BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION

GEORGIA POWER COMPANY
DOCKET NO. 36498

AFFIDAVIT AND BASIS FOR THE ASSERTION THAT PORTIONS OF THE INFORMATION SUBMITTED ARE PROTECTED TRADE SECRETS

As part of its 2013 Integrated Resource Plan and Application for Decertification of Plant Branch Units 3 and 4, Plant McManus Units 1 and 2, Plant Kraft Units 1-4, Plant Yates Units 1-5, Plant Boulevard Units 2 and 3, and Plant Bowen Unit 6 ("2013 IRP"), filed in Docket No.36498, Georgia Power Company ("Georgia Power" or the "Company") submits to the Georgia Public Service Commission Technical Appendix Volume 3, which contains confidential details regarding current and future transmission projects (the "Information") that is a trade secret of Georgia Power and the Southern Company and their affiliates.

The Information derives economic value from not being generally known to, and not being readily ascertainable by proper means by other persons who can obtain economic value from its disclosure or use. Specifically, the Information contains competitively sensitive cost information related to the prices Georgia Power has estimated for transmission equipment and specific details related to the Company's transmission infrastructure. Public dissemination of the Information would allow Georgia Power's competitors and suppliers to have access to the costs paid by the Company and insight into the Company's transmission planning process. Access to the Information would also allow competitors to gain specific insights into the Company's technical analysis regarding planned projects. Competitors would obtain an unfair advantage because they are not required to reveal similar information and can structure the pricing for competing products based on the Information. In the event the Information was released, it is quite likely that suppliers would use the Information to set the floor in establishing their own prices, thus artificially and inefficiently setting a market price that may not be representative of the best cost that the market could offer. Competitors would also unfairly benefit in having access and insight into the Company's planning processes and methodologies. The end result is that the Company will potentially pay higher prices to suppliers, ultimately harming customers as well as Georgia Power. Finally, the Information includes details concerning Georgia Power's transmission infrastructure that may be used to pin-point vulnerabilities in the transmission system.

Additionally, the Information is subject to substantial procedures to maintain its secrecy. Only select Georgia Power and Southern Company personnel are granted access to the Information. Those personnel receive access only on a "need to know" basis. Parties outside Georgia Power and Southern Company who have been granted access to the Information, if any, have been required to sign confidentiality agreements.

Kyle Leach, first being duly sworn, deposes and states that he has reviewed Technical Appendix Volume 3 of the Company's 2013 IRP and that to the best of his knowledge the specific information designated as trade secret constitute trade secrets in accordance with O.C.G.A. Article 27 of Chapter 1 of Title 10.

Kyle C. Leach
Director, Resource Policy & Planning
Georgia Power Company

Subscribed and sworn to before me this 29th day of January, 2013.

Notary Public

My Commission expires: 9-10-2014

BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION

GEORGIA POWER COMPANY
DOCKET NO. 36498

BASIS FOR THE ASSERTION THAT THE INFORMATION SUBMITTED IS A TRADE SECRET

As part of its Application for Approval of its 2013 Integrated Resource Plan filing ("Application") in Docket No. 36498, Georgia Power Company ("Georgia Power" or the "Company") submits to the Georgia Public Service Commission Technical Appendix Volume 3 of its Application, which contains specific transmission information (the "Information") of the Company. The Information is a trade secret of Georgia Power and the Southern Company and their affiliates.

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2013 IRP

TECHNICAL APPENDIX

VOLUME 3

TRANSMISSION PLAN

PUBLIC DISCLOSURE

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FOREWARD

The documents presented in this volume of the IRP Technical Appendices represent a snapshot of Georgia Power's transmission and distribution (T&D) plan, as of October 2012. As new developments occur, the plan will be revised as necessary in accordance with the planning procedures these documents describe and other actions directed by the Company's management. Actions may be driven by factors such as: competitive challenges, customer needs, industry re-regulation, etc.

[A]

TRANSMISSION PLANNING DESCRIPTION

&

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A. GENERAL DESCRIPTION

The Integrated Transmission System (ITS) consists of the physical equipment necessary to transmit power from the generating plants and interconnection points to the local area distribution load centers. The ITS is jointly owned by Georgia Power Company (GPC), Georgia Transmission Corporation (GTC), MEAG Power (MEAG) and Dalton Utilities (DU) (i.e. Joint Owners). Transmission planning embodies investment decisions required to maintain the ITS to reliably meet the power needs of the public. Justifications for these decisions are based on technical and economic evaluations of options which may be implemented to meet these needs. Under the ITS Agreement, Joint Owners are responsible for meeting their full load requirements, including generation, and are responsible for making improvements to their facilities to accommodate transmission improvements required by load growth or system reliability.

As of summer 2012, both the ITS and GPC Savannah area service territory included approximately 14,390 miles of transmission lines (at 115 kV, 230 kV, 500 kV, and network 46kV in Savannah – totaling 122 miles), connecting approximately 39,800 MW's of installed generating capacity. The total residential, commercial, and industrial peak demand served from the transmission system was approximately 27,683 MW's. Additionally, the transmission system incorporated approximately 15,780 MVAR of 230 kV, 115 kV and 46 kV substation capacitors (only 46 kV capacitors in the Savannah area – totaling 58 MVAR's).

GPC is a member of the Southern Company Electric System (SCES), one of the largest interconnected systems in the United States. The SCES includes portions of the states of Georgia, Alabama, Mississippi and Florida. In addition, the SCES is a member of the SERC Reliability Corporation (SERC), one of eight regional entities of the North American Electric Reliability Corporation (NERC).

Transmission Planning-East (TP-E) of Southern Company Services (SCS) Transmission Planning & Operation Department (TPO) is responsible for planning the transmission system for GPC. TP-E develops a planning model of the transmission

system for each year for ten years into the future. This planning model is used to identify transmission problems and to evaluate alternative solutions to those problems.

NERC and SERC have established national planning standards for the electric utility industry. These standards provide consistency in planning. In addition, each utility has its own practices and requirements. The Guidelines for Planning the Georgia Integrated Transmission System and the Guidelines for Planning the Southern Company Electric Transmission System are consistent with the NERC Reliability Standards and SERC Supplements to the NERC Reliability Standards.

The Guidelines for Planning the Southern Company Electric Transmission System was modified to create the Guidelines for Planning the Georgia Integrated Transmission System. This was done to reflect current practices and policies of GPC and other Joint Owners. The differences are:

1. The ITS lists additional planning objectives to provide for the effective and economic use of all transmission resources and to avoid loss of life to transmission equipment.
2. The ITS requires validation of operating procedures by the GPC Control Center.
3. The ITS guidelines specify limits to switching surges created by capacitor switching.
4. The ITS provides for testing the system with the Florida interchange set at 3,600 MW (Gross Case).
5. The ITS is more specific in how to model transmission line ratings.
6. The ITS is more specific in how to model transmission transformer capacities.
7. The ITS guidelines do not include a reference to generation studies.

Some interchange contract requirements must also be taken into account in the planning of the ITS. GPC, Southern Company (SoCo), and Oglethorpe Power

Corporation (OPC) have interchange and reliability agreements with other systems such as Duke Power, South Carolina Electric and Gas (SCEG), Tennessee Valley Authority (TVA), and the Florida utilities. Examples of these contracts are:

(1) Interchange agreement between TVA and GPC;

(2) The contract executed by the United States of America Department of the Interior acting by and through the Southeastern Power Administration (SEPA) and GPC;

(3) The Inter-company Interchange Contract (IIC) among the Southern Company member companies; and

(4) Unit Power Sales (UPS).

In addition, there are contracts with large customers pertaining to quality of service or co-generation.

B. Transmission Planning Principles

The principles that will apply to Georgia's transmission planning are:

B.1. Identify and recommend projects that are consistent with the Guidelines for Planning the ITS and the Guidelines for Planning the Southern Company Electric Transmission System.

B.2. Identify and recommend projects that are consistent with the NERC Reliability Standards and the SERC Supplement to the NERC Reliability Standards.

B.3. Minimize costs associated with the transmission system expansion, giving appropriate consideration to system reliability.

B.4. Identify projects with sufficient lead-time to provide for the timely construction of new transmission facilities.

B.5. Coordinate transmission system plans with the plans developed by the GPC Transmission and Distribution (T&D) Area Planning groups.

B.6. Coordinate transmission system plans with all Joint Owners in an effort to enhance reliability and minimize associated costs.

B.7. Coordinate future transmission plans with other GPC departments, other Joint Owners, other SCS departments and the regions surrounding the Southeast in the project development and planning processes.

B.8. Maintain adequate interconnections with neighboring utilities.

B.9. Communicate with GPC management to ensure proper awareness of the importance of adequate transmission improvements and system expansion.

These principles provide guidance to Transmission planners and/or planning authorities that are called upon to explore existing issues and any future problems encountered in the transmission planning process.

C. PLANNING MODEL

The transmission system is modeled mathematically to simulate the characteristics and operation of the actual electric power system under any given set of conditions. This system model is evaluated under a variety of conditions to reveal problems created by the anticipated growth of the system and related power transfers. These problems are evident when the performance of the model (system) is determined to be below an acceptable standard. The model is then studied to determine the causes of these problems. Changes are made to the model which solve these problems in varying degrees, and, from this, solutions are developed. The most widely accepted models are the load flow model and the stability model.

These solutions, which take the form of improvements to be made to the actual system or temporary operating procedures, are examined in relation to the system. The infeasible solutions are eliminated, and those remaining are evaluated as to benefit and cost. The recommended solutions are those that best fit the system financially, electrically and physically. Funds are allocated to implement the proposed improvements through the Capital Budget.

Coordination of the planned system improvements by all Joint Owners must be accomplished and included in the system model.

LOAD FLOW

The load flow model is used to study the steady state response of the transmission network when supplying the real and reactive load requirements from the generation sources and non-territorial suppliers. Using this model, all real and reactive power flows and the magnitude and phase angle of all system voltages can be calculated. Given reliable input data, the load flow is a highly accurate model. As a result of its accuracy and varied applications, the load flow model can be considered the "cornerstone" of the transmission planning process. Among its applications are:

(1) The selection of the most economic operation of generators;

(2) The study of disturbances or outages;

(3) The planning for additions or expansions;

(4) The evaluation of system performance; and

(5) Inertial response to disturbance.

A base case load flow is a load flow model for a specified future date. This model incorporates the existing system and all planned additions to the system up to the specified date. For example, the 2012 Base Case is a load flow model for the summer coincident peak hour of 2011. It includes all transmission projects that have been or will be completed by May 1, 2012. The model incorporates load forecast estimates and the anticipated generation expansion plan. In addition, through communication with neighboring systems, necessary outside system models are created. Base case load flow models are created for the current year and each of the next ten years into the future.

A base case load flow building process begins with the compilation of all data required to formulate load flow representations for a ten-year forecast period. Included in this data base are:

(1) A system peak load forecast by Joint Owners,

(2) A generation expansion plan by Joint Owners,

(3) Transmission line, transformer, and capacity data

(4) An interchange schedule,

(5) Equivalent network data for adjacent systems, and

(6) Budgeted project data.

The changes made in the fall revision of the GPC Capital Budget are used to update the next series of transmission base cases.

In summary, the load flow building process results in a set of base cases which accurately reflect the approved budget projects in concert with the approved generation expansion plan and system load forecast. Load flow cases are used to study the proposed transmission systems under both normal and contingency conditions.

STABILITY

In contrast to the load flow model that deals in the steady-state mode, the stability model is concerned with solutions in the transient and dynamic mode. The transient stability model is used primarily to provide information on the capability of the power system to remain in synchronism during and immediately following a major disturbance, such as a short circuit. The period of time involved here is approximately one second following a system disturbance and prior to governor action at the generator. Dynamic stability analysis studies a period of up to 20 seconds after a system disturbance. A system is said to be stable, due to inertial accelerating forces, if an acceptable balance between generation and load is maintained. A stable system will remain in synchronism even though individual machines may become unstable and trip. Post dynamic stability conditions are studied with the load flow model.

The stability model requires a solved load flow case in order to specify initial power flows and system voltages. The main elements of the stability model are generation, load, and transmission. The generation element includes machine characteristics and impedances, including the impedances of the main power transformers, and characteristics of turbine, governor and excitation. In addition, some machine characteristics may be necessary for large generators in neighboring systems. In the stability analysis the loads, as represented in the load flow, are typically identified as being of the following types: constant current, constant impedance, or constant MVA. The positive sequence impedances of the transmission lines and transformers are provided by the load flow case.

Beginning with the load flow representation and incorporating any additional data requirements, the transient stability problem can be investigated for each machine. Swing curves, indicating the relative angular displacements of machines under fault

conditions, are used to determine the stability condition of the system. A system is judged to be stable if the relative angles between machines do not increase without bound.

D. TRANSMISSION SYSTEM EVALUATION

After the System Model is complete, the transmission system is screened for thermal and voltage problems. This screen is based on the Guidelines for Planning the Georgia Integrated Transmission System.

In evaluating the proposed transmission systems, as modeled by the load flow base cases, the transmission planners are concerned with:

1. What are the operating or contingency conditions that may stress the transmission system?
2. In what portions of the system do these stress situations develop?
3. What are the underlying issues indicated by the symptoms of low voltages or overloaded lines and transformers?

Transmission planning studies generally break down into three broad areas of responsibility:

(1) Generator connections,

(2) Bulk power transmission, and

(3) Region/area transmission.

Generator connections refer to those transmission elements necessary to tie a proposed generating plant into the existing transmission system. This includes a loop-in of an existing transmission line, construction of a new line, or any necessary 500/230-kV or 230/115-kV transformers. The concern in bulk power studies is the performance of the 500-kV and 230-kV network in efficiently transferring power from the generation to the load centers, under both summer and winter conditions. For studies of generator

connections and the bulk power system, stability and adequate transmission capacity are the prime considerations. At the regional/area levels, the primary concerns are adequate voltage support and line capacity to serve the load areas.

Using the load flow base cases, the transmission planners analyze the ability of the transmission system to operate under normal and contingency conditions. Next, the planners consider the sensitivity of the system to variations in load level or generation dispatch level.

Evaluation of the transmission system under normal conditions requires that all facilities operate within normal thermal ratings, with all lines, transformers, and generators in service. Normal base case conditions assume an economic dispatch of all SCES, OPC, and MEAG units to match the transmission system peak load forecast. Under normal peak operating conditions, the bulk power system should provide flexible and reliable operation of all generating units. By creating "unit-off" load flow base cases, the transmission planners investigate the effects of generator unit delays or forced outages on the normal transmission system.

Base cases are developed with power transfers over existing tie lines at two levels:

(1) contract interchange, and

(2) gross interchange.

The contract interchange level cases model flows that result from known contract obligations to supply power through the interchange. The gross interchange level cases model the movement of additional power, beyond these contract levels, to or from neighboring companies. The gross cases model the system with maximum transfers taking place at the Florida interchange points. The needs of the importing companies may stem from generator forced outages, faults on major transmission facilities or unforeseen generation shortfalls.

Contingency analysis covers the consequences of the unexpected loss of transmission facilities and/or generating units. Contingency evaluations are performed primarily

under peak load conditions. Some off-peak studies may be necessary when there is reason to suspect that voltage problems, thermal overloads, or instability may occur.

In performing load flow planning studies, the sensitivity of the proposed transmission system to load and generation changes is considered. If the load forecast or the generation expansion plan change, the level of planned investment in new transmission facilities may change.

The transmission planners use the load flow and transient stability program to test generator connections and to analyze potential problems. It is in this study area that a detailed representation of both the generator and each major transmission line is employed. The goal is to maintain the integrity of the generating units under both fault and no-fault conditions. The most serious fault condition is that of a simultaneous fault on all three phases of a transmission line. Other faults that deserve review are those of single phase to ground and two phases to ground.

Overloads on transmission lines cause reduction of sag clearances due to excessive conductor heating. Line loadings up to the design rating are maintained without damaging line conductors or exceeding code clearances. Transformer ratings consider the rise in temperature of the oil used for transformer cooling, with some loss of life assumed for operation above nameplate.

Generator voltage schedules in load flow analysis reflect the actual generator schedules used in operating the system. Adjustments to the voltage schedules become necessary in load flow cases representing later years.

Short circuit studies are performed on the projected system under normal conditions. Problems occur under fault conditions at generating plants and other substations when exposure to fault current overstresses the substation equipment. For this reason, all 500-kV, 230-kV, and 115-kV circuit breakers at generating plants, switching stations, and 500/230-kV or 230/115-kV substations are rated higher than the maximum available fault current that might be encountered at these locations. In conjunction with the GPC Protection & Control Engineering section, the transmission planners

commonly use the short circuit and breaker duty information to provide for the timely replacement of overstressed equipment and for the proper sizing of new equipment.

Inertial studies are conducted on the transmission system. These studies involve examining the effects on the transmission network of losing a major generating facility within the system and in systems tied to the ITS system. The sudden deficit of hundreds of MWs of power causes the transmission network surrounding the lost generation facility to supply the deficit before remedial action can take place. Inertial studies are undertaken to spot and solve any problems which might develop.

E. PROJECT DETERMINATION AND DOCUMENTATION

The process of determining a transmission project to solve an identified problem can be broken down into several steps.

E.1. STRATEGY

MUTUAL EFFECTS OF PROJECTS

In transmission planning, project interaction is determined using system models. To deal with the complexities introduced by the mutual effects of projects, two general methods of study are utilized to maximize the effectiveness of the system studies:

(1) Horizon Year Planning, and

(2) Project Magnitude Ordering.

HORIZON YEAR PLAN

A Horizon Year Plan is a year sufficiently in the future to show the joint effects of present decisions. The use of a Horizon Year Plan gives direction (i.e. a target). This leads to the questions:

(1) Should we start from the present system and plan additions to arrive at the Horizon Year Plan?

(2) Should a plan be constructed for the horizon year and then work backward to the present?

In practice, an iterative process is utilized. The transmission planners expand the present system out to the horizon year. They analyze the Horizon Year Plan, make necessary changes, and constrict it back to the present. This process continues in an iterative fashion. The present transmission planning horizon is 10 years into the future. However, due to the dynamics of the assumptions and data used to develop the latter years of the system model, project proposals are usually developed for the first five

years only. These projects and their mutual affects are tested through the ten-year horizon.

PROJECT MAGNITUDE PRIORITY

Projects should be studied in order of system effects (project magnitude). Projects that cause the largest changes in the transmission system are studied first. For example, the way a large generating plant is connected to the transmission system is generally felt throughout the system. Conversely, projects involving the 115-kV system are felt only in the immediate area of the project. Thus, a general outline of study is:

(1) Generation connections,

(2) 500-kV system,

(3) 500/230-kV transformer capacity,

(4) 230-kV system,

(5) 230/115-kV transformer capacity, and

(6) 115-kV system.

This process continues in an iterative manner. For example, while the effect of 115-kV system improvements upon the 500-kV systems may be negligible, the 230-kV system changes may influence the 500-kV system projects. Similarly, the 115-kV system projects may influence the 230-kV system projects. This iterative process is performed for each interaction of the horizon year planning process.

E.2. DEVELOPING TENTATIVE SOLUTIONS

If the thermal and voltage problems identified in the transmission area studies cannot be alleviated with operating procedures, improvements to the transmission system are found to correct these problems. Where possible, several alternative system improvements are identified and evaluated. The evaluation process optimizes cost, system performance, duration of the fixes, and conformity to the long range

transmission expansion requirements. The results of this process are compiled into a study document.

The input to the project determination process is a problem statement. As noted in earlier sections, these problems are defined by applying performance criteria to the base case models. Built into the base case models is an assumed set of projects, i.e., those proposed by the Joint Owners. Thus, other problems and solutions are a framework against which these problems are being considered.

In addition to simulation of the future transmission system using the base case models, problem statements are also generated by other sources.

1. Providing service to new customers could generate problem statements. Generally, this involves transmission connections for large industrial substations.
2. Timing, size, and location of future generation plants (management decisions) necessitate problem statements related to the provisions of transmission connections to the planned generation plants from the existing transmission system.
3. Management decisions concerning interchange capability with neighboring systems could generate problem statements concerning provisions for the specified transmission capacity.
4. GPC T&D Area Planning determines future service points for GPC. This will lead to problem statements involving transmission capacity to new service points.
5. GPC System Operations will uncover problems that are not routinely studied by TP-E.
6. System enhancements proposed by other Joint Owners will uncover problems in all five areas listed above.

Before tentative solutions are developed, all problems should be fully defined. Certain questions must be answered when defining these problems.

1. Do these problems persist into the future?

2. Do these problems get worse?
3. Are additional problems developing in the area?
4. Is there a more general description of these problems?
5. Are there problems sensitive to load or generation variations?
6. If these problems result from contingency situations, what is the probability of these contingencies occurring and what are the consequences?

As a rule, it is difficult to isolate a single problem. Furthermore, as the study progresses into the later phases of the project determination process, the problems may need to be redefined.

Once the full ramifications of all problems are understood, possible solutions are formulated. Generally, a finite number of reasonable, but not necessarily feasible, solutions are devised. Infeasible solutions are quickly discarded in later phases of the project determination process. During the documentation phase, it is essential to show that all alternatives were considered. General types of solutions include:

(1) Revise operating procedures,

(2) Upgrade existing facilities, and

(3) Construct additional facilities.

Generally, standard practices and components are utilized.

E.3. FEASIBILITY ANALYSIS

Feasibility analysis involves testing the solutions devised in the preceding section. This analysis concerns two broad areas.

1. Does the proposed solution solve the problem? (Electrical Feasibility)
2. Can the solution be implemented? (Physical Feasibility)

ELECTRICAL FEASIBILITY

In this activity, the tentative solutions are simulated using the load flow program. The goal is to

(1) Identify proposed solutions that solve the problems and

(2) Identify proposed solutions that do not solve the problems

No solution completely solves the problems indefinitely. Similarly, some solutions may improve the situation without really solving the problems. Solutions that cause more problems than are solved are excluded. Consideration is given to solution effects on the surrounding system. Rejected solutions are documented at this point for inclusion in the Project Documentation stage.

The process of solution feasibility sheds additional light on the nature of the problems. This may cause the problems to be redefined and suggest additional possible solutions. Also, modification of a previous solution may result.

As in the definition of the problem, feasibility testing is performed using load flows. As stated in the previous stage, the base cases contain many assumptions. The transmission planners note the base case assumptions and reflect these in determining the proposed solution feasibility. Also, the criticality and sensitivity of the base case assumptions are tested.

PHYSICAL FEASIBILITY

The determination of physical feasibility is accomplished by consultation with groups outside of TP-E. Among the groups contacted at this stage are:

(1) The GPC Land Department and Location Committee (concerning availability of R/W, guying and trimming rights, and substations sites),

(2) Engineering (concerning design, protection, control and construction matters),

(3) System Operations (concerning protection, control, maintenance, and operating matters), and

(4) Region and Transmission & Maintenance Center personnel (since they may have knowledge of all the above items).

Consultation with the above groups occurs on an informal basis or through the formation of "Solution Teams". However, all inputs, decisions, and recommendations contributed by these groups are documented.

E.4. PROJECT EVALUATION

INTRODUCTION

The input to this phase is a set of feasible solutions to the problems. Up to this point, only the current problems under study have explicitly been considered. To evaluate any solution properly, all effects are analyzed.

The project selection criteria are centered on economic factors and engineering benefits. Both the economic and engineering analyses include not only the solution alternatives but other projects affected by the implementation of each alternative.

As noted previously, the base case load flows contain an assumed set of projects. Until the evaluation stage, this set of solutions remains constant. In evaluating the current project, the base assumptions are allowed to vary.

The base case models contain other assumptions in addition to the assumed set of transmission projects. Additional inputs to the model are:

(1) Forecast load totals,

(2) Forecast load distribution,

(3) Generation expansion plan,

(4) Forecast interchange contracts,

(5) Equivalents of outside systems, and

(6) System improvements by other Joint Owners.

All of the above parameters are subject to change. Likewise, the performance criteria by which the model is tested can change from time to time. Since the model is used to define, test and evaluate proposed projects, any change to the model changes the outcome of the project determination process. As a result, transmission planners evaluate the sensitivity of proposed solutions to changes in the above parameters.

Project determination is an iterative process beginning with problem statements and working through the evaluation steps. At this point various changes will be made to the projects involved and the base cases updated. Then the same process is repeated. In time, this process will converge on the best solution(s).

Two final notes on the evaluation stage of the project determination process are:

1. For a true economic analysis, the alternatives being considered should result in the same final outcome. However, the initial decision made in transmission system design will determine, to some extent, all subsequent decisions. Thus,

non-coincidental projects will tend to make the future systems diverge, i.e., the further out one looks, the less alike the systems become.

2. The evaluation process is a cost/benefit analysis. Costs can be measured with a fair degree of accuracy. Benefits are measured, if they can be measured at all, in other terms. Thus, in comparing alternative projects, the cost/benefit ratio cannot be stated in absolute terms.

BENEFITS OF ALTERNATIVE PROJECTS

1. Solution to problem

   For problems to be identified, situations exist where the system will operate in an unacceptable manner (as defined by the performance guidelines). Each of the alternatives should restore the system to an acceptable level. However, there are variations in the adequacy of solution alternatives. In some cases, this variation can be measured. For example, differences in the number of years before other problems develop in the area. In other instances, the adequacy of solutions cannot be quantified. In either case, no absolute measure of solution adequacy exists. Thus, alternatives are ranked as to degree of solution to the problems.

2. Impact on other problems

   A benefit of a project is its positive impact on surrounding problems. This impact is measured by summarizing the problems or possible delays in project implementation that are eliminated.

3. Reduction in losses

   This benefit is measured and related costs are calculated.

4. Improvement in reliability

The alternatives under consideration result in differing reliability levels. Problems occur in two areas:

a. loss of load, and

b. system security.

Loss of load is the loss of service to customers, while system security deals with the integrity of the bulk transmission system.

5. Flexibility with regard to future development

Not all alternatives look the same in regards to future development. This flexibility feature is for development beyond the horizon year. Thus, at the time of the study, an identified benefit may not be reflected in the analysis. Additionally, system voltage levels are constantly being upgraded. Provisions for this are made, even if the need to raise operating voltages in an area has not been determined.

