucet	5,000.00	gallons/year	3
WaterTemp	=	assumed temperature of mixed water	91.00	deg F	4
SupplyTemp	=	assumed temp of water entering building	63.90	deg F	5
RE_electric	=	recovery efficiency of electric water heater	0.98		6
EPElectric	=	Energy per gallon of water used by faucet (elec WH)	0.07	kWh/gal	
3412	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	
8.3	=	Specific Weight of Water	8.30	lb/gal	
1	=	Heat capacity of water	1.00	BTU/lb-deg F	
	=				
	=				

References

1	DeOreo, B., and P. Mayer. Residential End Uses of Water Study Update. Forthcoming. ©2015 Water Research Foundation. Reprinted With Permission
2	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016 Section 4.3.2, page 94.
3	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.3.2, page 95
4	Cadmus and Opinion Dynamics Showerhead and Faucet Aerator Meter Study Memorandum dated June 2013, directed to Michigan Evaluation Working Group.
5	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
6	Electric water heaters have recovery efficiency of 98%: http://www.ahridirectory.org/ahridirectory/pages/home.aspx .



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Heat Pump Water Heater (non-residential)		
Measure ID	201	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency electric heat pump water heater		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Water Heating Equipment	Segment(s)	AM, DC, GR, GV, HS, LG, OF, RS, RT, WR, MS
Measure Sub-Type	Type of Water Heater	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Electric Heat Pump Water Heater				
Baseline Value					
Efficiency Description	High Efficiency Electric Heat Pump Water Heater				
Efficiency Value					
Annual Energy Savings	38,279	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	370.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Gallons		Modeled Building Segment	Lodging	
Summer Peak Demand Savings	2.70	kW	Winter Peak Demand Savings	14.50	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$5,587.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.22	Electric Avoided Cost (Lifetime, NPV)	\$12,403.20
RIM	0.61	Electric Lost Revenue (Lifetime, NPV)	\$20,474.50
PCT	3.66	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-Lodge-WA-BAS	NC-B-LG-2-WA-PT-HP-WA-HPH194
Home/Facility Square Footage	25,023.95	25,023.95
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	291,235.00	252,956.00
Estimated Summer Peak kW	53.64	50.95
Estimated Winter Peak kW	63.16	48.63
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	23,714.07	22,246.47
Total Therms	0.00	0.00
Total Gallons	947,540.00	947,540.00
Envelope		
Attic R	11.00	11.00
Ceiling R	11.00	11.00
Wall R	10.00	10.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	478.01	478.01
HVAC Type		
HVAC Tonnage	47.62	47.62
HVAC SEER	8.00	8.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	370.00	240.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Heat Trap		
Measure ID	202	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install U-bend in hot water supply to reduce cycling		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	AM, DC, GR, GV, HS, LG, OF, RS, RT, WR, MS
Measure Sub-Type	Heat Conservation	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Heat Trap				
Baseline Value					
Efficiency Description	Heat Trap				
Efficiency Value					
Annual Energy Savings	10,082	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	7.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Units		Modeled Building Segment	Lodging	
Summer Peak Demand Savings	1.20	kW	Winter Peak Demand Savings	0.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$148.65		
Incremental Cost Reference	Nexant market research, 2017		
TRC	23.85	Electric Avoided Cost (Lifetime, NPV)	\$3,545.79
RIM	0.62	Electric Lost Revenue (Lifetime, NPV)	\$5,678.81
PCT	38.20	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-Lodge-WA-BAS	NC-B-LG-2-WA-PT-HP-WA-OTH201
Home/Facility Square Footage	25,023.95	25,023.95
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	291,235.00	281,153.00
Estimated Summer Peak kW	53.64	52.42
Estimated Winter Peak kW	63.16	62.24
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	23,714.07	23,340.86
Total Therms	0.00	0.00
Total Gallons	947,540.00	947,540.00
Envelope		
Attic R	11.00	11.00
Ceiling R	11.00	11.00
Wall R	10.00	10.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	478.01	478.01
HVAC Type		
HVAC Tonnage	47.62	47.62
HVAC SEER	8.00	8.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	370.00	370.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency small instantaneous water heaters (25% above the minimum)		
Measure ID	224	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency small instantaneous water heaters meeting current ENERGY STAR specification		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Water Heating Equipment	Segment(s)	AM, DC, GV, HS, LG, OF, RT, WR
Measure Sub-Type	Type of Water Heater	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Efficiency Water Heater				
Baseline Value					
Efficiency Description	ENERGY STAR Water Heater				
Efficiency Value					
Annual Energy Savings	4,055	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water Heaters		Modeled Building Segment		
Summer Peak Demand Savings	0.50	kW	Winter Peak Demand Savings	0.50	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$1,075.02		
Incremental Cost Reference	Nexant market research, 2017		
TRC	2.12	Electric Avoided Cost (Lifetime, NPV)	\$2,282.55
RIM	0.71	Electric Lost Revenue (Lifetime, NPV)	\$3,237.18
PCT	3.01	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \{[1/\text{EFBASE} - (1/\text{EFEFF} \times 1/\text{FADJUST})] \times \text{HW} \times 8.3 \times 1.0 \times (\text{Thot} - \text{Tcold})\} / 3412$$

Value		Description	Value	Units	Reference
EFBase	=	Electric Resistance WH or HPWH Baseline Efficiency, 50	0.94		1
EFEff	=	Efficient Heat Pump Water Heater Energy Factor	2.00		2
FADJUST	=	Heat Pump Water Heater COP Adjustment Factor	1.09		3
HW	=	Annual Gallons of Hot Water Use (HW)	50,000.00	Gal	4
Thot	=	Water Heater Temperature Setpoint	119.00	deg F	5
Tcold	=	Temperature of Cold Water	63.90	deg F	6
3412	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	
8.3	=	Specific Weight of Water	8.30	lb/gal	
	=				
	=				
	=				
	=				

References

1	IECC 2012
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.4.1, Table 3-71
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.4.1, Table 3-71
4	Engineering Assumption
5	Engineering Assumption
6	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.

High Efficiency small instantaneous water heaters (25% above the minimum)



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Water Heater - 50 gal. EF= .94 (base=.86)		
Measure ID	227	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	High efficiency electric resistance water heater		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Water Heating Equipment	Segment(s)	AM, DC, GR, GV, HS, LG, OF, RS, RT, WR, MS
Measure Sub-Type	Type of Water Heater	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Electric Water Heater				
Baseline Value					
Efficiency Description	High Efficiency Electric Water Heater				
Efficiency Value					
Annual Energy Savings	2,320	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	50.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Gallons		Modeled Building Segment	Lodging	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.90	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$865.00		
Incremental Cost Reference	RSMeans cost calculator		
TRC	1.25	Electric Avoided Cost (Lifetime, NPV)	\$1,080.04
RIM	1.02	Electric Lost Revenue (Lifetime, NPV)	\$1,054.62
PCT	1.22	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	NB-B-LG-2-WA-PT-HP-WA-HTR284	NC-B-LG-2-WA-PT-HP-WA-HTR284
Home/Facility Square Footage	25,023.95	25,023.95
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	296,686.00	294,366.00
Estimated Summer Peak kW	54.02	53.86
Estimated Winter Peak kW	65.25	64.36
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	24,023.92	23,992.06
Total Therms	0.00	0.00
Total Gallons	947,540.00	947,540.00
Envelope		
Attic R	11.00	11.00
Ceiling R	11.00	11.00
Wall R	10.00	10.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	478.01	478.01
HVAC Type		
HVAC Tonnage	47.62	47.62
HVAC SEER	8.00	8.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	370.00	370.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Insulating Blanket (R=6.7) (non-residential)		
Measure ID	324	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Insulation blanket for hot water heater tank		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	AM, DC, GR, GV, HS, LG, OF, RS, RT, WR, MS
Measure Sub-Type	Operational Efficiency	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Water heater tank without blanket				
Baseline Value					
Efficiency Description	Insulating Blanket (R=6.7)				
Efficiency Value					
Annual Energy Savings	178	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water Heaters		Modeled Building Segment		
Summer Peak Demand Savings	0.02	kW	Winter Peak Demand Savings	0.02	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$28.73		
Incremental Cost Reference	Nexant market research, 2017 and RSMeans labor estimate		
TRC	2.57	Electric Avoided Cost (Lifetime, NPV)	\$73.81
RIM	1.00	Electric Lost Revenue (Lifetime, NPV)	\$74.07
PCT	2.58	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \{[(\text{UBASE} \times \text{ABASE}) - (\text{UINSUL} \times \text{AINSUL})] \times (\text{TWATER} - \text{TAMBIENT}) / (3412 \times \text{EFBASE})\} \times \text{HOU}$$

Value		Description	Value	Units	Reference
ABASE	=	Surface Area of Unwrapped Water Heater Tank	24.99	ft ²	1
UBASE	=	Heat Transfer Coefficient of Unwrapped Tank	0.12	BTU/Hr-deg F-ft ²	2
AINSUL	=	Surface Area of Wrapped Water Heater Tank	27.06	ft ²	3
UINSUL	=	Heat Transfer Coefficient of Wrapped Tank	0.07	BTU/Hr-deg -ft ²	4
TWATER	=	Water Heater Temperature Setpoint	119.00	deg F	5
TAMBIENT	=	Temperature of Ambient Air	63.90	deg F	6
EFBASE	=	Electric Resistance WH Baseline Efficiency, 50 Gallon	0.95		7
HOU	=	Piping and Insulation Hours of Use	8,760.00	Hours	8
3412	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	
	=				
	=				
	=				

References

1	Pennsylvania 2015 Statewide TRM, Section 2.3.5, Table 2-63
2	Pennsylvania 2015 Statewide TRM, Section 2.3.5, Table 2-63
3	Pennsylvania 2015 Statewide TRM, Section 2.3.5, Table 2-63
4	Additional insulation (R-6.7) to assumed base tank value of R-8
5	Engineering assumption
6	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
7	IECC2012
8	It is assumed that the tank wrap will insulate the tank during all hours of the year.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Insulating Blanket (R=11) (non-residential)		
Measure ID	323	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Insulation blanket for hot water heater tank		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	AM, DC, GR, GV, HS, LG, OF, RS, RT, WR, MS
Measure Sub-Type	Operational Efficiency	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Water heater tank without blanket				
Baseline Value					
Efficiency Description	Insulating Blanket (R=11)				
Efficiency Value					
Annual Energy Savings	240	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water Heaters		Modeled Building Segment		
Summer Peak Demand Savings	0.03	kW	Winter Peak Demand Savings	0.03	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$34.35		
Incremental Cost Reference	Nexant market research, 2017 and RSMeans labor estimate		
TRC	2.86	Electric Avoided Cost (Lifetime, NPV)	\$98.30
RIM	0.99	Electric Lost Revenue (Lifetime, NPV)	\$99.37
PCT	2.89	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \{[(\text{UBASE} \times \text{ABASE}) - (\text{UINSUL} \times \text{AINSUL})] \times (\text{TWATER} - \text{TAMBIENT}) / (3412 \times \text{EFBASE})\} \times \text{HOU}$$

Value		Description	Value	Units	Reference
ABASE	=	Surface Area of Unwrapped Water Heater Tank	24.99	ft ²	1
UBASE	=	Heat Transfer Coefficient of Unwrapped Tank	0.12	BTU/Hr-deg F-ft ²	2
AINSUL	=	Surface Area of Wrapped Water Heater Tank	27.06	ft ²	3
UINSUL	=	Heat Transfer Coefficient of Wrapped Tank	0.05	BTU/Hr-deg -ft ²	4
TWATER	=	Water Heater Temperature Setpoint	119.00	deg F	5
TAMBIENT	=	Temperature of Ambient Air	63.90	deg F	6
EFBASE	=	Electric Resistance WH Baseline Efficiency, 50 Gallon	0.95		7
HOU	=	Piping and Insulation Hours of Use	8,760.00	Hours	8
3412	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	
	=				
	=				
	=				

References

1	Pennsylvania 2015 Statewide TRM, Section 2.3.5, Table 2-63
2	Pennsylvania 2015 Statewide TRM, Section 2.3.5, Table 2-63
3	Pennsylvania 2015 Statewide TRM, Section 2.3.5, Table 2-63
4	Additional insulation (R-11) to assumed base tank value of R-8
5	Engineering assumption
6	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
7	IECC2012
8	It is assumed that the tank wrap will insulate the tank during all hours of the year.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Low Flow Showerhead (non-residential)		
Measure ID	342	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Low-flow showerhead		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	ED, HS, LG
Measure Sub-Type	Water Use Reduction	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Showerhead				
Baseline Value					
Efficiency Description	Low Flow Showerhead				
Efficiency Value					
Annual Energy Savings	46	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Showers		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$35.46		
Incremental Cost Reference	Nexant market research, 2017 and RSMeans labor estimate		
TRC	0.46	Electric Avoided Cost (Lifetime, NPV)	\$16.43
RIM	0.98	Electric Lost Revenue (Lifetime, NPV)	\$16.70
PCT	0.47	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (\text{GPMBASE} - \text{GPMEFF}) \times \text{GPERSON/DAY} \times \text{NOSHOWER} \times \text{SPERSON/DAY} \times 365 \times (\text{TSHOWER} - \text{TCOLD}) \times 8.3 / 3412 \times \text{RE}$$

Value		Description	Value	Units	Reference
GPMBASE	=	Baseline/Existing Showerhead Flow Rate	2.50	GPM	1
GPMEFF	=	Efficient Showerhead Flow Rate	1.75	GPM	2
GPERSON/DAY	=	Average Per Person Gallons of Shower Water Use per Day	17.20	Gallons/Person/Day	3
NOSHOWER	=	Average Number of Showerheads	1.00		4
SPERSON/DAY	=	Average Number of Showers per Person per Day	0.10	Showers/Person/Da	5
TSHOWER	=	Shower Water Temperature	105.00	deg F	6
TCOLD	=	Temperature of Cold Water	63.90	deg F	7
RE	=	Recovery Efficiency of Water Heater	0.98		8
3412	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	
8.3	=	Specific Weight of Water	8.30	lb/gal	
365	=	Days per year	365.00	days	
	=				

References

1	Federal Standard Minimum Showerhead Flow Rate
2	Minnesota 2016 Statewide TRM V1.3
3	Minnesota 2016 Statewide TRM V1.3
4	Engineering Assumption
5	Engineering Assumption
6	Minnesota 2016 Statewide TRM V1.3
7	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
8	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.3.8, Table 2-66

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Low-Flow Pre-Rinse Spray Valves - 0.6 GPM (Code to high Efficiency)		
Measure ID	343	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Install low-flow pre-rinse spray valve		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	ED, GR, HS, LG, RS, RT
Measure Sub-Type	Water Use Reduction	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Pre-Rinse Sprayer				
Baseline Value					
Efficiency Description	Low-Flow Pre-Rinse Sprayer				
Efficiency Value					
Annual Energy Savings	1,489	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	2.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Valves		Modeled Building Segment		
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.70	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$68.16		
Incremental Cost Reference	Nexant market research, 2017		
TRC	7.09	Electric Avoided Cost (Lifetime, NPV)	\$483.30
RIM	0.96	Electric Lost Revenue (Lifetime, NPV)	\$501.67
PCT	7.36	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (((\text{Fbfs} \times \text{Ubfs}) - (\text{Fpfs} \times \text{Upfs})) \times 365 \times 8.3 \times (\text{Thfs} - \text{Tc})) / (\text{EF} \times 3412)$$

$$\text{kWh} = (((\text{Fbg} \times \text{Ubg}) - (\text{Fpg} \times \text{Upg})) \times 365 \times 8.3 \times (\text{Thg} - \text{Tc})) / (\text{EF} \times 3412)$$

