**Unit Retirement Study**

In the Unit Retirement Study for the 2019 Integrated Resource Plan (“IRP”), Georgia Power Company (“Georgia Power” or the “Company”) has conducted economic evaluations for all Georgia Power coal-fired units, the units previously switched from coal to gas (“gas-steam units”), and three hydroelectric (“hydro”) plants. These economic evaluations compare the costs and benefits of continued operation for these units. The combination of low load growth, compliance costs, and sustained low gas prices continues to place economic pressure on these units. Based on these economic evaluations, the Company recommends decertification of Plant Hammond Units 1-4, Plant McIntosh Unit 1, Plant Langdale Units 5-6, Plant Riverview Units 1-2, and Plant Estatoah Unit 1.

# 2019 Coal-Fired and Gas-Steam Unit Retirement Study

## Introduction

Unit retirement studies were performed for each of Georgia Power’s coal-fired and gas-steam units. The economic analysis compares the incremental costs and benefits of the existing unit to a proxy replacement unit. Consistent with past practice, the year of replacement evaluated for particular units was based on assumed retirements of other units in an established rank order. The economic analysis also includes a determination of capacity value, hourly production cost modeling, and cost implications to the transmission system. Changes in production cost, capital cost, and other fixed costs were captured in the comparison to help determine the most economic option for customers. The results of these analyses were one of the primary determinants in the basis for the Company’s decision to invest, retire, or defer action on the unit(s) studied.

## Incremental Costs

Incremental costs include delivered fuel, operation and maintenance expenses (“O&M”), maintenance capital, emissions costs (NOX, SO2, and CO2), and future environmental controls associated with continued operation of the facility. An economic dispatch model was used to forecast production costs based on the hourly operation of modeled units in each scenario.

O&M includes all labor, materials, engineering and support services, and overhead costs necessary to operate the plant. For all units, thirty-year projections of incremental O&M budgets were obtained from the 2019 budget process. O&M costs are broken out between fixed and variable O&M for each study. Fixed O&M is directly reflected in the asset valuation model (“AV Tool”). Variable O&M, Fuel Costs, and Emissions Costs are netted out of each unit’s energy benefits and are derived by the production cost models (“GenVal” and “AURORA”). Maintenance capital costs are the projected capital expenditures necessary to maintain reliable operation through the analysis period and are based on current plant level projections. Asset Retirement Obligation (“ARO”) expenditures were not included in the study because these expenditures are required regardless of whether the plant continues operation or is retired.

Environmental capital and the associated O&M expenditures projected to be required for compliance are not included in the ongoing operation expenditures described above. However, these investments are reflected in each unit retirement study and include the incremental capital and O&M estimates associated with compliance for the Coal Combustion Residuals (“CCR”) rules, Section 316(b) Cooling Water Intake Structure rule of the Clean Water Act (“316(b)”), National Pollutant Discharge Elimination System thermal compliance, and the Steam Electric Power Generating Effluent Limitations Guidelines (“ELG”) rule. The control requirements and dates included in the analyses are based on the compliance requirements of environmental rules and regulations for which the Company has compliance plans in place.. For each of the units analyzed, all environmental controls are expected to be necessary for compliance with final environmental rulemakings. Additional information about environmental rulemakings and their projected compliance requirements can be found in the Environmental Compliance Strategy in Technical Appendix Volume 2.

## Replacement Unit and Transmission Avoided Costs

For each analysis, the Company evaluates the avoided cost associated with both replacement generation costs and transmission avoidance or deferral cost. Replacement generation costs include installation capital, transmission interconnect and delivery, fuel transportation, fixed O&M, and maintenance capital. These costs are all representative of generic, repeatable estimates. Fuel transportation costs are estimates for gas delivery to future gas-fired combined cycle (“CC”) and combustion turbine (“CT”) sites in Georgia. Transmission interconnection and delivery costs for the replacement unit are estimates for sites in Georgia. Additionally, transmission cost implications created by the potential retirement of an existing unit are included in the analysis and represent transmission projects required if the existing unit were retired.

When selecting a replacement unit for the unit retirement studies, existing coal and gas-steam units were removed from Strategist simulations in an established rank order. The corresponding changes in the Strategist expansion builds were used to select the appropriate replacement unit. In all comparison studies, the costs and benefits of the replacement unit were scaled on a megawatt basis to the same generating capacity as the existing unit. For example, for a 500 MW unit retirement study, the costs and benefits for a 500 MW portion of a full-scale CC or CT would be used for the comparison.