6. Ease of operation

This benefit refers to operating simplicity. Desirable features for an alternative are:

a. standard switching procedures,

b. supervisory control, and

c. easy access to switching points.

7. Improvement in stability

This benefit is not directly measurable. All alternatives must be stable to be feasible. However, one alternative may provide a greater degree of stability than another under contingency situations.

8. Increase interchange capability

This benefit is measurable. It is generally desirable to increase interchange capability. Beyond a certain point, however, increasing the interchange capability becomes less beneficial. Thus, this benefit is in part determined by the interchange levels required to maintain adequate reliability.

9. Ease of protection

This benefit is not directly measurable. As with stability, an alternative must be protected to some minimum standard in order to be considered feasible. However, there are differing degrees of acceptability of the alternatives. Features such as the magnitude of the available fault currents, the existing stress on circuit breakers, the ability to utilize standard relays and procedures, and the flexibility of protective schemes vary among alternatives.

10. Environmental factors

This benefit is not directly measurable. Some environmental benefits are reflected in the right-of-way or guying and trimming costs of the various alternatives. Also, construction duration times may reflect environmental factors. Additionally, public "good will" towards the Company may differ depending on which alternative is selected.

ECONOMIC EVALUATION

All projects are economically evaluated. However some projects require extensive analysis. When required, an economic analysis program is used to calculate the revenue requirements for each alternative. The program calculates the levelized annual cost of each alternative utilizing the revenue requirements of the facility over the useful life of the equipment, approximately 40 years. Factors such as the cost of capital, depreciation, and taxes are the major components in determining the revenue

requirements. The present-worth of the levelized annual cost is then calculated at the current discount rate.

Construction costs are estimated by the Land and Engineering Departments from requests generated by transmission planners when project proposals are entered into the Transmission Evaluation and Management System (TEAMS). TEAMS is a computer-based program used to initiate project estimates. The program is also used to enter, track and revise projects.

The effects on adjacent study boundary projects are reflected in the analysis. Alternative proposals to the problems currently under study include both positive and negative cost impacts on the study boundary projects. These impacts appear in the form of inclusion of the affected projects in the cost analysis. The affected projects are handled in the same manner as the current project under study.

The calculation of annual costs due to resistive losses centers on:

1. Capacity Costs

   These costs are associated with the generation capacity needed to "supply" losses. This is expressed in $/KW. Incremental capacity costs for the future are used.

2. Energy Costs

   Resistive losses vary as the square of the load. Thus, the load shape is reflected in the calculation of losses. Using the load shape and impedance data, annual losses are calculated. Additionally, the losses are correlated with the system load/generation levels. Using production cost data, the cost of resistive energy losses are calculated. This assumes that the resistive losses under consideration are treated in an incremental manner, that is, that an alternative with an extra KW of losses is added at the highest production cost at the load level under consideration.

E.5. RECOMMENDATION - PROJECT DOCUMENTATION

From the evaluation, a decision is reached as to which solution should be recommended. Documentation of the recommendation for major projects includes:

1. Management Summary

   This section of the project documentation summarizes the problem and the proposed solution.

2. Assumption

   A list of the assumptions used in the project evaluation process.

3. Problem Statement

   This section of the project documentation includes a full statement of the problems. Included will be the conditions under which the problem occurs. Loads, adjoining problems, and any other information necessary to adequately show the need for the project is also included in the Problem Statement.

4. Discussion of Alternative Plans

   This section of the project documentation contains a discussion of the alternatives considered. It summarizes the analysis techniques used and the results obtained including the economic analysis.

5. Recommendation

   Statement of recommendation on the preferred plan

6. Appendix

   This section contains the detailed information summarized in the previous section. Such things as load flow plots, economic analysis printouts, correspondence, estimates, etc. are included.

This document is prepared for each special Budget Plant Expenditure (PE) just prior to the approval of the project for construction. In addition, transmission system projects involving GPC facilities that are required due to other Joint Owner system improvements or load serving requirements are included in the Capital budget.

F. BUDGETING

Although the transmission system is studied over a ten-year period, the data and assumptions used to construct the last five years of the system model are typically too fluid to develop firm system expansion plans. Some of the uncertainties associated with these projections are: 1) load growth patterns, 2) generation dispatch, 3) interchange, 4) governmental regulations, 5) capital availability, and 6) needs of other Joint Owners. The budgeting process includes budgeting for five years of approved and forecasted improvements to allow for more efficient utilization of resources and equipment. This five-year budget provides SoCo/GPC Supply Chain Management sufficient advance notice for ordering major equipment.

F.1. PRESENTATION AND APPROVAL

Following the development of a proposed project, the recommendation and accompanying documentation are presented to TP-E Management for approval. The project cost dictates the level of GPC Management necessary for approval. The project and its alternatives are formally presented to the GPC T&D Priority Review Committee for appropriate ranking. The project is then presented to various groups, all of which have previously participated in the problem formulation. Concurrence in the recommendation is also obtained from:

(l) GPC Project Management, Engineering, Land, Transmission, Distribution, and System Operations

(2) Operating regions

(3) Joint Owners through the Transmission Planning Working Group, the Sub–Committee for Transmission Planning, and the Joint Committee for Planning and Operations.

F.2. INCLUSION IN CAPITAL BUDGET

Projects included in GPC's Capital Budget are reviewed and approved by the GPC T&D Council and subsequently approved by GPC executive management and the Board of Directors. When projects are approved, a commitment for funds is made. Therefore, before projects are approved in the Budget, final reviews must be made as to necessity, timing, and costs.

Revisions are necessary for PE's in the Budget due to changes in plans, scopes, nature of the jobs, cost estimates, scheduled expenditures by years, or by substantial variations in actual cost from the estimated cost. Revision is also required when projects are canceled. Any necessary revisions to the Budget are made as soon as sufficient information is available to make these revisions.

Whenever PE's are revised, explanations of these revisions are included in the details on the PE forms. Revisions are justified as to necessity, timing and cost. Where a change in estimated costs occurs in revisions of PE's, adequate explanations supporting the revised costs are given.

Budget revisions are made by approval of Budget Change Authorizations (BCA's). These proposed revisions follow the usual interdepartmental routing for approvals and then go to the GPC Budget Control Committee for final approval.

F.3. BUDGETARY REVIEW AND CONTROL

The Budget is finalized by the fall of each year. The status of each transmission project scheduled for completion in the current year is reviewed by August in order to identify those projects that will not be completed by the end of the year. In order that funds will be available for the completion of these projects, the Budget is revised so that the necessary expenses can be carried over to the following year.

In addition to the above periodic review of the Budget, drastic changes in the load forecast or in the GPC financial situation necessitates an immediate review of the Budget. Significant changes in the load forecast or generation expansion plan requires that each transmission project be reevaluated with respect to timing and scope. Sudden economic constraints placed on GPC expenditures require that each transmission project be reevaluated under revised capital availability.

Once the future needs of GPC have been identified and a Budget prepared, TP-E has a contributing role in budgetary control. Any costs substantially exceeding the budgeted amounts require that TP-E work with Project Management and other departments to effect changes in the projects or initiate Budget revisions so that the Budget continues to reflect GPC financial requirements.

G. INFORMATION NEEDED

ITEM	SOURCE
D.1. Transmission Network Data	
D.1.1. Line Statistical Data	System Operations
D.1.2. System Statistical Data Report	System Operations/Protection and Control
D.1.3. Line Impedance Data Report	Power Delivery
D.1.4. Single-Line Diagrams	System Operations
D.1.5. Transformer Test Reports/Nameplates	Power Delivery
D.1.6. Substation Equipment Records	Power Delivery
D.1.7. Transmission Transformer Data File	Transmission Planning (SCS TP-East)
D.1.8. Substation Capacitor List	Transmission Planning (SCS TP-East)
D.1.9. Substation Loads	T&D Area Planning
D.2. Generator Data	Power Supply Engineering SCS System Planning
D.3. Generation Expansion Plan (Southern Co.)	SCS System Planning
D.4. Breaker Ratings and Fault Calculations	System Protection & Control Electrical Engineering
D.5. Contracts and Interchange Agreements	Bulk Power Operations (SCS) Contract Administration (GPC)
D.6. System Maps	
D.6.1. ITS Key Map	Power Delivery
D.6.2. ITS Grid Maps	Power Delivery
D.6.3. Southern electric system Map	SCS Transmission Planning & Operations

	(TP&O)
D.6.4. SERC Map	SCS Transmission Planning & Operations (TP&O)
D.6.5. External Company Maps	Individual Companies
D.7. Master Construction Schedule	Planning & Projects - Controls
D.8. Planning/Operating Studies	Transmission Planning (SCS TP-East)
D.9. Construction Budget	Planning & Projects - Controls
D.10. Load Forecasts	
D.10.1. System Load Forecast	Market Planning (GPC)
D.10.2. Substation Load Forecast	T & D Area Planning

H. TRANSMISSION PLANNING TOOLS

H.1 PSS/E Power System Simulator Program

The PSS/E Power System Simulator Program developed by Power Technologies Inc. (now Siemens Power Transmission & Distribution, Inc., Power Technologies International) is a state of the art power systems analysis tool that consists of several component programs to assist transmission planners in analyzing and planning the transmission system. The main programs used in the planning of the GPC transmission system are the load flow and dynamic simulation programs. Fault analysis and Transmission line constant calculation programs are available but are not used within the simulator package. The following two main programs are used:

PSS/E Load Flow Program

The PSS/E Load Flow program models all essential parts of the power system network necessary to simulate the generation and transmission of power throughout the utility system. The program allows the transmission planners to use

both AC and DC solution techniques to efficiently and effectively analyze the transmission system response for various contingencies and to develop transmission expansion.

PSS/E Stability Program

The PSS/E stability program is used for performing dynamic, time-domain simulations of power systems. It is used to model machines and associated controls (exciters, governors, and stabilizers) to perform traditional transient stability studies. The modeling capabilities of the program make it valid for dynamic simulations over a time frame of up to approximately 20 seconds.

H.2. ETMSP - Extended Transient-Midterm Stability Program

The ETMSP is an EPRI-developed, analysis package for modeling transient and mid-term stability modes. It models FACTS (flexible AC transmission) devices such as thyristor controlled series compensation and static phase shifters. The modeling capabilities of the program make it valid for dynamics simulations over a time frame of up to approximately 50 seconds.

H.3. SSSP - Small Signal Stability Program

The SSSP is an EPRI-developed program which is used for a wide range of power system problems such as the design of compensation networks for power system stabilizers; modulating controls for dc links; and the investigation of the stability of inter-area modes associated with very large power systems. This package consists of two programs MASS (Multi-Area Small Signal Stability) and PEALS (Program for Eigen Value Analysis of Large Systems). MASS calculates the Eigen values and Eigen vectors of an interconnected power system which are useful for determining the modes of oscillation and subsequent damping. MASS is limited in the size of the system which it can model. PEALS calculates a subset of the Eigen values of a large power system. It is also useful for determining the modes of oscillation of a power system and the damping of these nodes.

H.4. EMTP - Electromagnetic Transients Program

The EMTP is a time-domain simulation program that is used primarily to study transient events such as switching surges and lightning surges. However, because the power system is modeled on a per phase basis in the program, EMTP can also be used to study steady-state, unbalanced operation of power systems. EMTP has machine modeling capability which allows the study of the interaction of machines with power systems on a small scale. This capability is useful for studying phenomena such as sub-synchronous resonance.

H.5. PSSUT4 - Economic Dispatch Program

The PSSUT4 program is an economic dispatch program developed by SCS to interact with the Power Technologies Inc. load flow program, PSS/E. The program calculates an economic dispatch for a given load and spinning reserve requirement specified by the transmission planners and is based on the theory that the most economical dispatch is obtained by operating all on-line units at the same incremental cost (lambda). The transmission planners specify information to the program through terminal interaction and two data files with pertinent information on the availability of units, in-service date, retirement date, must run status, power generation limits, generator cost data, etc. The program allows the transmission planners to input the appropriate economic dispatch directly into files for future use with the PSS/E program.

H.6. PROVAL - Revenue Requirements Program

PROVAL is a program developed by SCS to generate capital recovery requirements associated with individual or multiple capitalized investments made within the SCES. PROVAL incorporates the effects of income tax credits, accelerated depreciation methods, income taxes, deferred taxes, ad valorem taxes, and capital costs into the calculations of revenue requirement schedules associated with the capital investment to be analyzed. The program uses specific Company related information or an average for the SCES in the determination of revenue requirements.

H.7. DYNAMP – Dynamic Ampacity Program

DYNAMP is a dynamic ampacity rating program for electric conductors developed by EPRI in conjunction with GPC and the Georgia Institute of Technology. The program calculates ampacity ratings, based on conductor temperature limits, by employing planner's input weather and location parameters. The weather parameters that have the greatest influence on the conductor rating are wind speed and ambient temperature. By utilizing DYNAMP, the transmission planners assist the operators in the evaluation of current system conditions and thereby minimize the amount of risk associated with short-term, excess conductor loading. This process may, in some cases, even delay or defer system improvement costs.

H.8 OPTIFLOW+ Optimal Power Flow Program

The GE Optimal Power Flow program (OPTIFLOW+) is used to optimize the power flow solution of large-scale electric power systems by minimizing a selected objective function while observing selected operating constraints. It is used primarily in studies to minimize transmission active power losses, transmission reactive power losses or the addition of capacitors on the power system.

H.9. VSTAB Voltage Stability Program

VSTAB is an EPRI-developed, power-flow based steady-state voltage stability assessment tool that allows the computation of voltage stability margins for power flows by increasing key power system parameters (load, transfers, etc.) from base case values to the point of voltage instability. VSTAB, through Eigen value analysis, also provides information which pinpoints the areas which are most prone to voltage instability.

H.10. (TRELSS) Transmission Reliability Evaluation for Large Scale Systems

TRELSS is an EPRI sponsored software package that uses automatic contingency selection and enumeration of generation and transmission outages to identify transmission system failure conditions. TRELSS computes reliability indices using a contingency enumeration approach, which involves selection and evaluation of

contingencies, classification of each contingency according to specified failure criteria, and computation of reliability indices. TRELSS incorporates a wide range of models for reliability assessment including: efficient ranking of contingencies based on circuit overloads and voltage problems, multiple load level analysis, DC or decoupled AC power flow, linear programming for remedial actions (generation re-dispatch, shunt switching, adjustment of phase shifters, transformer tap adjustment, and three classes of load curtailment to relieve system violations). Reliability indices include frequency, duration and severity (load curtailed, and energy curtailed, and number of customers lost). Both area and bus indices are calculated.

H.11. MUST - Managing and Utilizing System Transmission

The MUST program, developed by Power Technologies Inc., calculates electric transmission transfer capabilities and the impact of transactions and generation dispatch. Its results are key to more fully utilizing the electricity grid and managing the effect of power transactions and dispatch changes. The capability to move power from one part of the transmission grid to another is a key commercial and technical concern in the current electric utility environment. Planners determine transmission transfer capability by simulating network conditions with equipment outages during changing network conditions.

The purpose of the MUST software is to efficiently calculate:

- Transaction impacts on transmission areas, interfaces, monitored elements or flow-gates.
- Generation re-dispatch factors for relieving overloads.
- Incremental transmission capability (FCITC).
- FCITC variations with respect to network changes, transactions, and generation dispatch.

MUST complements PSS/E data handling and analysis functions with the most advanced linear power flow and user interface available. MUST's speed, ease-of-use, and versatile EXCEL interface simplifies and reduces data setup time, and improves results display and understanding.

I. GUIDELINES

The following guidelines are to assist the transmission planners in fulfilling the task of transmission planning.

F.1. The Capital Budget will accurately reflect the financial requirements of transmission additions on a per year basis.

F.2. Transmission related expenditures will be minimized with appropriate consideration being given to system reliability.

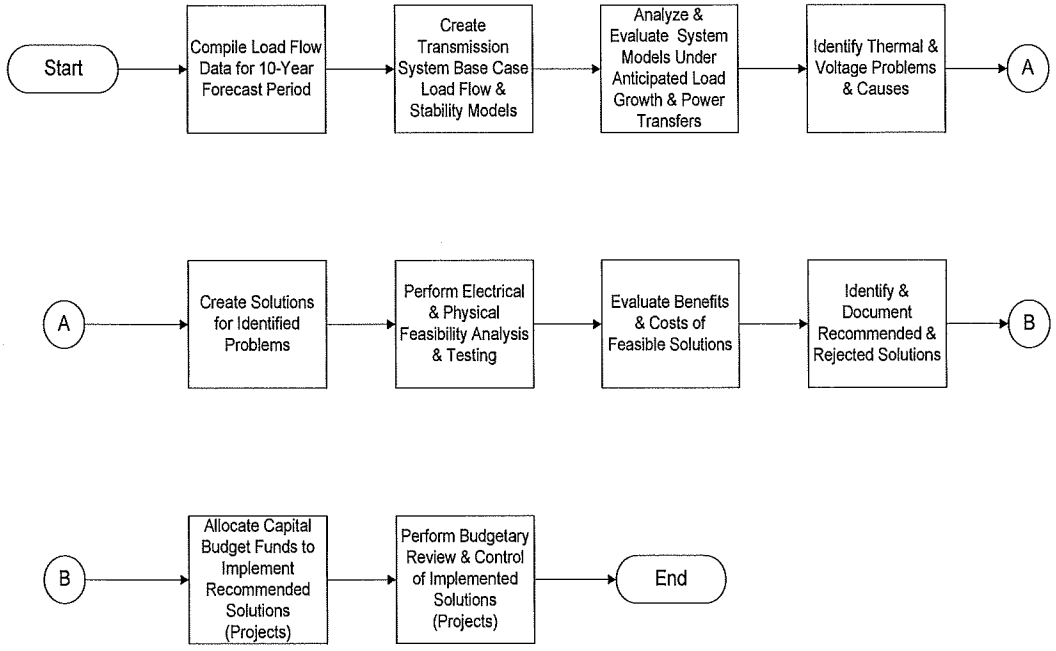
F.3. The ITS will meet or exceed all appropriate government and regulatory guidelines such as the: NERC Planning Standards, the SERC Supplement to the NERC Planning Standards, the Guidelines for Planning The Georgia Integrated Transmission System, and the Guidelines for Planning the Southern Company Electric Transmission System.

F.4. The ITS will reliably and economically connect the generation system with load serving and other substations.

F.5. Transmission ties with other systems will meet the requirements of the ITS.

J. Process Flow Diagram

Georgia Power Company
Transmission Planning Process



[B]

PLANNING GUIDELINES

[B1]

NERC & SERC RELIABILITY

STANDARDS

FORWARD

The Georgia Power Company transmission grid is part of the Southern Company transmission grid, one of the largest interconnected systems in the country. The Southern Company service area includes portions of the states of Georgia, Alabama, Mississippi and Florida. In addition, Southern Company is a member of the Southeastern Electric Reliability Council (SERC), one of eight regional reliability councils of the North American Electric Reliability Council (NERC). NERC and SERC are organizations that set national and regional standards for planning and operating the electric grid.

The Energy Policy Act of 2005 authorized the creation of a self-regulating electric reliability organization (ERO) that spans North America, with Federal Energy Regulatory Commission (FERC) oversight in the United States. The legislation makes compliance with North American Electric Reliability Council (NERC) and regional reliability standards mandatory and enforceable. NERC reliability standards define the reliability requirements for planning and operating the North American bulk electric system.

Mission

NERC's mission is to ensure the reliability of the bulk power system in North America is reliable, adequate and secure. NERC was founded in 1968 by the electric utility industry to develop and promote rules and protocols for the reliable operation of the bulk power electric transmission systems of North America.

To fulfill its mission, NERC:

- Works with the industry to develop reliability standards
- Enforces compliance with those reliability standards and assesses monetary and non-monetary penalties for noncompliance
- Assesses future bulk power system reliability via annual summer, winter and 10-year forecasts
- Analyzes system events
- Promotes a culture of excellence by identifying areas for improvement and Examples of Excellence during regular "readiness" evaluations

- Monitors the status of the bulk power system
- Coordinates physical and cyber security needs
- Identifies trends and potential reliability issues
- Helps the industry train and educate system operators
- Certifies system operators

The Guidelines used for planning the ITS and Southern Electric system are consistent with the NERC Reliability Standards and the SERC Supplements to the NERC Reliability Standards. These national standards are constantly being reviewed and revised by industry working groups.

Additional information about NERC and the NERC Reliability Standards can be found at: http://www.nerc.com. Additional information about SERC and the SERC Supplements can be found at: http://www.serc1.org.

[B2]

GEORGIA ITS
&
SOUTHERN COMPANY

TRANSMISSION PLANNING GUIDELINES

FINAL

ITS JOINT SUBCOMMITTEE FOR TRANSMISSION PLANNING

I.T.S. Planning Procedure No. 9

GUIDELINES FOR PLANNING TRANSMISSION FACILITY IMPROVEMENTS FOR THE GEORGIA INTEGRATED TRANSMISSION SYSTEM

Issued: 6/28/1998
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Revised: 4/18/2006

Guidelines for Planning
The Georgia Integrated Transmission System

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I. Scope

The guidelines contained in this document shall be used as the basis for the planning of transmission facilities within the Georgia Integrated Transmission System (ITS). Implementing these guidelines will require close coordination between the ITS Participants throughout the planning process to include project initiation, review and prioritization. Transmission assessments involving regional and sub-regional concerns and interface requirements with neighboring systems will be addressed in other forums to include NERC, SERC, VST, VAST, FRCC, etc.

II. Risk Assessment

To facilitate the risk assessment process, the following factors should be considered: (A) duration, (B) exposure, (C) severity, (D) consequences and (E) required operator action. Where appropriate, upper bounds are identified beyond which further risk is deemed unacceptable. However, risk levels less than those identified by these upper bounds might be deemed unacceptable for any specific case, particularly when two or more of the risk factors are involved.

A. Duration

It is recognized that some time period is required to accommodate the following actions: line switching, capacitor switching, unit start-up, etc., all of which need to be considered in restoring conditions to acceptable system performance levels and each company's ability to serve the customers properly. It is not acceptable for a transmission facility to exceed its normal design rating or a transmission bus to operate below its low voltage limit for more than the time required to accommodate automatic, supervisory, and/or manual switching of available system equipment.

B. Exposure

The probability of a particular contingency or a number of contingencies, which cause a violation of the transmission performance guidelines, should be considered as the exposure to risks.

C. Severity

The resultant level of thermal overload and/or voltage profile gauges the severity of a problem caused by a single contingency or multiple contingencies. Most transmission facilities can be loaded above normal design ratings or incur under/over voltage conditions for short periods of time. However, it is not acceptable for any transmission facility to be loaded above maximum levels or incur voltages that will violate minimum design/code standards.

D. Consequences

Key issues to be addressed in assessing consequences are: (1) the number of customers impacted; (2) the length of an outage (customer minutes logged); (3) the amount of load dropped; (4) bulk and area network impacts; (5) cascading affects; etc. Most of these issues must be addressed on a case-by-case basis.

E. Required Operator Action

The use of operating procedures, which must be reviewed and approved by the ITS system operators, is a viable alternative to making system improvements. In considering the use of an operating procedure, operator action time as well as procedure complexity must be assessed in regard to the overall effectiveness of the corrective action. If, for any reason, the use of an operating procedure results in a violation of the aforementioned risk assessment factors, then the operating procedure should be avoided.

III. Transmission Planning Objectives

The objectives that shall remain foremost in the planning of transmission facilities for the Georgia ITS are as follows:

a. To normally serve all territorial loads.
b. To provide for the effective use of all generating resources with Firm Transmission Service.
c. To provide for effective and economic use of all transmission resources.
d. To provide for maximum output of any generating plant up to the Firm Transmission Service.
e. To satisfy firm contractual transmission service obligations.
f. To provide a level of margin that will protect against the more probable and severe contingencies that might be anticipated on the system.
g. To allow outages for maintenance of any element in the Transmission system during normal maintenance periods.
h. To provide for the normal operation of system protective devices, including bus differential schemes, due to a single event, without resulting in cascading outages and/or widespread loss of load.
i. To use existing resources (i.e., rights of way, voltage conversions, double circuit lines, etc.) when feasible.
j. To minimize transmission losses when cost effective.
k. To optimally balance risks and expenditures in order to ensure a reliable system with least possible costs.
l. To avoid the loss of life to transmission equipment from forced operation at higher loading levels.

The planning of transmission facilities will recognize the acceptance of appropriate levels of risk such that the system will not always be able to meet some of the stated objectives (e.g., Objectives c, g, j, and l). Therefore, recommendations for transmission facility improvements to support these objectives will be addressed only after risk assessment has been performed.

IV. Performance Guidelines

The evaluation of voltages and power flows is the normal means by which the system planner shall determine satisfactory performance of the transmission system. System voltages and power flows must not only be evaluated for normal conditions but also for post-contingency conditions. System conditions falling within the following performance guidelines will be deemed satisfactory unless tighter guidelines have been identified to accommodate special requirements, such as governmental regulations, highly voltage-sensitive customer operations or system stability limitations.

A. Voltage Security

1. Generator Bus Voltage Levels

   The voltage at the generator terminal buses should not exceed the maximum or fall below the minimum allowable voltage limits for all facilities in-service and planning contingency conditions. It is expected that the generator owner will specify equipment such that the voltage limit range for a generator lowside bus is 0.95 – 1.05 pu. However, as determined on a case-by-case basis, reduced ranges may be acceptable. Acceptable transmission bus voltage ranges are listed in Table 1 below.