Value		Description	Value	Units	Reference
Fbfs	=	Baseline flow rate of sprayer for food service applications	2.25	GPM	1
Ubfs	=	Baseline water usage duration for food service	32.40	min/day	2
Fpfs	=	Post measure flow rate of sprayer for food service	1.12	GPM	3
Upfs	=	Post measure water usage duration for food service	43.80	min/day	4
Thfs	=	Temp. of water coming from the spray nozzle for food service	127.50	deg F	5
Tc	=	Incoming cold water temperature for grocery and food	63.90	deg F	6
EF	=	Energy factor of existing electric water heater system	0.90		7
Fbg	=	Baseline flow rate of sprayer for grocery applications	2.15	GPM	8
Ubg	=	Baseline water usage duration for grocery applications	4.80	min/day	9
Fpg	=	Post measure flow rate of sprayer for grocery	1.12	GPM	10
Upg	=	Post measure water usage duration for grocery	6.00	min/day	11
Thg	=	Temp. of water coming from the spray nozzle for grocery	97.60	deg F	12

References

1	The Energy Policy Act (EPAct) of 2005 sets the maximum flow rate for pre-rinse spray valves at 1.6 GPM at 60 pounds per square inch.
2	Evaluation Final Report for California Urban Water Conservation Council 2004-5 Pre-Rinse Spray Valve Installation Program (Phase 2), SBW Consulting, 2007, Table 3-6, p. 24.
3	Evaluation Final Report for California Urban Water Conservation Council 2004-5 Pre-Rinse Spray Valve Installation Program (Phase 2), SBW Consulting, 2007, Table 3-4, p. 23.
4	Evaluation Final Report for California Urban Water Conservation Council 2004-5 Pre-Rinse Spray Valve Installation Program (Phase 2), SBW Consulting, 2007, Table 3-6, p. 24.
5	Evaluation Final Report for California Urban Water Conservation Council 2004-5 Pre-Rinse Spray Valve Installation Program (Phase 2), SBW Consulting, 2007, Table 3-5, p. 23.
6	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.
7	"Energy Conservation Program: Energy Conservation Standards for Residential Water Heaters, Direct Heating Equipment, and Pool Heaters", US Dept. of Energy.
8	The Energy Policy Act (EPAct) of 2005 sets the maximum flow rate for pre-rinse spray valves at 1.6 GPM at 60 pounds per square inch.
9	Evaluation Final Report for California Urban Water Conservation Council 2004-5 Pre-Rinse Spray Valve Installation Program (Phase 2), SBW Consulting, 2007, Table 3-6, p. 24.
10	Evaluation Final Report for California Urban Water Conservation Council 2004-5 Pre-Rinse Spray Valve Installation Program (Phase 2), SBW Consulting, 2007, Table 3-4, p. 23.
11	Evaluation Final Report for California Urban Water Conservation Council 2004-5 Pre-Rinse Spray Valve Installation Program (Phase 2), SBW Consulting, 2007, Table 3-6, p. 24.
12	Evaluation Final Report for California Urban Water Conservation Council 2004-5 Pre-Rinse Spray Valve Installation Program (Phase 2), SBW Consulting, 2007, Table 3-5, p. 23.

Low-Flow Pre-Rinse Spray Valves - 0.6 GPM (Code to high Efficiency)

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Low-temperature/low-water dishwasher		
Measure ID	346	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Commercial grade dishwasher (conveyer or stationary) that only requires low temperature water input or reduced water input.		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Water Heating Equipment	Segment(s)	ED, HS, LG, OF, RS
Measure Sub-Type	Type of Water Heater	Vintage(s)	Early Replace, Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Dishwasher				
Baseline Value					
Efficiency Description	Low-Temperature Dishwasher				
Efficiency Value					
Annual Energy Savings	9,336	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Appliance		Modeled Building Segment		
Summer Peak Demand Savings	0.90	kW	Winter Peak Demand Savings	3.80	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$3,379.87
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$6,983.61
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \text{BldgEnergy} + \text{IdleEnergy}$$

$$\text{BldgEnergy, BoosterEnergy} = [(\text{WUB} * \text{RW} * \text{D}) * (\text{Tin} * \text{Twash} * 8.3 / \text{EffHt} / 3412)] - [(\text{WaterUseESTAR} * \text{RW} * \text{D}) * (\text{Tin} * \text{WT} * 8.3 / \text{EffHt} / 3,412)]$$

$$\text{IdleEnergy} = [\text{IdleDrawBase} * (\text{Hours} * \text{D} - \text{D} * \text{RW} * \text{Twash} / 60)] - [\text{IdleDrawESTAR} * (\text{Hours} * \text{D} - \text{D} * \text{RW} * \text{Twash} / 60)]$$

Value		Description	Value	Units	Reference
WUB	=	Water use per rack (gal) of baseline dishwasher	2.10	gal	1
RW	=	Number of racks washed per day	280.00		2
D	=	Annual days of dishwasher operation	365.00	days	3
Tin	=	Inlet water temperature increase	40.00	deg F	4
EFFHt	=	Efficiency of water heater	0.98		5
WaterUseESTAR	=	Water use per rack (gal) of ENERGY STAR dishwasher	1.18	gal	6
IdleDrawBase	=	Idle power draw (kW) of baseline dishwasher	0.60	kW	7
IdleDrawESTAR	=	Idle power draw (kW) of ENERGY STAR dishwasher	0.60	kW	8
Hours	=	Average daily hours of dishwasher operation	18.00	hours	9
Twash	=	Typical wash time	1.00	min	10
8.3	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	
3412	=	Specific Weight of Water	8.30	lb/gal	

References

1	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
2	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
3	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
4	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
5	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
6	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
7	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
8	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
9	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42
10	Illinois TRM, Version 5.0, Volume 2: Commercial and Industrial Measures, Final February 11th, 2016; Effective: June 1st, 2016, Section 4.2.6, page 41 & 42



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Pipe Insulation (non-residential)		
Measure ID	367	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Insulated pipe in unconditioned spaces		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	AM, DC, GR, GV, HS, LG, OF, RS, RT, WR, MS
Measure Sub-Type	Operational Efficiency	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Pipe with Code Minimum Insulation		
Baseline Value			
Efficiency Description	Pipe with Additional Insulation		
Efficiency Value			
Annual Energy Savings	7,543	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	622.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	Linear Feet	Modeled Building Segment	Lodging
Summer Peak Demand Savings	0.60	kW	Winter Peak Demand Savings 1.00 kW
Savings Calculation Method	Building Simulation Model		
Savings Notes			
Equipment Life	13	Years	
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008		

Measure Economic Impacts

Incremental Cost	\$2,879.86		
Incremental Cost Reference	Nexant market research, 2017		
TRC	1.05	Electric Avoided Cost (Lifetime, NPV)	\$3,015.59
RIM	0.87	Electric Lost Revenue (Lifetime, NPV)	\$3,480.34
PCT	1.21	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-HP-Lodge-WA-BAS	NC-E-LG-2-WA-PT-HP-WA-TPI205
Home/Facility Square Footage	25,023.95	25,023.95
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	291,235.00	283,692.00
Estimated Summer Peak kW	53.64	53.05
Estimated Winter Peak kW	63.16	62.14
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	23,714.07	23,570.60
Total Therms	0.00	0.00
Total Gallons	947,540.00	947,540.00
Envelope		
Attic R	11.00	11.00
Ceiling R	11.00	11.00
Wall R	10.00	10.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	478.01	478.01
HVAC Type		
HVAC Tonnage	47.62	47.62
HVAC SEER	8.00	8.00
Heating Fuel	Electric	Electric
Heating BTU/kW		
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	370.00	370.00
Water Heater BTU/kW		
Water Temp Set Point	140.00	140.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Solar Water Heater (non-residential)		
Measure ID	382	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Solar water heating system replacing electric water heater		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Water Heating Equipment	Segment(s)	AM, DC, GR, GV, HS, LG, OF, RS, RT, WR, MS
Measure Sub-Type	Type of Water Heater	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Code-Compliant Electric Resistance Water Heater				
Baseline Value					
Efficiency Description	Solar Water Heater				
Efficiency Value					
Annual Energy Savings	3,412	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Water Heaters		Modeled Building Segment		
Summer Peak Demand Savings	0.40	kW	Winter Peak Demand Savings	1.30	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$2,890.52		
Incremental Cost Reference	RSMeans cost calculator		
TRC	0.64	Electric Avoided Cost (Lifetime, NPV)	\$1,856.58
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$3,373.17
PCT	1.17	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = \{[1/\text{EFBASE} - (1/\text{EFEFF} \times 1/\text{FADJUST})] \times \text{HW} \times 8.3 \times 1.0 \times (\text{Thot} - \text{Tcold})\} / 3412$$

Value		Description	Value	Units	Reference
EFBase	=	Electric Resistance WH Baseline Efficiency, 50 Gallon	0.95		1
EFEff	=	Efficient Solar Water Heater Water Heater Energy Factor	1.84		2
FADJUST	=	Electric Resistance Water Heater COP Adjustment Factor	1.00		3
HW	=	Annual Gallons of Hot Water Use	50,000.00	Gal	4
Thot	=	Water Heater Temperature Setpoint	119.00	deg F	5
Tcold	=	Temperature of Cold Water	63.90	deg F	6
8.3	=	Specific weight of water	8.30	lbs/gal	
3412	=	Conversion from kWh to BTU	3,412.00	BTU/kWh	
	=				
	=				
	=				
	=				

References

1	IECC 2012
2	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 2.3.2, Table 2-50
3	Pennsylvania Statewide TRM, June 2016, Errata Update February 2017, Section 3.4.1, Table 3-71
4	Engineering Assumption
5	Varies by Zone
6	Based on 30-year historical average Georgia climate data (http://www.ncdc.noaa.gov/cag/), average temperature in Georgia is 63.9 F.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Timer for recirculation pump/hot water recirculation loop (non-residential)		
Measure ID	392	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Timer installed to reduce usage of recirculation pump		
Measure Category	Water Heating	Sector(s)	Commercial
Measure Type	Performance	Segment(s)	AM, DC, ED, GR, GV, HS, LG, OF, RS, RT, WR
Measure Sub-Type	Controls	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Timer				
Baseline Value					
Efficiency Description	Timer for Recirculation Pump				
Efficiency Value					
Annual Energy Savings	1,132	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Controller		Modeled Building Segment		
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$105.85		
Incremental Cost Reference	Nexant market research, 2017 and RSMeans labor estimate		
TRC	2.63	Electric Avoided Cost (Lifetime, NPV)	\$277.86
RIM	0.68	Electric Lost Revenue (Lifetime, NPV)	\$409.48
PCT	3.87	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

$$\text{kWh} = (0.746 \times \text{PUMPk}) / n_k \times (\text{SCHk,mbase} - \text{SCHk,meff}) \times 24 \times 365$$

Value		Description	Value	Units	Reference
PUMPk	=	Pump brake horsepower (bhp)	0.17	hp	1
n_k	=	Pump motor efficiency	0.77		2
SCHk,mbase	=	Operating schedule of the recirculation pump without timer	100.00	%	3
SCHk,meff	=	Operating schedule of the recirculation pump with timer	20.00	%	4
24	=	Hours per day	24.00	hours	
365	=	Days per year	365.00	days	
0.746	=	Conversion from hp to kW	0.75	kW/hp	
	=				
	=				
	=				
	=				
	=				

References

1	Engineering Assumption
2	Engineering Assumption
3	California Energy Commission, 2013 Residential ACM Reference Manual: Water Heating Calculation Method, Table RE-4.
4	California Energy Commission, 2013 Residential ACM Reference Manual: Water Heating Calculation Method, Table RE-4.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Business Energy Report		
Measure ID	137	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Provide Business Energy Report to Business Owner		
Measure Category	Whole Building	Sector(s)	Commercial
Measure Type	Information-based	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,OF,WR,MS
Measure Sub-Type	Monitoring	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	No Report Provided to Business Owner				
Baseline Value					
Efficiency Description	Business Energy Report				
Efficiency Value					
Annual Energy Savings	1,005	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Business		Modeled Building Segment		
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	1	Years			
Equipment Life Reference	Standard industry estimate				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$45.70
RIM	1.39	Electric Lost Revenue (Lifetime, NPV)	\$32.85
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EUIall x AREA x SVGE

Value		Description	Value	Units	Reference
EUIall	=	All Energy Use Intensity	12.80	kWh/ft2	1
AREA	=	Average Premise Area	15,707.00	Square feet	2
SVGE	=	Business Energy Report Deemed Energy Savings	0.50	%	3
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	US Energy Information Administration, 2012 Commercial Buildings Energy Consumption Survey
2	End-Use Study
3	Duke BER Regulatory Filing

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	EnergySmart Schools		
Measure ID	186	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	EnergySmart Schools		
Measure Category	Whole Building	Sector(s)	Commercial
Measure Type	Construction and Design	Segment(s)	ED
Measure Sub-Type	Construction	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	N/A				
Baseline Value					
Efficiency Description	EnergySmart Schools				
Efficiency Value					
Annual Energy Savings	141,409	kWh	Annual Natural Gas Savings	503.00	Therms
Energy Savings Units	75,621.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Square feet		Modeled Building Segment	Education	
Summer Peak Demand Savings	67.20	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CPUC DEER Database; EUL/RUL values, updated October 2008				

Measure Economic Impacts

Incremental Cost	\$500,611.02		
Incremental Cost Reference	U.S. DOE Factsheet: "Financing an EnergySmart School", January 2008		
TRC	0.25	Electric Avoided Cost (Lifetime, NPV)	\$117,517.66
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$204,652.26
PCT	0.42	Other Utility Avoided Cost (Lifetime, NPV)	\$7,950.26
Pass TRC?	No		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-E-GH-School-MS-BAS	NC-B-ED-2-MC-RT-GH-OT-CON180
Home/Facility Square Footage	234,320.00	234,320.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	1,034,172.00	892,763.00
Estimated Summer Peak kW	94.24	27.04
Estimated Winter Peak kW	446.40	446.40
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	124,445.49	112,504.39
Total Therms	11,539.00	11,036.00
Total Gallons	1,215,825.00	1,215,825.00
Envelope		
Attic R	0.00	0.00
Ceiling R	19.00	30.00
Wall R	10.00	10.00
Floor R	1.27	1.27
Door R	4.83	4.83
Window R	2.00	4.00
Window Coeff	81.00	30.00
Duct Leakage	0.00	0.00
Infiltration (cfm)	5,444.21	5,444.21
HVAC Type		
HVAC Tonnage	395.46	395.46
HVAC SEER	9.30	11.20
Heating Fuel	Gas-Therm	Gas-Therm
Heating BTU/kW		
Water Heater		
Fuel Type	Gas-Therm	Gas-Therm
Tank Size (Gallons)	747.00	747.00
Water Heater BTU/kW		
Water Temp Set Point	160.00	160.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Real-time Information Monitoring (non-residential)		
Measure ID	368	Version Number	2
Measure Status	Active	Last Edit Date	01/17/2019
Measure Description	Real-Time Information Monitoring System on Typical Commercial Customer		
Measure Category	Whole Building	Sector(s)	Commercial
Measure Type	Information-based	Segment(s)	AM,DC,ED,GR,GV,HS,LG,RL,RS,RT,SO,WR,MS
Measure Sub-Type	Monitoring	Vintage(s)	Burnout, New Const.