## Deferred Generation Capacity Costs

Both existing and proxy replacement units receive capacity value based on magnitude of capacity need in a given year, amount of capacity above target reserve margin, and the ability of a resource to provide capacity value. For the 2019 IRP, the Company’s determination of capacity value is based on the summer target reserve margin of 16.25%. For the existing units, the magnitude of capacity need after retirement, up to the size of the existing unit, is valued at the economic carrying cost (“ECC”) of a CT. If the existing unit is larger than the capacity need, the amount of capacity above target reserve margin is valued at the Company’s retail capacity price forecast. For the proxy replacement units, capacity value is assigned starting when the unit is assumed to reach operation and is valued consistent with the existing unit.

## Avoided Energy Costs

Avoided Energy Costs (“AEC”) represent the marginal energy-related costs (including marginal replacement fuel costs, variable O&M, fuel handling, compliance-related environmental costs, intra-day commitment costs, and transmission losses) that are projected to be avoided on the Southern Company electric system by any single generating unit operating at a specific time. AEC are generated by AURORA. The GenVal model uses these AEC to economically dispatch both the existing unit and the replacement unit in order to derive the energy benefits for each unit retirement study. The net present value (“NPV”) of the difference between the replacement unit’s energy benefit and the existing unit’s energy benefit is calculated to determine the overall net contribution to system energy costs.

## Scenarios

The Company formally analyzes nine planning scenarios, each of which adopts a particular view of future CO2 costs and a particular view of future natural gas markets. The scenarios created by the combination of these CO2 views and natural gas views were developed to represent a range of plausible outcomes. Each of the nine scenarios provides an internally-consistent view of fuel, electricity, and other markets in the U.S. economy. For each of these scenarios, the Company has performed the unit retirement studies for each unit discussed in this filing. See the Scenario Fuel Forecast located in Technical Appendix Volume 1 for additional information on these planning scenarios.

## Summary of Study Results

The following tables (Sections 1.7.1-1.7.8) represent the net present value (“NPV”) of customer benefit associated with each unit. The results are calculated by comparing the existing unit’s costs and benefits to the corresponding costs and benefits of the appropriate replacement unit. When a positive value is shown for a scenario, the NPV value (benefit less cost) of the existing unit is greater than the NPV value (benefit less cost) for the replacement generation; therefore, the existing unit is the better economic option. Appendix A summarizes the environmental costs applied to each of the existing units. Table A.1 provides the in-service cost of the individual environmental controls. In Table A.2, the NPV for the environmental capital for each of these controls is provided, including projected O&M costs associated with the operation of the environmental controls. The tabular data from Table A.2 can be used to adjust the controls assumptions included in the analysis presented in Sections 1.7.1 - 1.7.8. If the analysis were to be examined without a particular environmental control included in the results in Sections 1.7.1-1.7.8, the NPV of the DRR for that particular control could be added back to each scenario. Conversely, if there is an additional required control that was not included in the results in Sections 1.7.1-1.7.8, the NPV for the DRR for that control would be subtracted from each scenario. Appendix B summarizes the costs and benefits of continued operation for each set of coal-fired and gas-steam units for the moderate-gas, zero-dollar carbon (“MG0”) scenario over the study period (2020-2048).

**1.7.1. Plant Bowen Units 1-2**

Customer Costs and Benefits for the Continued Operation of Plant Bowen Units 1-2 Compared to a Replacement CC

Mid-year NPV (2020-2048) in millions of dollars

* In-service[[1]](#footnote-2) years of environmental controls included on the units:
  + ***Redacted*** *ELG Wastewater Management*
  + ***Redacted*** *Coal Combustion Byproducts Cells 5 and 6*
  + ***Redacted*** *Coal Combustion Byproducts Cells 7 and 8*

**Table 1.1**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

For Plant Bowen Units 1 and 2, ELG Wastewater Management and Coal Combustion Byproducts Cells 5-8 are assumed for future compliance with ELG and CCR rules. ELG Wastewater Management includes the treatment of scrubber wastewater.