2. Transmission Voltage levels

Table 1 Acceptable Transmission Voltage Level Ranges in per unit of nominal voltage

		500 kV	230 kV	161 kV	115 kV (See Note 1)
No Contingency	High-side of Generator GSU Bus	0.98 – 1.075	0.95 – 1.05	0.95 – 1.05	0.95 – 1.05
	Switching Station	0.98 – 1.075	0.95 – 1.05	0.95 – 1.05	0.95 – 1.05
	Regulated Load Bus	0.98 – 1.075	0.95 – 1.05	0.95 – 1.05	0.95 – 1.05
	Non-regulated Load Bus	0.98 – 1.075	0.95 – 1.05	0.95 – 1.05	0.95 – 1.05
Planning Contingency in Effect	High-side of Generator GSU Bus (See ITS Operating Procedure #23)	0.98 – 1.075 and generator should maintain voltage schedule	0.95 – 1.05 and generator should maintain voltage schedule	0.95 – 1.05 and generator should maintain voltage schedule	0.95 – 1.05 and generator should maintain voltage schedule
	Switching Station	0.97 – 1.075	0.9 – 1.05	0.9 – 1.05	0.9 – 1.05
	Regulated Load Bus	0.97 – 1.075, and not to exceed 0.08 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.08 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.08 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.08 p.u. deviation from pre-contingency voltage
	Non-regulated Load Bus	0.97 – 1.075, and not to exceed 0.05 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.05 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.05 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.05 p.u. deviation from pre-contingency voltage

Notes:

1) Equipment Ratings and/or Transformer Tap Settings may result in tighter ranges at some buses. This includes but is not limited to voltages at buses with 110 kV rated equipment that typically would result in a de-rated high voltage level limit from 1.05 to 1.004.
2) For the purpose of voltage level criteria, the generator transmission high-side bus should be treated like a non-regulated load serving bus for the following conditions:
   a) If no units at a plant are turned on in normal (no planning contingency in effect) power-flow evaluation
   b) For single unit plants, for a normal planning contingency that involves the outage of the same aforementioned unit
   c) If a plant has been deemed exempt from the NERC Planning Standards requirement of having to hold a voltage schedule
   d) For low MVA plants (<100 MVA) where a plant is defined as one or more units that are on-line in the power-flow and are interconnected to the same transmission bus.
3) Exceptions could be considered for plants above 100 MVA that cannot hold voltage schedule for some standard planning contingencies.
   a) Voltage stability margins are above the minimum 5% threshold and
   b) Power-flow analysis indicates that there are no other voltage violations at any load serving buses

3. Minimal Voltage Security Real Power Margins
   a) A voltage security margin of 5% or greater should be demonstrated for the load area modeled. To demonstrate this margin, the power-flow case has to be voltage secure for a 5% increase in MW load over the initial MW load in the area under study with planning contingencies applied.
   b) A voltage security margin of 5% or greater should be demonstrated for any transfer path (interface). To demonstrate this margin, the power-flow case has to be voltage secure for a 5% increase in the MW transfer over the base transfer path rating for the transfer path under study with planning contingencies applied.

For additional details regarding the Voltage Security Margins, refer to "ITS Reactive Guidelines, Supporting Information" document.

4. Voltage fluctuations caused by capacitor switching:
   Voltage fluctuation should be limited to ±2 1/2% under normal conditions and ±6% under contingency conditions when capacitor banks are switched in or out. If the fluctuation is greater than these limits, then staged capacitor banks should be considered.

5. Voltage fluctuations including voltage sags, voltage swells and voltage flicker:
   See approved JSOP procedure No. 26 (ITS Voltage Fluctuations Guideline)

B. Transmission Thermal Loading

All new transmission lines will be rated commensurate with the designed rating methodology.

1. Transmission Lines

Transmission line loading should not exceed levels, which result in violating design specifications of the terminal connections, substation infrastructure or of the line itself. The limiting element of each transmission line shall be the circuit element with the lowest ampere (thermal) rating. Ampere ratings afforded by these design limitations should be dictated by the ambient assumptions appropriate for the seasonal (load) conditions being evaluated. In the load flow model, the following ratings will be used:

a) Rate "A" is the 104° F ambient rating and shall be used as the transmission line rating for hot weather, Base Case conditions only.
b) Rate "B" is the 95° F ambient rating and shall be used to evaluate the loading of each transmission line for normal weather and contingency conditions.
c) Rate "C" will not be considered in planning evaluations.

2. Transmission Transformers

Transmission transformer loading should rely on the nameplate data or the Large Power Transformer Loading Guide evaluation as a source of information to establish the rating. Transmission transformer loadings should conform to the Bulk Power Transformer Loading Guide (ITS Operating Guideline No. 22). The applications of these loadings are identified as follows.

a) Rate "A" is the "normal loading" rating which is the manufacture's nameplate rating. Rate "A" will be used for hot weather, Base Case conditions only.
b) Rate "B" is the "contingency loading" rating. Rate "B" will be used for normal weather and contingency conditions.
c) Rate "C" will not be considered in planning evaluations.

V. Base Case Development

Transmission base cases are developed or modified at least on an annual basis to reflect the most current information and assumptions available concerning the modeling of future year's system load distribution and growth, generation and transmission expansion, firm transmission service obligations and representations of similar assumptions for other systems. The assumptions used in the base case development are a starting point for evaluating the adequacy of the transmission system to meet firm transmission service requirements and system reliability. Other load, generation, etc. assumptions may be evaluated as sensitivities.

Generation participation is based upon the latest information available concerning transmission service agreements, network resource designations, and native load reservations made by network customers to meet future load growth. Loads are generally based on the latest load forecast from all network loads for peak conditions. Other loading conditions, reflecting different time periods or temperature conditions are also developed and evaluated. All transmission and substation components are rated based on appropriate and industry recognized IEEE, ANSI or NESC standards and Georgia ITS approved design practices.

External system representations are based on Multi-Regional Modeling Working Group (MMWG) or VACAR – Southern TVA (VST) data bank models.

VI. Planning Assumptions

A. General Assumptions

1) The guidelines identified in this document apply to the transmission facilities necessary to transport power at the 100 kV level and above.
2) Study cases are generally based on the latest forecast from all network load customers for coincident peak conditions and reflect the loads for which transmission service is provided. Other loading conditions, reflecting different time periods or temperature conditions are also developed and evaluated.
3) The current best estimate of generation expansion by all network transmission users and generators with approved and confirmed Power Supply Agreements will be used for generating resources. The system generation dispatch will appropriately consider contractual transmission service obligations (including ancillary services), unit commitment, area protection, hydro availability, and economic dispatch, consistent with the load level being evaluated. Other generation scenarios may be evaluated as sensitivities.
4) Interchange shall be that which is contracted at the time of the planning studies. Economy interchange dispatch shall be zero or tested as a sensitivity study. Other reservations, such as CBM, TRM and native load reservations may also be tested.
5) Transient and dynamic effects will be considered and the resulting analysis and recommendations should be consistent with the objectives of Section III.
6) These planning guidelines will be used with regional planning guidelines to provide an economic and reliable transmission expansion plan for the Georgia ITS.

B. Operating Procedures

Proposed operating procedures should have the ability to be quickly performed to prevent thermal or voltage violations and should be validated with the Control Center that has operational control over the facilities impacted.

C. Generation Participation

Transmission base cases are developed with assumptions of generation dispatch and generator unit dispatch requirements for area protection. Studies use these assumptions as a starting point for evaluation. Other generation conditions may be tested as a sensitivity study.

VII. Planning Studies

To ensure the network transmission system is being planned to meet the objectives identified in Section III, the transmission system should be tested as follows:

A. System adequacy

1) At 100% Peak Load Level
   a) Loss of any one (1) transmission element.
   b) Loss of any one (1) critical generating unit and any one (1) transmission element.
   c) Loss of any two (2) generating units.
   d) Use Rate "B" to determine thermal violation limits.
2) At 93% of Peak Load Level (Shoulder - Hydro off or motoring)
   a) Loss of any one (1) transmission element.
   b) Consideration may be given to the loss of a generating unit in combination with the loss of any one transmission element.
   c) Use Rate "B" to determine thermal violations.
3) Special Studies
   (a) Multiple unit and voltage levels at plants.

(b) Breaker Failure / Bus Differential Scenarios.
(c) Loss of Common Tower structures or ROW outages.
(d) Low probability, high consequence system contingencies.
(e) At all load levels
Generation scenarios may be evaluated for increasing generation in a given area, up to the maximum generating capacity of that area.
(f) At all load levels
Studies may be conducted to determine the capability of the transmission system to import and / or export power to and from the Georgia ITS.
(g) At 105% of Peak Load Level (Reduced dispatch of hydro generation)
Studies may be conducted to evaluate the impact of loss of any one (1) generating unit or one (1) transmission element. Such studies should use Rate "A" as the thermal violation limit.
(h) At load levels below 93% of Peak Load Level
Studies may be conducted to evaluate the impact of transmission element and / or generating unit outages in conjunction with various transmission and generation maintenance outage scenarios.
(i) At Florida interchange levels at 3600 MW
Studies may be conducted to evaluate the impact of a transmission element and / or one generating unit outage in conjunction with various transmission and generation maintenance outage scenarios.

B. Reliability

Additional studies should be conducted to assess levels of reliability & risk exhibited by the transmission system. These studies utilize specialized methods and data, including transmission line and generator outage data. Contingencies evaluated include those outlined in Section VII.A above, plus other contingency types intended to meet NERC Table 1A, category C & D requirements. In addition to meeting NERC requirements, the reliability studies allow the assessment of both system reliability performance, using measures such as SAIDI and SAIFI, and physical infrastructure security. These studies are specialized and distinct from other reliability studies such as those found in Section IX.

C. Stability

For "Stability Criteria and Guidelines" and "Assumptions for Stability Studies" documents,refer to "ITS Planning Procedure # 20".

D. Reactive Requirements for Generation

The Reactive Policy for Generation Facilities Connecting to the Georgia Integrated Transmission System outlines the amount of reactive power capability required from generating facilities connected to the ITS transmission system. Refer to "ITS Operating Guideline # 23".

VIII. Budget and Forecast Studies

Budget and forecast studies are performed each year to assess the timing of budgeted projects and to investigate the need for additional projects within the current budget time frame. These studies provide the basis for the Transmission Expansion Plan.

IX. Transmission Interface Studies

Studies of the transmission interfaces are conducted on a regular bases to determine the capability of the transmission system to meet all firm transmission obligations, maintain system reliability and meet intercompany reliability agreement requirements. Studies are conducted utilizing NERC, regional, sub-regional practices, guidelines and definitions. Studies are also conducted to identify the transfer capability

required by FERC for posting on OASIS and required by NERC for reporting the seasonal operating assessments.

X. Operating Studies

The use of operating procedures to mitigate thermal or voltage problems on the transmission will be investigated and validated each year. New operating procedures must be validated by the regional control centers. Special operating studies include:

a) Support for outage scheduling and construction schedules.
b) Special contingency analysis and decision making support
c) System analysis for lengthy unscheduled outages
d) System analysis for extended periods of inclement weather.

XI. Nuclear Assessment Analysis

Transmission and generation changes that may impact nuclear plant operating conditions should be evaluated to determine the impact both on plant stability and critical substation voltages. Each nuclear plant has a specific Final Safety Analysis Report (FSAR) that delineates the design and operational requirements of each plant, including characteristics of off-site power quality. Specific details regarding plant loading, conditions to be evaluated, system contingencies, and other criteria are identified in the Power Quality Guide specific to each plant. Any changes to the system that may impact these requirements must be evaluated and coordinated with System Operations and Southern Nuclear.

ITS JOINT SUBCOMMITTEE FOR TRANSMISSION PLANNING

ITS PLANNING PROCEDURE No. 9

GUIDELINES FOR PLANNING TRANSMISSION FACILITY IMPROVEMENTS FOR THE GEORGIA INTEGRATED TRANSMISSION SYSTEM

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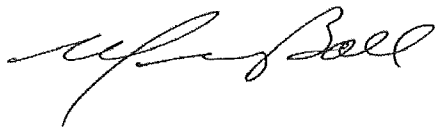
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Signed original on file at Georgia Power Company Offices

Date signed – 4/18/2006

Guidelines for Planning
The Southern Company Electric
Transmission System



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SOUTHERN COMPANY TRANSMISSION
Transmission Planning & Operations
Date: January 13, 2003
Revised: March 2007

Guidelines for Planning
The Southern Company Electric
Transmission System

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I. Scope

The guidelines contained in this document shall be used as the basis for the planning of transmission facilities within the Southern electric system. Implementing these guidelines will require close coordination throughout the planning process, including project initiation, budgeting and prioritization. Transmission system assessments involving regional and sub-regional concerns and interface requirements with neighboring systems will be addressed in other forums including NERC, SERC, VST, Southern/FRCC, etc.

II. Transmission Planning Objectives

The objectives that shall remain foremost in the planning of transmission facilities for the Southern electric system are as follows:

a. To normally serve all territorial loads.
b. To provide for the effective use of all generating resources with Firm Transmission Service.
c. To provide for output of any generating plant up to it's Firm Transmission Service.
d. To satisfy firm contractual transmission service obligations.
e. To provide a level of margin that will protect against the more probable and severe contingencies that might be anticipated on the system within the planning horizon.
f. To allow outage for maintenance of any element in the bulk power system during normal maintenance periods.
g. To provide for the normal operation of system protective devices, including bus differential schemes, due to a single event, without resulting in uncontrolled cascading outages and/or widespread loss of load.
h. To use existing resources (i.e., rights of way, voltage conversions, double circuit lines, etc.) when feasible to reduce costs.
i. To minimize transmission losses when cost effective.
j. To optimally balance risks and expenditures in order to ensure an economic and reliable system.

The planning of transmission facilities will recognize the acceptance of appropriate levels of risk such that the system will not always be able to meet the above stated objectives. Therefore, recommendations for transmission facility improvements to support these objectives will be addressed only after risk assessment has been performed.

III. Performance Guidelines

The evaluation of power flows, transient voltages and steady state voltages are the normal means by which the system planner shall determine satisfactory performance of the transmission system. System voltages and power flows must not only be evaluated for normal conditions but also for post-contingency conditions. System conditions falling within the following performance guidelines will be deemed satisfactory unless tighter guidelines have been identified to accommodate special requirements, including but not limited to, governmental regulations, highly voltage-sensitive customer operations or machine stability limitations.

A. Voltage Security

- Generator Bus Voltage Levels
  The voltage at the generator terminal busses should not exceed the maximum or fall below the minimum allowable voltage limits for all facilities in-service and planning contingency conditions. It is expected that the generator owner will specify equipment such that the voltage limit range for a generator lowside bus is 0.95 – 1.05 pu. However, as determined on a case by case basis, reduced ranges may be acceptable. For additional details regarding the Voltage Security guidelines, refer to "Southern Company Reactive Guidelines" document. Acceptable transmission bus voltage ranges are listed in Table 1 below.
- Transmission Voltage levels

Table 1. Acceptable Transmission Voltage Level Ranges in per unit of nominal voltage

		500 kV	230 kV	161 kV	115 kV (See Note 1)
No Contingency	High-side of Generator GSU Bus	0.98 – 1.075	0.95 – 1.05	0.95 – 1.05	0.95 – 1.05
	Switching Station	0.98 – 1.075	0.95 – 1.05	0.95 – 1.05	0.95 – 1.05
	Regulated Load Bus	0.98 – 1.075	0.95 – 1.05	0.95 – 1.05	0.95 – 1.05
	Non-regulated Load Bus	0.98 – 1.075	0.95 – 1.05	0.95 – 1.05	0.95 – 1.05
Planning Contingency in Effect	High-side of Generator GSU Bus	0.98 – 1.075 and generator should maintain voltage schedule	0.95 – 1.05 and generator should maintain voltage schedule	0.95 – 1.05 and generator should maintain voltage schedule	0.95 – 1.05 and generator should maintain voltage schedule
	Switching Station	0.97 – 1.075	0.9 – 1.05	0.9 – 1.05	0.9 – 1.05
	Regulated Load Bus	0.97 – 1.075, and not to exceed 0.08 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.08 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.08 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.08 p.u. deviation from pre-contingency voltage
	Non-regulated Load Bus	0.97 – 1.075, and not to exceed 0.05 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.05 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.05 p.u. deviation from pre-contingency voltage	0.9 – 1.05, and not to exceed 0.05 p.u. deviation from pre-contingency voltage

Notes:

1)Equipment Ratings and/or Transformer Tap Settings may result in tighter ranges at some buses. This includes but is not limited to voltages at buses

with 110 kV rated equipment which typically would result in a reduced high voltage level limit from 1.05 to 1.04.

2) For the purpose of voltage level criteria, the generator transmission high-side bus should be treated like a non-regulated load serving bus for the following conditions:
   a) If no units at a plant are turned on in normal (no planning contingency in effect) power-flow evaluation
   b) If for single unit plants, for a normal planning contingency that involves the outage of the same aforementioned unit
   c) If a plant has been deemed exempt from the NERC Planning Standards requirement of having to hold a voltage schedule
   d) For low MVA plants (<100 MVA) where a plant is defined as one or more units that are on-line in the power-flow and are interconnected to the same transmission bus.
3) Exceptions could be considered for plants above 100 MVA that cannot hold voltage schedule for some standard planning contingencies, if
   a) Voltage stability margins are above the minimum 5% threshold and
   b) Power-flow analysis indicates that there are no other voltage violations at any load serving buses

- Minimal Voltage Security Real Power Margins
  A voltage security margin of 5% or greater should be demonstrated for the load area modeled. To demonstrate this margin, the power-flow case has to be voltage secure for a 5% increase in MW load over the initial MW load in the area under study with planning contingencies applied.

  A voltage security margin of 5% or greater should be demonstrated for any transfer path (interface or defined flow gate). To demonstrate this margin, the power-flow case has to be voltage secure for a 5% increase in the MW transfer over the base transfer path rating for the transfer path under study with planning contingencies applied.

B. Transmission Thermal Loading
   All new transmission lines will be rated commensurate with Southern Company line rating methodology.
   - Transmission Lines
     Transmission line loading should not exceed levels which result in violating design specifications of the terminal connections, substation infrastructure or of the line itself. The limiting element of each transmission line shall be the circuit element with the lowest ampere (thermal) rating. Ampere ratings afforded by these design limitations should be dictated by the ambient assumptions appropriate for the seasonal (load) conditions being evaluated. In the load flow model, the "B" rating of the transmission line model shall be used to evaluate the loading of each transmission facility except when performing special studies or hot weather studies.
   - Transmission Transformers
     Transmission transformer loading should rely on the nameplate data or the Large Power Transformer Loading Guide evaluation as a source of information to establish the rating.

IV. Risk Assessment
   To facilitate the risk assessment in the planning process, the following factors should be considered: (1) duration, (2) exposure, (3) severity, (4) consequences (e.g. expected

unserved energy) and (5) required operator action.

A. Duration
It is recognized that a time period is required to accommodate the following actions: Line switching, capacitor switching, unit start-up, etc., all of which need to be considered in restoring conditions to acceptable system performance. A transmission facility should not be allowed to exceed its normal design rating nor should a transmission bus be operated below its low voltage limit for more than the time required to accommodate automatic, supervisory, and/or manual switching of available system equipment.

B. Exposure
The probability of a particular contingency or group of contingencies, which causes a violation of the transmission performance guidelines, should be considered when evaluating the exposure to risks.

C. Severity
The severity of a problem caused by a contingency or a number of contingencies is gauged by the resultant level of overload and/or voltage. Most transmission facilities can be loaded above normal design ratings or incur under/over voltage conditions for short periods of time. However, it is not acceptable for any transmission facility to be loaded above maximum levels or be subjected to voltages that will violate design/code standards.

D. Consequences
Key issues to be considered in assessing consequences are: (1) number of customers impacted; (2) amount of load dropped; (3) bulk and area network impacts; (4) cascading effects; etc. Most of these issues must be addressed on a case-by-case basis. However, load shedding and customer impacts should not exceed levels identified by the DOE and as defined in FPC Order No. 331-1 (Docket No. R-361).

E. Required Operator Action
The use of operating procedures is, in many cases, a viable alternative to making system improvements. In considering the use of an operating procedure, operator action time as well as procedure complexity must be assessed when considering the overall effectiveness to correct the specific problem. If, for any reason, the use of an operating procedure results in a violation of the aforementioned risk assessment factors, then the operating procedure should be avoided.

V. Basecase Development
Transmission base cases are developed or modified at least on an annual basis to reflect the most current information and assumptions available concerning the modeling of future year's system load distribution and growth, generation and transmission expansion, firm transmission service obligations and representations of similar assumptions for other systems. The assumptions used in the base case development are a starting point for evaluating the adequacy of the transmission system to meet firm transmission service requirements and system reliability. Other load, generation, etc. assumptions may be evaluated as sensitivities.

Generation participation is based upon the latest information available concerning transmission service agreements, network resource designations, and native load reservations made by network customers to meet future load growth. Loads are generally based on the latest load forecast from all network loads for peak conditions. Other loading conditions, reflecting different time periods or temperature conditions are also developed and evaluated. All transmission and substation components are rated based on appropriate and industry recognized IEEE, ANSI or NESC standards and Southern

Company design practices. External system representations are based on MMWG or VST data bank models.

VI. Planning Assumptions

A. General Assumptions

- The guidelines identified in this document apply to the transmission facilities necessary to transport power at the 110 kV level and above.
- Study case loads are generally based on the latest forecast from all network load customers for peak conditions and reflect the loads for which transmission service must be provided. Other loading conditions, reflecting different time periods or temperature conditions are also developed and evaluated.
- The current year best estimate of generation expansion by all network transmission users and generators with approved Transmission Service Agreements will be used for generating resources, and system generation dispatch will appropriately consider contractual transmission service obligations, unit commitment, area protection, hydro availability, and economic dispatch, consistent with the load level being evaluated. Other generation scenarios may be evaluated as sensitivities.
- Interchange shall be that which is contracted at the time of the planning studies. Economy interchange dispatch shall be zero or tested as a sensitivity. Other reservations, such as CBM, TRM, native load reservations may also be tested.
- Transient and dynamics effects should be considered where appropriate and should be consistent with the objectives of Section IV and the guidelines referenced in Section VII.C.
- These planning guidelines will be used, along with regional planning guidelines to provide an economic and reliable transmission expansion plan for the Southern electric system.

B. Operating Procedures

Proposed operating procedures should be simple and have the ability to be quickly performed to prevent thermal or voltage violations and should be validated yearly with the Control Center that has operational control over the facilities impacted. In general, operating procedures that require the switching of equipment operated at voltages higher than 161kV will not be utilized. In general, operating procedures should not be considered as a long term solution to a system problem.

C. Generation Participation

Transmission base cases are developed with assumptions of generation dispatch and generator unit run requirements for area protection. Studies use these assumptions as a starting point for evaluation. Other generation conditions may be tested as a sensitivity.

D. Reactive Requirements for Generation

The "Reactive Policy for Generation Facilities Connecting to the Southern Company Transmission System" outlines the amount of reactive power capabilities required from generating facilities connected to the Southern Company transmission system.

VII. Planning Contingencies

The transmission system should be tested against the following planning contingencies as appropriate, to ensure that the network transmission system is being planned to meet the objectives identified in Section II;

A. System Adequacy

- At 100% Peak Load Level
  - Loss of any one (1) critical generating unit and any one (1) transmission element or
  - Loss of any two (2) generating units.
  - Use Rate "B" thermal violation limits.
- At 93% of Peak Load Level (Shoulder - Hydro off or motoring)
  - Loss of any one (1) transmission element.
  - Consideration may be given to the loss of a generating unit in combination with the above contingencies.
  - Use Rate "B" thermal violation limits.
- Special studies.
  - Multiple unit and voltage levels at plants.
  - Breaker Failure/Bus Differential Scenarios.
  - Loss of Common Tower structures or ROW outages.
  - Stability studies etc.
  - Low probability, high consequence system reliability studies.
  - At all load levels, generation scenarios may be evaluated for increasing generation in a given area, up to the maximum generating capacity of that area.
  - At 105% of Peak Load Level (Reduced dispatch of hydro generation)
    Studies may be conducted to evaluate the impact of loss of any one (1) generating unit or one (1) transmission element. Such studies should use Rate "A" as the thermal violation limit.
  - At load levels below 93% of Peak Load Level
    Studies may be conducted to evaluate the impact of not more than one transmission element and/or one generating unit outage in conjunction with various transmission and generation maintenance outage scenarios.

B. Reliability

Additional studies should be conducted to assess levels of reliability and the risks resulting from contingencies on the transmission system. These studies utilize specialized methods and data, including transmission line and generator outage data. Contingencies evaluated include those outlined in Section VII.A above, plus other contingency types intended to meet NERC standards for low probability high consequence events. In addition to meeting NERC requirements, the reliability studies allow the assessment of both system reliability performance, using measures such as SAIDI and SAIFI, and physical infrastructure security. These studies are specialized and distinct from other reliability studies such as those found in Section IX.

C. Stability Studies

Reference:
Attachment A: "Stability Criteria and Guidelines"
Attachment B: "Assumptions for Stability Studies"

VIII. Budget and Forecast Studies

Budget and forecast studies are performed each year to assess the timing of budgeted projects and to investigate the need for additional projects within the current budget time frame. These studies provide the basis for the Transmission Expansion Plan. Long Range scenario studies are performed for the outer years in the planning horizon to identify the potential scope of future transmission expansion plans.

IX. Transmission Interface Studies

Studies of the transmission interfaces are conducted on a regular basis to ensure adequate capability to meet all firm transmission obligations, maintain system reliability and meet intercompany reliability agreement requirements. Studies are conducted utilizing NERC, regional, sub-regional practices, guidelines, definitions, reference documents, and other related information. Studies are also conducted to identify the transfer capability required by FERC for posting on OASIS.

X. Generation Studies

For Transmission Service Requests and Generator Interconnection studies, Southern Operating Companies currently study and offer transmission service based upon their Open Access Transmission Tariff filed with the Federal Energy Regulatory Commission. A copy of the document can be found at http://www.weboasis.com/OASIS/SOCO/INFO.HTM. Study methodologies generally adhere to the preceding sections of this document subsequent to the requirements of the OATT and commission orders.

X. Operating Studies

The use of operating procedures to mitigate thermal or voltage problems on the transmission will be investigated and validated each year. New operating procedures must be validated by the regional control center (ACC for APC, GCC for GPC, etc...). Special operating studies include:

- Support for outage scheduling and construction schedules.
- Special contingency analysis and decision making support
- System analysis for lengthy unscheduled outages
- System analysis for extended periods of inclement weather.