Measure Savings Impacts

Baseline Description	Standard Commercial Billing				
Baseline Value					
Efficiency Description	RealTime Information Monitoring				
Efficiency Value					
Annual Energy Savings	54,733	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	Report		Modeled Building Segment	Office	
Summer Peak Demand Savings	3.30	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Building Simulation Model				
Savings Notes					
Equipment Life	1	Years			
Equipment Life Reference	Standard industry estimate				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	Nexant market research, 2017		
TRC	99.99	Electric Avoided Cost (Lifetime, NPV)	\$1,995.57
RIM	0.41	Electric Lost Revenue (Lifetime, NPV)	\$4,849.79
PCT	99.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

EnerSim Model Inputs	Base Case	Change Case
Loadshape		
Modeling Notes	CB-N-HP-SmOffice-RTU-BAS	NC-N-HP-SmOffice-RTIM
Home/Facility Square Footage	31,250.00	31,250.00
Weather	GA_Atlanta_Hartsfield_IntTMY3.bin	GA_Atlanta_Hartsfield_IntTMY3.bin
Miscellaneous Details		
Total Energy & Rate Information		
Estimated kWh	959,407.00	904,674.00
Estimated Summer Peak kW	158.96	155.65
Estimated Winter Peak kW	220.27	220.27
Electric Rate Used	PLM-11-C__NoFuel&FF	PLM-11-C__NoFuel&FF
Base Revenue - Electric (1st year)	64,474.55	61,063.91
Total Therms	0.00	0.00
Total Gallons	56,535.00	56,535.00
Envelope		
Attic R	0.00	0.00
Ceiling R	20.00	20.00
Wall R	13.00	13.00
Floor R	2.00	2.00
Door R	0.00	0.00
Window R	2.00	2.00
Window Coeff	81.00	81.00
Duct Leakage	6.25	6.25
Infiltration (cfm)	2,187.50	2,187.50
HVAC Type		
HVAC Tonnage	105.26	105.26
HVAC SEER	10.00	10.00
Heating Fuel	Electric	Electric
Heating BTU/kW		563,500.00
Water Heater		
Fuel Type	Electric	Electric
Tank Size (Gallons)	20.00	20.00
Water Heater BTU/kW		9,215.10
Water Temp Set Point	120.00	120.00
Water Heater Location	Unconditioned	Unconditioned



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Boiler Lockout (HVAC)		
Measure ID	261	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Increased controls to manage HVAC efficiency		
Measure Category	HVAC	Sector(s)	Industrial
Measure Type	System Control and Management	Segment(s)	IN
Measure Sub-Type	Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard HVAC Controls				
Baseline Value	Varies				
Efficiency Description	Boiler Lockout				
Efficiency Value	Varies				
Annual Energy Savings	3,834	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.46	kW	Winter Peak Demand Savings	0.46	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Nexant DSM Program Data				

Measure Economic Impacts

Incremental Cost	\$475.42		
Incremental Cost Reference	Nexant DSM Program Data		
TRC	2.57	Electric Avoided Cost (Lifetime, NPV)	\$1,223.16
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$2,738.55
PCT	5.76	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	288,959.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.30	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant DSM Program Data



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Hot Water Pump Lockout (HVAC)		
Measure ID	262	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Increased controls to manage HVAC efficiency		
Measure Category	HVAC	Sector(s)	Industrial
Measure Type	System Control and Management	Segment(s)	IN
Measure Sub-Type	Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard HVAC Controls				
Baseline Value	Varies				
Efficiency Description	Hot water pump lockout				
Efficiency Value	Varies				
Annual Energy Savings	1,029	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.12	kW	Winter Peak Demand Savings	0.12	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Nexant DSM Program Data				

Measure Economic Impacts

Incremental Cost	\$782.04		
Incremental Cost Reference	Nexant DSM Program Data		
TRC	0.42	Electric Avoided Cost (Lifetime, NPV)	\$328.14
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$734.68
PCT	0.94	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	288,959.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.40	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant DSM Program Data



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Hot Water Reset (HVAC)		
Measure ID	263	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Increased controls to manage HVAC efficiency		
Measure Category	HVAC	Sector(s)	Industrial
Measure Type	System Control and Management	Segment(s)	IN
Measure Sub-Type	Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard HVAC Controls				
Baseline Value	Varies				
Efficiency Description	Hot water reset				
Efficiency Value	Varies				
Annual Energy Savings	2,205	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.26	kW	Winter Peak Demand Savings	0.26	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Nexant DSM Program Data				

Measure Economic Impacts

Incremental Cost	\$110.25		
Incremental Cost Reference	Nexant DSM Program Data		
TRC	6.38	Electric Avoided Cost (Lifetime, NPV)	\$703.29
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$1,574.61
PCT	14.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	288,959.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.80	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant DSM Program Data



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Improved Controls (HVAC)		
Measure ID	264	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	HVAC	Sector(s)	Industrial
Measure Type	System Control and Management	Segment(s)	IN
Measure Sub-Type	Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard HVAC Controls		
Baseline Value	Varies		
Efficiency Description	Improved HVAC Controls		
Efficiency Value	Varies		
Annual Energy Savings	32,563	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	3.88	kW	Winter Peak Demand Savings 3.88 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	15	Years	
Equipment Life Reference	Michigan Energy Measures Database (2017)		

Measure Economic Impacts

Incremental Cost	\$801.13		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	18.38	Electric Avoided Cost (Lifetime, NPV)	\$14,724.51
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$31,042.84
PCT	38.75	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	205,055.00	kWh	1
SVGE	=	Estimated energy savings percentage	15.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Recommissioning (HVAC)		
Measure ID	265	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved monitoring and verification of building systems		
Measure Category	HVAC	Sector(s)	Industrial
Measure Type	System Control and Management	Segment(s)	IN
Measure Sub-Type	Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	No/minimal monitoring and verification				
Baseline Value	Varies				
Efficiency Description	Improved monitoring and verification				
Efficiency Value	Varies				
Annual Energy Savings	11,110	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.58	kW	Winter Peak Demand Savings	1.05	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Pennsylvania PUC, EE Potential Study for Pennsylvania Final Report, 2015, Appendix E				

Measure Economic Impacts

Incremental Cost	\$173.61		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	21.04	Electric Avoided Cost (Lifetime, NPV)	\$3,652.98
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$7,939.38
PCT	45.73	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	205,055.00	kWh	1
SVGE	=	Estimated energy savings percentage	5.40	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	LED bi-level exterior lighting (Lighting)		
Measure ID	267	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Exterior LED Area Light		
Measure Category	Lighting	Sector(s)	Industrial
Measure Type	Exterior	Segment(s)	IN
Measure Sub-Type	Fixtures	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Average Lumen Equivalent Exterior Incandescent Area Lighting				
Baseline Value	Varies				
Efficiency Description	LED Exterior Area Lights				
Efficiency Value	Varies				
Annual Energy Savings	117,300	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Nexant Market Research				

Measure Economic Impacts

Incremental Cost	\$3,519.00		
Incremental Cost Reference	Nexant Market Research		
TRC	18.90	Electric Avoided Cost (Lifetime, NPV)	\$66,525.94
RIM	0.59	Electric Lost Revenue (Lifetime, NPV)	\$111,828.01
PCT	31.78	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,400.00	kWh	1
SVGE	=	Estimated energy savings percentage	75.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	PG&E LED Parking Fact Sheet

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Lighting Controls (Lighting)		
Measure ID	268	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Any changes to overall illumination levels, use of natural lighting, or technology improvements to use more efficient bulbs or ballasts that will decrease the overall lighting energy consumption		
Measure Category	Lighting	Sector(s)	Industrial
Measure Type	Interior	Segment(s)	IN
Measure Sub-Type	Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard lighting system				
Baseline Value	Varies				
Efficiency Description	Improved lighting controls				
Efficiency Value	Varies				
Annual Energy Savings	43,792	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.00	kW	Winter Peak Demand Savings	0.00	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$9,327.70		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.87	Electric Avoided Cost (Lifetime, NPV)	\$17,480.54
RIM	0.56	Electric Lost Revenue (Lifetime, NPV)	\$31,276.57
PCT	3.35	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,400.00	kWh	1
SVGE	=	Estimated energy savings percentage	28.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Bldg Improvements (Other)		
Measure ID	279	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improvements to the physical plant that result in improved efficiency, productivity, or equipment usage		
Measure Category	Miscellaneous	Sector(s)	Industrial
Measure Type	Interior	Segment(s)	IN
Measure Sub-Type	Equipment	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard building				
Baseline Value	Varies				
Efficiency Description	Energy improvements to building				
Efficiency Value	Varies				
Annual Energy Savings	4,603	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.55	kW	Winter Peak Demand Savings	0.55	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CA DEER database (Building Envelope - Cool Roof)				

Measure Economic Impacts

Incremental Cost	\$368.05		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	5.66	Electric Avoided Cost (Lifetime, NPV)	\$2,081.25
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$4,387.79
PCT	11.92	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	57,513.00	kWh	1
SVGE	=	Estimated energy savings percentage	8.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Integrated Plant Energy Management (Other)		
Measure ID	281	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes the synergistic savings opportunities of plant-wide energy management and improvements across multiple systems such as compressed air, pumping and fan systems		
Measure Category	Miscellaneous	Sector(s)	Industrial
Measure Type	Interior	Segment(s)	IN
Measure Sub-Type	Process	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process/practices				
Baseline Value	Varies				
Efficiency Description	Improved processes/practices				
Efficiency Value	Varies				
Annual Energy Savings	28,756	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	3.43	kW	Winter Peak Demand Savings	3.43	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$6,277.66		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.59	Electric Avoided Cost (Lifetime, NPV)	\$10,010.06
RIM	0.50	Electric Lost Revenue (Lifetime, NPV)	\$19,969.25
PCT	3.18	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	57,513.00	kWh	1
SVGE	=	Estimated energy savings percentage	50.00	%	2
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	=				
	=				

References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Transformers (Other)		
Measure ID	282	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Energy Efficient Dry Type Transformer (CSL-3)		
Measure Category	Miscellaneous	Sector(s)	Industrial
Measure Type	Interior	Segment(s)	IN
Measure Sub-Type	Equipment	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard Transformer		
Baseline Value	Varies		
Efficiency Description	Energy Efficient Transformers		
Efficiency Value	Varies		
Annual Energy Savings	863	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings 0.10 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$94.98		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	2.90	Electric Avoided Cost (Lifetime, NPV)	\$275.19
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$616.13
PCT	6.49	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	57,513.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Adjustable speed drive on compressors (Process Refrig)		
Measure ID	307	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	single speed compressor				
Baseline Value	Varies				
Efficiency Description	ASD on compressor				
Efficiency Value	Varies				
Annual Energy Savings	9,744	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.45	kW	Winter Peak Demand Savings	0.96	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$1,544.78		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	2.11	Electric Avoided Cost (Lifetime, NPV)	\$3,264.90
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$6,964.31
PCT	4.51	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	83,515.00	kWh	1
SVGE	=	Estimated energy savings percentage	11.70	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant DSM Program Data

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Air Compressor Demand Reduction (Process Air Compressor)		
Measure ID	283	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improvements to the compressed air system to reduce demand, includes improved system design, leak repair, usage practices, and other improvements or upgrades		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system		
Baseline Value	Varies		
Efficiency Description	Compressed air system demand reduction		
Efficiency Value	Varies		
Annual Energy Savings	37,450	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	4.87	kW	Winter Peak Demand Savings 4.30 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$3,338.57		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	3.63	Electric Avoided Cost (Lifetime, NPV)	\$12,135.27
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$26,746.63
PCT	8.01	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	20.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Air Compressor Equipment (Process Air Compressor)		
Measure ID	284	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Compressed air system equipment upgrades		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	Efficient compressed air equipment				
Efficiency Value	Varies				
Annual Energy Savings	65,538	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	8.53	kW	Winter Peak Demand Savings	7.52	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$12,047.96		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.76	Electric Avoided Cost (Lifetime, NPV)	\$21,236.72
RIM	0.50	Electric Lost Revenue (Lifetime, NPV)	\$42,385.12
PCT	3.52	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	35.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Check for unnecess. pressure drops (Process Air Compressor)		
Measure ID	237	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Increase efficiency of compressed air system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	936	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.12	kW	Winter Peak Demand Savings	0.11	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$46.80		
Incremental Cost Reference	Nexant Market Research		
TRC	6.48	Electric Avoided Cost (Lifetime, NPV)	\$303.38
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$668.67
PCT	14.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling

Check for unnecess. pressure drops (Process Air Compressor)

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Check Need for Dedicated Compressors (Process Air Compressor)		
Measure ID	238	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved operational efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	936	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.12	kW	Winter Peak Demand Savings	0.11	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$46.80		
Incremental Cost Reference	Nexant Market Research		
TRC	6.48	Electric Avoided Cost (Lifetime, NPV)	\$303.38
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$668.67
PCT	14.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Clean Room: Change Filter Strategy (Process Cool)		
Measure ID	288	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Aim to saving energy through improved clean room equipment and practices		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard clean room equipment and practices				
Baseline Value	Varies				
Efficiency Description	Clean room process improvement				
Efficiency Value	Varies				
Annual Energy Savings	65,032	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	13.55	kW	Winter Peak Demand Savings	13.55	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	1	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$467.18		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	5.58	Electric Avoided Cost (Lifetime, NPV)	\$2,608.91
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$5,649.47
PCT	12.09	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	162,579.00	kWh	1
SVGE	=	Estimated energy savings percentage	40.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Clean Room: Chiller Optimize (Process Cool)		
Measure ID	289	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Aim to saving energy through improved clean room equipment and practices, performing routine maintenance on chiller		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard clean room equipment and practices				
Baseline Value	Varies				
Efficiency Description	Clean room - efficient equipment and practices				
Efficiency Value	Varies				
Annual Energy Savings	24,099	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	5.02	kW	Winter Peak Demand Savings	5.02	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$2,173.29		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	3.88	Electric Avoided Cost (Lifetime, NPV)	\$8,435.07
RIM	0.49	Electric Lost Revenue (Lifetime, NPV)	\$17,211.10
PCT	7.92	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	162,579.00	kWh	1
SVGE	=	Estimated energy savings percentage	14.80	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Clean Room: Clean Room HVAC (Process Cool)		
Measure ID	290	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Aim to saving energy through improved clean room equipment and practices		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard clean room equipment and practices				
Baseline Value	Varies				
Efficiency Description	Clean room - efficient equipment and practices				
Efficiency Value	Varies				
Annual Energy Savings	14,632	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	3.05	kW	Winter Peak Demand Savings	3.05	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$2,623.37		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	3.45	Electric Avoided Cost (Lifetime, NPV)	\$9,047.41
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$16,740.06
PCT	6.38	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	162,579.00	kWh	1
SVGE	=	Estimated energy savings percentage	9.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Cold Storage Retrofit (Process Refrig)		
Measure ID	308	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrading mechanical equipment responsible for providing cooling to each facility type		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process refrigeration system				
Baseline Value	Varies				
Efficiency Description	Efficient equipment and process improvements				
Efficiency Value	Varies				
Annual Energy Savings	21,390	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	3.17	kW	Winter Peak Demand Savings	2.11	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$6,812.18		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.05	Electric Avoided Cost (Lifetime, NPV)	\$7,167.55
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$15,288.98
PCT	2.24	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	83,515.00	kWh	1
SVGE	=	Estimated energy savings percentage	25.60	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Cold Storage Tuneup (Process Refrig)		
Measure ID	309	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Maintaining and enhancing equipment responsible for providing cooling to each facility type		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process refrigeration system				
Baseline Value	Varies				
Efficiency Description	Equipment tune-up				
Efficiency Value	Varies				
Annual Energy Savings	8,352	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.24	kW	Winter Peak Demand Savings	0.82	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	3	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$647.44		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.22	Electric Avoided Cost (Lifetime, NPV)	\$792.12
RIM	0.39	Electric Lost Revenue (Lifetime, NPV)	\$2,045.49
PCT	3.16	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	83,515.00	kWh	1
SVGE	=	Estimated energy savings percentage	10.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Dairy vacuum pump VFD and automatic milker takeoff (Process Other)		
Measure ID	156	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Equipment must be able to sense milk flow and remove milker when flow reaches a pre-set level. The vacuum pump serving the affected milking units must be equipped with a VFD. Incentive is available for adding automatic milker takeoffs to existing milking systems, not for takeoffs on a brand new system where there were none before.		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard milking system without automatic milker takeoff				
Baseline Value	Varies				
Efficiency Description	Automatic Milker Takeoff				
Efficiency Value	Varies				
Annual Energy Savings	138,611	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	18.04	kW	Winter Peak Demand Savings	15.92	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Efficiency Vermont Technical Reference User Manual, 3/16/2015				