**1.7.2. Plant Bowen Units 3-4**

Customer Costs and Benefits for the Continued Operation of Plant Bowen Units 3-4 Compared to a Replacement CC

Mid-year NPV (2020-2048) in millions of dollars

* In-service[[2]](#footnote-3) dates of environmental controls included on the units:
  + ***Redacted*** *ELG Wastewater Management*
  + ***Redacted*** *Coal Combustion Byproducts Cells 5 and 6*
  + ***Redacted*** *Coal Combustion Byproducts Cells 7 and 8*

**Table 1.2**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

For Plant Bowen Units 3 and 4, ELG Wastewater Management and Coal Combustion Byproducts Cells 5-8 are assumed for future compliance with ELG and CCR rules. ELG Wastewater Management includes the treatment of scrubber wastewater.

**1.7.3. Plant Gaston Units 1-4**

Customer Costs and Benefits for the Continued Operation for GPC’s Ownership Share of Gaston Units 1-4 Compared to a Replacement CT

Mid-year NPV (2020-2048) in millions of dollars

* In-service[[3]](#footnote-4) dates of environmental controls included on the units:
  + ***Redacted*** *316(b) Studies*
  + ***Redacted*** *Dry Bottom Ash System*
  + ***Redacted*** *Intake Screens*

**Table 1.3**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

*\*Only GPC ownership shown*

For Plant Gaston Units 1-4, 316(b) Studies and Intake Screens are assumed for future compliance with the 316(b) rule. Dry Bottom Ash Systems are assumed for compliance with the CCR rules.

**1.7.4. Plant Hammond Units 1-4**

Customer Costs and Benefits for the Continued Operation of Plant Hammond Units 1-4 Compared to a Replacement CT

Mid-year NPV (2020-2048) in millions of dollars

* In-service[[4]](#footnote-5) dates of environmental controls included on the units:
  + ***Redacted*** *316(b) Studies*
  + ***Redacted*** *CCR Wastewater Management*
  + ***Redacted*** *CCR Ash Management*
  + ***Redacted*** *ELG Wastewater Management*
  + ***Redacted*** *Intake Screens*

**Table 1.4**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

For Plant Hammond, CCR Ash Management, CCR Wastewater Management, and ELG Wastewater Management are assumed for future compliance with ELG and CCR rules. CCR Ash Management includes dry bottom ash conversions and fly ash projects. CCR Wastewater Management addresses Low Volume Wastewater Treatment. ELG Wastewater Management includes the treatment of scrubber wastewater. 316(b) compliance is achieved through 316(b) Studies and Intake Screens.**1.7.5. Plant McIntosh 1**

Customer Costs and Benefits for the Continued Operation of Plant McIntosh Unit 1 Compared to a Replacement CT

Mid-year NPV (2020-2048) in millions of dollars

* In-service[[5]](#footnote-6) dates of environmental controls included on the units:
  + ***Redacted*** *316(b) Studies*
  + ***Redacted*** *CCR Wastewater Management*
  + ***Redacted*** *CCR Ash Management*
  + ***Redacted*** *Intake Screens*

**Table 1.5**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

For McIntosh Unit 1, CCR Ash Management, including dry bottom ash systems, and CCR Wastewater Management, including Low Volume Wastewater, are assumed for future compliance with CCR and ELG. 316(b) compliance is achieved through 316(b) Studies and Intake Screens.

**1.7.6. Plant Scherer 1-3**

Customer Costs and Benefits for the Continued Operation for GPC’s Ownership Share of Scherer Units 1-3 Compared to a Replacement CC

Mid-year NPV (2020-2048) in millions of dollars

* In-service[[6]](#footnote-7) dates of environmental controls included on the units:
  + ***Redacted*** *Gypsum Cell 3*
  + ***Redacted*** *ELG Wastewater Treatment Studies*
  + ***Redacted*** *ELG Wastewater Management*
  + ***Redacted*** *New Landfill Phase 1*
  + ***Redacted*** *Gypsum Cell 2*

**Table 1.6**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

*\*Only GPC ownership shown*

For Plant Scherer, ELG Wastewater Treatment Studies, ELG Wastewater Management, Gypsum Cells 2 and 3, and Landfill Phase 1 are assumed for future compliance with ELG and CCR rules.