XI. Nuclear Assessment Analysis

Transmission and generation changes that may impact nuclear plant operating conditions should be evaluated to determine the impact both on plant stability and critical substation voltages. Each nuclear plant has a specific Final Safety Analysis Report (FSAR) which delineates the design and operational requirements of each plant, including characteristics of off-site power quality. Specific details regarding plant loading, conditions to be evaluated, system contingencies, and other criteria are identified in the Power Quality Guide specific to each plant. Any changes to the system that may impact these requirements must be evaluated and coordinated with System Operations and Southern Nuclear.

[B3]

BULK POWER TRANSFORMER

LOADING GUIDE

ITS OPERATING PROCEDURE NO. 22
Bulk Power Transformer Loading Guide

Effective Date: March 13, 2000
Revised Date:

Purpose:

These recommendations are intended to be used as a guide for loading bulk power transformers in the Georgia Integrated Transmission System (ITS).

A bulk power transformer is defined as a power transformer having a low voltage side rating of 115kV or above.

The power transformer loading criteria specified in this guide is intended for use in conjunction with a detailed computer analysis (such as PTLOAD™).

The bulk power transformer loading limitations recommended in this guide are primarily intended to be used in transmission planning system studies.

This guide may be used by system operators provided that sufficient real time information is available to monitor a power transformer loaded beyond its nameplate rating during emergency or contingency situations.

IEEE C57.91-1995 (IEEE Guide for Loading Mineral Oil Immersed Transformers) was used for the basis of this document.

General:

Loading a transformer beyond its nameplate rating involves some amount of risk. Risk areas include (from IEEE Std. C57.91-1995, section 4.1):

- Evolution of free gas from insulation of winding and lead connectors
- Mechanical wear effects which may increase with ratings over 100MVA
- Reduced mechanical strength of both conductor and structural insulation
- Permanent deformation of conductors, insulation materials, or structural parts
- Leaking gaskets, loss of oil, and dielectric failure of bushings due to pressure build-up for currents above rating
- Oil expansion due to top oil temperatures over 105° C may result in operation of the pressure relief device and the expulsion of oil
- Voltage regulation through the transformer may increase significantly due to increased loading and possibly dropping power factor

There are situations where the transformer may be operated above its nameplate rating for short periods of times without significantly affecting the life of the transformer winding insulation.

IEEE C57.91-1995, (section 9.1) addresses four (4) types of loading. These types of loading are Normal Life Expectancy rating, Planned Loading Beyond Nameplate rating, Long time Emergency Loading, and Short time Emergency Loading.

This guide addresses *Normal Loading* (Normal Life Expectancy Rating), *Normal Re-Rated Loading* (Planned Loading Beyond Nameplate rating), and *Contingency Loading* (Long time Emergency Loading) criteria, which are to be used for planning purposes. Additionally, the *Emergency Loading* (Short time Emergency Loading) criteria is addressed to assist system operator personnel.

The following assumptions have been made:

- The transformers are 65° C rise rated.
- The temperature will vary cyclically during the day.
- Individual load profile for each location will be used to determine ratings.
- All cooling equipment, all temperature gauges and alarms are or will be maintained in good working order (any re-rating may require inspection of fans and pumps, calibration of temperature gauges, alarm point adjustment, or benchmark dissolved gas in oil analysis).

This guide does not include or addresses the rating of other substation equipment (such as: switches, current transformers, bus conductors, power circuit breakers, line traps, relay settings, jumpers, bushings, etc.) which are an integral part of the substation and must be accounted for in planning studies. The manufacturer should be consulted for information regarding guidelines for recommended loading limits beyond nameplate (particularly if the date of manufacture is after 1975).

Recommendations:

Normal Loading Criteria:

The Normal loading rating should not exceed the temperature limits specified by the transformer manufacturer for normal life expectancy, and it is based on the manufacturer's nameplate ratings.
Normal insulation life expectancy with respect to winding Hot Spot temperature is set at 110° C for continuous operation. Normal life expectancy can also be anticipated for a variable load with a maximum hot spot temperature of 120° C during any 24 hour period.

The Normal Loading Criteria ratings should be used in transmission planning base case models.

Normal Re-Rated Loading Criteria

The Normal Re-Rated Loading Criteria consists of loading the transformer beyond its nameplate ratings while maintaining acceptable life expectancy.
Re-rated values requested for transmission planning base case models will require a load profile for the base case and first contingency conditions in order to perform calculations. The calculation will be in effect for one year and must be re-submitted and re-evaluated annually.

Re-rated loading may exceed the transformer nameplate rating as long as none of the following parameters are exceeded:

- The load and ambient temperature will be cyclical daily. The *average* ambient temperature for a 24-hour period should not exceed 32° C (89.6° F).
- The maximum load will not exceed 115% of top nameplate rating.
- The top oil temperature shall not exceed 100° C.
- The loss of winding insulation life shall not exceed 0.0254% (150,000h life) per 24 hour period. This is based on the criteria that the winding hot spot temperature will not be maintained in the 120 – 130° C range for more than 4 hours daily.

The Re-rated Loading Criteria rating may be used in transmission planning base case models, on isolated cases, with the limitations indicated above.

Contingency Loading Criteria:

The Contingency loading rating will be applied for abnormal system loading conditions (contingencies), which may persist for some period of time. It is expected that such occurrences be rare.

Contingency loading may exceed the transformer nameplate rating as long as none of the following parameters are exceeded:

- The load and ambient temperature will be cyclical daily. The *average* ambient temperature for a 24-hour period should not exceed 32° C (89.6° F).
- The maximum load will not exceed 130% of top nameplate rating.
- The top oil temperature shall not exceed 110° C.
- The loss of winding insulation life shall not exceed 0.0638% (150,000h life) per 24 hour period. This is based on the criteria that the winding hot spot temperature will not be maintained in the 130 – 140° C range for more than 6 hours daily, and the 120 - 130° C range for more than 4 hours daily or not to exceed 10 hours above 120° C. The winding hot spot temperature shall never exceed 140° C.

The Contingency loading rating should be used in planning contingency models.

Emergency Loading:

Emergency loading is heavy loading brought about by the occurrence of one or more unlikely events that seriously disturb normal system loading. It is expected that this type of loading can be reduced to at least a Contingency loading within one (1) hour.

Emergency loading may exceed the transformer nameplate rating as long as the following parameters are not exceeded:

- The load and ambient temperature will be cyclical daily. The *average* ambient temperature for a 24-hour period should not exceed 32° C (89.6° F). The system operator shall review actual temperature and pre-loading conditions for each specific situation.
- The maximum load will not exceed 130% of top nameplate rating.
- The average winding hot spot temperature shall never exceed 140° C.
- The top oil temperature shall not exceed 110° C.
- The loss of winding insulation life shall not exceed 0.1245% (150,000h life) per 24 hour period.

The Emergency Loading ratings should <u>not</u> be used by Transmission planners.

ITS JOINT SUBCOMMITTEE FOR OPERATIONS

ITS OPERATING PROCEDURE No. 22

BULK POWER TRANSFORMER LOADING GUIDE

Christopher D. Brewton - Dalton Utilities / Date

W. R. Seaton – Dalton Utilities / Date

Albert E. Hay – GPC / Date

Randy W. Kirkus – GPC / Date

Seth W. Brown – GTC / Date

Gregory S. Ford – GSOC / Date

Linda T. Gray – MEAG Power / Date

Larry G. Stephenson – MEAG Power / Date

[C]

EXHIBITS

[C1]

SUMMER OPERATING STUDY
&
SYSTEM PERFORMANCE

[C1A]

2012 SUMMER OPERATING STUDY

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INTRODUCTION

The purpose of the Summer Operating Study ("SOS") is to assist System Operations in preparing for operating conditions that could occur during the summer period (analysis includes some low probability events). The SOS identifies thermal or voltage limitations on the Georgia Integrated Transmission System ("ITS") and the region of the state formerly known as Savannah Electric and Power Company ("SEPC") during normal or contingency conditions for the expected peak load periods. The evaluation of the ITS and SEPC is performed in the spring, and is summarized on an alphabetized-by-line basis. Thermal loading limitations are listed in Section III and voltage limitations are listed in Section IV. System operating procedures are noted, when they alleviate or reduce the severity of the identified transmission system limitations.

The following three (3) Summer Base Cases were created in 2012:

1. **2012 Summer Peak Load Case**

   A 2012 summer base case was created using a normal dispatch of the generating units that are expected to be available summer 2012. Contracted sales to the Florida utilities were set at 2,426 MW. Normal output levels for the Tallulah, Tugalo, Yonah, Oliver Dam and Bartlett's Ferry hydro plants were reduced per System Operation's recommendations to more closely approximate typical peak-hour operation.

2. **2012 Summer Shoulder Load Case**

   Based on information provided by Georgia Power System Operations, a "shoulder" load case was created. This case has approximately 93% of the load used in the SOS summer peak base case with all Southeastern Power Administration and Georgia hydro generation off.

3. **2012 Summer Case with 3700 MW of Sales to Florida**

   A 2012 summer base case with 3700 MW of sales to Florida was also created using a normal dispatch of the generating units that are expected to be available summer 2012.

All of these cases were economically dispatched using Southern Company's Designated Network Resources for 2012 and the individual generating units' cost data. With these three (3) cases, twenty-nine (29) additional cases were created with various hydro-generation and unit off conditions. Also, three (3) additional sensitivity cases were created: Summer base case with 105% forecasted load (simulating hot weather - 104°F), summer base case with 3000MW imports, and summer base case with 4000MW imports. Finally, thirty four (34) selected

500/230kV autotransformer, bus differential, breaker failure, and common Right of Way cases were created (see Section II, Screening Procedure - Item #6).

SUMMER OPERATING STUDY ASSUMPTIONS

The following assumptions were used for the 2012 Summer Operating Study:
The following list contains projects that will not be completed by June 1, 2012.

Delayed Projects
Gaston – Yellow Dirt 230kV line

Network Operational Assumptions

1. Unless otherwise stated, if the thermal limitation(s) occurs in the normal dispatch, assume the problems occur in all dispatches during peak loading.

2. For a given monitored transmission element, only the flows for the worst contingency (outage of a transmission element) are listed.

3. Transmission element ratings identified in this report are the 95°F ambient adjusted ratings used by Transmission Planning with the exception of one (1) scenario studied using 104°F ambient.

Screening Procedure

1. SOS Load Flow summer base cases:
   - Peak load level (100%) with contract sales to Florida (2426 MW)
   - Shoulder load level (93%) with contract sales to Florida (2426 MW)
   - Peak load level (100%) with 3700 MW export to Florida

2. Screen Flags:
   - Thermal loading: >100% of facility rating
     - System Operations typically uses the rating of the most limiting element in the entire breaker-to-breaker line. The list may be used to flag line sections that may need follow-up (i.e. inspection, tree trimming, etc.) before hot weather.
   - Voltage: < 95% or > 105% of nominal voltage

3. Situations Studied:
   - No element out using Rate A (104°F ambient) in normal-weather peak, 105% forecasted load, and 3700MW to Florida cases
   - No element out using Rate B (95°F ambient) in normal-weather peak, 105% forecasted load, and 3700MW to Florida cases
   - Contingency (one element out) using Rate B (95°F ambient) in peak, shoulder cases, and 3700MW to Florida cases

- Contingency (one element out) using Rate B (95°F ambient) in re-dispatched cases with one or more generation units out (listed below) in peak, 3600MW to Florida, and shoulder cases
- Contingency (one element out) using Rate B (95°F ambient) in (listed below) 105% forecasted load, 3000MW imports, and 4000MW imports cases
- Selected 500/230kV autotransformer, bus differential, breaker failure, and common ROW (listed below) using Rate B (95°F ambient) in peak, 3600MW to Florida, and shoulder cases

4. Dispatches:

#	One Unit Off	Case Name
1	Bowen #4	SOS12C_B4
2	Branch #3	SOS12C_Br3
3	Farley #1	SOS12G_F1
4 5	Hammond #4	SOS12C_Hd4 SOS12H_Hd4
6	Hatch#1	SOS12G_H1
7	Hatch #2	SOS12G_H2
8	Kraft #3	SOS12G_K3
9	Lansing Smith #3	SOS12G_LS3
10 11	McDonough #4	SOS12C_McD4 SOS12H_McD4
12	Mitchell #3	SOS12G_M3
13	Scherer #4	SOS12G_Sch4
14	Vogtle #1	SOS12G_V1
15	Vogtle #2	SOS12G_V2
16	Yates #3	SOS12C_Y3
17	Franklin #3	SOS12G_FRLIN3
18	Bowen#1	SOS12G_B1

#	Multiple Units Off	Case Name
19 20	Hammond Unit #1 - #3	SOS12C_Hd1_3 SOS12H_Hd1_3
21 22	Franklin Unit 1-2	SOS12C_FRLIN1_2 SOS12C_FRLIN1_2
23 24	Select Hydro Units	SOS12C_Hydro SOS12G_Hydro
25	Kraft Unit #1 - #3	SOS12C_Kr1_3
26	McDonough #4 - #5	SOS12C_McD4_5
27 28	Talbot Co #1 - #6	SOS12C_Talb1_6 SOS12H_Talb1_6

5. Sensitivity cases:

#	Sensitivity	Case Name
1	105% Forecasted Load	SOS12T
2	3000MW imported	SOS12C_i3000
3	4000MW imported	SOS12C_i4000

6. Selected 500/230kV autotransformer, bus differential, breaker failure, and common ROW:

#	Elements Out	Case Name
1	Arkwright 115kV Bus Diff	SOS12C_Arkwright115BF
2	Arkwright common ROW	SOS12G_ArkwrightROW
3	Big Shanty common ROW	SOS12C_BigShantyROW
4	Bio 230kV Bus Diff	SOS12C_BioBD
5	Bonaire 115kV Brkr Fail	SOS12C_Bonaire115BF
6	Bonaire 500/230kV Auto	SOS12G_Bonaire
7	Bonaire common ROW1	SOS12C_BonaireROW1
8	Bonaire common ROW2	SOS12C_BonaireROW2
9	Bowen common ROW	SOS12C_BowenROW
10	Branch common ROW	SOS12C_BranchROW
11	Dawson Crossing 115kV Bus Diff	SOS12C_DawCross115BD
12	Deptford common ROW	SOS12G_DeptfordROW
13	East point - Jack McDonough ROW	SOS12C_EpointROW
14	Goshen common ROW	SOS12C_GoshenROW
15	Hatch 500/230kV Auto	SOS12G_Hatch
16	Klondike 500/230kV Auto	SOS12G_Klondike
17	lagrange 115kV Brkr Fail	SOS12C_LagrangeBF
18	lagrange 115kV Brkr Fail	SOS12H_LagrangeBF
19	lagrange 230kV Brkr Fail	SOS12C_LagrangeBF
20	lagrange 230kV Brkr Fail	SOS12H_LagrangeBF
48	Little Ogeechee 115kV Brkr Fail	SOS12G_LOgeechee115BF
21	Little Ogeechee common ROW	SOS12G_LOgeecheeROW
22	McIntosh common ROW	SOS12G_McIntoshROW
23	North Marietta ROW	SOS12C_NMarROW
24	Porterdale 230kV Brkr Fail	SOS12C_Porterdale230BF
25	South Augusta 230kV Brkr Fail	SOS12C_SAugusta230BF
26	Statesboro 230kV Brkr Fail	SOS12C_Statesboro230BF
27	Thomaston 230kV Brkr Fail	SOS12C_Thomaston230BF
28	Thomaston common ROW	SOS12C_ThomastonROW
29	Thomasville 230kV Bus Diff	SOS12G_Thomasville230
30	Union City 500/230kV Auto	SOS12G_UnionCity
31	Villa Rica 500/230kV Auto	SOS12G_VillaRica
32	Vogtle common ROW	SOS12C_VogtleROW
33	West Brunswick common ROW	SOS12G_W.BrunswickROW
34	Yates common ROW	SOS12C_YatesROW

THERMAL LOADING LIMITATIONS

2012 Georgia Limiting Facilities

(Contingency Thermal Limitations)

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
ALBANY - PALMYRA 115 KV	**ALBANY - SLAPPEY DRIVE 115 KV (SOS12T.dat)**	**Run units 1 and 2 at Talbot County.**	**119**	**62.1**	**119.7**	**101.6**
ALBANY - SLAPPEY DRIVE 115 KV	ALBANY - PALMYRA 115 KV (SOS12T.dat)	Run units 1 and 2 at Talbot County	128	101.3	139.5	107.2
ALBANY - SLAPPEY DRIVE 115 KV	NORTH AMERICUS - PALMYRA 230 KV (SOS12T.dat)	Model is incorrect. It shows Albany - Palmyra 115 as being fed radially out of Palmyra. Once connection is networked to Albany, no contingency exists for the loss of North Americus - Palmyra 230.	128	101.3	142.9	110.4
AVALON JUNCTION - BIO 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	188	116.4	217.9	114.8
AVALON JUNCTION - BIO 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	216	129.4	230.8	105.8
AVALON JUNCTION - BIO 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	216	148.4	250.2	114.2
AVALON JUNCTION - BIO 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	216	148.4	233	106.3
AVALON JUNCTION - BIO 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	216	148.4	226.9	103.4
AVALON JUNCTION - BIO 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	188	116.4	194.7	102.4
AVALON JUNCTION - BIO 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	188	116.4	200.8	105.7
AVALON JUNCTION - BIO 115 KV	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	216	148.4	222.9	101.9
AVALON JUNCTION - BIO 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	Reduce generation at Hartwell Energy as necessary.	188	105.9	207.2	109.3
AVALON JUNCTION - BIO 115 KV	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i4000.dat)	Reduce generation at Hartwell Energy as necessary.	188	116.4	191.8	100.9
AVALON JUNCTION - TOCCOA 115 KV	BIO 230 KV BUS DIFFERENTIAL (SOS12C_Bio230BD.dat)	Reduce Generation at North Georgia Hydro Group to bring Line within it's Thermal Rating. Note, by cutting the hydro you will increase loading on the Avalon - Middle Fork 115kV line. Bring on line Dahlberg CT's as hydro is cut to balance the loading on bot	124		135.4	109.2

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
BAXLEY - JESUP 115 KV	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load	91		92.4	101.6
BIG SHANTY - SOUTH ACWORTH 230 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Try to maintain service at Fort Stewart or restore asap Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	828		837.2	101.1
BIO - CENTER PRIMARY 230 KV	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i4000.dat)	Reduce generation at Hartwell Energy as necessary.	433	266.5	454.1	103.7
BIO 123208 - REED CREEK 115 KV	BIO - CENTER PRIMARY 230 KV (SOS12C_i4000.dat)	cut one or more Hartwell CT's	249	165.6	266.3	105.4
BLANKETS CREEK - WOODSTOCK 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	188		236.3	125.7
BLANKETS CREEK - WOODSTOCK 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	188		193.9	103.2
BLANKETS CREEK - WOODSTOCK 115KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	188		215.4	114.6
BONAIRE PRIMARY - NORTHROP 115 KV	BONAIRE PRIMARY SOUTH ROW (SOS12C_BonaireROW2.dat)	Open PCB 908948 at Aultman Road Load Mid Georgia Cogen if available Load Rumble Road and Robins CTs	124		133.1	107.3
BOWEN - CARTERSVILLE (BLACK) 230 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	828		1028.6	124.2
BOWEN 500/230 KV AUTO	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	1344		1431.8	106.5
BRANCH - GORDON 230 KV	BRANCH - WEST MILLEDGEVILLE 230 KV (SOS12G_Bonaire.dat)	Load Rumble Road CTs	497	328.7	526.5	107.1
BRANCH - WEST MILLEDGEVILLE 230 KV	BRANCH - GORDON 230 KV (SOS12G_Bonaire.dat)	Load Rumble Road CTs or Robins CTs	596	458.6	618.7	101.5
BREMEN - POSSUM BRANCH 115 KV	HICKORY LEVEL - POSSUM BRANCH 115 KV (SOS12T.dat)	Increase generation on 115 bus at Yates	181	118.1	184.9	102.4
BREMEN - POSSUM BRANCH 115 KV	HICKORY LEVEL - POSSUM BRANCH 115 KV (SOS12T.dat)	Increase generation on 115 bus at Yates	181	127.3	194.5	107.4
CARTERSVILLE - SOUTH ACWORTH 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four	248		280	112.9

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
CARTERSVILLE - SOUTH ACWORTH 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50 Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	269		291.4	108.3
CARTERSVILLE - SOUTH ACWORTH 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	248		279.4	112.7
CARTERSVILLE - SOUTH ACWORTH 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	269		326.7	121.5
CARTERSVILLE - SOUTH ACWORTH 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	269		303.4	112.8
CARTERSVILLE - SOUTH ACWORTH 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	298		350.4	117.6
CARTERSVILLE - SOUTH ACWORTH 115 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	248		266.5	107.5
CARTERSVILLE - SOUTH ACWORTH 230 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	866		1394.2	161
CARTERSVILLE 230/115 KV AUTO	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	400		452.8	113.2
CELANESE - METAL CONTAINER 115 KV	HAMMOND - ROCKY MOUNTAIN 230 KV (SOS12C_i3000.dat)	Load available Hammond units.	79	45.6	97.8	121.5
CLAXTON - LUDOWICI PRIMARY 115 KV	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load	124		156.5	126.2
CLAXTON - LUDOWICI PRIMARY 115 KV	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Try to maintain service at Fort Stewart or restore asap Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load	124		139.2	112.2

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
		Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load				
CLAXTON - LUDOWICI PRIMARY 115 KV	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)		124		130.2	105
CUMMING - MCGRAU FORD 230 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Try to maintain service at Fort Stewart or restore asap Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	596		604.9	101.5
DEAN FOREST - KRAFT 230 KV	MCINTOSH ROW (SOS12G_McIntoshROW.dat)	Shed Load 115KV TAPPED load @ Dean Forest, Coleman, Mitsubshi, Magnolia, Truman Parkway, Skidaway Island, Georgetown, Richmond Hill, Daniel Siding. Open Dorchester Lowside Bank Breaker 238004. Close 115KV RLB 513771 at Darien. Load Boulevard CT's, Load	574		819.6	142.8
DEAN FOREST - LITTLE OGEECHEE 230 KV	MCINTOSH ROW (SOS12G_McIntoshROW.dat)	Shed Load 115KV TAPPED load @ Dean Forest, Coleman, Mitsubshi, Magnolia, Truman Parkway, Skidaway Island, Georgetown, Richmond Hill, Daniel Siding. Open Dorchester Lowside Bank Breaker 238004. Close 115KV RLB 513771 at Darien. Load Boulevard CT's, Load	572		596.1	104.2
DECATUR - MORELAND AVENUE 115 KV	GRADY - MORELAND AVENUE 115 KV (SOS12T.dat)	Shed load at Moreland Avenue and Kirkwood as needed.	78	25.6	91.7	117.2
DORSETT 230/115 KV AUTO #1	BONAIRE PRIMARY 115 KV BUS TIE 400 BREAKER FAILURE (SOS12C_Bonaire115BF.dat)	Load Robins CTs, Rumble Road CTs and West Ga. Generating. Cut generation at Mid Ga. Co-Gen. Close NO @ Hawkinsville 090579 Close NO @ Montezuma 060003, then open PCB 048928 @ Perry @ Bonaire place Aultman Road 096488 on transfer bus with Robins CT 096468	280		291.1	104
DOUGLAS - KETTLE CREEK PRIMARY 115 KV	DOUGLAS - KETTLE CREEK PRIMARY 115 KV (SOS12T.dat)	Shed 4 to 5 MW load at Oak Park.	52	7.8	53.7	104.5
DOUGLASVILLE - POST ROAD 115 KV	DOUGLASVILLE - HICKORY LEVEL 115 KV (SOS12T.dat)	Shed load on section of line between Plantation pipeline and Mason Creek.	133	21.6	140.8	104.8
DOUGLASVILLE - POST ROAD 115 KV	DOUGLASVILLE - HICKORY LEVEL 115 KV (SOS12T.dat)	Shed load on section of line between Plantation pipeline and Mason Creek.	133	21.4	141.4	104.8
EAST DALTON - TUNNEL HILL 115 KV	EAST DALTON - TUNNEL HILL 115 KV (SOS12T.dat)	Shift Dalton 8 load to Dalton - Tunnel Hill 115.	52	10.7	51.9	102.3
EAST POINT - UNION CITY (WHITE) 230 KV	EAST POINT - UNION CITY (BLACK) 230 KV (SOS12C_McD4_5.dat)	Take out Union City 500/230 bank. Case has JMD 230/115 bank out and if in service, contingency may be 1 or 2 percent higher. Reducing generation at Yates 6 and 7 will correct problem, but may cause problems in Ala.	656	530.3	664.4	100.7
EAST WATKINSVILLE - RUSSELL DAM 230 KV	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Reduce generation at Russell Dam as necessary	596	384.1	622.4	108.8
EAST WATKINSVILLE - RUSSELL DAM 230 KV	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Reduce generation at Russell Dam as necessary	602	365.8	604.8	104.7
EAST WATKINSVILLE - RUSSELL DAM 230 KV	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i4000.dat)	Reduce generation at Russell Dam as necessary	596	400.6	642.8	112.7