Measure Economic Impacts

Incremental Cost	\$72,379.89		
Incremental Cost Reference	Efficiency Vermont Technical Reference User Manual, 3/16/2015		
TRC	0.62	Electric Avoided Cost (Lifetime, NPV)	\$44,915.27
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$86,631.92
PCT	1.20	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	50.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data				
2	Wisconsin	Public Service Vacuum	Pump	Technology	Fact Sheet
	http://www.wisconsinpublicservice.com/business/vacuum_pump.aspx				

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Detect Leaks-focus on connections (Process Air Compressor)		
Measure ID	239	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Reduce unnecessary compressor runtime		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	3,745	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.49	kW	Winter Peak Demand Savings	0.43	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$299.60		
Incremental Cost Reference	Nexant Market Research		
TRC	4.05	Electric Avoided Cost (Lifetime, NPV)	\$1,213.53
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$2,674.66
PCT	8.93	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	2.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	BPA, 2006 Information Sheet

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Dew Point Sensor Control for Desiccant CA Dryer (Process Air Compressor)		
Measure ID	164	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Heated Desiccant Air Dryer with Dew Point Controls		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Air Dryer - Standard/Modulating Controls				
Baseline Value	Varies				
Efficiency Description	Dew Point Sensor Control for Desiccant CA Dryer				
Efficiency Value	Varies				
Annual Energy Savings	65,538	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	8.53	kW	Winter Peak Demand Savings	7.52	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$14,841.72		
Incremental Cost Reference	Michigan Energy Measures Database (2017)		
TRC	2.03	Electric Avoided Cost (Lifetime, NPV)	\$30,070.98
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$62,479.10
PCT	4.21	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	35.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Compressed Air Challenge Fact Sheet: https://www.compressedairchallenge.org/data/sites/1/media/library/articles/2015-08-CABP.pdf

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Domestic Water Pump Control (Pumps)		
Measure ID	314	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard pump system				
Baseline Value	Varies				
Efficiency Description	Water pump control				
Efficiency Value	Varies				
Annual Energy Savings	299	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.04	kW	Winter Peak Demand Savings	0.03	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Nexant DSM Program Data				

Measure Economic Impacts

Incremental Cost	\$331.89		
Incremental Cost Reference	Nexant DSM Program Data		
TRC	0.29	Electric Avoided Cost (Lifetime, NPV)	\$97.02
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$213.83
PCT	0.64	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.10	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant DSM Program Data



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Efficient Agitator (Process Other)		
Measure ID	299	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced system design or practices		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency agitator				
Baseline Value	Varies				
Efficiency Description	Efficient agitator				
Efficiency Value	Varies				
Annual Energy Savings	211,285	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	29.65	kW	Winter Peak Demand Savings	27.65	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$19,607.36		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	3.54	Electric Avoided Cost (Lifetime, NPV)	\$69,475.13
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$122,597.92
PCT	6.25	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	50.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Efficient Centrifugal Fan (Fans)		
Measure ID	253	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Achieve energy savings through improved fan design		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Fans	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency fan system		
Baseline Value	Varies		
Efficiency Description	Efficiency fan system design		
Efficiency Value	Varies		
Annual Energy Savings	31,329	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility		Modeled Building Segment Simulated Industrial
Summer Peak Demand Savings	3.73	kW	Winter Peak Demand Savings 3.73 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$6,308.06		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.58	Electric Avoided Cost (Lifetime, NPV)	\$9,993.58
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$18,173.81
PCT	2.88	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	20.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Effluent Treatment System (Process Other)		
Measure ID	300	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced system design or practices		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard effluent treatment system				
Baseline Value	Varies				
Efficiency Description	Efficient equipment and process improvements				
Efficiency Value	Varies				
Annual Energy Savings	63,385	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	8.90	kW	Winter Peak Demand Savings	8.30	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$5,207.39		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	4.00	Electric Avoided Cost (Lifetime, NPV)	\$20,842.54
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$36,779.38
PCT	7.06	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	15.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Elec Chip Fab: Eliminate Exhaust (Process Other)		
Measure ID	301	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	High efficiency equipment upgrades		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process operations				
Baseline Value	Varies				
Efficiency Description	Process optimization				
Efficiency Value	Varies				
Annual Energy Savings	21,128	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	2.97	kW	Winter Peak Demand Savings	2.77	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$4,368.53		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.59	Electric Avoided Cost (Lifetime, NPV)	\$6,947.51
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$13,296.22
PCT	3.04	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	5.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Elec Chip Fab: Exhaust Injector (Process Other)		
Measure ID	302	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	High efficiency equipment upgrades		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process operations				
Baseline Value	Varies				
Efficiency Description	Process optimization				
Efficiency Value	Varies				
Annual Energy Savings	422,569	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	59.30	kW	Winter Peak Demand Savings	55.30	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$210,731.45		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.66	Electric Avoided Cost (Lifetime, NPV)	\$138,950.26
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$265,924.43
PCT	1.26	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	100.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Elec Chip Fab: Reduce Gas Pressure (Process Other)		
Measure ID	303	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Optimize compressor systems		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process operations				
Baseline Value	Varies				
Efficiency Description	Process optimization				
Efficiency Value	Varies				
Annual Energy Savings	42,257	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	5.93	kW	Winter Peak Demand Savings	5.53	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	999.99	Electric Avoided Cost (Lifetime, NPV)	\$13,895.03
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$26,592.44
PCT	999.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	10.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Elec Chip Fab: Solidstate Chiller (Process Cool)		
Measure ID	294	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Solidstate Chiller (Many air conditioners are based on vapor compression, in which a liquid refrigerant circulates within the air conditioner, absorbs heat, and then pumps it out into the external environment. solidstate systems, by contrast, operate without compressor-based systems).		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard cooling system		
Baseline Value	Varies		
Efficiency Description	Equipment upgrade (Solidstate Chiller)		
Efficiency Value	Varies		
Annual Energy Savings	146,321	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility		Modeled Building Segment Simulated Industrial
Summer Peak Demand Savings	30.50	kW	Winter Peak Demand Savings 30.50 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$82,400.60		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.62	Electric Avoided Cost (Lifetime, NPV)	\$51,215.34
RIM	0.56	Electric Lost Revenue (Lifetime, NPV)	\$92,058.00
PCT	1.12	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	162,579.00	kWh	1
SVGE	=	Estimated energy savings percentage	90.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Electric Actuators (Process Air Compressor)		
Measure ID	252	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Electric Actuators		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Pneumatic Actuator		
Baseline Value	Varies		
Efficiency Description	Electric Actuators		
Efficiency Value	Varies		
Annual Energy Savings	41,195	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	5.36	kW	Winter Peak Demand Savings 4.73 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	Michigan Energy Measures Database (2017)		

Measure Economic Impacts

Incremental Cost	\$7,357.80		
Incremental Cost Reference	Michigan Energy Measures Database (2017)		
TRC	1.81	Electric Avoided Cost (Lifetime, NPV)	\$13,348.80
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$29,421.30
PCT	4.00	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	22.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Michigan Energy Measures Database (2017)

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Energy Project Management (Motors Other)		
Measure ID	280	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes the synergistic savings opportunities of plant-wide energy management and improvements across multiple systems such as compressed air, pumping and fan systems		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process/practices				
Baseline Value	Varies				
Efficiency Description	Improved processes/practices				
Efficiency Value	Varies				
Annual Energy Savings	14,342	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.71	kW	Winter Peak Demand Savings	1.71	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	11	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$1,954.97		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	2.55	Electric Avoided Cost (Lifetime, NPV)	\$4,992.41
RIM	0.50	Electric Lost Revenue (Lifetime, NPV)	\$9,959.44
PCT	5.09	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	29.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Ensure air-entraining nozzles used (Process Air Compressor)		
Measure ID	240	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	1/4" Engineered Air Nozzle		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard equipment/ operations				
Baseline Value	Varies				
Efficiency Description	Equipment replacement (efficient nozzles)				
Efficiency Value	Varies				
Annual Energy Savings	86,423	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	11.25	kW	Winter Peak Demand Savings	9.92	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Efficiency Vermont Technical Reference User Manual, 3/16/2015				

Measure Economic Impacts

Incremental Cost	\$1,761.17		
Incremental Cost Reference	Efficiency Vermont Technical Reference User Manual, 3/16/2015		
TRC	15.90	Electric Avoided Cost (Lifetime, NPV)	\$28,004.47
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$61,723.00
PCT	35.05	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	46.20	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Efficiency Vermont Technical Reference User Manual, 3/16/2015

Ensure air-entraining nozzles used (Process Air Compressor)

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Equipment: Chillers (Process Cool)		
Measure ID	291	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the upgrade of chilling systems providing process cooling		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard clean room equipment and practices				
Baseline Value	Varies				
Efficiency Description	Clean room - efficient equipment and practices				
Efficiency Value	Varies				
Annual Energy Savings	29,378	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	6.12	kW	Winter Peak Demand Savings	6.12	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	CA DEER database (HVAC -Chillers - High Efficiency Chillers)				

Measure Economic Impacts

Incremental Cost	\$8,176.25		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	2.22	Electric Avoided Cost (Lifetime, NPV)	\$18,165.17
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$33,610.28
PCT	4.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	162,579.00	kWh	1
SVGE	=	Estimated energy savings percentage	18.10	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Assessment data was compiled and analyzed for projects conducted throughout the U.S.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Facility Energy Management (Process Cool)		
Measure ID	292	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved operational efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard facility energy management system				
Baseline Value	Varies				
Efficiency Description	Improved facility energy management				
Efficiency Value	Varies				
Annual Energy Savings	18,797	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	2.24	kW	Winter Peak Demand Savings	2.24	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	2	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$435.68		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	2.35	Electric Avoided Cost (Lifetime, NPV)	\$1,025.32
RIM	0.32	Electric Lost Revenue (Lifetime, NPV)	\$3,164.60
PCT	7.26	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	12.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Fan Equipment Upgrade (Fans)		
Measure ID	190	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrade to higher efficiency fan equipment		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Fans	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency fan equipment				
Baseline Value	Varies				
Efficiency Description	Fan Equipment Upgrade				
Efficiency Value	Varies				
Annual Energy Savings	54,825	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	6.53	kW	Winter Peak Demand Savings	6.53	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$5,204.08		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	3.36	Electric Avoided Cost (Lifetime, NPV)	\$17,488.77
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$31,804.17
PCT	6.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	35.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Fan System Optimization (Fans)		
Measure ID	254	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Overall optimization of the fan system including improved system design, enhanced flow design, better maintenance practices, and adjustments to system parameters		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Fans	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency fan system		
Baseline Value	Varies		
Efficiency Description	Fan system optimization		
Efficiency Value	Varies		
Annual Energy Savings	31,998	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility		Modeled Building Segment Simulated Industrial
Summer Peak Demand Savings	3.81	kW	Winter Peak Demand Savings 3.81 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	Michigan Energy Measures Database (2017)		

Measure Economic Impacts

Incremental Cost	\$1,121.84		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	9.10	Electric Avoided Cost (Lifetime, NPV)	\$10,206.89
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$18,980.27
PCT	16.92	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	20.40	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Food: Cooling and Storage (Process Refrig)		
Measure ID	310	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrading mechanical equipment responsible for providing cooling to each facility type		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process refrigeration system				
Baseline Value	Varies				
Efficiency Description	Efficient equipment and process improvements				
Efficiency Value	Varies				
Annual Energy Savings	12,527	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.86	kW	Winter Peak Demand Savings	1.23	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$4,161.79		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.01	Electric Avoided Cost (Lifetime, NPV)	\$4,197.67
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$8,108.82
PCT	1.95	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	83,515.00	kWh	1
SVGE	=	Estimated energy savings percentage	15.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Food: Refrig Storage Tuneup (Process Refrig)		
Measure ID	311	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Maintaining and enhancing equipment responsible for providing cooling to each facility type		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process refrigeration system				
Baseline Value	Varies				
Efficiency Description	Equipment tune-up				
Efficiency Value	Varies				
Annual Energy Savings	6,264	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.93	kW	Winter Peak Demand Savings	0.62	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	3	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$485.58		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.22	Electric Avoided Cost (Lifetime, NPV)	\$594.09
RIM	0.43	Electric Lost Revenue (Lifetime, NPV)	\$1,388.62
PCT	2.86	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	83,515.00	kWh	1
SVGE	=	Estimated energy savings percentage	7.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High efficiency Compressor motors (Process Air Compressor)		
Measure ID	285	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades to the compressed air system motors		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	Efficient compressed air motors				
Efficiency Value	Varies				
Annual Energy Savings	3,741	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.49	kW	Winter Peak Demand Savings	0.43	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CA DEER database (Motors - Premium-Efficiency Motors)				

Measure Economic Impacts

Incremental Cost	\$370.96		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	4.63	Electric Avoided Cost (Lifetime, NPV)	\$1,716.60
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$3,566.62
PCT	9.61	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	2.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Motors (Fans)		
Measure ID	255	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Based off of Super Premium motors - at least one efficiency band above NEMA Premium		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Fans	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Super premium motors				
Efficiency Value	Varies				
Annual Energy Savings	10,024	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.19	kW	Winter Peak Demand Savings	1.19	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CA DEER database (Refrigeration - High Efficiency Evaporator Fan Motors)				

Measure Economic Impacts

Incremental Cost	\$975.17		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	4.65	Electric Avoided Cost (Lifetime, NPV)	\$4,532.73
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$9,556.10
PCT	9.80	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	6.40	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Motors (Motors Other)		
Measure ID	269	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Based off of Super Premium motors - at least one efficiency band above NEMA Premium		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Super premium motors				
Efficiency Value	Varies				
Annual Energy Savings	3,165	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.38	kW	Winter Peak Demand Savings	0.38	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CA DEER database(Motors-Premium-Efficiency Motors)				