**1.7.7. Plant Wansley 1-2**

Customer Costs and Benefits for the Continued Operation for GPC’s Ownership Share of Wansley Units 1-2 Compared to a Replacement CC

Mid-year NPV (2020-2048) in millions of dollars

* In-service[[7]](#footnote-8) dates of environmental controls included on the units:
  + ***Redacted*** *ELG Wastewater Treatment Studies*
  + ***Redacted*** *ELG Wastewater Management*
  + ***Redacted*** *New Landfill Phase 1*

**Table 1.7**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

*\*Only GPC ownership shown*

For Plant Wansley, ELG Wastewater Treatment Studies and ELG Wastewater Management are assumed for future compliance with the ELG rule. New Landfill Phase 1 is assumed for future compliance with the CCR rules.

**1.7.8. Plant Yates 6-7**

Customer Costs and Benefits for the Continued Operation of Yates 6-7 Compared to a Replacement CT

Mid-year NPV (2020-2048) in millions of dollars

* In-service[[8]](#footnote-9) dates of environmental controls included on the units:
  + ***Redacted*** *CCR Wastewater Management*

**Table 1.8**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

For Plant Yates Units 6-7,CCR Wastewater Management is assumed for compliance with the CCR rules.

# 2019 Hydro Unit Retirement Study

As discussed in the IRP Main Document, the Company is recommending decertification of Plant Langdale Units 5-6, Plant Riverview Units 1-2, and Plant Estatoah Unit 1. This recommendation is based on several factors in addition to the economic viability of these units. However, in support of this recommendation, the Company performed retirement studies for each of these units. The economic evaluations for each of these units is consistent with the methods described above in the 2019 Coal-Fired and Gas-Steam Unit Retirement Study section. Additional information on these units is located in the 2019 IRP Main Document.

**2.0.1. Plant Estatoah Unit 1**

Customer Costs and Benefits for the Continued Operation of Plant Estatoah Unit 1 Compared to a Replacement CT

Mid-year NPV (2020-2048) in millions of dollars

**Table 2.1**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

This valuation assumes Plant Estatoah Unit 1 is restored to operation by **Redacted** at a cost of **Redacted** **Redacted** and reaches 0.1 MW max gate value.

**2.0.2. Plant Langdale Units 5-6**

Customer Costs and Benefits for the Continued Operation of Plant Langdale Units 5-6 Compared to a Replacement CT

Mid-year NPV (2020-2048) in millions of dollars

**Table 2.2**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

This valuation assumes Plant Langdale Units 5 and 6 are restored to operation by **Redacted** at a cost of **Redacted** and reach 0.2 MW max gate value.

**2.0.3. Plant Riverview Units 1-2**

Customer Costs and Benefits for the Continued Operation of Plant Riverview Units 1-2 Compared to a Replacement CT

Mid-year NPV (2020-2048) in millions of dollars

**Table 2.2**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Mid-Year NPV 2019 $M*** | ***$0 CO2*** | ***$10 CO2*** | ***$20 CO2*** |
| ***High Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Moderate Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |
| ***Low Fuel*** | ***Redacted*** | ***Redacted*** | ***Redacted*** |

This valuation assumes Plant Riverview Units 1 and 2 are restored to operation by **Redacted** at a cost of **Redacted** and reach 0.1 MW max gate value.

**Appendix A: Environmental Controls   
Table A.1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Totals for Environmental Controls by Category (in Millions of Dollars)** | | | |
|  | Control Category | | |
| Plant Name | 316(b) | CCR | ELG |
| Bowen 1-2 | **Redacted** | **Redacted** | **Redacted** |
| Bowen 3-4 | **Redacted** | **Redacted** | **Redacted** |
| Gaston 1-4 | **Redacted** | **Redacted** | **Redacted** |
| Hammond 1-4 | **Redacted** | **Redacted** | **Redacted** |
| McIntosh 1 | **Redacted** | **Redacted** | **Redacted** |
| Scherer 1-3 | **Redacted** | **Redacted** | **Redacted** |
| Wansley 1-2 | **Redacted** | **Redacted** | **Redacted** |
| Yates 6-7 | **Redacted** | **Redacted** | **Redacted** |
| \*GPC ownership dollars only shown  \*\*CCR Environmental Controls do not include ARO expenditures | |  |  |