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
EAST WATKINSVILLE - RUSSELL DAM 230 KV	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i4000.dat)	Reduce generation at Russell Dam as necessary	602	382.4	625.1	108.6
FERGUSON AVENUE - MAGNOLIA 115 KV	LITTLE OGEECHEE BUS TIE 68 BREAKER FAILURE (SOS12G_LOgeechee115BF.dat)	Close switch 046050 at Cornell Ave. and open PCB 049468 at Ferguson Ave. This transfers Oglethorpe Mall load over to Magnolia.	181		200.8	110.9
FIRST AVENUE 230/115 KV AUTO #2	FIRST AVENUE - GOAT ROCK (WHITE) 230 KV (SOS12T.dat)	Reduce generation at Lee Road.	280	221.3	283.7	101.3
GORDON - SANDERSVILLE #1 115 KV	BRANCH - GORDON 230 KV (SOS12G_Hatch.dat)	Load Robins CTs or Rumble Road CTs	63	25.6	65.7	103.4
GOSHEN - WAYNESBORO PRIMARY 115 KV	WAYNESBORO PRIMARY - WILSON 230 KV (SOS12C_i4000.dat)	Open PCB 049148 at Waynesboro Primary (Goshen - Waynesboro 115 kV line)	124	44.4	134.3	106.4
GOSHEN - WAYNESBORO PRIMARY 115 KV	VOGTLE 230 KV ROW (SOS12C_VogtleROW.dat)	Open PCB 049148 at Waynesboro Primary (Goshen - Waynesboro 115 kV line).	124		132.7	107
GOSHEN - WAYNESBORO PRIMARY 115 KV	VOGTLE - WILSON 230 KV (SOS12G_H1.dat)	Open PCB 049148 at Waynesboro Primary (Goshen - Waynesboro 115 kV line).	124	52.4	136.4	108
GOSHEN - WAYNESBORO PRIMARY 115 KV	WAYNESBORO PRIMARY - WILSON 230 KV (SOS12G_H1.dat)	Open PCB 049148 at Waynesboro Primary (Goshen - Waynesboro 115 kV line).	124	44.7	127.5	101.7
GOSHEN - WAYNESBORO PRIMARY 115 KV	WAYNESBORO PRIMARY - WILSON 230 KV (SOS12G_H1.dat)	Open PCB 049148 at Waynesboro Primary (Goshen - Waynesboro 115 kV line).	124	52.4	136.2	107.9
GOSHEN - WAYNESBORO PRIMARY 115 KV	WAYNESBORO PRIMARY - WILSON 230 KV (SOS12G_H2.dat)	Open PCB 049148 at Waynesboro Primary (Goshen - Waynesboro 115 kV line).	124	48	127.2	100.7
GOSHEN - WAYNESBORO PRIMARY 115 KV	WAYNESBORO PRIMARY - WILSON 230 KV (SOS12G_Hatch.dat)	Open PCB 049148 at Waynesboro Primary (Goshen - Waynesboro 115 kV line).	124	45.4	130.2	103.1
HOPEWELL - MCGRAU FORD 230 KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	497		543.2	109.3
JESUP - WEST BRUNSWICK 115 KV	WEST BRUNSWICK ROW (SOS12G_WBrunswickROW.dat)	Load McManus 115 kv CT's as needed. May have to shed load in area till units come on line.	67		79.1	118.1
JESUP - WEST BRUNSWICK 115 KV	WEST BRUNSWICK ROW (SOS12G_WBrunswickROW.dat)	Load McManus 115 kv CT's as needed. May have to shed load in area till units come on line.	91		92.4	101.6
KATHLEEN - PERRY 115 KV	BONAIRE PRIMARY 115 KV BUS TIE 400 BREAKER FAILURE (SOS12C_Bonaire115BF.dat)	Load Robins CTs, Rumble Road CTs and West Ga. Generating. Cut generation at Mid Ga. Co-Gen. Close NO @ Hawkinsville 090579 Close NO @ Montezuma 060003, then open PCB 048928 @ Perry @ Bonaire place Aultman Road 096488 on transfer bus with Robins CT 096468	114		160.3	140.6
KATHLEEN - PERRY 115 KV	BONAIRE PRIMARY 115 KV BUS TIE 400 BREAKER FAILURE (SOS12C_Bonaire115BF.dat)	Load Robins CTs, Rumble Road CTs and West Ga. Generating. Cut generation at Mid Ga. Co-Gen. Close NO @ Hawkinsville 090579 Close NO @ Montezuma 060003, then open PCB 048928 @ Perry @ Bonaire place Aultman Road 096488 on transfer bus with Robins CT 096468	114		171.8	150.7
KATHLEEN - PERRY 115 KV	BONAIRE PRIMARY NORTH ROW (SOS12C_BonaireROW1.dat)	Load Rumble Road and Robins CTs Open PCB 096458 @ Bonaire (Kathleen line) Close NO @ Montezuma 060003, then open PCB 048928 @ Perry	114		137.7	120.8

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
KATHLEEN - PERRY 115 KV	BONAIRE PRIMARY NORTH ROW (SOS12C_BonaireROW1.dat)	Shed load @ Highway 96 and Bear Branch Load Rumble Road and Robins CTs Open PCB 096458 @ Bonaire (Kathleen line) Close NO @ Montezuma 060003, then open PCB 048928 @ Perry	114		149.2	130.9
KATHLEEN - PERRY 115KV	BONAIRE PRIMARY 115 KV BUS TIE 400 BREAKER FAILURE (SOS12C_Bonaire115BF.dat)	Shed load @ Highway 96 and Bear Branch Load Robins CTs, Rumble Road CTs and West Ga. Generating. Cut generation at Mid Ga. Co-Gen. Close NO @ Hawkinsville 090579 Close NO @ Montezuma 060003, then open PCB 048928 @ Perry @ Bonaire place Aultman Road 096488 on transfer bus with Robins CT 096468	124		147.1	118.6
KATHLEEN - PERRY 115KV	BONAIRE PRIMARY 115 KV BUS TIE 400 BREAKER FAILURE (SOS12C_Bonaire115BF.dat)	Load Robins CTs, Rumble Road CTs and West Ga. Generating. Cut generation at Mid Ga. Co-Gen. Close NO @ Hawkinsville 090579 Close NO @ Montezuma 060003, then open PCB 048928 @ Perry @ Bonaire place Aultman Road 096488 on transfer bus with Robins CT 096468	114		155.9	136.7
KATHLEEN - PERRY 115KV	BONAIRE PRIMARY NORTH ROW (SOS12C_BonaireROW1.dat)	Load Rumble Road and Robins CTs Open PCB 096458 @ Bonaire (Kathleen line) Close NO @ Montezuma 060003, then open PCB 048928 @ Perry Shed load @ Highway 96 and Bear Branch	114		133.2	116.9
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12C.dat)	Open PCB 031588 at Lloyd Shoals.	71	42.3	72.7	101.4
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12C_i4000.dat)	Open PCB 031588 at Lloyd Shoals.	71	56.9	73.4	102.4
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12G.dat)	Load Rumble Road CTs or Robins CTs	71	43.6	72.8	101.7
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12G.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	43.6	76.7	107.3
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	BRANCH - WEST MILLEDGEVILLE 230 KV (SOS12G_Bonaire.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	62.1	84.2	117.9
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12G_Bonaire.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	62.1	98.1	137.4
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12G_Bonaire.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	45.8	81.8	115.1
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12G_Bonaire.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	62.1	102.1	143.1
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12G_Bonaire.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	45.8	85.6	120.6
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	RIGGINS MILL ROAD - WEST MILLEDGEVILLE 230 KV (SOS12G_Bonaire.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	62.1	78.6	110.1
LLOYD SHOALS -	OHARA - SOUTH GRIFFIN 230 KV	Load Generation at Rumble Road, Robins CTs, West	71	62.1	81.1	113.7

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
PORTERDALE PRIMARY 115 KV	(SOS12G_Bonaire.dat)	Georgia Gen. and Mid Georgia cogen.				
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	OHARA - SOUTH GRIFFIN 230 KV (SOS12G_Bonaire.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	62.1	79.8	111.8
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12G_Bonaire.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	62.1	88.1	123.2
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12G_Hydro.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	46.4	74.1	103.7
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	SOUTH GRIFFIN 230/115 KV AUTO (SOS12G_VillaRica.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	61.1	79.1	111
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12H.DAT)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	42.7	77.8	110.6
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12H.DAT)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	42.7	73.7	104.6
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12H.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	42.9	73.8	103.4
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12H_Hd1_3.dat)	Load Generation at Rumble Road, Robins CTs, West Georgia Gen. and Mid Georgia cogen.	71	42.3	76.4	107
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12T.dat)	load generation @ Rumble road	58	47.5	69.1	117
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	OHARA 500/230 KV AUTO (SOS12T.dat)	load generation @ Rumble road	58	47.5	61.2	103.9
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	ARKWRIGHT - LLOYD SHOALS 115 KV (SOS12T.dat)	load generation @ Rumble road	58	47.5	65.4	110.7
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	LLOYD SHOALS - SOUTH GRIFFIN 115 KV (SOS12T.dat)	Load Generation at Lloyd Shoals	58	47.5	73.4	124.3
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	OHARA - SOUTH GRIFFIN 230 KV (SOS12T.dat)	Run CT's at Robins and Rumble Road as needed.	58	47.5	62.9	106.6
LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	ARKWRIGHT - LLOYD SHOALS 115 KV (SOS12T.dat)	Load Rumble Road CTs and Robins CTs as needed.	58	47.5	67.1	113.6
LLOYD SHOALS - SOUTH GRIFFIN 115 KV	LLOYD SHOALS - PORTERDALE PRIMARY 115 KV (SOS12G_Bonaire.dat)	Load Rumble Road CTs to full load	78	61.4	96.2	123.3
LLOYD SHOALS - SOUTH GRIFFIN 115 KV	LLOYD SHOALS - PORTERDALE PRIMARY 115 KV (SOS12G_Bonaire.dat)	Load Rumble Road CTs to full load	78	61.4	86.9	111.2
LLOYD SHOALS - SOUTH GRIFFIN 115 KV	LLOYD SHOALS - PORTERDALE PRIMARY 115 KV (SOS12G_V1.dat)	Load Rumble Road CTs to full load	78	58.6	81.2	103.7
LLOYD SHOALS - SOUTH GRIFFIN 115 KV	LLOYD SHOALS - PORTERDALE PRIMARY 115 KV (SOS12H.DAT)	Load Rumble Road CTs to full load	78	52.6	76.4	100.7

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
MCGRAU FORD - HOPEWELL 230KV	BOWEN 500 KV ROW (SOS12C_BowenROW.dat)	Likely a cascading event. Plant Bowen has a procedure to immediately reduce generation on all four units to min load for the loss of this corridor. Consider replacing generation with Athens area CTs (but definitely from generation in Georgia). Open the 50	509		543.2	106.7
MILLEDGEVILLE - WEST MILLEDGEVILLE 115 KV	BRANCH - GORDON 230 KV (SOS12G_Bonaire.dat)	Run Robins CTs and Rumble Road CTs	188	118.9	203	106.8
MILLEDGEVILLE - WEST MILLEDGEVILLE 115 KV	BRANCH - GORDON 230 KV (SOS12G_Bonaire.dat)	Run Robins CTs and Rumble Road CTs	188	107.9	191.9	101.1
MILLEDGEVILLE - WEST MILLEDGEVILLE 115 KV	BRANCH - GORDON 230 KV (SOS12G_Bonaire.dat)	Run Robins CTs and Rumble Road CTs	188	119.4	204.6	106.8
NELSON 230/115 KV AUTO #1	NELSON 230/115 KV AUTO #2 (SOS12T.dat)	Bank has a contingency limit of 180.0 MVA	140	105.6	157.4	112.4
NELSON 230/115 KV AUTO #2	NELSON 230/115 KV AUTO #1 (SOS12T.dat)	Bank has a contingency rating of 176.48 MVA. Also, opening McGrau Ford - Nelson 230 will reduce overload. Lowering generation at Carters Dam will reduce contingency, however may cause problems in Alabama.	140	113.7	163.7	116.9
NELSON 230/115 KV AUTO #2	MCGRAU FORD - DAWSON CROSSING 230KV (SOS12T.dat)	Bank has a contingency limit of 176.48 MVA	140	113.7	145.9	104.2
NORTH AMERICUS - NORTH TIFTON 115 KV	NORTH AMERICUS - NORTH TIFTON 115 KV (SOS12T.dat)	Shed necessary load at either Crisp Co 2, Doles, and/or Ashburn.	52	24.8	62.7	120
OFFERMAN 230/115 KV AUTO #1	OFFERMAN 230/115 KV AUTO #2 (SOS12T.dat)	Bank has a contingency rating of 160 MVA	140	92.1	144.1	103
OFFERMAN 230/115 KV AUTO #2	OFFERMAN 230/115 KV AUTO #1 (SOS12T.dat)	Bank has a contingency rating of 155 MVA	125	88.9	142.2	113.7
PALMYRA - SLAPPEY DRIVE 115 KV	NORTH AMERICUS - PALMYRA 230 KV (SOS12T.dat)	Model is incorrect. It shows Albany - Palmyra 115 as being fed radially out of Palmyra. Once connection is networked to Albany, no contingency exists for the loss of North Americus - Palmyra 230.	150	119.8	183.8	124.2
PALMYRA - SLAPPEY DRIVE 115 KV	NORTH AMERICUS - PALMYRA 230 KV (SOS12T.dat)	Model is incorrect. It shows Albany - Palmyra 115 as being fed radially out of Palmyra. Once connection is networked to Albany, no contingency exists for the loss of North Americus - Palmyra 230.	150	89.6	154.3	104.5
PITTMAN ROAD - WEST POINT (APC) 115 KV	LAGRANGE 230 KV BUS TIE 100 BREAKER FAILURE (SOS12C_LagrangeBF.dat)	Increase generation at West Point Dam. Decrease generation at Bartletts Ferry.	187		204.9	109.6
PITTMAN ROAD - WEST POINT (APC) 115 KV	LAGRANGE 230 KV BUS TIE 100 BREAKER FAILURE (SOS12C_LagrangeBF.dat)	Increase generation at West Point Dam. Decrease generation at Bartletts Ferry.	188		215.8	114.8
PITTMAN ROAD - WEST POINT (APC) 115 KV	LAGRANGE 230 KV BUS TIE 100 BREAKER FAILURE (SOS12H_LagrangeBF.dat)	Increase generation at West Point Dam. Decrease generation at Bartletts Ferry.	188		195.1	103.8
SOUTH COWETA - YATES 115 KV	POSSUM BRANCH - YATES 115 KV (SOS12T.dat)	Load 115 kV units at Yates as needed.	150	119.7	156	103.7
SOUTH COWETA 230/115 KV AUTO	YATES ROW (SOS12C_YatesROW.dat)	Load Yates 115 kv units and cut Yates 230 kv units as needed. If needed cut generation at Yellow Dirt.	400		477.1	119.3
SUWANNEE (PEF) - TWIN LAKES 115 KV	PINE GROVE PRIMARY - SUWANNEE (FLA PWR) 230 KV (SOS12G.dat)	Open PCB 097048 at Twin Lakes (Progress to carry Dasher) or Have Progress open PCB 319 at Suwanee.	120	49.8	123	102
SUWANNEE (PEF) - TWIN LAKES 115 KV	PINE GROVE PRIMARY - SUWANNEE (FLA PWR) 230 KV (SOS12G_Hydro.dat)	Open PCB 097048 at Twin Lakes (Progress to carry Dasher) or Have Progress open PCB 319 at Suwanee.	120	50.1	122.7	101.7

Monitored Facility (Line Segment)	Contingency (Dispatch)	Recommended Operating Procedures	Rate MVA	Base Flow MVA	Cont Flow MVA	% Load
SUWANNEE (PEF) - TWIN LAKES 115 KV	PINE GROVE PRIMARY - SUWANNEE (FLA PWR) 230 KV (SOS12G_V2.dat)	Open PCB 097048 at Twin Lakes (Progress to carry Dasher) or Have Progress open PCB 319 at Suwanee.	120	51.4	132.5	109.1
SUWANNEE (PEF) - TWIN LAKES 115 KV	PINE GROVE PRIMARY - SUWANNEE (FLA PWR) 230 KV (SOS12H.DAT)	Open PCB 097048 at Twin Lakes (Progress to carry Dasher) or Have Progress open PCB 319 at Suwanee.	120	50.2	124.4	102.8
WAYNESBORO 230/115 KV AUTO	VOGTLE 230 KV ROW (SOS12C_VogtleROW.dat)	Open PCB 049148 at Waynesboro Primary (Goshen - Waynesboro 115 kV line).	280		285.1	101.8
ALBANY - PALMYRA 115 KV	ALBANY - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Run units 1 and 2 at Talbot County.	119	62.1	119.7	101.6

VOLTAGE LIMITATIONS

2012 Georgia Limiting Facilities

(Contingency Voltage Limitations)

Substation	*Contingency (Dispatch)*	*Recommended Operating Procedures*	*Bus Volt*	*Pre PU Volt*	*Post PU Volt*	*Cont Bus Volt*
AIRLINE JCT 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9966	0.9177	105.5355
ALBANY #14 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9846	0.9225	106.0875
ALBANY #2 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9881	0.9153	105.2595
ALBANY #3 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9689	0.9181	105.5815
ALBANY #9 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9885	0.9181	105.5815
ANDERSON HILL 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9999	0.9424	108.376
AQUILLA 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9956	0.9256	106.444
AVALON JUNCTION 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	1.0016	0.9403	108.1345
BEAVER RUIN 115	NORCROSS - SNELLVILLE PRIMARY 115 KV (SOS12G.dat)	Place Lilburn caps online	115	0.9979	0.9367	107.7205
BIO 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9985	0.9143	105.1445
BONANZA 115	OHARA - SOUTH GRIFFIN 115	Place Hampton, South	115	1.0168	0.9359	107.6285

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
	KV (SOS12C.dat)	Griffin and/or McDonough capacitors online. Move Dailey Mill load to the McDonough-Greenwood Park 115kv line				
BONANZA 115	OHARA - SOUTH GRIFFIN 115 KV (SOS12G.dat)	Place Hampton, South Griffin and/or McDonough capacitors online. Move Dailey Mill load to the McDonough-Greenwood Park 115kv line	115	1.0156	0.9348	107.502
BURNT STAND 115	DAWSON CROSSING - DAHLONEGA 115 KV (SOS12C_Hydro.dat)	Place area capacitors online.	115	0.9925	0.9375	107.8125
BURNT STAND 115	DAWSON CROSSING - DAHLONEGA 115 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9932	0.9418	108.307
CAY CREEK 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9249	106.3635
CENTURY 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9812	0.9286	106.789
CHICOPEE	SOUTH HALL 500/230 KV AUTO (SOS12H.DAT)	Place area capacitors online.	115	0.9951	0.9438	108.537
CLERMONT 115	CLERMONT JUNCTION - SOUTH CLEVELAND 115 KV (SOS12G.dat)	Place area capacitors online.	115	0.9816	0.9287	106.8005
CLERMONT 115	CLERMONT JUNCTION - SOUTH CLEVELAND 115 KV (SOS12C_Hydro.dat)	Place area capacitors online.	115	0.9858	0.9314	107.111
CLERMONT 115	CLERMONT JUNCTION - SOUTH CLEVELAND 115 KV (SOS12C.dat)	Place area capacitors online.	115	0.9883	0.9373	107.7895
COCHRAN PRIMARY 115	BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV (SOS12G_Bonaire.dat)	Shift Cochran Primary to Kathlene 115. Run units at Mid Ga Cogen for voltage support.	115	0.9967	0.9428	108.422
COOKVILLE 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9883	0.9364	107.686
CUSSETA 115	DAWSON PRIMARY - SOUTH COLUMBUS 115 KV (SOS12C.dat)	Place area capacitors online. Shed load as necessary.	115	1.0121	0.9392	108.008
CUSSETA 115	DAWSON PRIMARY - SOUTH COLUMBUS 115 KV	Place area capacitors online.	115	1.0083	0.9387	107.9505

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
	(SOS12G.dat)	Shed load as necessary.				
DALTON CITY # 9 115	DALTON - OOSTANAULA 115 KV (SOS12G.dat)	Place capacitors at Dalton #12 or Oostanaula online.	115	1.0105	0.9442	108.583
DALTON CITY # 9 115	DALTON - OOSTANAULA 115 KV (SOS12C_i4000.dat)	Place capacitors at Dalton #12 or Oostanaula online.	115	1.0107	0.9438	108.537
DANIEL SIDING 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.912	104.88
DAWSON FOREST 115	DAWSON CROSSING - DAHLONEGA 115 KV (SOS12H.DAT)	Place area capacitors online.	115	0.9959	0.9426	108.399
DAWSON FOREST 115	DAWSON CROSSING - DAHLONEGA 115 KV (SOS12G_Hydro.dat)	Place area capacitors online.	115	1.0011	0.9389	107.9735
DAWSON FOREST 115	DAWSON CROSSING - DAHLONEGA 115 KV (SOS12G.dat)	Place area capacitors online.	115	0.9965	0.9348	107.502
DAWSON FOREST 115	DAWSON CROSSING - DAHLONEGA 115 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	1.0052	0.9399	108.0885
DAWSON FOREST 115	DAWSON CROSSING - DAHLONEGA 115 KV (SOS12C_Hydro.dat)	Place area capacitors online.	115	1.0063	0.9356	107.594
DODGE 115	BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV (SOS12G_VillaRica.dat)	Shift Cochran Primary to Kathlene 115. Run units at Mid Ga Cogen for voltage support.	115	1.0114	0.9339	107.3985
DONALD 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9284	106.766
DORCHESTER 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as	115		0.9213	105.9495

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
		needed to resore shed load Try to maintain service at Fort Stewart or restore asap				
DOUBLEGATE 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9862	0.9219	106.0185
EAST WATKINSVILLE BUS 1 230	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9954	0.9442	217.166
EAST WATKINSVILLE REACTOR 230	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9883	0.9192	211.416
EAST WATKINSVILLE REACTOR 230	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i4000.dat)	Place area capacitors online.	115	0.9887	0.9302	213.946
EASTANOLEE 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	1.0011	0.9435	108.5025
ELBERTON #1 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12C.dat)	Place area capacitors online.	115	1.0093	0.944	108.56
ELBERTON #1 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12G_Hydro.dat)	Place area capacitors online.	115	0.9943	0.9318	107.157
ELBERTON #1 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12H.DAT)	Place area capacitors online.	115	0.9905	0.9153	105.2595
ELBERTON #1 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9842	0.895	102.925
ELBERTON #2 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12C.dat)	Place area capacitors online.	115	1.0099	0.9446	108.629
ELBERTON #2 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12H.DAT)	Place area capacitors online.	115	0.9911	0.9159	105.3285
ELBERTON #2 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9848	0.8956	102.994
ELBERTON PRIMARY 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12G.dat)	Place area capacitors online.	115	0.9977	0.9317	107.1455
ELBERTON PRIMARY 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12H.DAT)	Place area capacitors online.	115	0.9944	0.9195	105.7425
ELBERTON PRIMARY 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9885	0.8997	103.4655
ELIM CH RD 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11	115		0.9212	105.938

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
		to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap				
FEDERAL PAPERBOARD (MADISON) 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9882	0.8922	102.603
FEDERAL PAPERBOARD (MADISON) 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9855	0.889	102.235
FEDERAL PAPERBOARD (MADISON) 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9874	0.8911	102.4765
FEDERAL PAPERBOARD (MADISON) 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9835	0.8893	102.2695
FEDERAL PAPERBOARD (MADISON) 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.983	0.9103	104.6845
FIFTY SIX LOOP 115	VOGTLE 230 KV ROW (SOS12C_VogtleROW.dat)	Drop 100MW in Augusta	115		0.9254	106.421
FLEMING 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9131	105.0065
FLINT RIVER 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9685	0.9191	105.6965
FORT STEWART 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9074	104.351
FT BENN #2 115	DAWSON PRIMARY - SOUTH COLUMBUS 115 KV (SOS12G.dat)	Place area capacitors online. Shed load as necessary.	115	1.015	0.9271	106.6165
FT BENN #2 115	DAWSON PRIMARY - SOUTH COLUMBUS 115 KV (SOS12C.dat)	Place area capacitors online. Shed load as necessary.	115	1.0172	0.9276	106.674
FT BENN #2 115	DAWSON PRIMARY - SOUTH	Place area capacitors	115	1.0077	0.9422	108.353

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
	COLUMBUS 115 KV (SOS12H.dat)	online. Shed load as necessary.				
GILLIONVILLE 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9834	0.9158	105.317
GLENNVILLE 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9337	107.3755
GREENSBORO 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9879	0.9243	106.2945
GREENSBORO 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9885	0.9254	106.421
GREENSBORO 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.985	0.9226	106.099
GREENSBORO 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9827	0.9191	105.6965
GREENSBORO 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9857	0.9224	106.076
GRIFFIN #3 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_VillaRica.dat)	Place Barnesville Primary capacitors online.	115	0.997	0.934	107.41
GRIFFIN #3 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12C_i3000.dat)	Place Barnesville Primary capacitors online.	115	0.9991	0.9384	107.916
GRIFFIN #3 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Hydro.dat)	Place Barnesville Primary capacitors online.	115	0.9986	0.9348	107.502
GRIFFIN #3 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12C_i3000.dat)	Place Barnesville Primary capacitors online.	115	0.9991	0.9383	107.9045
GRIFFIN #3 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_VillaRica.dat)	Place Barnesville Primary capacitors online.	115	0.997	0.9439	108.5485
GRIFFIN #4 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12C_i3000.dat)	Place Barnesville Primary capacitors online.	115	1.0027	0.9366	107.709
GRIFFIN #4 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_VillaRica.dat)	Place Barnesville Primary capacitors online.	115	1.0005	0.9429	108.4335
GRIFFIN #8 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12C_McD4_5.dat)	Place Barnesville Primary capacitors online.	115	0.9973	0.9315	107.1225

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
GRIFFIN #8 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Thomson.dat)	Place Barnesville Primary capacitors online.	115	1.0036	0.9343	107.4445
GRIFFIN #8 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Hatch.dat)	Place Barnesville Primary capacitors online.	115	1.0023	0.932	107.18
GRIFFIN #8 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_VillaRica.dat)	Place Barnesville Primary capacitors online.	115	1.0023	0.9319	107.1685
GRIFFIN #8 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12C_i3000.dat)	Place Barnesville Primary capacitors online.	115	1.0045	0.9363	107.6745
GRIFFIN #8 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Bonaire.dat)	Place Barnesville Primary capacitors online.	115	1.0027	0.9316	107.134
GRIFFIN #8 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Hydro.dat)	Place Barnesville Primary capacitors online.	115	1.004	0.9327	107.2605
GUM LOG 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9974	0.9323	107.2145
HAMPTON 115	OHARA - SOUTH GRIFFIN 115 KV (SOS12G_Hydro.dat)	Place Hampton, South Griffin and/or McDonough capacitors online. Move Dailey Mill load to the McDonough-Greenwood Park 115kv line	115	1.0003	0.9416	108.284
HAMPTON 115	OHARA - SOUTH GRIFFIN 115 KV (SOS12G.dat)	Place Hampton, South Griffin and/or McDonough capacitors online. Move Dailey Mill load to the McDonough-Greenwood Park 115kv line	115	1.0012	0.9442	108.583
HAMPTON 115	OHARA - SOUTH GRIFFIN 115 KV (SOS12C_i3000.dat)	Place Hampton, South Griffin and/or McDonough capacitors online. Move Dailey Mill load to the McDonough-Greenwood Park 115kv line	115	1.001	0.9424	108.376
HARTWELL 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12H.DAT)	Place area capacitors online.	115	1.0122	0.9389	107.9735
HARTWELL 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9918	0.9068	104.282
HARTWELL ENERGY 230	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9973	0.9092	209.116
HARTWELL ENERGY REACTOR 230	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9976	0.9094	209.162
HINESVILLE PRIMARY 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro	115		0.9141	105.1215