Measure Economic Impacts

Incremental Cost	\$307.90		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	4.65	Electric Avoided Cost (Lifetime, NPV)	\$1,431.05
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$3,017.00
PCT	9.80	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	6.40	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Motors (Pumps)		
Measure ID	315	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Based off of Super Premium motors - at least one efficiency band above NEMA Premium		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Super premium motors				
Efficiency Value	Varies				
Annual Energy Savings	17,740	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	2.11	kW	Winter Peak Demand Savings	2.11	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$1,725.81		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	4.65	Electric Avoided Cost (Lifetime, NPV)	\$8,021.83
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$16,911.97
PCT	9.80	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	6.40	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	High Efficiency Welder (Process Other)		
Measure ID	260	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	High Efficiency Welder		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard Welding Practices				
Baseline Value	Varies				
Efficiency Description	High Efficiency Welder				
Efficiency Value	Varies				
Annual Energy Savings	42,257	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	8.81	kW	Winter Peak Demand Savings	8.81	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	20	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$3,530.29		
Incremental Cost Reference	Michigan Energy Measures Database (2017)		
TRC	7.40	Electric Avoided Cost (Lifetime, NPV)	\$26,128.53
RIM	0.61	Electric Lost Revenue (Lifetime, NPV)	\$42,751.40
PCT	12.11	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	10.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Assessment data was compiled and analyzed for projects conducted throughout the U.S.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Improved Controls (Fans)		
Measure ID	256	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Fans	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Typical HVAC by Building Type with Programmable Thermostat				
Baseline Value	Varies				
Efficiency Description	HVAC fan with improved controls				
Efficiency Value	Varies				
Annual Energy Savings	24,875	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	2.96	kW	Winter Peak Demand Savings	2.96	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Michigan 2014 Statewide Master Measure Database				

Measure Economic Impacts

Incremental Cost	\$611.99		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	18.38	Electric Avoided Cost (Lifetime, NPV)	\$11,248.25
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$23,714.03
PCT	38.75	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	15.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Improved Controls (Motors Other)		
Measure ID	270	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Improved Controls				
Efficiency Value	Varies				
Annual Energy Savings	886	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.11	kW	Winter Peak Demand Savings	0.11	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CA DEER database (Motors)				

Measure Economic Impacts

Incremental Cost	\$56.53		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	7.09	Electric Avoided Cost (Lifetime, NPV)	\$400.85
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$845.08
PCT	14.94	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.80	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Improved Controls (Process Air Compressor)		
Measure ID	286	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	Improved compressed air controls				
Efficiency Value	Varies				
Annual Energy Savings	983	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.12	kW	Winter Peak Demand Savings	0.12	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$92.43		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	4.81	Electric Avoided Cost (Lifetime, NPV)	\$444.67
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$937.47
PCT	10.14	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Improved Controls (Process Cool)		
Measure ID	293	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard equipment for process cooling				
Baseline Value	Varies				
Efficiency Description	Process cooling equipment - improved controls				
Efficiency Value	Varies				
Annual Energy Savings	9,755	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.16	kW	Winter Peak Demand Savings	1.16	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Pennsylvania PUC, EE Potential Study for Pennsylvania Final Report, 2015, Appendix E				

Measure Economic Impacts

Incremental Cost	\$8,584.40		
Incremental Cost Reference	Nexant DSM Program Data		
TRC	0.51	Electric Avoided Cost (Lifetime, NPV)	\$4,410.99
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$9,299.44
PCT	1.08	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	162,579.00	kWh	1
SVGE	=	Estimated energy savings percentage	6.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant DSM Program Data



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Improved Controls (Process Heat)		
Measure ID	295	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Heating	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process heating equipment				
Baseline Value	Varies				
Efficiency Description	Improved Controls				
Efficiency Value	Varies				
Annual Energy Savings	6,598	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.79	kW	Winter Peak Demand Savings	0.79	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$5,921.25		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	0.50	Electric Avoided Cost (Lifetime, NPV)	\$2,983.63
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$6,290.22
PCT	1.06	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	288,959.00	kWh	1
SVGE	=	Estimated energy savings percentage	2.30	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Improved Controls (Pumps)		
Measure ID	316	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motor				
Baseline Value	Varies				
Efficiency Description	Improved pump controls				
Efficiency Value	Varies				
Annual Energy Savings	4,969	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.59	kW	Winter Peak Demand Savings	0.59	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$317.04		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	7.09	Electric Avoided Cost (Lifetime, NPV)	\$2,246.97
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$4,737.16
PCT	14.94	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.80	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Increase Compressor Pressure Band (Process Air Compressor)		
Measure ID	241	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Increase pressure switch point for compressor startup		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	140,438	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	18.27	kW	Winter Peak Demand Savings	16.12	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$7,021.90		
Incremental Cost Reference	Nexant Market Research		
TRC	6.48	Electric Avoided Cost (Lifetime, NPV)	\$45,507.26
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$100,299.87
PCT	14.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	75.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Injection Molding Improvements (Process Heat)		
Measure ID	296	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Equipment and process improvements to plastic injection molding operations		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Heating	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard injection molding		
Baseline Value	Varies		
Efficiency Description	Efficient injection molding		
Efficiency Value	Varies		
Annual Energy Savings	194,117	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility		Modeled Building Segment Simulated Industrial
Summer Peak Demand Savings	26.52	kW	Winter Peak Demand Savings 25.90 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	7	Years	
Equipment Life Reference	2015 Indiana Technical Reference Manual		

Measure Economic Impacts

Incremental Cost	\$114,829.03		
Incremental Cost Reference	Nexant DSM Program Data		
TRC	0.40	Electric Avoided Cost (Lifetime, NPV)	\$45,484.81
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$88,788.99
PCT	0.77	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	288,959.00	kWh	1
SVGE	=	Estimated energy savings percentage	67.20	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant DSM Program Data

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Install Compressed Air Management System (Process Air Compressor)		
Measure ID	242	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved operational efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	1,873	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.24	kW	Winter Peak Demand Savings	0.21	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$367.11		
Incremental Cost Reference	Nexant Market Research		
TRC	1.65	Electric Avoided Cost (Lifetime, NPV)	\$606.76
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$1,337.33
PCT	3.64	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Insulated Pellet Dryer Tanks and Ducts (Process Heat)		
Measure ID	266	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Insulation for Pellet Tank and Duct		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Heating	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Uninsulated Pellet Tank and Duct				
Baseline Value	Varies				
Efficiency Description	Insulated Pellet Dryer Tanks and Ducts				
Efficiency Value	Varies				
Annual Energy Savings	216,719	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	29.61	kW	Winter Peak Demand Savings	28.92	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	State of Ohio 2010 Technical Reference Manual				

Measure Economic Impacts

Incremental Cost	\$50,278.81		
Incremental Cost Reference	State of Ohio 2010 Technical Reference Manual		
TRC	0.73	Electric Avoided Cost (Lifetime, NPV)	\$36,455.56
RIM	0.49	Electric Lost Revenue (Lifetime, NPV)	\$73,925.48
PCT	1.47	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	288,959.00	kWh	1
SVGE	=	Estimated energy savings percentage	75.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	State of Ohio 2010 Technical Reference Manual

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Isolate less used subsystems (Process Air Compressor)		
Measure ID	243	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved operational efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	936	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.12	kW	Winter Peak Demand Savings	0.11	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$46.80		
Incremental Cost Reference	Nexant Market Research		
TRC	6.48	Electric Avoided Cost (Lifetime, NPV)	\$303.38
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$668.67
PCT	14.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Low Energy Livestock Waterer (Pumps)		
Measure ID	341	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Install Thermostatically Controlled Livestock Watering System		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard Livestock Watering System		
Baseline Value	Varies		
Efficiency Description	Low Energy Livestock Waterer		
Efficiency Value	Varies		
Annual Energy Savings	138,611	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility		Modeled Building Segment Simulated Industrial
Summer Peak Demand Savings	18.04	kW	Winter Peak Demand Savings 15.92 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	"Practical Information for Alberta's Agriculture Industry", Ministry of Ag. & Forestry		

Measure Economic Impacts

Incremental Cost	\$17,141.77		
Incremental Cost Reference	"Practical Information for Alberta's Agriculture Industry", Ministry of Agriculture and Forestry, 2008.		
TRC	2.62	Electric Avoided Cost (Lifetime, NPV)	\$44,915.27
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$86,631.92
PCT	5.05	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	50.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	"Practical Information for Alberta's Agriculture Industry", Ministry of Agriculture and Forestry, 2008.



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Material Handling (Motors Other)		
Measure ID	271	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced system design or process improvements		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard equipment/process operations				
Baseline Value	Varies				
Efficiency Description	Improved equipment/process operations				
Efficiency Value	Varies				
Annual Energy Savings	2,477	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.35	kW	Winter Peak Demand Savings	0.30	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$2,050.90		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.40	Electric Avoided Cost (Lifetime, NPV)	\$814.49
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$1,602.77
PCT	0.78	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	5.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Mech Pulp: Premium Process (Process Other)		
Measure ID	304	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced system design or practices		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard Mech Pulp				
Baseline Value	Varies				
Efficiency Description	Efficient equipment and process improvements				
Efficiency Value	Varies				
Annual Energy Savings	710	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.10	kW	Winter Peak Demand Savings	0.09	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	5	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$89.15		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.33	Electric Avoided Cost (Lifetime, NPV)	\$118.48
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$231.34
PCT	2.60	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.20	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Mech Pulp: Refiner Plate Improvement (Process Other)		
Measure ID	305	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Assess the potential for changes to rotational speed or plate roughness and pattern		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard equipment/process operations				
Baseline Value	Varies				
Efficiency Description	Equipment and process upgrades				
Efficiency Value	Varies				
Annual Energy Savings	1,886	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.26	kW	Winter Peak Demand Savings	0.25	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	1	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$74.80		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.94	Electric Avoided Cost (Lifetime, NPV)	\$69.95
RIM	0.53	Electric Lost Revenue (Lifetime, NPV)	\$133.14
PCT	1.78	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.40	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Metal: New Arc Furnace (Process Heat)		
Measure ID	297	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced system design or practices		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Heating	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process heating equipment				
Baseline Value	Varies				
Efficiency Description	Efficient Equipment				
Efficiency Value	Varies				
Annual Energy Savings	130,031	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	17.76	kW	Winter Peak Demand Savings	17.35	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$13,295.07		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	3.24	Electric Avoided Cost (Lifetime, NPV)	\$43,020.69
RIM	0.48	Electric Lost Revenue (Lifetime, NPV)	\$89,168.74
PCT	6.71	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	288,959.00	kWh	1
SVGE	=	Estimated energy savings percentage	45.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Milk Pre-Cooler (Process Other)		
Measure ID	350	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Use milk pre-coolers		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Without milk pre-cooler				
Baseline Value	Varies				
Efficiency Description	Milk Pre-Cooler				
Efficiency Value	Varies				
Annual Energy Savings	105,642	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	15.67	kW	Winter Peak Demand Savings	10.41	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$13,067.92		
Incremental Cost Reference	Michigan Energy Measures Database (2017)		
TRC	2.71	Electric Avoided Cost (Lifetime, NPV)	\$35,398.73
RIM	0.54	Electric Lost Revenue (Lifetime, NPV)	\$66,085.87
PCT	5.06	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	25.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Wisconsin Public Service Milk precoolers calculator: http://www.wisconsinpublicservice.com/business/farm_precooler.aspx

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Minimize High Pressure Setpoints (Process Air Compressor)		
Measure ID	244	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Optimize pressure for application		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	140,438	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	18.27	kW	Winter Peak Demand Savings	16.12	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$7,021.90		
Incremental Cost Reference	Nexant Market Research		
TRC	6.48	Electric Avoided Cost (Lifetime, NPV)	\$45,507.26
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$100,299.87
PCT	14.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	75.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motor Management Plan (Motors Other)		
Measure ID	272	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Number of practices associated with maintaining and operating motors through their entire life cycle, including: developing a repair/replace policy, regularly schedule maintenance, motor standardization, rewind criteria, and design optimization parameters		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Standard efficiency motors with improved management				
Efficiency Value	Varies				
Annual Energy Savings	944	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.13	kW	Winter Peak Demand Savings	0.12	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$71.80		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	4.32	Electric Avoided Cost (Lifetime, NPV)	\$310.24
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$674.17
PCT	9.39	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motor Management Plan (Process Air Compressor)		
Measure ID	287	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Number of practices associated with maintaining and operating motors through their entire life cycle, including: developing a repair/replace policy, regularly schedule maintenance, motor standardization, rewind criteria, and design optimization parameters		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	Compressed air system with motor mgmt plan				
Efficiency Value	Varies				
Annual Energy Savings	3,573	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.51	kW	Winter Peak Demand Savings	0.44	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$271.77		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	4.32	Electric Avoided Cost (Lifetime, NPV)	\$1,174.67
RIM	0.46	Electric Lost Revenue (Lifetime, NPV)	\$2,552.60
PCT	9.39	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motor rewinds (Pumps)		
Measure ID	317	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the rewinding to motors in a controlled environment to minimize or eliminate efficiency losses. Motor rewinds assume rewind techniques consistent with the Green Motors Practices Group™		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motor				
Baseline Value	Varies				
Efficiency Description	Motor rewind				
Efficiency Value	Varies				
Annual Energy Savings	2,495	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.32	kW	Winter Peak Demand Savings	0.29	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$994.68		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.81	Electric Avoided Cost (Lifetime, NPV)	\$808.47
RIM	0.52	Electric Lost Revenue (Lifetime, NPV)	\$1,569.74
PCT	1.58	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motors Other (Motors Other)		
Measure ID	273	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes upgrades not specific pumps or fans, and results in savings from improved motor usage. Motor practice improvements include improved system design, lubrication, and maintenance strategies		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Standard efficiency motors with improved motor practices				
Efficiency Value	Varies				
Annual Energy Savings	489	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.07	kW	Winter Peak Demand Savings	0.06	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	15	Years			
Equipment Life Reference	CA DEER database (Motors)				

Measure Economic Impacts

Incremental Cost	\$8.59		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	26.59	Electric Avoided Cost (Lifetime, NPV)	\$228.39
RIM	0.49	Electric Lost Revenue (Lifetime, NPV)	\$466.43
PCT	54.30	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motors: Rewind 20-50 HP (Motors Other)		
Measure ID	353	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the rewinding to motors in a controlled environment to minimize or eliminate efficiency losses. Motor rewinds assume rewind techniques consistent with the Green Motors Practices Group™		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motor		
Baseline Value	Varies		
Efficiency Description	Motors: Rewind 20-50 HP		
Efficiency Value	Varies		
Annual Energy Savings	445	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	0.06	kW	Winter Peak Demand Savings 0.05 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$177.41		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.82	Electric Avoided Cost (Lifetime, NPV)	\$146.33
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$287.95
PCT	1.62	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motors: Rewind 51-100 HP (Motors Other)		
Measure ID	355	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the rewinding to motors in a controlled environment to minimize or eliminate efficiency losses. Motor rewinds assume rewind techniques consistent with the Green Motors Practices Group™		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motor		
Baseline Value	Varies		
Efficiency Description	Motors: Rewind 51-100 HP		
Efficiency Value	Varies		
Annual Energy Savings	247	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	0.04	kW	Winter Peak Demand Savings 0.03 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$84.80		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.96	Electric Avoided Cost (Lifetime, NPV)	\$81.29
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$159.97
PCT	1.88	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motors: Rewind 101-200 HP (Motors Other)		
Measure ID	351	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the rewinding to motors in a controlled environment to minimize or eliminate efficiency losses. Motor rewinds assume rewind techniques consistent with the Green Motors Practices Group™		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motor		
Baseline Value	Varies		
Efficiency Description	Motors: Rewind 101-200 HP		
Efficiency Value	Varies		
Annual Energy Savings	247	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	0.04	kW	Winter Peak Demand Savings 0.03 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$62.91		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.29	Electric Avoided Cost (Lifetime, NPV)	\$81.29
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$159.97
PCT	2.54	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motors: Rewind 201-500 HP (Motors Other)		
Measure ID	352	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the rewinding to motors in a controlled environment to minimize or eliminate efficiency losses. Motor rewinds assume rewind techniques consistent with the Green Motors Practices Group™		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motor		
Baseline Value	Varies		
Efficiency Description	Motors: Rewind 201-500 HP		
Efficiency Value	Varies		
Annual Energy Savings	247	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	0.04	kW	Winter Peak Demand Savings 0.03 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$41.03		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.98	Electric Avoided Cost (Lifetime, NPV)	\$81.29
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$159.97
PCT	3.89	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Motors: Rewind 500+ HP (Motors Other)		
Measure ID	354	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the rewinding to motors in a controlled environment to minimize or eliminate efficiency losses. Motor rewinds assume rewind techniques consistent with the Green Motors Practices Group™		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motor		
Baseline Value	Varies		
Efficiency Description	Motors: Rewind 500+ HP		
Efficiency Value	Varies		
Annual Energy Savings	247	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility	Modeled Building Segment	Simulated Industrial
Summer Peak Demand Savings	0.04	kW	Winter Peak Demand Savings 0.03 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$30.09		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	2.70	Electric Avoided Cost (Lifetime, NPV)	\$81.29
RIM	0.51	Electric Lost Revenue (Lifetime, NPV)	\$159.97
PCT	5.31	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	0.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls



GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Optimization of operating parameters (Process Refrig)		
Measure ID	312	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Upgrades (such as variable speed drives) as well as energy improvements from enhanced monitoring, data collection, and load matching for each system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process refrigeration system				
Baseline Value	Varies				
Efficiency Description	Efficient equipment and process improvements				
Efficiency Value	Varies				
Annual Energy Savings	14,450	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	2.14	kW	Winter Peak Demand Savings	1.42	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	3	Years			
Equipment Life Reference	Illinois 2014 Statewide Technical Reference Manual, Section 4.4.1				

Measure Economic Impacts

Incremental Cost	\$912.45		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	1.50	Electric Avoided Cost (Lifetime, NPV)	\$1,370.56
RIM	0.43	Electric Lost Revenue (Lifetime, NPV)	\$3,203.53
PCT	3.51	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	83,515.00	kWh	1
SVGE	=	Estimated energy savings percentage	17.30	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Panel: Hydraulic Press (Process Other)		
Measure ID	364	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Equipment/operations upgrade with greater energy efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency hydraulic press				
Baseline Value	Varies				
Efficiency Description	Equipment and process upgrades				
Efficiency Value	Varies				
Annual Energy Savings	118,319	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	16.61	kW	Winter Peak Demand Savings	15.49	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$26,275.15		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.48	Electric Avoided Cost (Lifetime, NPV)	\$38,906.07
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$70,348.71
PCT	2.68	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	28.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Paper: Efficient Pulp Screen (Process Other)		
Measure ID	306	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced system design or practices		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency pulp screen				
Baseline Value	Varies				
Efficiency Description	Efficient equipment and process improvements				
Efficiency Value	Varies				
Annual Energy Savings	63,385	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	8.90	kW	Winter Peak Demand Savings	8.30	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$12,701.73		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.64	Electric Avoided Cost (Lifetime, NPV)	\$20,842.54
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$36,779.38
PCT	2.90	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	422,569.00	kWh	1
SVGE	=	Estimated energy savings percentage	15.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Paper: Large Material Handling (Motors Other)		
Measure ID	274	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Equipment upgrade/process improvements		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard equipment/process operations				
Baseline Value	Varies				
Efficiency Description	Improved equipment/process operations				
Efficiency Value	Varies				
Annual Energy Savings	4,816	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.69	kW	Winter Peak Demand Savings	0.59	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$4,102.56		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.39	Electric Avoided Cost (Lifetime, NPV)	\$1,583.30
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$2,794.79
PCT	0.68	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	9.70	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Paper: Material Handling (Motors Other)		
Measure ID	275	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Equipment upgrade/process improvements		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard equipment/process operations				
Baseline Value	Varies				
Efficiency Description	Improved equipment/process operations				
Efficiency Value	Varies				
Annual Energy Savings	6,483	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.93	kW	Winter Peak Demand Savings	0.79	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$4,615.33		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.46	Electric Avoided Cost (Lifetime, NPV)	\$2,131.37
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$3,762.22
PCT	0.82	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	13.10	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Paper: Premium Control Large Material (Motors Other)		
Measure ID	276	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Equipment upgrade/process improvements		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard equipment/process operations				
Baseline Value	Varies				
Efficiency Description	Improved equipment/process operations				
Efficiency Value	Varies				
Annual Energy Savings	9,262	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.32	kW	Winter Peak Demand Savings	1.13	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$4,513.05		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	0.67	Electric Avoided Cost (Lifetime, NPV)	\$3,044.81
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$5,374.60
PCT	1.19	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	18.70	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Paper: Premium Fan (Fans)		
Measure ID	257	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Equipment upgrade		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Fans	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency fan system				
Baseline Value	Varies				
Efficiency Description	Improved efficiency fan system				
Efficiency Value	Varies				
Annual Energy Savings	31,329	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	3.73	kW	Winter Peak Demand Savings	3.73	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$6,308.06		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.58	Electric Avoided Cost (Lifetime, NPV)	\$9,993.58
RIM	0.55	Electric Lost Revenue (Lifetime, NPV)	\$18,173.81
PCT	2.88	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	20.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Process Heat O&M (Process Heat)		
Measure ID	298	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	O&M practices on process heating equipment including equipment maintenance, using optimum size and capacity equipment, and developing best-practices guidelines		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Heating	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard process heating equipment				
Baseline Value	Varies				
Efficiency Description	Improved O&M				
Efficiency Value	Varies				
Annual Energy Savings	14,100	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	1.93	kW	Winter Peak Demand Savings	1.88	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	2	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$51,692.07		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	0.02	Electric Avoided Cost (Lifetime, NPV)	\$787.79
RIM	0.33	Electric Lost Revenue (Lifetime, NPV)	\$2,374.26
PCT	0.05	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	288,959.00	kWh	1
SVGE	=	Estimated energy savings percentage	4.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Properly Sized Fans (Fans)		
Measure ID	258	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved matching of fan size to system load		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Fans	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency fan system				
Baseline Value	Varies				
Efficiency Description	Fan system optimization				
Efficiency Value	Varies				
Annual Energy Savings	24,897	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	2.97	kW	Winter Peak Demand Savings	2.97	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$3,790.35		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	2.10	Electric Avoided Cost (Lifetime, NPV)	\$7,941.75
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$17,780.88
PCT	4.69	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	15.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Assessment data was compiled and analyzed for projects conducted throughout the U.S.

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Properly Stage Compressors (Process Air Compressor)		
Measure ID	245	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved operational efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	93,625	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	12.18	kW	Winter Peak Demand Savings	10.75	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$20,757.17		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.46	Electric Avoided Cost (Lifetime, NPV)	\$30,338.17
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$66,866.58
PCT	3.22	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	50.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Pump Energy Management (Pumps)		
Measure ID	318	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the overall optimization of the pump system including improved system design, enhanced flow design, better maintenance practices, and adjustments to system parameters		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard pump system		
Baseline Value	Varies		
Efficiency Description	Improved pump operations		
Efficiency Value	Varies		
Annual Energy Savings	20,792	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility		Modeled Building Segment Simulated Industrial
Summer Peak Demand Savings	2.71	kW	Winter Peak Demand Savings 2.39 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	10	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$0.00		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	999.99	Electric Avoided Cost (Lifetime, NPV)	\$6,737.29
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$14,849.27
PCT	999.99	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	7.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Pump Equipment Upgrade (Pumps)		
Measure ID	319	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Efficient pumps achieve energy savings through improved pump design and sizing		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard pump system				
Baseline Value	Varies				
Efficiency Description	Improved pump design				
Efficiency Value	Varies				
Annual Energy Savings	55,444	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	7.21	kW	Winter Peak Demand Savings	6.37	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$7,674.97		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	2.34	Electric Avoided Cost (Lifetime, NPV)	\$17,966.11
RIM	0.56	Electric Lost Revenue (Lifetime, NPV)	\$32,163.40
PCT	4.19	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	20.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Pump System Optimization (Pumps)		
Measure ID	320	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Involves the overall optimization of the pump system including improved system design, enhanced flow design, better maintenance practices, and adjustments to system parameters		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard pump system		
Baseline Value	Varies		
Efficiency Description	Pump system optimization		
Efficiency Value	Varies		
Annual Energy Savings	138,611	kWh	Annual Natural Gas Savings 0.00 Therms
Energy Savings Units	1.00		Annual Water Savings 0.00 Gal
Energy Savings Unit Description	facility		Modeled Building Segment Simulated Industrial
Summer Peak Demand Savings	18.04	kW	Winter Peak Demand Savings 15.92 kW
Savings Calculation Method	Algorithm		
Savings Notes			
Equipment Life	12	Years	
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		

Measure Economic Impacts

Incremental Cost	\$38,989.14		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.36	Electric Avoided Cost (Lifetime, NPV)	\$52,863.36
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$92,037.02
PCT	2.36	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	50.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Receiver Capacity Addition (Process Air Compressor)		
Measure ID	246	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved operational efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	7,260	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.94	kW	Winter Peak Demand Savings	0.83	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Efficiency Maine Commercial/Industrial and Multifamily Technical Reference Manual, Version 2017.1				

Measure Economic Impacts

Incremental Cost	\$780.92		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	3.01	Electric Avoided Cost (Lifetime, NPV)	\$2,352.39
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$5,184.77
PCT	6.64	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	3.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Refrigerated Cycling Dryers (Process Air Compressor)		
Measure ID	247	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improved operational efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	7,260	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.94	kW	Winter Peak Demand Savings	0.83	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Michigan Energy Measures Database (2017)				

Measure Economic Impacts

Incremental Cost	\$780.92		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	3.01	Electric Avoided Cost (Lifetime, NPV)	\$2,352.39
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$5,184.77
PCT	6.64	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	3.90	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Remove unneeded/outdated uses (Process Air Compressor)		
Measure ID	248	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Reduce demand on compressed air system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Operations and Management	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	System optimization				
Efficiency Value	Varies				
Annual Energy Savings	140,438	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	18.27	kW	Winter Peak Demand Savings	16.12	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$7,021.90		
Incremental Cost Reference	Nexant Market Research		
TRC	6.48	Electric Avoided Cost (Lifetime, NPV)	\$45,507.26
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$100,299.87
PCT	14.28	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	75.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling

Remove unneeded/outdated uses (Process Air Compressor)

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Replace worn & poorly sized hoses/couplings (Process Air Compressor)		
Measure ID	249	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Reduce demand on compressed air system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	Equipment replacement (hoses and couplings)				
Efficiency Value	Varies				
Annual Energy Savings	2,725	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.35	kW	Winter Peak Demand Savings	0.31	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$50.10		
Incremental Cost Reference	Project cost data from U.S. DOE Industrial Assessment Centers Database		
TRC	17.63	Electric Avoided Cost (Lifetime, NPV)	\$882.95
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$1,946.06
PCT	38.85	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	U.S. DOE Industrial Assessment Centers Database: https://iac.university/ Subset of assessment data was compiled and analyzed for projects conducted in the Southeast between 2010 and 2016

Replace worn & poorly sized hoses/couplings (Process Air Compressor)

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Switch from Belt drive to Direct Drive (Motors Other)		
Measure ID	277	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Improves efficiency through reduction of losses associated with belt drive systems		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Motors - belt drive				
Baseline Value	Varies				
Efficiency Description	Motors - direct drive				
Efficiency Value	Varies				
Annual Energy Savings	3,709	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.53	kW	Winter Peak Demand Savings	0.45	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	12	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$793.47		
Incremental Cost Reference	Energy Star Plant Mgrs Manual - PetroChem / DOE ITP Motor Tip Sheet		
TRC	1.81	Electric Avoided Cost (Lifetime, NPV)	\$1,437.89
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$3,031.01
PCT	3.82	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	7.50	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Energy Star Plant Mgrs Manual - PetroChem / DOE ITP Motor Tip Sheet

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Synchronous Belts (Fans)		
Measure ID	259	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Synchronous belts contain grooves that mate with corresponding grooves in the drive sprocket, preventing slip and thus reducing energy losses		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Fans	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency fan system				
Baseline Value	Varies				
Efficiency Description	synchronous belts				
Efficiency Value	Varies				
Annual Energy Savings	3,133	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.37	kW	Winter Peak Demand Savings	0.37	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$742.24		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.35	Electric Avoided Cost (Lifetime, NPV)	\$999.36
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$2,237.48
PCT	3.01	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	156,644.00	kWh	1
SVGE	=	Estimated energy savings percentage	2.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Synchronous Belts (Motors Other)		
Measure ID	278	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Synchronous belts contain grooves that mate with corresponding grooves in the drive sprocket, preventing slip and thus reducing energy losses		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Synchronous belts				
Efficiency Value	Varies				
Annual Energy Savings	989	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.12	kW	Winter Peak Demand Savings	0.12	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$234.30		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.35	Electric Avoided Cost (Lifetime, NPV)	\$315.51
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$706.40
PCT	3.01	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	2.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Synchronous Belts (Process Refrig)		
Measure ID	313	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Synchronous belts contain grooves that mate with corresponding grooves in the drive sprocket, preventing slip and thus reducing energy losses		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Cooling and Refrigeration	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Synchronous belts				
Efficiency Value	Varies				
Annual Energy Savings	1,670	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.20	kW	Winter Peak Demand Savings	0.20	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$395.64		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.35	Electric Avoided Cost (Lifetime, NPV)	\$532.81
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$1,192.92
PCT	3.01	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	83,515.00	kWh	1
SVGE	=	Estimated energy savings percentage	2.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Synchronous Belts (Pumps)		
Measure ID	321	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Synchronous belts contain grooves that mate with corresponding grooves in the drive sprocket, preventing slip and thus reducing energy losses		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Pumps and Motors	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency motors				
Baseline Value	Varies				
Efficiency Description	Synchronous belts				
Efficiency Value	Varies				
Annual Energy Savings	5,544	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.66	kW	Winter Peak Demand Savings	0.66	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$1,313.43		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	1.35	Electric Avoided Cost (Lifetime, NPV)	\$1,768.62
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$3,959.79
PCT	3.01	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	2.00	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwccouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	VFD Controlled Compressor (Process Air Compressor)		
Measure ID	250	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Add variable frequency drive to compressed air system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	single speed compressor				
Baseline Value	Varies				
Efficiency Description	VFD on compressor				
Efficiency Value	Varies				
Annual Energy Savings	44,378	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	5.77	kW	Winter Peak Demand Savings	5.10	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 6.0, 2018				

Measure Economic Impacts

Incremental Cost	\$18,432.35		
Incremental Cost Reference	Nexant Market Research		
TRC	0.78	Electric Avoided Cost (Lifetime, NPV)	\$14,380.29
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$31,694.76
PCT	1.72	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	No		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	23.70	%	2
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References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	VFD on Process Pump (Process Other)		
Measure ID	396	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	1/15 HP Process Pump Equipped with Shaded-Pole Motor with VFD Control		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	1/15 HP Process Pump Equipped with Shaded-Pole Motor, no VFD Control				
Baseline Value	Varies				
Efficiency Description	VFD on Process Pump				
Efficiency Value	Varies				
Annual Energy Savings	110,889	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	14.43	kW	Winter Peak Demand Savings	12.73	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	13	Years			
Equipment Life Reference	Pennsylvania 2016 Statewide TRM, Section 3.3.2, Table 3-65, Average of Pumps				

Measure Economic Impacts

Incremental Cost	\$23,286.69		
Incremental Cost Reference	Pennsylvania 2016 Statewide TRM, Section 3.3.2, Table 3-65, Average of Pumps		
TRC	1.94	Electric Avoided Cost (Lifetime, NPV)	\$45,270.51
RIM	0.47	Electric Lost Revenue (Lifetime, NPV)	\$95,870.81
PCT	4.12	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	277,222.00	kWh	1
SVGE	=	Estimated energy savings percentage	40.00	%	2
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				
	=				