**Table A.2**

|  |  |  |  |
| --- | --- | --- | --- |
| **NPV of the Revenue Requirements for Environmental Controls (in Millions of Dollars)** | | | |
|  | Control Category | | |
| Plant Name | 316(b) | CCR | ELG |
| Bowen 1-2 | **Redacted** | **Redacted** | **Redacted** |
| Bowen 3-4 | **Redacted** | **Redacted** | **Redacted** |
| Gaston 1-4 | **Redacted** | **Redacted** | **Redacted** |
| Hammond 1-4 | **Redacted** | **Redacted** | **Redacted** |
| McIntosh 1 | **Redacted** | **Redacted** | **Redacted** |
| Scherer 1-3 | **Redacted** | **Redacted** | **Redacted** |
| Wansley 1-2 | **Redacted** | **Redacted** | **Redacted** |
| Yates 6-7 | **Redacted** | **Redacted** | **Redacted** |
| \*GPC ownership dollars only shown | |  |  |

**Appendix B  
Moderate-Gas, Zero-Dollar Carbon**

**NPV (2020-2048) in Millions of Dollars**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Generation Unit Cost and Benefits | Bowen 1-2 | Bowen 3-4 | Gaston 1-4  (GPC Ownership) | Hammond 1-4 |
| With Compliance Costs | With Compliance Costs | With Compliance Costs | With Compliance Costs |
| Compared to a CC | Compared to a CC | Compared to a CT | Compared to a CT |
| Replacement Unit | Energy | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Capacity | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Avoided Transmission | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Comp Unit Maintenance Capital | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Fixed O&M | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| InService Capital | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Firm Gas Transportation | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Transmission Delivery | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
|  | Total Replacement Benefits to the System | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Existing Unit | Energy | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Capacity | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Avoided Transmission | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Eval Unit Maintenance Capital | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Fixed O&M | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Firm Gas Transportation | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Environmental Capital | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Environmental O&M | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
|  | Total Evaluation Benefit to the System | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Net Benefit (Existing minus Replacement) | **Redacted** | **Redacted** | **Redacted** | **Redacted** |

**Appendix B  
Moderate-Gas, Zero-Dollar Carbon**

**NPV (2020-2048) in Millions of Dollars**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Generation Unit Cost and Benefits | McIntosh 1 | Scherer 1-3  (GPC Ownership) | Wansley 1-2  (GPC Ownership) | Yates 6-7 |
| With Compliance Costs | With Compliance Costs | With Compliance Costs | With Compliance Costs |
| Compared to a CT | Compared to a CC | Compared to a CC | Compared to a CT |
| Replacement Unit | Energy | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Capacity | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Avoided Transmission | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Comp Unit Maintenance Capital | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Fixed O&M | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| InService Capital | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Firm Gas Transportation | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Transmission Delivery | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
|  | Total Replacement Benefits to the System | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Existing Unit | Energy | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Capacity | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Avoided Transmission | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Eval Unit Maintenance Capital | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Fixed O&M | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Firm Gas Transportation | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Environmental Capital | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Environmental O&M | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
|  | Total Evaluation Benefit to the System | **Redacted** | **Redacted** | **Redacted** | **Redacted** |
| Net Benefit (Existing minus Replacement) | **Redacted** | **Redacted** | **Redacted** | **Redacted** |

1. For modeling purposes, revenue requirements are applied beginning in the year directly following the stated in-service year. [↑](#footnote-ref-2)
2. For modeling purposes, revenue requirements are applied beginning in the year directly following the stated in-service year. [↑](#footnote-ref-3)
3. For modeling purposes, revenue requirements are applied beginning in the year directly following the stated in-service year. [↑](#footnote-ref-4)
4. For modeling purposes, revenue requirements are applied beginning in the year directly following the stated in-service year. [↑](#footnote-ref-5)
5. For modeling purposes, revenue requirements are applied beginning in the year directly following the stated in-service year. [↑](#footnote-ref-6)
6. For modeling purposes, revenue requirements are applied beginning in the year directly following the stated in-service year. [↑](#footnote-ref-7)
7. For modeling purposes, revenue requirements are applied beginning in the year directly following the stated in-service year. [↑](#footnote-ref-8)
8. For modeling purposes, revenue requirements are applied beginning in the year directly following the stated in-service year. [↑](#footnote-ref-9)