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
		Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap				
HOPKINS CREEK 115	NORCROSS - SNELLVILLE PRIMARY 115 KV (SOS12G.dat)		115	1.0034	0.9359	107.6285
HOPKINS CREEK 115	NORCROSS - SNELLVILLE PRIMARY 115 KV (SOS12G_Hydro.dat)		115	1.0047	0.9376	107.824
HOPKINS CREEK 115	NORCROSS - SNELLVILLE PRIMARY 115 KV (SOS12H.DAT)		115	1.0008	0.9393	108.0195
HORSE CREEK 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9156	105.294
INTERNATIONAL PAPER (AUGUSTA) 115	VOGTLE 230 KV ROW (SOS12C_VogtleROW.dat)	Drop 100MW in Augusta	115		0.9243	106.2945
INTERNATIONAL PAPER (SAV) 115	INTERNATIONAL PAPER - KRAFT 115 KV (SOS12C.dat)	Request International Paper to reduce load. Shed load	115	0.9973	0.9445	108.6175
JACKSON LAKE 115	LLOYD SHOALS - PORTERDALE PRIMARY 115 KV (SOS12H.DAT)	Place capacitors online at Jackson Primary, Forsyth #2, South Griffin and /or North Griffin	115	0.9916	0.9408	108.192
JESUP 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9431	108.4565
JESUP CITY 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load	115		0.9417	108.2955

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
		Try to maintain service at Fort Stewart or restore asap				
LAKELAND 115	KETTLE CREEK PRIMARY - PINE GROVE PRIMARY 115 KV (SOS12C.dat)	Place Kettle Creek Caps online	115	0.9972	0.9448	108.652
LEXINGTON 230	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.996	0.9278	213.394
LEXINGTON 230	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i4000.dat)	Place area capacitors online.	115	0.9954	0.9343	214.889
LICKSKILLET 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9836	0.9129	104.9835
LICKSKILLET 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9868	0.9146	105.179
LICKSKILLET 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9874	0.9158	105.317
LICKSKILLET 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9846	0.9127	104.9605
LICKSKILLET 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online Shed load as necessary	115	0.9836	0.9259	106.4785
LICKSKILLET 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9818	0.9093	104.5695
LONG REACH 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9297	106.9155
LOUVALE 115	DAWSON PRIMARY - SOUTH COLUMBUS 115 KV (SOS12C.dat)	Place area capacitors online. Shed load as necessary.	115	1.013	0.9396	108.054
LOUVALE 115	DAWSON PRIMARY - SOUTH COLUMBUS 115 KV (SOS12G.dat)	Place area capacitors online. Shed load as necessary.	115	1.0093	0.9391	107.9965
LUDOWICI PRIMARY 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load	115		0.9317	107.1455

Substation	*Contingency (Dispatch)*	*Recommended Operating Procedures*	*Bus Volt*	*Pre PU Volt*	*Post PU Volt*	*Cont Bus Volt*
		Try to maintain service at Fort Stewart or restore asap				
LUMPKIN 115	DAWSON PRIMARY - SOUTH COLUMBUS 115 KV (SOS12G_Hydro.dat)	Place area capacitors online. Shed load as necessary.	115	1.0042	0.9428	108.422
LUMPKIN 115	DAWSON PRIMARY - SOUTH COLUMBUS 115 KV (SOS12G_Hydro.dat)	Place area capacitors online. Shed load as necessary.	115	1.0042	0.9423	108.3645
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.986	0.9114	104.811
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9879	0.9132	105.018
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9887	0.9144	105.156
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9835	0.9082	104.443
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9839	0.9116	104.834
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online Shed load as necessary	115	0.9816	0.9021	103.7415
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9879	0.8882	102.143
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9839	0.8864	101.936
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9835	0.8826	101.499
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.986	0.8862	101.913
MADISON PRIMARY 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9887	0.8893	102.2695
MAGNOLIA BLUFF 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9221	106.0415
MAGNOLIA PARK 115	NORTH TIFTON 500/230 KV AUTO	Place area capacitors online.	115	0.9863	0.9345	107.4675

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
	(SOS12G_Hydro.dat)					
MILLIKEN & CO (AVALON) 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	1.0009	0.9395	108.0425
MONK ROAD 115	NORTH TIFTON 500/230 KV AUTO (SOS12G_Hydro.dat)	Place area capacitors online.	115	0.9901	0.9384	107.916
MONROE AUTO EQUIPMENT 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12H.DAT)	Place area capacitors online.	115	1.0132	0.9401	108.1115
MONROE AUTO EQUIPMENT 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9929	0.9081	104.4315
MOUNT HERBRON ROAD	BIO - HARTWELL ENERGY SS 230 KV (SOS12H.DAT)	Place area capacitors online.	115	1.0069	0.9332	107.318
MOUNT HERBRON ROAD	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9864	0.9009	103.6035
MURRAYVILLE 115	CLERMONT JUNCTION - SOUTH CLEVELAND 115 KV (SOS12C.dat)	Place area capacitors online.	115	0.9851	0.934	107.41
MURRAYVILLE 115	CLERMONT JUNCTION - SOUTH CLEVELAND 115 KV (SOS12C_Hydro.dat)	Place area capacitors online.	115	0.9827	0.9281	106.7315
MURRAYVILLE 115	CLERMONT JUNCTION - SOUTH CLEVELAND 115 KV (SOS12G.dat)	Place area capacitors online.	115	0.9784	0.9253	106.4095
MURRAYVILLE 115	CLERMONT JUNCTION - SOUTH CLEVELAND 115 KV (SOS12G_Hydro.dat)	Place area capacitors online.	115	0.9821	0.9299	106.9385
NEW HAVEN	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.995	0.9359	215.257
NEWNAN #2 115	THOMASTON - YATES 115 KV (SOS12G.dat)	Place capacitors online at Thomaston and Molena. Move Newnan #2 over to Yates-Newnan Primary 115kv line.	115	1.0163	0.9442	108.583
NEWNAN #2 115	THOMASTON - YATES 115 KV (SOS12C_McD4_5.dat)	Place capacitors online at Thomaston and Molena. Move Newnan #2 over to Yates-Newnan Primary 115kv line.	115	1.0109	0.9339	107.3985
NORTH AIRLINE 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12H.DAT)	Place area capacitors online.	115	1.0101	0.9367	107.7205
NORTH AIRLINE 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9896	0.9044	104.006
NORTH GLENNVILLE 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro	115		0.9411	108.2265

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
		Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap				
NORTH JESUP 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9358	107.617
NORTH LAKELAND 115	KETTLE CREEK PRIMARY - PINE GROVE PRIMARY 115 KV (SOS12C_i3000.dat)	Place Kettle Creek Caps online	115	0.9936	0.9429	108.4335
NORTH LAKELAND 115	KETTLE CREEK PRIMARY - PINE GROVE PRIMARY 115 KV (SOS12C_i4000.dat)	Place Kettle Creek Caps online	115	0.9959	0.944	108.56
NORTH LAVONIA 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9967	0.9259	106.4785
NORTH MARTIN 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	1.0009	0.9394	108.031
NORTHWEST PERRY 115	BONAIRE PRIMARY 500/230 KV AUTO (SOS12C.dat)	Close 115 KV caps in at Perry	115	0.9965	0.9447	108.6405
OAK PARK 115	DOUGLAS - KETTLE CREEK PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9907	0.9242	106.283
OAK PARK 115	DOUGLAS - KETTLE CREEK PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online.	115	0.9906	0.926	106.49
OAK PARK 115	DOUGLAS - KETTLE CREEK PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online.	115	0.9902	0.9259	106.4785
OAK PARK 115	DOUGLAS - KETTLE CREEK PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online.	115	0.991	0.9384	107.916
OAK PARK 115	DOUGLAS - KETTLE CREEK PRIMARY 115 KV (SOS12C_i4000.dat)	Place area capacitors online.	115	0.9914	0.9252	106.398
OAKWOOD	SOUTH HALL 500/230 KV AUTO (SOS12H.DAT)	Place area capacitors online.	115	0.9923	0.9423	108.3645
PALMYRA 115	PALMYRA - SLAPPEY DRIVE 115 KV (SOS12T.dat)	Could not duplicate low voltage conditions in case.	115	0.9858	0.9283	106.7545
RAYONIER (JESUP) 115	LITTLE OGEECHEE ROW	Shed load	115		0.9262	106.513

Substation	*Contingency (Dispatch)*	*Recommended Operating Procedures*	*Bus Volt*	*Pre PU Volt*	*Post PU Volt*	*Cont Bus Volt*
	(SOS12G_LOgeecheeROW.dat)	At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap				
RED HILL 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	1.0009	0.9432	108.468
REED CREEK 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.995	0.9157	105.3055
RICEBORO 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9313	107.0995
RODDY 115	BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV (SOS12G_Hatch.dat)	Shift Cochran Primary to Kathlene 115. Run units at Mid Ga Cogen for voltage support.	115	1.0036	0.9401	108.1115
RUCKERSVILLE 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12H.DAT)	Place area capacitors online.	115	0.9959	0.9211	105.9265
RUCKERSVILLE 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12G_Hydro.dat)	Place area capacitors online.	115	1.0001	0.9381	107.8815
RUCKERSVILLE 115	BIO - HARTWELL ENERGY SS 230 KV (SOS12G.dat)	Place area capacitors online.	115	0.9993	0.9334	107.341
RUCKERSVILLE 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9889	0.9004	103.546
RUSSELL PARKWAY 115	BONAIRE PRIMARY 115 KV BUS TIE 400 BREAKER FAILURE (SOS12C_Bonaire115BF.dat)	Place all available AREA CAPACITORS ONLINE Load Robins Ct's and Rumble Rd Ct's	115		0.9422	108.353
RUTLEDGE 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9983	0.8865	101.9475
RUTLEDGE 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9957	0.8833	101.5795
RUTLEDGE 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV	Place area capacitors online Shed load as necessary	115	0.9934	0.8798	101.177

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
	(SOS12C_i3000.dat)					
RUTLEDGE 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9931	0.8836	101.614
RUTLEDGE 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online Shed load as necessary	115	0.9891	0.8995	103.4425
RUTLEDGE 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9975	0.8854	101.821
SAPELO RIVER 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9247	106.3405
SARA LEE KNIT PRODUCTS 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9898	0.9398	108.077
SOUTH COVINGTON 115	LLOYD SHOALS - PORTERDALE PRIMARY 115 KV (SOS12H.DAT)	Place capacitors online at Jackson Primary, Forsyth #2, South Griffin and /or North Griffin	115	0.9957	0.9367	107.7205
SOUTH GLENNVILLE 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9293	106.8695
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9869	0.8873	102.0395
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9817	0.8805	101.2575
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.986	0.9112	104.788
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9869	0.9124	104.926
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9841	0.9094	104.581
SOUTH MADISON 115	EAST SOCIAL CIRCLE -	Place area capacitors online	115	0.9817	0.9062	104.213

Substation	*Contingency (Dispatch)*	*Recommended Operating Procedures*	*Bus Volt*	*Pre PU Volt*	*Post PU Volt*	*Cont Bus Volt*
	MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Shed load as necessary				
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.982	0.9096	104.604
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.982	0.8843	101.6945
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.986	0.8862	101.913
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online Shed load as necessary	115	0.9799	0.9002	103.523
SOUTH MADISON 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9841	0.8841	101.6715
SPIRIT CREEK 115	VOGTLE 230 KV ROW (SOS12C_VogtleROW.dat)	Drop 100MW in Augusta	115		0.9247	106.3405
STONEY HILL 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9386	107.939
SWORDS	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online Shed load as necessary	115	0.9829	0.9197	105.7655
SWORDS	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9869	0.9077	104.3855
SWORDS	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9848	0.9262	106.513
SWORDS	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9835	0.906	104.19
SWORDS	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9875	0.9088	104.512
SYLVANIA #3 (HURON TECH) 115	VOGTLE 230 KV ROW (SOS12C_VogtleROW.dat)	Drop 100MW in Augusta	115		0.9208	105.892
TANK ROAD 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load	115		0.9436	108.514

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
		Try to maintain service at Fort Stewart or restore asap				
TIFTON PRIMARY 115	MOULTRIE - NORTH TIFTON 115 KV (SOS12G_H2.dat)	Post-contingency move Tifton Primary over to the Barneyville-North Tifton 115kv line	115	0.9903	0.9401	108.1115
TIFTON PRIMARY 115	MOULTRIE - NORTH TIFTON 115 KV (SOS12G_H1.dat)	Post-contingency move Tifton Primary over to the Barneyville-North Tifton 115kv line	115	0.993	0.9425	108.3875
TIFTON PRIMARY 115	MOULTRIE - NORTH TIFTON 115 KV (SOS12H.DAT)	Post-contingency move Tifton Primary over to the Barneyville-North Tifton 115kv line	115	1.0011	0.9439	108.5485
TNS MILLS 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9958	0.9258	106.467
TRDPRTIP 115 - N/A	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9307	107.0305
UPPER PIKE 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_VillaRica.dat)	Place Barnesville Primary capacitors online.	115	0.998	0.9373	107.7895
UPPER PIKE 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Bonaire.dat)	Place Barnesville Primary capacitors online.	115	0.9983	0.937	107.755
UPPER PIKE 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12C_McD4_5.dat)	Place Barnesville Primary capacitors online.	115	0.9937	0.9369	107.7435
UPPER PIKE 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12C_i3000.dat)	Place Barnesville Primary capacitors online.	115	1.0001	0.9416	108.284
UPPER PIKE 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Hatch.dat)	Place Barnesville Primary capacitors online.	115	0.998	0.9374	107.801
UPPER PIKE 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Hydro.dat)	Place Barnesville Primary capacitors online.	115	0.9996	0.9381	107.8815
UPPER PIKE 115	BARNESVILLE - SOUTH GRIFFIN 115 KV (SOS12G_Thomson.dat)	Place Barnesville Primary capacitors online.	115	0.9994	0.9397	108.0655
VANNA PRIMARY 230	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9925	0.9113	209.599
VULCAN MATERIALS 115	NORCROSS - SNELLVILLE PRIMARY 115 KV	Place Lilburn caps online	115	0.9949	0.9414	108.261

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
	(SOS12G.dat)					
VULCAN MATERIALS 115	NORCROSS - SNELLVILLE PRIMARY 115 KV (SOS12G_Hydro.dat)	Place Lilburn caps online	115	0.9963	0.943	108.445
WALKERS CHURCH ROAD	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9883	0.9252	106.398
WALKERS CHURCH ROAD	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9855	0.9221	106.0415
WALKERS CHURCH ROAD	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9825	0.9188	105.662
WALKERS CHURCH ROAD	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9847	0.9223	106.0645
WALKERS CHURCH ROAD	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online Shed load as necessary	115	0.9852	0.9343	107.4445
WALKERS CHURCH ROAD	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9877	0.924	106.26
WALTHOURVILLE 115	LITTLE OGEECHEE ROW (SOS12G_LOgeecheeROW.dat)	Shed load At Darien close normally open switch to tie thru to Riceboro Cut McIntosh CC 10 and 11 to minimun load Load McManus CTs as needed to resore shed load Try to maintain service at Fort Stewart or restore asap	115		0.9073	104.3395
WASHINGTON CITY #2	UNION POINT PRIMARY - WARRENTON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	1.002	0.9417	108.2955
WASHINGTON CITY #2	UNION POINT PRIMARY - WARRENTON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	1.0018	0.9432	108.468
WASHINGTON CITY #2	UNION POINT PRIMARY - WARRENTON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	1.0011	0.9371	107.7665
WASHINGTON CITY #2	UNION POINT PRIMARY - WARRENTON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9984	0.9329	107.2835
WASHINGTON CITY #2	UNION POINT PRIMARY - WARRENTON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9994	0.939	107.985
WASHINGTON CITY #2	UNION POINT PRIMARY - WARRENTON PRIMARY 115	Place area capacitors online Shed load as necessary	115	1.0031	0.9396	108.054

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
	KV (SOS12H.DAT)					
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12T.dat)	Place Athens caps online	115	0.9938	0.9392	108.008
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12C.dat)	Place Athens caps online	115	0.9937	0.9416	108.284
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12C_Hydro.dat)	Place Athens caps online	115	0.989	0.9369	107.7435
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12C_i3000.dat)	Place Athens caps online	115	0.9825	0.9309	107.0535
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12G.dat)	Place Athens caps online	115	0.9891	0.9358	107.617
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12G_Hydro.dat)	Place Athens caps online	115	0.9912	0.939	107.985
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12C_i3000.dat)	Place Athens caps online	115	0.9828	0.9311	107.0765
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12C.dat)	Place Athens caps online	115	0.9941	0.9421	108.3415
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12G.dat)	Place Athens caps online	115	0.9897	0.9365	107.6975
WATKINSVILLE 115	BETHABARA - EAST WATKINSVILLE 115 KV (SOS12C_i4000.dat)	Place Athens caps online	115	0.9856	0.9341	107.4215
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9837	0.9165	105.3975
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9817	0.9129	104.9835
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9868	0.9359	107.6285
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9817	0.931	107.065
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9846	0.9342	107.433
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9846	0.9163	105.3745
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9868	0.9182	105.593
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE -	Place area capacitors online	115	0.9874	0.9193	105.7195

Substation	Contingency (Dispatch)	Recommended Operating Procedures	Bus Volt	Pre PU Volt	Post PU Volt	Cont Bus Volt
	MADISON PRIMARY 115 KV (SOS12C.dat)	Shed load as necessary				
WILLOW RUN ROAD 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online Shed load as necessary	115	0.9839	0.9291	106.8465
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9834	0.8891	102.2465
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12H.DAT)	Place area capacitors online Shed load as necessary	115	0.9814	0.9045	104.0175
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9881	0.8921	102.5915
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9873	0.8909	102.4535
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9854	0.8889	102.2235
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9829	0.8854	101.821
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9873	0.9152	105.248
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C.dat)	Place area capacitors online Shed load as necessary	115	0.9881	0.9164	105.386
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_Hydro.dat)	Place area capacitors online Shed load as necessary	115	0.9854	0.9134	105.041
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12C_i3000.dat)	Place area capacitors online Shed load as necessary	115	0.9829	0.9102	104.673
WOODKRAFT 115	EAST SOCIAL CIRCLE - MADISON PRIMARY 115 KV (SOS12G.dat)	Place area capacitors online Shed load as necessary	115	0.9834	0.9136	105.064
AIRLINE JCT 115	OCONEE (DUKE) - SOUTH HALL 500 KV (SOS12C_i3000.dat)	Place area capacitors online.	115	0.9966	0.9177	105.5355

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2010 - 2012
SYSTEM PERFORMANCE ISSUES

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Major Outages

The tables below list the major outages for years 2010, 2011, and 2012 based on the outage duration measured in MVA minutes. Georgia Power is defining a major outage as an outage with event duration greater than 10,000 MVA minutes.

2010				
Outage Date	**Facility/Line Name**	**Cause**	**Outage Duration (MVA minutes)**	**Additional Comments**
01/21/2010	NEWNAN #8	Customer Trouble	11154	All load restored from alternate source at 03:41. Fault on customer bus.
01/24/2010	ATHENS - WINDER PRIMARY REPLACED	Fall In - Off R/W	12102	Abnormal configuration. Tree on line at structure 135.
02/12/2010	NELSON 058738 - GEORGIA MARBLE 46 KV	Major Storm	13337	Tree on line between structures 17 and 18.
04/17/2010	THOMASTON	FAILED EQUIPMENT	10510	Low side surge arrester failed on 230/115kV bank C. 230kV PCB 070000 at Thomaston was slow to trip. Also RLB switch 033013 at Lizella failed to close by supervisory control.
04/30/2010	ERCO WORLDWIDE	Customer Trouble	10858	Customer equipment problem.
04/30/2010	ERCO WORLDWIDE	PLANNED OUTAGE	10200	Customer equipment problem.
05/03/2010	GEORGIA PACIFIC GYPSUM (Savannah)	Customer Trouble	13725	Customer switchgear failure caused outage.
06/23/2010	RICHMOND HILL	Animal	10976	Squirrel on switch 063307.
06/26/2010	COTTON PRIMARY	FAILED EQUIPMENT	10591	Transformer bank B LTC failed.
07/09/2010	MILL CREEK	Customer Trouble	10800	Suspect AIM tripped for EMC distribution problem.
07/15/2010	THOMASVILLE #6 074628 - THOMASVILLE #7 46 KV	Fall In - Off R/W	12068	Tree on line at structure 86.
07/25/2010	ROCK SPRING 129448 - CHICKAMAUGA 115 KV	Contamination	11331	Fault indicated 0.34 miles from Rock Spring. Replaced arrestors at structure 494.

2010				
Outage Date	**Facility/Line Name**	**Cause**	**Outage Duration (MVA minutes)**	**Additional Comments**
07/27/2010	WILMINGTON ISLAND 039438 - TYBEE ISLAND 46 KV	FAILED EQUIPMENT	14048	Lightning arrestor failed on line side of PCB 039438.
08/13/2010	COOPER TIRE	PLANNED OUTAGE	10864	Potential transformer failed on bus #2.
08/17/2010	ROCK SPRING 129448 - CHICKAMAUGA 115 KV	Contamination	10426	Fault indicated 0.36 miles from Rock Springs. Buzzard contamination.
08/21/2010	CARTERSVILLE #20	Animal	16076	Black bird contacted bus
08/22/2010	REGISTER	FAILED EQUIPMENT	13724	Surge arrestor and bushing failed at Register.
08/26/2010	NELSON 058738 - GEORGIA MARBLE 46 KV	Wind	13675	Trees on line at first structure on the Marble Valley tap. Pole broken.
09/27/2010	GROVE POINT ROAD	FAILED EQUIPMENT	13025	Abnormal configuration. Mobile transformer 31 tripped.
10/23/2010	JACK MCDONOUGH - WEST MARIETTA (WHITE) 115 KV	Tree Cut-Public	10018	Tree on line between structures 8 and 9 of the Marietta #12 tap. OHWG down.
12/06/2010	OHARA - SOUTH GRIFFIN 115 KV	FAILED EQUIPMENT	25873	During restoration, Hampton 115kV line switches 030881 and 030809 one phase was found in the closed position on both switches when field personnel arrived at the substation. Conductors pulled from splicing sleeves on two phases at structure 45.