References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Pennsylvania 2016 Statewide TRM, Section 3.3.2, Table 3-65, Average of Pumps

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Wood: Replace Pneumatic Conveyor (Process Other)		
Measure ID	398	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Equipment offer increased energy efficiency		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Other Process Improvements	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Standard efficiency equipment				
Baseline Value	Varies				
Efficiency Description	Premium efficiency equipment				
Efficiency Value	Varies				
Annual Energy Savings	14,342	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	2.05	kW	Winter Peak Demand Savings	1.76	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool				

Measure Economic Impacts

Incremental Cost	\$230.30		
Incremental Cost Reference	NW Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool		
TRC	20.47	Electric Avoided Cost (Lifetime, NPV)	\$4,715.01
RIM	0.57	Electric Lost Revenue (Lifetime, NPV)	\$8,322.77
PCT	36.14	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	49,455.00	kWh	1
SVGE	=	Estimated energy savings percentage	29.00	%	2
	=				
	=				
	=				
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	=				
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	=				
	=				
	=				
	=				

References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Northwest Power and Conservation Council 7th Plan (2016), Industrial Measure Analysis Tool: https://www.nwcouncil.org/media/6539/Industrial_tool_111209.xls

GEORGIA POWER

TRM MEASURE DETAILS

General Information

Measure Name	Zero Loss Condensate Drain (Process Air Compressor)		
Measure ID	251	Version Number	2
Measure Status	Active	Last Edit Date	01/18/2019
Measure Description	Reduce demand on compressed air system		
Measure Category	Process	Sector(s)	Industrial
Measure Type	Compressed Air	Segment(s)	IN
Measure Sub-Type	Equipment and Controls	Vintage(s)	Early Replace, Burnout

Measure Savings Impacts

Baseline Description	Existing standard efficiency compressed air system				
Baseline Value	Varies				
Efficiency Description	Equipment replacement (condensate drain)				
Efficiency Value	Varies				
Annual Energy Savings	3,445	kWh	Annual Natural Gas Savings	0.00	Therms
Energy Savings Units	1.00		Annual Water Savings	0.00	Gal
Energy Savings Unit Description	facility		Modeled Building Segment	Simulated Industrial	
Summer Peak Demand Savings	0.45	kW	Winter Peak Demand Savings	0.40	kW
Savings Calculation Method	Algorithm				
Savings Notes					
Equipment Life	10	Years			
Equipment Life Reference	Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 6.0, 2018				

Measure Economic Impacts

Incremental Cost	\$1,072.10		
Incremental Cost Reference	Nexant Market Research		
TRC	1.04	Electric Avoided Cost (Lifetime, NPV)	\$1,116.44
RIM	0.45	Electric Lost Revenue (Lifetime, NPV)	\$2,460.69
PCT	2.29	Other Utility Avoided Cost (Lifetime, NPV)	\$0.00
Pass TRC?	Yes		

Measure Modeling Details

Savings Algorithm

kWh = EndUseKWH * SVGE					

Value		Description	Value	Units	Reference
EndUseKWH	=	Baseline end-use kWh at simulated industrial facility	187,251.00	kWh	1
SVGE	=	Estimated energy savings percentage	1.80	%	2
	=				
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	=				
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	=				
	=				

References

1	Georgia Power data and U.S. EIA Manufacturing Energy Consumption Survey data
2	Nexant engineering calculations/modeling

Appendix A Qualitative Screening Matrix

Residential Measures

The following table provides a list of residential measures that did not pass the qualitative screening process.

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Active solar cooling				x	x				Does not appear to currently have widespread applicability or availability for residential use (often used for larger industrial applications)
Advanced (commercial A/C) modulating HVAC compressors	x			x					Limited commercial products available
Alternating Current Photovoltaic Building Block ACE Plug-N-Play	x			x					No specific cost nor specific energy savings data available. Appears to be in prototype stage and this technology does not appear to provide additional or unique energy savings beyond the solar PV measures already being considered in the catalog.
Appropriately sized central air conditioner		x							Code requirement
Attic Ventilator fan			x						Electric attic vents may increase energy use
Boiler outdoor reset control			x		x				Small saturation of residential boilers and fewer number or electric residential boilers. Better measure would be heat pump measures or gas heat.
Clock thermostat			x						Programmable thermostat is better measure
Clothes Dryer - Microwave	x		x	x		x	x		2015 NEEP Dryer Baseline study
Clothes Dryer - Moisture Sensor		x							

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Clothes Washer - CEE Tier 2			x						2017 Efficiency Vermont standard indicate 2017 ENERGY STAR IMEF exceeds CEE Tier 2 IMEF; roughly equivalent measures so removing as duplicate
Combined heat and power	x			x	x				Commercial products available, but not feasible for warm climates because power is produced at the same time as heat
Compact Absorption Chiller	x			x					No specific cost nor specific energy savings data available. Appears to be in the prototype/development phase but unclear if this will become a commercially available product for the residential market.
Compact Fluorescent - Exterior (Hard-Wired Fixture) ENERGY STAR			x						Replace with exterior, hard-wired LED
Compact Fluorescent - Exterior (Hard-wired Fixture) ENERGY STAR - 2020 EISA			x						Replace with LED
Compact Fluorescent - Exterior (Screw-in lamp) ENERGY STAR			x						Replace with LED screw-in
Compact Fluorescent - Exterior (Screw-in lamp) ENERGY STAR - 2020 EISA			x						Replace with LED
Compact Fluorescent - Interior (Hard-Wired Fixture) ENERGY STAR			x						Replace with Hard-wired LED
Compact Fluorescent - Interior (Hard-wired Fixture) ENERGY STAR - 2020 EISA			x						Replace with LED

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Compact Fluorescent - Interior (Screw-in lamp) ENERGY STAR			x						Replace with LED screw-in
Compact Fluorescent - Interior (Screw-in lamp) ENERGY STAR - 2020 EISA			x						Replace with LED
Compact Fluorescent - Interior (Screw-in lamp) ENERGY STAR with EISA Baseline			x						Replace with LED screw-in
Construction - Insulated Concrete Forms	x				x				Limited to new construction
Construction - Structural Insulated Panels	x				x				Limited to new construction
Consumer Energy Storage	x			x	x				Only small-scale commercial product identified, with limited options. Applicability is limited to homes with onsite generation
Customer Gateways	x			x					Limited data exists to demonstrate energy savings
Dishwasher - ENERGY STAR		x							Online market review shows that >85% of available models at big box retailers are ENERGY STAR qualified
Downsizing central air conditioner	x		x						Appropriate sizing is a better measure
Downsizing Heat Pump	x				x				Appropriate sizing is important to maximize efficiency, but it is difficult to estimate how oversized existing units are on average
Dual Fuel (Add-On) Heat Pump Package System ENERGY STAR					x				Most residential units are split systems. Savings for add-on heat pumps will be represented by split systems in single family (Burnout AC)
Dual Fuel (Add-On) Heat Pump Split System ENERGY STAR					x				Only applicable to existing customers with gas heat; fuel switching

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Ductless Air Conditioner			x						Better measure is VRF, which has the additional capability of simultaneous heating and cooling.
Efficient AC/DC conversion	x			x					No commercial products available
Efficient Polymer Solar Cells	x			x					No specific cost nor specific energy savings data available. Current polymer solar cells are approximately one third efficient than the current efficiency of hard materials
Electric Vehicles/PHEVs	x				x				No energy savings as baseline is gasoline powered vehicle.
Energy Recovery Ventilation	x				x				Comfort measure, not an energy saving measure for residential usage
Energy Saving Absorption Heat Pump Water Heater	x			x					Appears to still be in development stage. No specific cost nor specific energy savings data available.
ENERGY STAR Combination Units (TV/VCR, TV/DVD)	x				x				Limited product availability; most televisions are flat panel without built-in DVD-Blu-Ray Tech.
ENERGY STAR Copier & Fax Machine (imaging equipment)			x						Combined into "ENERGY STAR Imaging Equipment"
ENERGY STAR Digital to Analog Converter Box					x			x	No longer supported by ENERGY STAR
ENERGY STAR External Power Adapter		x							ENERGY STAR specification retired in 2010 because of high market penetration and federal standards
ENERGY STAR Multifunction Device			x						Combined into "ENERGY STAR Imaging Equipment"
ENERGY STAR Printer			x						Combined into "ENERGY STAR Imaging Equipment"
ENERGY STAR Scanner			x						Combined into "ENERGY STAR Imaging Equipment"
ENERGY STAR VCR			x						Technology no longer used

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Gas Filled Panels	x			x	x				
Green Roof	x				x	x			
High Efficiency Water Heater - 50 gal. EF= .94 (base=.86)		x	x						Better measure is heat pump water heater
High Performance Windows, Dynamic Windows, Advanced Window Films - Electrochromic Windows	x			x					Not currently available. Current Smart Windows are Liquid Crystal windows and require energy to maintain the transparent state.
High Performance Windows, Dynamic Windows, Advanced Window Films - Gasochromic windows	x			x					Could not find any source for Smart Windows which are specifically Gasochromic.
High Performance Windows, Dynamic Windows, Advanced Window Films - Thermochromic Windows	x			x	x				Could not find any source for Smart Windows which are specifically Thermochromic. Also, this glass type turns completely white and opaque when activated by its surroundings; therefore, as mentioned in description, applicability is likely limited to skylights rather than all windows.
Highly Efficient Incandescent Light Bulbs		x	x						This is EISA baseline; standard practice or better measures available
Home Area Networks	x			x					Limited commercial products available and overlapping energy savings with other controls measures
HVAC Lattice/Landscaping Shading	x				x				Depends on orientation and amount of shading
Indirect/direct air cooling (IDAC - 2 stage Evaporation system)	x				x				Limited applicability due to Georgia's high wet bulb temps (high humidity)

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
In-Home Energy Use Displays	x			x					Overlap with Real Time Information Monitoring
Light Emitting Diodes Based on Lattice-Mismatched GaInP Alloys - a new approach to fabricating green LEDs	x			x					No specific cost nor specific energy savings data available. This technology applies to manufacturing techniques for LED bulbs, but does not include a commercially available measure, nor describe a measure that produces additional energy savings beyond the other LED lighting measures already included in the catalog.
Linear Fluorescent Electronic Ballasts			x						Better measure is T8 or T5 linear fluorescent lamps with electronic ballasts
Locating Ducts inside conditioned spaces					x				This measure is only feasible for certain types of house designs
Low Temperature Heat Pump	x			x					No commercial products available
Low-cost, Modular, Building-integrated Photovoltaic-Thermal Collector	x			x					This is a proposal for a graduate student's university research project. Solar PV applications that are currently commercially available are included as a separate measure in the catalog.
Low-flow toilets	x								
Multizone Thermostat	x				x	x			Requires multi-zone HVAC system or major duct/damper retrofit with complex control system
Non-Invasive Energy Meter	x			x					No specific cost nor specific energy savings data available. Appears to still be in prototype phase; also appears to only measure energy production and not produce any additional energy savings for a solar energy system.
Passive Solar Design	x				x				Based on orientation and design
PCMs (Phase Change Materials) - Insulation	x			x					Could not find any sources for product.

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Pool Cover	x				x				Only a portion of residential pools in Georgia are heated. Also, difficult to quantify savings because pool heaters may only be used a portion of the year.
Power Quality-Improving Appliances	x								This device adds small load to customer's home. No specific cost nor specific energy savings data are available. Power quality improvement and power factor correction provides improvements to the reactive power required by inductive loads (electrical motors, fluorescent lighting, etc.), which in turn reduces the apparent power required from the grid. However, these devices do not increase the efficiency or decrease the amount of working power (measured in watts) dissipated by an inductive load. Small kWh savings may be achieved through reduction in transmission line losses, but it is unclear how these savings relate to the additional small load added to the home.
PV System					x				Generation source, not energy efficiency measure
Real-time handheld energy monitor	x		x		x				Better measure is Real Time Information Monitoring
Residential hot-dry air conditioners	x			x	x				No commercial products available
Ridge Vent				x					Marginal energy savings; removed at the request of DSMWG
RIM Joists Insulation			x						Duplicate with other RIM joist insulation measure
Shade Trees	x				x				Based on building orientation and amount of shading
Smart Appliances	x			x					Limited commercial products available with significantly different energy consumption than ENERGY STAR appliances considered

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Smart Premium (Robust) Residential Air Conditioners	x			x					No commercial products available
Solar Pool Heater	x				x				Limited applicability because only a portion of residential pools in GA are heated. Also, difficult to quantify savings because pool heaters may only be used a portion of the year
Solid-State Phase Change Floor Tile for Use in Passive Solar Applications	x			x					No specific cost nor specific energy savings data available. Appears to still be in prototype phase without cost estimates for commercial applications. Savings would largely depend on amount of floor area that utilizes tiles and their orientation for heat gain during the day.
Super Energy Saver Heat Pump	x								No specific cost nor specific energy savings data available. No commercially available units identified
Thermal Drapes	x								Difficult to quantify savings for this measure - depends on type of drapes and customer usage patterns.
Thin-Film Lithium-Based Electrochromic Devices	x			x					No specific cost nor specific energy savings data available. This measure describes a technology that has potential for application to commercial products, such as windows, but does not appear to be fully developed into a specific product.
Time clocks			x						Better Measure is Photocells
TXV Valve Replacement from Fixed Orifice		x			x				Virtually all residential units produced in the last 10 years were shipped from the factory with TXV valves as standard equipment. Low number of applicable equipment which qualify for retrofit.
Water Heater Heat Trap			x						Similar savings achieved with Pipe Insulation
Water-Heating Dehumidifier	x			x					Appears to still be in development stage. No specific cost nor specific energy savings data available.

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Whole House Fans	x					x	x		Savings depend on customer behavior. Poor customer acceptance due to indoor air quality issues caused by the fan.

Non-Residential Measures

The following table provides a list of non-residential measures that did not pass the qualitative screening process.

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Advanced (commercial AC) modulating HVAC compressors	x				x				
Advanced Analysis Software Key to New, Energy-Efficient Technologies Leveraging Scientific and Engineering Know-How to Advance Sources of Renewable Energy	x								
Advanced Melting Technologies	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Advanced membranes technology platform for hydrocarbon separations	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Advanced Process Development	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Advances in process intensification through multifunctional reactor engineering	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Aerosol Remote Sealing System	x								No commercial product found.