2011				
Outage Date	**Facility/Line Name**	**Cause**	**Outage Duration (MVA minutes)**	**Additional Comments**
02/18/2011	CUBA	FAILED EQUIPMENT	17893	High side surge arrestor failed. RTU down at Dawson Crossing at time of operation
03/28/2011	TYBEE ISLAND	FAILED EQUIPMENT	14404	Transformer bank E failed. Fuse failed to blow
04/04/2011	LLOYD SHOALS - PORTERDALE PRIMARY 115 KV	MAJOR STORM	31429	Tree on line between structures 19 and 20 between Porterdale and the South Covington tap. Tree on line at structure 101 between Lloyd Shoals and Jackson Lake. Tree on line at structure 53 between Jackson Lake and the South Covington tap.
04/05/2011	DORSETT - FORREST ROAD 115 KV	MAJOR STORM	10347	Operated to lockout. Supervisory remote down at Dorsett. Line patrolled - no problem found
04/05/2011	UNION POINT PRIMARY 051668 - CRAWFORDVILLE 46 KV	MAJOR STORM	14591	Line operated to lock out
04/05/2011	UNION POINT PRIMARY - WARRENTON PRIMARY 115 KV	MAJOR STORM	32563	PCB 051638 failed to open. Tree on line between structures 44 and 45. Tree on line between structures 348 and 349
04/05/2011	ANTHONY SHOALS 227228 - WASHINGTON 115 KV	MAJOR STORM	48398	Trees on line at structure 579
04/05/2011	COLQUITT	MAJOR STORM	12820	High side arrester failed
04/05/2011	THURMOND DAM (USA) 448 - DOUBLE BRANCHES 115 KV	MAJOR STORM	27629	Structure 794 down. Structure 795 conductor damaged
04/05/2011	SOUTH BAINBRIDGE - THOMASVILLE 115 KV	MAJOR STORM	24953	Trees on line

2011				
Outage Date	**Facility/Line Name**	**Cause**	**Outage Duration (MVA minutes)**	**Additional Comments**
04/05/2011	THOMASVILLE #6 074628 - THOMASVILLE #7 46 KV	MAJOR STORM	13300	PCB 074628 operated to lock out. Tree on line between structures 201 and 202
04/27/2011	PINSON - ROME 115 KV	MAJOR STORM	83195	
04/27/2011	CRAWFISH CREEK 181752 - TRENTON 46 KV	MAJOR STORM	112780	
04/27/2011	MORGANVILLE 151888 - LOOKOUT VALLEY 115 KV	MAJOR STORM	88715	Abnormal configuration
04/27/2011	CARTERSVILLE 183592 - CARTERSVILLE #8 46 KV	MAJOR STORM	17502	Abnormal configuration, Load restored at alternate source
04/27/2011	COOSAWATTEE - TOYO 115 KV	MAJOR STORM	26729	Remote down at Coosawattee. Closed breaker manually. Unable to get to Talmadge due to downed trees
04/27/2011	TERRORA 163268 - DILLARD PRIMARY 115 KV	MAJOR STORM	23689	Sare Lee outage began when Tallulah - Dillard Primary 115 kV line locked out
04/27/2011	TALLULAH LODGE 000888 - DILLARD PRIMARY 115 KV	MAJOR STORM	27044	Several structures down
04/27/2011	LAGRANGE - MOSSY BRANCH 115 KV	MAJOR STORM	71524	Abnormal configuration
04/27/2011	SOUTH COWETA - SOUTH GRIFFIN 115 KV	MAJOR STORM	196947	On 115 kV, multiple trees on line, 2 structures down, 1 structure damaged between Spalding and Steele Road. On Spalding - Borden Chemical 46 kV, trees and debris on line between structures 53 and 57, conductor out of clamp at structure 46 and tree on line at structure 43

2011				
Outage Date	**Facility/Line Name**	**Cause**	**Outage Duration (MVA minutes)**	**Additional Comments**
05/26/2011	JACK MCDONOUGH - WEST MARIETTA (BLACK) 115 KV	MAJOR STORM	13354	Tree on line between structures 55 and 56. Structure down. Supervisory remote down at Mableton
06/05/2011	RADIUM SPRINGS	PLANNED OUTAGE	10700	
06/18/2011	DALTON CITY #2	MAJOR STORM	14880	115kV conductor broke between AIM 067927 and the transformer high side bushing
06/18/2011	DALTON 028358 - DALTON CITY #7 115 KV	MAJOR STORM	17147	Two structures down between structures 30 and 32
06/18/2011	NELSON 058738 - GEORGIA MARBLE 46 KV	MAJOR STORM	10500	Tree on line at structure 2
06/18/2011	BIO - ELBERTON PRIMARY 115 KV	MAJOR STORM	17331	Tree on line between structures 18 and 19 of the Elberton #1 tap
06/25/2011	ELBA ISLAND	CUSTOMER TROUBLE	10425	Found 115kV fuses blown. Customer cable failed
07/14/2011	WILMINGTON ISLAND 039438 - TYBEE ISLAND 46 KV	FAILED EQUIPMENT	13368	Surge arrestor failed at structure 41
08/05/2011	CLYATTVILLE	PLANNED OUTAGE	33180	PCB tripped at Packaging Corporation.
08/15/2011	MONROE AUTO EQUIPMENT	FAILED EQUIPMENT	13134	High side and low side bushing failed
08/22/2011	WILMINGTON ISLAND 039438 - TYBEE ISLAND 46 KV	WIND	12200	DCC reported structures down. Tripped PCB 039438 by supervisory control
09/04/2011	DEPTFORD	FAILED EQUIPMENT	62845	Insulator failed on 115kV switch 028971
10/13/2011	EVANS PRIMARY – THOMSON PRIMARY 115 KV	WIND	12571	Three structures down on the Kiokee tap. All load restored via alternates sources

2012				
Outage Date	**Facility/Line Name**	**Cause**	**Outage Duration (MVA minutes)**	**Additional Comments**
02/18/2012	KETTLE CREEK PRIMARY – PINE GROVE PRIMARY 115 KV	WIND	10584	Fault indicated 20 miles from Kettle Creek. Structures 61 thru 71 down on the Pearson tap. Suspect possible tornad
03/13/2012	OHARA – SOUTH GRIFFIN 115 KV	FAILED EQUIPMENT	15477	Lightning arrestors failed on bank A at Hampton and on bank A at Dailey Mill.
6/12/2012	AVALON JUNCTION – BIO 115 KV	FALL IN – OFF R/W	11868	Trees on line between structures 8 and 9 on the Gum Log tap. Gum Log restored from alternate source
07/01/2012	CLAXTON – MELDRIM 115 KV	MAJOR STORM	17060	Tree on line between East Claxton and Pembroke. Meldrim PCB 8958 would not close by supervisory control.
07/01/2012	COLEMAN – MELDRIM 115 KV	MAJOR STORM	13797	Tree on line at structure 105
07/03/2012	AIRGAS	MAJOR STORM	16360	Customer trouble
07/06/2012	STOCKBRIDGE	FAILED EQUIPMENT	29928	
07/16/2012	PECAN CITY	PLANNED OUTAGE	22804	Snake on EMC regulator. The 115kV circuit switcher failed to open. The power transformer failed. The source line operated to lockout. All load restored from alternate source
07/30/2012	OHARA – SOUTH GRIFFIN 115 KV	FALL IN – OFF R/W	12118	Tree on line at structure 110. PCB 141038 at South Griffin was slow to trip. Breaker failure scheme operated.

2012				
Outage Date	**Facility/Line Name**	**Cause**	**Outage Duration (MVA minutes)**	**Additional Comments**
08/07/2012	KENNESAW	PLANNED OUTAGE	11390	Animal on EMC bus. Load restored from alternate source by 10:51.
11/06/2012	HAMMOND - LAFAYETTE PRIMARY 115 KV	Vehicle	20174	Vehicle hit structure 18.
11/10/2012	ERCO WORLDWIDE	Customer Trouble	32610	AIM tripped when circuit breaker F2112 was closed. Customer Trouble

Major Event Summary

Major Event:
Severe Storms (including lightning, tornados and straight line winds) – April 27 – 28, 2011.

Event Overview:
A series of severe thunderstorms associated with a weather front moved through Georgia beginning in the early afternoon hours of April 27th and extending into the late evening and early morning hours of April 28th. Tornados associated with these storms began damaging the transmission system and load serving ability briefly during the afternoon hours followed by a second, more severe set of storms in the evening and overnight hours. This same storm system caused widespread damage in Mississippi, Alabama, and Tennessee.

Root Cause:
Severe weather (six (6) F1 tornados, two (2) F2 tornados, five (5) F3 tornados, and two (2) F4 tornados) across the state of Georgia causing damage to Georgia Integrated Transmission System (ITS) facilities resulting in the loss of twenty-seven (27) transmission lines and one (1) substation bus across the state.

Observations:

1. While damage was severe in places and widespread, the transmission system as a whole held up very well through this severe weather event.

2. GPC worked closely with the other owners of the Georgia ITS to coordinate, facilitate, and complete the repair of the damaged facilities. Fourteen (14) of the damaged transmission facilities were returned to service within 24 hours of the event. Twenty-six (26) had been returned to service 4 days after the event and all transmission facilities damaged by the storms were returned to service within 2 weeks of the event.

3. Communication and coordination with generator operators was very important during this event, allowing for the control of power flows on the transmission system, which in turn allowed for the reliable operation of the overall power system.

Lessons Learned:

1. Good preparation and experience with severe weather events proved very valuable both during and after this event.

Other Observations for Reliability Improvement: None.

[C2]

GEORGIA ITS
TEN YEAR TRANSMISSION EXPANSION PLAN
(2013 – 2022)

[C2A]

EXECUTIVE SUMMARY

Executive Summary

The 2012 Georgia ITS Ten Year Transmission Plan Assessment provides results of the latest planning studies of Georgia's transmission facilities in compliance with all appropriate NERC Reliability Standards, including TPL-001-0, TPL-002-0, TPL-003-0 and TPL-004-0. These studies identify an array of needs driving transmission system enhancements and the potential projects anticipated to meet those needs.

The transmission system in Georgia (2012) consists of 46 kV in Savannah (122 miles), 115 kV (*7,878* miles), 230 kV (*4,673* miles), and 500 kV (*1,717* miles), totaling approximately *14,390* miles. The Georgia electric transmission system interconnects with the transmission networks in the surrounding states of Alabama, Florida, South Carolina and Tennessee through transmission lines of 115 KV, 230kV and 500KV. Based on the 2012 Georgia ITS Ten Year Transmission Plan Assessment, it is estimated that the Georgia ITS Participant utilities will build *191* miles of new transmission lines on new rights-of-way and will make improvements to *502* miles of lines on existing rights-of-way over the next ten years (refer to Table 1). Also several transmission substations (low-side voltage of 115 kV and above) reliability improvement projects are scheduled for completion during the ten year period.

Table 1 Summary of Georgia ITS Transmission Additions 2012 Ten Year Transmission Expansion Plan	
New Transmission Lines Requiring New Right-of-Way	
500 kV	2 lines / *63* miles
230 kV	4 lines / *80* miles
115 kV	5 lines / *48* miles
Transmission lines to be Rebuilt, Reconductored or Upgraded on Existing Right-of-Way	
500 kV	0 lines / *0* miles
230 kV	11 lines / *177* miles
115 kV	46 lines / *325* miles
New Transformers to be Installed (low-side >115kV)	
(# of transformers / total increase in capacity)	17 transformers / *9,332* MVA
New Capacitor Banks to be Installed	
	(# of installations / capacity)
115 kV	8 installations / *253* MVAR
230 kV	3 installations / *410* MVAR

Georgia's ten year expansion plan is based on the assumption that electric load demand growth will fluctuate between 2% and 3% annually. Georgia's load forecast takes into consideration its expansion of efforts in efficiency and demand side management (DSM) programs. Georgia's demand (ITS) for electricity reached 27,683 MW during the summer of 2012.

Major Projects

The Georgia ITS Participants plan to invest approximately $1.1 billion over the next 10 years in transmission system CAPITAL improvement projects in its operating territory. Table 2 summarizes some of the MAJOR projects during the next 10 years.

TABLE 2: Major Projects

Zone	TEAMS Number	Project Name	Status	Project Sponsor	Year
201	13034	VILLA RICA PRIMARY 500/230KV AUTOBANK SPARE PHASE	A	GPC	2013
208	13832	GTC: UNION CITY 500/230KV AUTOTRANSFORMER SPARE PHASE	W	GTC	2013
216	11070	SPRING CREEK 115 KV SWITCHING STATION	A	GTC	2013
201	13662	WANSLEY 7 NETWK IMPV (REMOVE VILLA RICA 230 REACTORS)	A	GPC	2014
208	14110	WANSLEY 7 NETWK IMPV (YATES 230-KV OVERSTRESSED BKR REPLMTS)	A	GPC	2014
208	14505	DYER ROAD 230/115KV SUBSTATION (YATES AUTO)	A	GPC	2014
211	13664	WANSLEY 7 NETWK IMPV (OHARA-WANSLEY 500 KV LINE LOOP IN)	A	GPC	2014
211	13667	GTC: WANSLEY 7 NETWK IMPV (DRESDEN 500/230 EXPANSION)	W	GTC	2014
211	14535	JUDY MOUNTAIN 230/115KV - ROME AREA IMPROVEMENTS	W	GTC	2014
213	11286	MEAG: CRISP COUNTY AREA IMPROVEMENTS - PHASE II	W	MEAG	2014
213	12719	FIRST AVENUE 230/115 KV AUTO LS JUMPER REPLACEMENTS	W	GPC	2015
219	12916	BOULEVARD 230/115-KV PROJECT	A	GPC	2015
213	12581	CORN CRIB 230/115 KV SUBSTATION	W	GPC	2018
202	11671	SHARON SPRINGS 230/115-KV SUBSTATION	W	GTC	2019
208	14878	YATES 115KV BUS REBUILD	W	GPC	2020
208	09347	S. METRO ATLANTA PHASE-3 PROJECT, (OHARA-MCDONOUGH 230-KV)	W	GPC	2021
208	11242	GTC: HIGHWAY-54 230/115-KV TFM. ADDITION	W	GTC	2022

Status: A-Approved, W-Working Project Sponsor: GPC-Georgia Power Co., GTC- Georgia Transmission Corp., MEAG- MEAG Power

The capital expenditures needed by Georgia Power for necessary transmission system expansion over the next 10 years (2013 through 2022) can be broken down into the following categories.

Category	*2012 Update 10-year capital estimate in millions*
Bulk	$ 914.24
Generation	$ 168.75
Interface	$ 0
Total expenditures	$ 1,083.0

Some of the factors that can influence the total ten year expansion plan cost can include the following:

- Completion of prior projects that improve reliability
- Changes in load forecast
- Changes in generation resources and patterns
- Improved resource planning to manage construction projects
- Additional projects that are driven by expanding economic
- Increasing equipment and labor costs

The current 2012 Georgia ITS Ten Year Expansion Plan has not yet been accepted by the ITS Joint Committee. Particular aspects of this plan, such as project timing, may be subject to further review and change.

[C2B]

EXPANSION PLAN ASSESSMENT & ASSUMPTIONS

2012 Georgia ITS
10 Year Transmission Plan Assessment
(December 2012)

OBJECTIVE:
The 2012 Transmission Plan Assessment was performed by Southern Company Services - Transmission (SCST) Transmission Planning for the 10 year planning horizon (2013-2022). The assessment is conducted annually, including near-term (years 1-5) and longer-term (years 6-10) planning horizons, to ensure reliable system performance consistent with the NERC TPL Standards and Southern Company Planning Guidelines.

ASSOCIATED NERC STANDARDS:
TPL-001-1, TPL-002-1b, TPL-003-1a, TPL-004-1.

ASSESSMENT AND STUDY METHODOLOGY:
This assessment demonstrates that the Georgia Integrated System (ITS) portion of the Southern Balancing Authority Area (SBA) is planned such that the transmission network is designed and can be operated to supply all projected customer demands and projected Firm (non-recallable reserved) Transmission Services. This includes demand levels over the range of forecast system demands, under the contingency conditions and system limits or impacts as defined in Category A, B, C or D of Table 1 in NERC TPL Standards.

The 10 Year Transmission Plan Assessment is conducted annually and includes near-term (years 1-5) and longer-term (years 6-10) planning horizons. The assessment is based on reviews of the detailed transmission planning studies performed in 2012 covering critical system conditions over the study years and a validation screening analysis to confirm that the expansion plans in aggregate meet all TPL Standard requirements. The study process also considers construction lead times necessary to implement transmission expansion plans.

The studies are performed using transmission system model base cases which are updated annually based on the most current 10 year forecast for load, generation, approved transmission expansion and Firm Transmission Service.

Base case models include:

1) Modeling of existing facilities and those planned facilities based on forecasted generation and future years Transmission expansion.
2) All transmission facilities are rated consistent with the methods described in Southern Company Transmission Policy 11, Southern Company Electric System Transmission Facility and Equipment Rating Methodology, in compliance with NERC Reliability Standard FAC-008-1.
3) These models include expected generation dispatch. In cases where selected generating units are removed from service (N-G), the remaining generation for the system is re-dispatched again based on expected generation dispatch of available units.
4) The modeled loads are based on each Operating Company's official load forecast, which is also the basis for other planning and reporting requirements, in accordance with the NERC Reliability Standards. Load representations of other entities (i.e., TVA, PowerSouth, SMEPA, GTC, MEAG, and Dalton) within the Southern Balancing Authority Area (SBA) are obtained from each of those entities during the coordinated base case development effort each year.
5) Updated representations of the PowerSouth and SMEPA Balancing Authority Area models are also obtained directly from those entities during the annual basecase update. Representations of other Balancing Authority Areas are generally obtained from the latest NERC MMWG and/or FRCC power flow cases.
6) Modeling of existing and planned reactive power resources to ensure that adequate reactive resources, such as charging from Transmission lines, shunt capacitors, shunt reactors, static var

compensators (SVCs), and reactive capability within generating units, are available to meet system performance.

7) Modeling of effects of existing and planned control devices by including existing and planned generation, switched shunt capacitors/reactors, and static var compensators which can automatically control the voltage within the pre-set values/ranges. There are also series reactors and phase shifting Transformers that control system power flows.
8) Modeling of planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed. In general, normal maintenance periods do not coincide with critical system conditions. Maintenance evaluations are mainly performed in System Operations for shorter duration outages. Planned long duration outages lasting over the critical system condition periods (summer months) would be included in the Transmission Planning future base cases as appropriate. None were scheduled in the current 10 year planning horizon during critical system conditions.
9) Base case system models incorporate normal (pre-contingency) operating procedures in place.
10) All projected firm Transmission services within the SBA and on the interfaces are included in the planning models. The interchange schedules for other areas are modified from those in the MMWG cases to be consistent with the obligations within the SBA. Therefore, these cases represent the most recent projections of system conditions and Firm transmission service obligations available during the planning process.

If the effects of existing or planned protection systems cannot be accurately simulated for Category B, C and D events using the typical modeling method (one bus for each Transmission voltage level in each substation), more explicit models are developed. These may be incorporated into the standard base cases or applied to the cases as necessary for special studies such as evaluation of ring bus internal flows.

There are various types of studies conducted throughout the year long planning process. This assessment is performed for selected demand levels over the range of forecast system demands. The Southern Balancing Authority Area is a summer peaking system and the summer peak (Gross and Contract) cases are studied as critical system conditions. A shoulder case is also studied as a critical system condition because of reduced dispatch flexibility associated with the energy limits of hydro generation. This shoulder case has a load level of 93% of summer peak without hydro generation being available (hydro generator is either modeled off or motoring as appropriate for each unit).

The SCST Transmission Planning study methodology for steady state analysis employs an automatic Transmission facility contingency function within the Siemens PTI PSS/E Power Flow program to identify potential system problems for system normal, single, and multiple contingency events (generation unit and a Transmission facility out of service) for each year during the near-term and long-term planning horizons. As a starting point in assessing system performance, SCST Transmission Planning builds power flow cases with all expected generation in service (N-0) and with key generating units removed from service (N-G) selected to provide more severe stress on the system. These selected key generating units that provide more severe stress on the system have been identified through experience over many years of conducting power flow analysis based upon their relative size, location or other factors. The power flow cases are first screened to ensure no voltage or thermal violations exist. The study methods used for annual planning studies includes screening for all Transmission elements within the SBA in service (N-0 and N-G), then, for all Transmission elements within the SBA taken out-of-service (Transmission line or Transformer contingency) one element at a time (N-1, N-G, N-1-G and N-2G), and study the resulting impact on the remaining system element loadings and bus voltages. The results from this study method demonstrate not only the requirements for all Category B contingencies (B1, B2 and B3 not B4 due to no HVDC in SBA) are met, but also some Category C contingencies, such as loss of two elements (one generator and one Transmission circuit or Transformer, and two generators), are met without loss of demand or curtailed firm Transfers.

The assessment is based on studies of the ten-year planning horizon. Once a violation is identified in a study, either a viable operating procedure and/or a Transmission improvement (corrective action plan) is proposed to

address any planned upgrade needed to meet the performance requirements of Categories A and B contingencies and certain Category C contingencies. Any operating procedures identified to address a violation would be approved by Georgia Power Operations. The proposed Transmission improvements are submitted to Georgia Power for budgetary approval. The following information is included for each project: 1) project justification, 2) schedule for implementation (start date), and 3) expected required in-service date. For Transmission improvements, lead times necessary to implement plans are considered to ensure the expected required in-service date can be met.

For multiple contingencies encompassing more than one Transmission element as specified in Category C of NERC TPL-003-0, the study methodology utilizes Siemens PTI PSS/E Power Flow program to simulate the contingencies and determine the impact to the bulk electric system. The simulation results are reviewed to ensure that all thermal and voltage results are within applicable ratings. If facilities are not within ratings, then plans are developed to return the system within ratings. These plans may include:

- Tripping of load and/or curtailment of firm transfers will be the primary remedial action.
- If required, operating guides that reconfigure the system will also be considered. Any operating guides identified will go through a thorough review process to ensure that they are viable for use under the specified conditions.

In either case, overloaded line elements will be evaluated with EPRI's Dynamp program (or equivalent program) to determine the time available for operators to make these adjustments prior to the line reaching its rated operating temperature. Again, any projects identified will be included in the appropriate operating company's plans and scheduled for completion allowing an appropriate implementation lead-time.

Extreme events are also analyzed resulting two or more elements out-of-service as specified in Category D of NERC TPL-004-0a. The study method uses the TransCare/TRELSS program to simulate these contingencies and resulting system corrective actions and performance. The simulation results are evaluated for risks and consequences as required by the standard.

Validation screening is performed at the end of the study cycle incorporating all of the improvements in the corrective action plan. This validation is done to show that with the implementation of the corrective action plan, all voltage and thermal problems will be addressed.

ASSESSMENT CONCLUSION:

The studies referenced in this document demonstrated the Georgia Integrated System (ITS) is planned such that it could be operated to supply projected customer demands and Transmission services, at appropriate demand levels and throughout the near-term and longer-term planning horizons, under the contingency conditions and system performance requirements as defined in NERC TPL-001-1 through TPL-004-1.

2012 Georgia ITS
10 Year Transmission Plan Assumptions
(December 2012)

LOADS:
Refer to the 2012 Series Load Forecast table for summer peak load projections by year.

GENERATION:
Future generation assumptions for native load resources for Southern Company, GTC, MEAG, and Dalton are shown in the table titled Load Flow Base Case Generation Assumptions for NL Resources (Southern & ITS). The table lists year-by-year unit additions and retirements, as well as beginning and termination dates of purchased power agreements, for all parties incremental to the resources in existence in 2012. The dispatch program that is used commits sufficient resources to satisfy the load and reserve requirements for each company in each base case or unit-out case, then adjusts the output level for each generator in the most economical manner.

CASES:
2013 – 2022 Cases were used for the analysis:

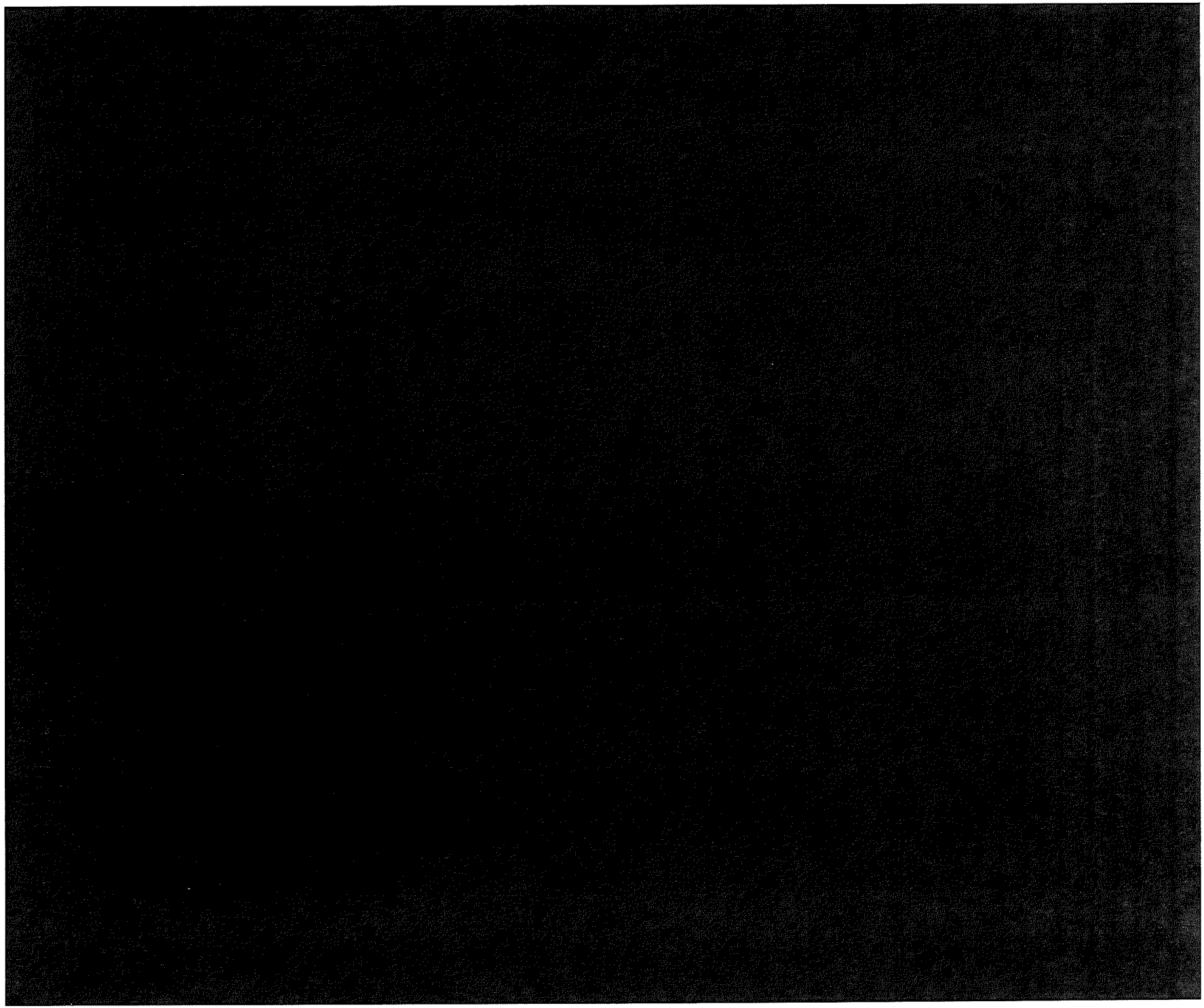
Contract Case (C): Contract transfers to Florida, summer peak load.
Gross Case (G): 3700 MW transfers to Florida, summer peak load.
Shoulder – Contract Case (I): 93% peak summer load, Hydro off in Georgia, contract transfers to Florida.
Shoulder – Gross Case (H): 93% peak summer load, Hydro off in Georgia, 3700 MW transfers to Florida.
Hot Weather Case (T): 107% peak summer load, contract transfers to Florida.