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Agricultural Engine Block Heater Timer					x				Not necessary in Georgia's climate
Air Duct/Water Pipe Insulation		x							Standard practice
Air Source Heat Pump 65 to 135 kBTU/hr. - High Efficiency			x						Duplicate with other Heat Pump measures
Air Source Heat Pump 65 to 135 kBTU/hr. - Premium Efficiency			x						Duplicate with other Heat Pump measures
Alternating Current Photovoltaic Building Block ACE Plug-N-Play	x								No specific cost nor specific energy savings data available.
Aluminum Forming Technologies	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Ammonia production using pressure swing adsorption	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Anti-Sweat Heat Control-Time Clock			x						Better measure is Anti-Sweat Heat Control-Humidistat
Anti-Sweat Heat Control-Time Clock			x						Better measure is humidity sensor
Appropriately sized rooftop HVAC		x							Code Requirement
Automated fault detection & diagnostics for rooftop units	x			x					
Autonomous Combustion-Powered Hopping Robot	x								No specific cost nor specific energy savings data available.
Awning	x								Savings depend on building orientation and placement of awnings

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Boiler Control Technology	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
By Pass Timer			x						Economizer is better/similar measure
Bypass/Delay Timer Direct Expansion	x								Savings depend on baseline set-up and adjustments made
Chillers <150 tons (screw) - Advanced Efficiency			x						Duplicate with other Chiller measures
Chillers <150 tons (screw) - High Efficiency			x						Duplicate with other Chiller measures
Chillers <150 tons (screw) - Premium Efficiency			x						Duplicate with other Chiller measures
Clog-free Atomizing and Spray Drying Nozzle	x								No commercial product found.
Clothes Dryer - High Efficiency Motor					x				Limited market of customers that will be replacing motors in clothes dryers rather than purchasing new one
Clothes Dryer - Microwave	x			x					Still in developmental stage
Clothes Washer - CEE Tier 2 or3			x						Deleted due to overlap with Clothes Washer – ENERGY STAR measure
Coke less Ironmaking	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Cold Plasma Technology for IAQ	x						x		EPA recommends against using Ozone Generators for contaminant control/ventilation.
Commercial Lighting Remodeling (Energy effective lighting)	x								Savings depend on baseline equipment. Savings captured in individual lighting measures

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Compact Fluorescent Lamp/Hardwire			x			x			Savings captured by LED replacement fixtures
Compact Fluorescent Lamp/Hardwire - 2020 EISA			x						Current CFL lamps do not meet EISA standard; use LED instead
Compact Fluorescent Lamp/Screw-in			x			x			Savings captured by LED replacement lamps
Compact Fluorescent Lamp/Screw-in - 2020 EISA			x						Current CFL lamps do not meet EISA standard; use LED instead
Convection-Microwave Dryer	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Conversion from dry cleaning facility to professional wet cleaning	x			x					
Daylighting			x						Better measure is use of daylight sensors; daylighting measure alone is behavioral change or would be included in new construction design
Daytime Dimming	x								Depends on building orientation and number of windows
Decision Support for Operations and Maintenance (DSOM)	x								
Delay Timer		x	x						Better measure is Occupancy Sensor (interior lighting)
Destratification Fans	x				x				Depends on facility size and number of fans installed; difficult to model
Desuperheater	x								Refrigeration savings are difficult to quantify - majority of savings for desuperheater are in water heating

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Development of highly selective oxidation catalysts by atomic layer deposition	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Distillation column flooding predictor	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific
DX Package 65 to 135 kBTU/hr. - High Efficiency			x						Duplicate with other DX Package measures
DX Package 65 to 135 kBTU/hr. - Premium Efficiency			x						Duplicate with other DX Package measures
eco-Button	x			x		x			
E-cube	x			x					
Efficient Aluminum Melting Technologies	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific
Efficient Polymer Solar Cells	x								Current polymer solar cells are approximately one- third more efficient than the current efficiency of hard materials
Elapsed time switch T12	x		x						Difficult to quantify savings - depends on facility schedule and current practices. Better measure is Occupancy Sensor (interior lighting)
Elapsed time switch T8	x		x						Difficult to quantify savings - depends on facility schedule and current practices. Better measure is Occupancy Sensor (interior lighting)
Electric Transit & Freight	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Electrical Cable Testing by Pulse-Arrested Spark Discharge (PASD)	x								No specific cost nor specific energy savings data available.

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Electro finishing	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Electro galvanization	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Electro slag Processing	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Electroforming	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Electron Beam Heating/Drying	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Electronic Adjustable Speed Drives	x								Difficult to quantify savings - depends on system demand
Ellipsoidal Reflector Lamps		x							Measure widely used in market place
ENERGY STAR Mailing Machine			x						Combined with other measures into ENERGY STAR Imaging Equipment measure
ENERGY STAR Multifunction Device			x						Combined with other measures into ENERGY STAR Imaging Equipment measure
ENERGY STAR Scanner			x						Combined with other measures into ENERGY STAR Imaging Equipment measure
Evaporate Pre-Cooler					x				Limited applicability due to Georgia's high wet bulb temps (high humidity)
Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr. - Advanced Efficiency						x			Limited applicability due to Georgia's high wet bulb temps (high humidity)

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Evaporative Pre-Cooler					x				May not be very effective in Georgia's humid climate
Evaporator-cooled condenser	x				x				Limited applicability due to Georgia's high wet bulb temps (high humidity)
Exit Sign - Photo luminescent or Tritium					x				Only applicable in areas with sufficient natural light
Exit Sign Retrofit: Compact Fluorescent, replacing incandescent			x						Better measure is LED exit signs
Fabrication of Emissible Metallic Layer-by-Layer Photonic Crystals Using Micro Transfer Molding with Electro-Deposition	x								No specific cost nor specific energy savings data available.
Facility Energy Decision System (FEDS™) Software					x				No cost but only available to state-owned facilities.
First Diode for Thermal Management of Micro and Macro Devices				x					Currently in development.
Floating Head Pressure Control	x				x				Savings depend on system demand
Fluidized Bed Heating	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Food Service Refrigeration: Condensate Evaporator				x	x	x			Limited applicability due to Georgia's high wet bulb temps (high humidity)
Freeze Concentration	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Gas Filled Panels	x								No cost for product found.

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr. - Advanced Efficiency			x						Duplicate with other Ground Source Heat Pump measure
Heat integrated distillation through use of microchannel technology	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Heat Recovery from Refrigeration or A/C	x								Savings depend on size and operation of other systems (refrigeration, A/C) at the facility
Heat Transfer Interface for Thermo-Solar Energy	x								Limited data available
Heat-Recovery Absorption Chiller	x				x				Effective if there is existing source of waste heat - so there may be limited applicability. Also, difficult to quantify savings due to the varying quantity and temperature of available waste heat.
Hedgehog™ Water Contaminant Removal System	x			x					Not available commercially. Unable to find a distributor for an average cost of installation. No technical specifications were found to calculate savings.
High Efficiency Building Shell Design (ENERGY STAR)	x								No baseline system for comparison
High Efficiency Computer Printers (ENERGY STAR)			x						Combined with other measures into ENERGY STAR Imaging Equipment measure
High Efficiency Condenser	x								Difficult to quantify savings - depends on system demand
High Efficiency Convection Oven		x							
High Efficiency copiers (ENERGY STAR)		x							Combined with other measures into ENERGY STAR Imaging Equipment measure

Measure Name	Difficult to Quantify Savings	Current Practice	Better Measure Available	Immature or Unproven Technology	Limited Applicability	Poor Customer Acceptance	Health & Environ. Concerns	End-Use Service Degradation	Notes
High Efficiency Evaporator Fan Motors	x								Savings depend on the condition and operation of baseline equipment
High Efficiency Fax Machine (ENERGY STAR)		x							Combined with other measures into ENERGY STAR Imaging Equipment measure
High Efficiency Heating System Design	x		x						Savings depend on heating requirements of facility
High Efficiency Plastic Injection molders					x				Included in revised Industrial measures
High Efficiency Pulping	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
High Efficiency Water Heating System Design	x		x						Difficult to quantify savings - depends on baseline equipment and water heating requirements. Individual measures are included in the catalog.

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High Performance OLEDs with Air-stable Nanostructured Electrodes	x								No specific cost nor specific energy savings data available.
Improved Equipment Maintenance	x								Difficult to determine baseline and expected savings from changes in maintenance plan/schedule
Improved Fiber Recycling	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Indirect/direct air cooling (IDAC - 2 stage Evaporation system)				x	x	x			Limited applicability due to Georgia's high wet bulb temps (high humidity)
Induction Heating/Melting	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Industrial - Other	x				x				Difficult to quantify cost and energy savings.
Industrial - Thermal	x				x				Difficult to quantify cost and energy savings.
Industrial: HVAC/Equipment Upgrades			x						Replaced by more detailed HVAC measures
Industrial: Lighting/Efficient Lighting (1 shift)			x						Replaced by more detailed lighting measures
Industrial: Lighting/Efficient Lighting (2 shifts)			x						Replaced by more detailed lighting measures
Industrial: Lighting/Efficient Lighting (3 shifts)			x						Replaced by more detailed lighting measures
Industrial: Lighting/High Bay Lighting (1 shift)			x						Replaced by more detailed lighting measures

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Industrial: Lighting/High Bay Lighting (2 shifts)			x						Replaced by more detailed lighting measures
Industrial: Lighting/High Bay Lighting (3 shifts)			x						Replaced by more detailed lighting measures
Industrial: Lighting/Lighting Controls (2 shifts)			x						Replaced by more detailed lighting measures
Industrial: Lighting/Lighting Controls (3 shifts)			x						Replaced by more detailed lighting measures
Industrial: Motors Other/Motors: Rewind Large (>100 HP)			x						Replaced by more detailed motors measures
Industrial: Motors Other/Motors: Rewind Small (<100 HP)			x						Replaced by more detailed motors measures
Industrial: Other/Plant Energy Management			x						Overlaps with Integrated Plant Energy Management measure
Infrared Curing & Drying	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Infrared Drying	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Infrared Heating/Melting	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Innovative Casting Processes	x				x				Only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Install Timers on Exterior Lights		x	x						Better measure is Photocell Controls (outdoor)

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Interior Shade	x								Difficult to quantify savings - depends on building orientation and number of windows
Interruptible Curtailment Technology	x								
Ladle Refining	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Laser Processing	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
LED Traffic Signal		x							Current practice. Measure widely used in market place
Light Emitting Diodes Based on Lattice-Mismatched GaInP Alloys	x								No specific cost nor specific energy savings data available.
Lighting Channels (Tunnels)				x	x				Only useful if several different lighting setups for different tasks are needed
Linear fluorescent electronic ballasts			x						Better measure is converting to T8 Lamp/Electronic Ballasts
Liquid desiccant air conditioner	x				x				
Low cost chemical feedstocks using an improved & energy efficient natural gas liquids removal process	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Low Cost, Stable Switchable Mirrors: Lithium Ion Mirrors with Improved Stability	x								No specific cost nor specific energy savings data available.
Low Pressure Drop Pool Filter						x			Poor customer acceptance due to reduced effectiveness of filtration system

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Low-Flow Pre-Rinse Spray Valves - 1.6 GPM (Existing to Code)		x							Code requirement
Marathon Eco power MCHP System	x			x	x				
Mechanical Sub coolers	x								Difficult to quantify savings - energy savings for dual cycle system depend on required facility load
Method for Creating Photonic Band Gap Materials	x								No specific cost nor specific energy savings data available.
Microbially Mediated Method for Making Semiconductor Nanoparticles	x								No specific cost nor specific energy savings data available.
Microchannel reactor system for catalytic hydrogenation	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Microwave Heating/Drying	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Millisecond oxidation of alkanes	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
More efficient Real Time Pricing ("RTP")	x								
Motor early retirement	x								Difficult to quantify savings - depends on age and condition of motor
Motor rewind	x				x				
Next Generation Melting Systems	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.

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Next Generation Steelmaking	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Novel catalytic membrane reactors	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Novel Electrochromic Device Controlled by Sunlight	x								No commercial product found.
Novel Structured LED and OLED Devices	x								LED replacements for incandescent bulbs are currently included as other measures
Overglazing	x								Difficult to quantify savings - depends on building orientation and number of windows
Ozonation					x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Parallel Unequal Compressor System	x								Difficult to quantify savings - depends on system requirements
PCMs (Phase Change Materials) - Thermal Storage	x								Overlaps with Full Thermal Energy Storage measure
Pinch Technology	x								Difficult to quantify savings - depends on baseline set-up and available adjustments
Plasma Fired Cupola	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Plasma Processing	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Premium Efficient Motor (5 HP)		x							NEMA Premium Efficiency is now federal code

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Premium Efficient Motors (50 HP): Summary Level		x							NEMA Premium Efficiency is now federal code
Process for Fabrication of Efficient Solar Cells				x					Currently in development.
Production of Giant magnetocaloric Substances Using Commercially Available Raw Materials	x								No specific cost nor specific energy savings data available.
Pulse cooling for injection molders					x				Included in revised Industrial measures
Pump Repair: impeller & bowls: 100 - 400 HP	x								Difficult to quantify savings - depends on condition of existing pumps
Pump Repair: impeller & bowls: 20 - 75 HP	x								Difficult to quantify savings - depends on condition of existing pumps
Radio Frequency Drying	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Radio Frequency Heating	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Rapid Cooling Using Ice Slurries for Industrial and Medical Applications	x								No specific cost nor specific energy savings data available.
Refrigerated Case Doors - Door Miser			x						Better measure is Anti-Sweat Heat Control-Humidistat (Door Miser is specific brand)
Refrigeration Equipment, Defrost Control System	x								Difficult to quantify savings - savings depend on frequency of use and humidity

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Refrigeration: Evaporator Fan Controller	x								Difficult to quantify savings - depends on system demand, duty cycle, and motor power
Regenerator for Magnetic Refrigerants	x								No specific cost nor specific energy savings data available.
Rooftop Diagnostician	x								No specific cost nor specific energy savings data available.
Security Risk Assessment Methodologies ("RAM") for Critical Infrastructures	x								No specific cost nor specific energy savings data available.
Storage Water Heater		x	x						Better measure is heat pump water heater
Sulfur Lights	x			x					Technology is not currently being developed
Synthesis of High Efficiency Thermoelectric Materials	x								Not currently available.
T8 Lamp/Electronic Ballasts: 4-foot fixture			x						Better measure is T8 lamp (any length) electronic ballast
T8 Lamp/Electronic Ballasts: 8-foot fixture			x						Better measure is T8 Lamp High Performance
T8 Lamp/Electronic Ballasts: other sizes			x						Better measure is T8 lamp (any length) electronic ballast
Task Lighting	x								Difficult to quantify savings - difference in lighting from overhead to task lighting
Techniques for Growth of Lattice-Matched Semiconductor Layers for the fabrication of multi-junction	x								No specific cost nor specific energy savings data available.

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solar cells, light emitting diodes, and high-speed transistors									
Temperature set-point reduction					x	x			Poor customer acceptance, particularly if lower temperature affects customer comfort or processes
Thermal oxidizer upgrades	x								Difficult to quantify savings - depends on current condition of equipment
Thermoelectric Ambient Energy Harvester	x								No specific cost nor specific energy savings data available.
Thin-Film Lithium-Based Electrochromic Device	x								No specific cost nor specific energy savings data available.
Time Clock			x						Better measure available (Energy Management System)
Timer	x								Difficult to quantify savings - facility operations will dictate timer settings and water requirements
TOD Pool Pump Timer		x							Standard practice for most commercial pools
Tracer Gas Airflow Measurement System ("TRAMS")	x								No specific cost nor specific energy savings data available.
Transition Metal Switchable Mirrors	x								No specific cost nor specific energy savings data available.
Transpired Solar Collector	x						x		EPA recommends against using Ozone Generators for contaminant control/ventilation Difficult to quantify savings.
Tunable Thermal Link	x								No specific cost nor specific energy savings data available.
Ultraviolet Curing	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.

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Using ionic liquids in selective hydrocarbon conversion processes	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Vacuum Distillation	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Vacuum Resistance Heating	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Variable Air Volume Control (VSD)	x								Difficult to quantify savings - depends on facility loads
Variable Speed Compressor Systems	x								Difficult to quantify savings - depends on system requirements
Vestibule/Revolving Doors	x								Difficult to quantify savings - depends on building orientation
Waste Heat Recovery	x				x				Limited applicability - only useful for particular industrial processes, also difficult to quantify because operations are site specific.
Wastewater treatment facility retro commissioning	x								Difficult to quantify savings - depends on current condition of facility
Water Heater Cycling	x								Difficult to quantify savings - depends on cycle time and facility water requirements



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