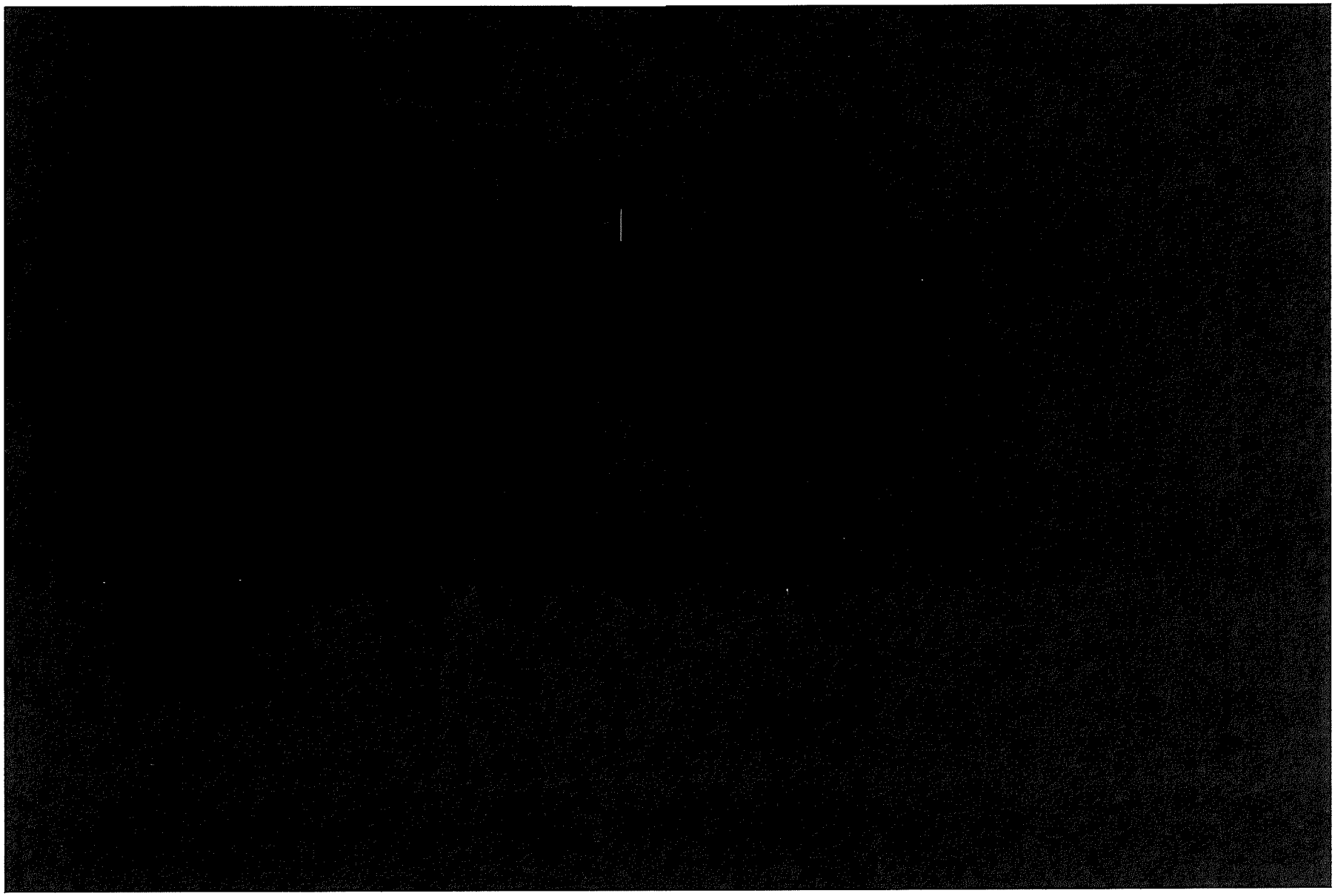
GENERATION SCENARIOS:
A summary of key unit scenarios and area max cases were created as indicated in the tables labeled Generation Scenarios.

ANALYSIS:
N-0 and N-1 contingency analysis was performed on all cases using Rate B (95°F ambient temperature) equipment rating with the exception of the Hot Weather Cases.

For Hot Weather Cases, N-0 analysis was performed using Rate A (104°F ambient temperature) equipment rating.

Additionally, the ITS evaluates normal open point configurations on the Gross Cases. The ITS has backup transmission service paths to some loads that have radial service. The function of these back up service paths is to shift load from one circuit path to another should the primary service path be out of service. These branches cannot remain closed without also opening up the primary service feed because system protection will not adequately protect the transmission line if operated as a network transmission line. If any backup service is desired, GPC System Operations evaluates the transmission system to ensure that the system can accommodate the request prior to reconfiguration.





2012 SERIES - GENERATION SCENARIOS

Generation Scenario	Case Type			
	Contract	Gross	Shoulder	Shoulder-Gross
No Unit Off (Base)	X	X	X	X
Allatoona Dam Off	X	X	X	X
Bowen 1 Off	X	X	X	X
Bowen 4 Off	X	X	X	X
Branch 4 Off (2013 - 2014)	X	X	X	X
Buford Dam Off	X	X	X	X
Carters Dam 1 Off	X	X	X	X
Conasauga Off	X	X	X	X
East Bainbridge 1 Off	X	X	X	X
Effingham County Off	X	X	X	X
Firm AL Gen to OPC On	X	X	X	X
Firm AL Gen to OPC On/Bowen 4 Off	X	X	X	X
Firm AL Gen to OPC On/Hatch 1 Off	X	X	X	X
Firm AL Gen to OPC On/Lansing Smith 3 Off	X	X	X	X
Firm AL Gen to OPC On/McDonough 6 Off	X	X	X	X
Firm AL Gen to OPC On/Wansley 9 Off	X	X	X	X
Farley 1 Off	X	X	X	X
Farley 2 Off	X	X	X	X
Franklin 1 Off	X	X	X	X
Franklin 2 Off (start 2013)	X	X	X	X
Franklin 3 Off (2012 only)	X	X	X	X
Hammond 1 Off	X	X	X	X
Hammond 4 Off	X	X	X	X
Hammond Common Scrubber (start 2015)	X	X	X	X
Hancock 1 Off (start 2021)	X	X	X	X
Hatch 1 Off	X	X	X	X
Hatch 2 Off	X	X	X	X
Jasper SC CC Off	X	X	X	X
Kraft 2 Off	X	X	X	X
Kraft 3 Off	X	X	X	X
Lansing Smith 3 Off	X	X	X	X
McIntosh CC10 Off	X	X	X	X
McDonough 4 Off	X	X	X	X
McDonough 6 Off	X	X	X	X
McManus 2 Off	X	X	X	X
Mid Georgia Cogen Off	X	X	X	X
Miller 2 Off	X	X	X	X
Mitchell 3 Off	X	X	X	X
Rocky Mtn 1 Off	X	X	X	X
Rumble Road 1 Off	X	X	X	X
Scherer 4 Off	X	X	X	X
Scholz 1 Off	X	X	X	X
Sewell Creek 1 Off	X	X	X	X
Suwannee (FL) Off	X	X	X	X
Vogtle 1 Off	X	X	X	X

2012 SERIES - GENERATION SCENARIOS

Generation Scenario	Case Type			
	Contract	Gross	Shoulder	Shoulder-Gross
Vogtle 2 Off	X	X	X	X
Wansley 1 Off	X	X	X	X
MEAG Wansley Off	X	X	X	X
West Point Dam Off	X	X	X	X
Yates 3 Off	X	X	X	X
Yates 7 Off	X	X	X	X
Albany Area Max (Mitchell & Sowega)	X	X	X	X
Athens/Monroe Area Max (Dahlberg, Monroe, LGE Monroe, & Doyle)	X	X	X	X
Athens Area Max (Dahlberg)	X	X	X	X
Brunswick Area Max (McManus)	X	X	X	X
Loopers Area Max (Conasauga and Loopers)	X	X	X	X
Franklin Area Max (Franklin, Lee Road, & Talbot)	X	X	X	X
Franklin & Firm AL Area Max (Franklin, Lee Road, Talbot, & Firm AL Gen to OPC On)	X	X	X	X
Macon Area Max (Branch, Mid-GA, Rumble Road, & Robins AFB)	X	X	X	X
Metro Atlanta Area Max (Jack McDonough)	X	X	X	X
Monroe Area Max (Monroe, LGE Monroe, Doyle)	X	X	X	X
Murray Area Max (start 2012) (Conasauga and Loopers)	X	X	X	X
Rome Area Max (Hammond & Rocky Mountain)	X	X	X	X
Rome/Sewell Area Max (Hammond, Rocky Mountain, & Sewell Creek)	X	X	X	X
Sinclair Area Max (Branch, Washington County CT, Tiger Creek, & Warthen)	X	X	X	X
Savannah Area Max (McIntosh, Kraft, Boulevard, & Effingham)	X	X	X	X
Vogtle/Wilson Area Max (Vogtle & Wilson)	X	X	X	X
Wansley Area Max (Wansley 1, 2, 5A, 6, 7, 9, Chattahoochee Energy, Yates, Tenaska, & Hawk Road)	X	X	X	X

[C2C]

ZONE STUDY RESULTS

Central Region – Zone 214

Overview
The Central Region is located in the central part of the state and it includes the following counties: Jasper, Putnam, Hancock, Monroe, Jones, Baldwin, Washington, Bibb, Twiggs, Wilkinson, Johnson, Peach, Houston, Bleckley, Laurens, Treutlen, Pulaski, Dodge, Wheeler, Montgomery, Toombs, Wilcox, Telfair, Jeff Davis and Appling.

There is one major city in the area – Macon.

There is one major military base in the Central Region – Robbins Air Force Base. This military base contains four substations – Robins AFB #1, #2, #3 and #4, and one switching station – Wellstone. In addition, there is a Robins CT generating plant inside the substation.

Generation located in the region:

Generator	Unit	Hi-Side Voltage	Fuel Type	MW Output
Wallace Dam	1	230 kV	Hydro	53
	2	230 kV		53
	3	230 kV		56
	4	230 kV		56
	5	230 kV		53
	6	230 kV		53
Sinclair Dam	1	115 kV	Hydro	22.5
	2	115 kV		22.5
Scherer	1	500 kV	Coal	841
	2	500 kV		855
	3	500 kV		905
	4	500 kV		905
Middle GA Cogeneration CTs	1	230 kV	Gas	112
	1A	230 kV		102
	1B	230 kV		102
Smarr Energy CTs (Rumble Road)	1	115 kV	Gas	109
	2	115 kV		109
Robins AFB CTs	A	115 kV	Oil, Gas	80
	B	115 kV		80

Generator	Unit	Hi-Side Voltage	Fuel Type	MW Output
Warthen	1	500 kV	Gas	86.5
	2	500 kV		86.5
	3	500 kV		86.5
	4	500 kV		86.5
	5	500 kV		86.5
	6	500 kV		86.5
	7	500 kV		86.5
	8	500 kV		86.5
Hatch	1	230 kV	Nuclear	924
	2	500 kV		924
Washington County Power (Tiger Creek)	1	230 kV	Gas	152
	2	230 kV		152
	3	230 kV		152
	4	230 kV		152
Plant Branch	1	230 kV	Coal	266
	2	230 kV		325
	3	230 kV		509
	4	230 kV		507

Existing Demand and Load Growth:

- 2012 – 2175 MW
- 2022 – 2601 MW
- 19.58 % growth rate over the ten year period, or approximately 1.95 % per year

Key Planning Issues

There is one planned generation facility as follows:

- 2022: Hancock County CC – 940 MW

There are no major interface concerns or major transmission constraints between connecting zones.

Recently completed transmission projects:

- Waterford Loop in/out 115 kV Project (2010)
- Arkwright – Gordon #1 115 kV Line Reconductor Project (2011)
- Forrest Road – Rumble Road 115 kV line panel upgrades (2011)
- Plant Scherer Scrubber Project (2012)

Major transmission line and/or transformer additions needed in the Central Region in the next ten years:

- Bonaire - Kathleen 115 kV Line Reconductor (2015)
- Gordon – Sandersville #1115 kV Line Upgrade (2016)
- Aultman Road – Bonaire Primary 115 kV Reconductor (2016)
- Hatch – Vidalia 230 kV Reconductor (2019)
- Baxley – South Hazlehurst 115KV Line Improvement (2019)
- Eatonton – Lake Oconee 115 kV Reconductor (2021)
- Aultman Road – Bonaire Primary 115 kV Reconductor II (2021)
- Hatch – Offerman 230 kV Line Reconductor (2022)
- Bonaire Primary – Eastman Primary 115 kV Upgrade (2022)
- Bonaire Primary 230 kV Capacitor Bank Addition (2022)

Long Term Planning Issues

Load growth in the Central Region will be moderate over the next ten years. Following the 2007-2009 recession, the economic recovery has been one of moderate growth in output and employment, with most economic forecasts indicating that this pattern will continue. The moderate economic growth translates into the need of major transmission projects moving beyond the 10 year planning horizon for Central Georgia.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2015	For loss of the Bonaire - Kathleen 230kV line, the Bonaire - Waterford 115kV line section exceeds its 143 MVA thermal line rating.	Bonaire - Kathleen 115 kV Line Reconductor	13588
2016	Under summer peak conditions, loss of the Branch - Gordon 230 kV line will cause the Gordon - Robin Spring section to exceed its 63 MVA contingency rating.	Gordon – Sandersville #1 115 kV Line Upgrade	10442
2016	For loss of the Bonaire - 96 Highway 115 kV line section, the Bonaire - Peach Blossom 115 kV line section exceed its 124 MVA thermal line rating.	Aultman Road – Bonaire Primary 115 kV Reconductor	12576
2019	The Hatch - Vidalia 230-kV line thermal rating is exceeded under the loss of the McCall Rd - Thalmann 500-kV line,	Hatch – Vidalia 230 kV Reconductor	13606

Year	Problem	Project Name	TEAMS #
2019	For loss of the E. Vidalia - W. Lyons section of the Baxley - Vidalia 115kV line, the line jumpers (350 AAC) at Pine Grove exceed their thermal capacity rating.	Baxley – South Hazlehurst 115KV Line Improvement	13864
2021	For loss of the Greensboro – Gum Hill J segment on the Greensboro – Lake Oconee 115 kV line, the operating procedure calls for closing the segment between Lake Oconee – Walkers Church using RLB switch 274881 at Lake Oconee. This causes an overload on the segment between Eatonton - Harmony J.	Eatonton – Lake Oconee 115 kV Reconductor	12579
2021	For loss of the Bonaire - 96 Highway 115 kV line section, the Bonaire - Peach Blossom 115 kV line section exceed its 124 MVA thermal line rating.	Aultman Road – Bonaire Primary 115 kV Reconductor II	13787
2022	For the lost of Thalmann 500/230 kV autobank the Hatch - Offerman 230 kV line exceeds its 509 MVA thermal rating.	Hatch – Offerman 230 kV Line Reconductor	13210
2022	The loss of the 115 kV source from Kathleen 625778 requires to close NOP RLB 90579 at Hawkinsville to pick up the load on several stations from the Bonaire Primary - Eastman Primary 115 kV line. This overloads the Cochran - Cochran Junction segment.	Bonaire Primary – Eastman Primary 115 kV Upgrade	14758
2022	The loss of the Bonaire 500/230 kV transformer will result in suppressed voltages in several busses around the middle Georgia area.	Bonaire Primary 230 kV Capacitor Bank Addition	14873

Coastal Region – Zone 218
&
Savannah Region – Zone 219

Overview

The Coastal Region is located in the southern part of the state and includes the following counties: Emanuel, Candler, Bulloch, Screven, Effingham (Zone 219), Chatham (Zone 219), Bryan, Evans, Tattnall, Liberty, Long, Wayne, McIntosh, Glynn, and Camden.

There are three major cities in the region. Statesboro is located about 60 miles west of Savannah off of I-16 and is the home of Georgia Southern College. Savannah is a port city located on the Savannah River. Brunswick, located about 60 miles south of Savannah is also a port city.

There are three military bases located in the region: Fort Stewart (Army), Hunter Army Air Field, and U.S Naval Base at Kings Bay.

Generation located in the region:

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
McManus	1	115-kV	Oil	43
	2	115-kV		79
McManus CT	3a	115-kV		52
	3b	115-kV		52
	3c	115-kV		52
	4a	230-kV		54
	4b	230-kV		54
	4c	230-kV		54
	4d	230-kV		54
	4f	230-kV		54
Effingham CC	1	500-kV	Gas	507
McIntosh	1	230-kV	Coal	156
McIntosh CT	1	230-kV	Oil, Gas	83
	2	230-kV		83
	3	230-kV		83
	4	230-kV		83
	5	230-kV		83
	6	230-kV		83
	7	230-kV		83
	8	230-kV		83

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
McIntosh CC	10	230-kV	Oil, Gas	646
	11	230-kV		646
Kraft	1	46-kV	Coal	48
	2	46-kV		52
	3	115-kV		102
	4	115-kV		114
Kraft CT	1	46-kV	Oil, Gas	17
Boulevard CT	1	115-kV	Oil, Gas	14
	2	115-kV		14
	3	115-kV		13

Existing Demand and Load Growth:

- 2012 – 2,234 MW
- 2022 – 2,681 MW
- 20% growth over the ten year period, or approximately 2.0 % per year

Key Planning Issues

No new generation is planned for the ten year period.

The Savannah/Hinesville area runs parallel to the West McIntosh – McCall Road – Thalmann 500-kV circuit. Loss of this circuit causes heavy flows on the underlying 230-kV and 115-kV system.

Recently completed transmission projects:

- McIntosh – West McIntosh 230-kV Black and White lines re-conductor
- Meldrim 230/115-kV transformer
- Kraft – McIntosh 230-kV Black and White lines re-conductor
- Statesboro Primary – Wadley 115-kV line upgrade
- Deptford – Whitemarsh 115-kV radial line re-conductor

Major transmission line and/or transformer additions needed in the Coastal Region in the next ten years:

- McIntosh – Blandford – Meldrim 230-kV Black and White lines re-conductor (2014)
- Boulevard 230/115-kV transformer + Boulevard – Dean Forest 230-kV line (2015)
- McIntosh 230/115-kV transformer (2015)
- Plant Kraft 115/46-kV #2 transformer
- McIntosh – Yemassee (SC&G) 115-kV tie-line re-conductor (2015)

Long-term planning issues
The Coastal area continues to grow. There is higher than average load growth in the Savannah and Hinesville area. The load growth in the Hinesville area has decreased to the economy.

Transmission infrastructure will be needed between Savannah and Brunswick. Another 230-kV source will be needed at the Dorchester 230/115-kV substation to support the Hinesville area. This need has been pushed out of the ten year planning horizon due to the decrease in load and in generation pattern changes.

The West McIntosh – McCall Road – Thalmann 500-kV line runs parallel to the area. The outage of the 500-kV line puts heavy north to south flows on the underlying 115-kV and 230-kV system. But due to a decrease in load and in generation pattern changes, the flows are not causing any problems within the ten year planning horizon.

It is difficult to build transmission in the Savannah area due to dense urban area, historical sites and wetlands/waterways.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2014	Loss of a McIntosh - Blandford - Meldrim 230-kV line loads the other line past its 100C conductor rating.	McIntosh - Blandford - Meldrim 230-kV Black/White Reconductor	12093
2014	Loss of the McManus - West Brunswick 230-kV line under a Brunswick Area Max generation scenario, loads the McManus - West Brunswick 115-kV line past its 181 MVA conductor rating.	McManus – West Brunswick 115-kV Reconductor	13514
2015	Additional transmission capacity is needed to remove Plant Kraft (300 MW) from the must run list during peak and off-peak load conditions.	Boulevard 230-kV Project	12916
2015	With Kraft 46-kV units off, loss of the Kraft 115/46-kV transformer results in a depressed voltage profile on the 46-kV network system.	Plant Kraft 115/46-kV #2 Transformer	13191
2015	Loss of the McIntosh - Purrysburg 230-kV tie-line will load the McIntosh 230/115-kV transformer past its 319 MVA bonus rating.	McIntosh 230/115-kV Transformer Project	11662

Year	Problem	Project Name	TEAMS #
2015	Loss of McIntosh - Purrysburg (SCE&G) 230-kV tie-line will load the McIntosh - Jasper (SCE&G) 115-kV tie-line past its 75C, 1272 ACSR, 230 MVA conductor rating.	McIntosh - Yemassee (SCE&G) 115-kV Tie-line Reconductor	13670
2021	Loss of the Cemetery Hill - McIntosh 230-kV line will load the Goshen - McIntosh 115-kV line past its 181 MVA conductor rating.	Goshen – McIntosh 115-kV Reconductor	14730

East Region – Zone 215

Overview

The East Region is located in the eastern part of the state and includes the following counties: Columbia, Richmond, McDuffie, Wilkes, Taliaferro, Glascock, Warren, Jefferson, Burke, and Jenkins.

Augusta is the major city in the region. Augusta is located on the South Carolina border. Interstate-20 runs through Augusta with the Savannah River as the border between Georgia and South Carolina.

The Medical College of Georgia and Fort Gordon (Army) are located in Augusta. There are a number of large industrial customers in the area. Augusta Newsprint is the largest at 140 MW.

Clarks Hill / Thurmond Lake is located just to the north of Augusta. It is an Army Corp of Engineers facility.

Other cities located in the East Region include Thomson and Waynesboro.

Generation located in the region:

Generation	Unit	Hi-side Volt	Fuel Type	MW Output
Vogtle	1	230-kV	Nuclear	1180
	2	500-kV		1178
Wilson CT	A	230-kV	Oil	37.5
	B	230-kV		37.5
	C	230-kV		37.5
	D	230-kV		37.5
	E	230-kV		37.5
	F	230-kV		37.5
Thurmond Dam	1	115-kV	Hydro	51.7
	2-3	115-kV		51.7

Existing Demand and Load Growth:

- 2012 – 1,675 MW
- 2022 – 2,051 MW
- 22.5 % growth over the ten year period, or approximately 1.22 % per year

Key Planning Issues
New generation planned for the ten year period:

Generator	Year	Hi-side Volt	Fuel Type	MW Output	Owner
Vogtle 3	2016	230-kV	Nuclear	1100	ITS
Vogtle 4	2017	500-kV	Nuclear	1100	ITS

The Vogtle – Savannah River Plant 230-kV line is the only networked tie-line in the East Region. In the later years, this tie-line loads heavily. Interface capacity increase with VACAR is under study.

The 115-kV bus at Thurmond Dam is split with units 1 - 3 going to Georgia and units 4 – 7 going to South Carolina.

The South Augusta – Urquhart 115-kV tie-line has been disabled by request of SCE&G. Industrial customers normally served radial out of South Augusta are now backed-up from the Fenwick Street – South Augusta 115-kV Black line.

Recently completed transmission projects:
- Thomson 500/230-kV Project
  - Thomson Primary 1344 MVA, 500/230-kV transformer
  - Thomson Primary 230/115-kV transformer upgrade to 300 MVA
  - Dum Jon – Thomson Primary 230-kV line
  - Evans Primary 230/115-kV transformer upgrade to 300 MVA
- Union Point – Warrenton 115-kV Reconductor

Major transmission line and/or transformer additions needed in the East Region in the next ten years:
- Thomson Primary – Vogtle 500-kV line (2016)
- Wadley 500/230-kV Transformer (2016)
- Waynesboro Primary 230/115-kV (2016)
- Wadley 230/115-kV Transformer (2021)

Long-term planning issues:
Load growth in the East Region will be modest over the next ten years.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2016	Generator stability issue with the new Vogtle nuclear generation (units 3 & 4).	Plant Vogtle Network Improvement	11285
2016	Additional transmission capacity is needed for Vogtle unit 4 generator stability and for transmission loading problems in the East Region area.	Wadley 500/230-kv Project	14663
2016	Loss of the Wadley - Waynesboro 230-kV line loads the Waynesboro 230/115-kV transformer to 114% of its 280 MVA nameplate rating. Loss of the Waynesboro Primary 230/115-kv transformer load the Wadley Primary - Waynesboro Primary 115-kV line past its 124 MVA conductor rating.	Waynesboro 230/115-kV	12720
2021	Loss of the Vogtle - West McIntosh 500-kV line will load the Wadley Primary 230/115-kV transformer past its 147 MVA bonus rating (Nameplate rating = 125 MVA).	Wadley 230/115-kv Transformer Replacement	14732
2022	Loss of the Thomson 230/115-kv transformer loads the Evans Primary - Thomson Primary 115-kv line past its 124 MVA conductor rating. Loss of the Warrenton - Thomson Primary 230-kv line loads the Thomson Primary 230/115-kv transformer past its 300 MVA nameplate rating.	Thomson Primary 230/115-kV #2 Transformer	14222

Metro East Region – Zone 206

Overview
The Metro East Region is part of the Atlanta Metropolitan area and includes the following four (4) counties: Dekalb, Newton, Rockdale, and the portion of Fulton encompassing the City of Atlanta.

Dekalb is the third-most-populated county in the Atlanta area and the state. Recent Census estimate place the Dekalb County's population at approximately 740,000. The county contains roughly 10% of the city of Atlanta (90% in Fulton County). Other major cities in Dekalb County include Avondale Estates, Decatur, Dunwoody, Lithonia, and Stone Mountain.

Other large cites in the Metro East Region includes Conyers and Covington in Rockdale County.

There is one major 500/230kV substation in the Metro East Region and several that are barely outside the region. They have a combined transformer capacity of just over 10,000MVA. These substations are: Klondike, Norcross, Bull Sluice, and O'Hara.

Generation located in the region:
There is only one generating unit located within the Metro East Region. There are two generating facilities with strong ties to the region. Plant Jack McDonough with strong 230kV ties and a strong 500kV tie from Plant Scherer.

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
Morgan Falls	1	115 kV	Hydro	16.8

Existing Demand and Load Growth:
- 2012 – 3198 MW
- 2022 – 3734 MW
- 16.8% growth over the ten year period or approximately 1.68% per year

Key Planning Issues
The major issues that need to be addressed in the Metro East Region in the ten-year planning period are as follows:

1. Loading on the following 115kV line in a density restricted urban area;
    - Austin Drive – Morrow 115kV line
    - Grady – Morrow (Black) 115kV line
    - Conyers – Cornish Mountain 115kV line
2. Loading on the Plant Jack McDonough – Peachtree 230kV Line

No new generation is planned in the ten year period for the Metro East Region.

There are no major interface concerns or major transmission constraints between connecting zones.

Recently completed transmission projects:

- FIDVR Stability Project – Boulevard
- FIDVR Stability Project – Klondike
- FIDVR Stability Project – Grady
- FIDVR : Boulevard – Buckhead 230kV Redundant Pilot Relaying
- FIDVR : Buckhead – Powers Ferry 230kV Redundant Pilot Relaying
- FIDVR : Boulevard - Norcross 230kV Redundant Pilot Relaying
- Klondike 230kV Reactor Bypass Jumpers Projects
- Morrow 230/115kV Substation – 115kV switches
- Wansley 7 Network Improvement (Grady – Morrow 115kV Black & White Rebuild)
- McDonough 4&5 Network Improvement (Davis Street – West End 115kV Reconductor)
- McDonough 4&5 Network Improvement (Grady – Moreland Avenue 115kV Reconductor)

Major transmission line and/or transformer additions needed in the Metro East Region in the next ten years:

- Conyers – Cornish Mountain 115kV Line Reconductor (2015)
- Austin Drive – Morrow 115kV Rebuild project (2020)

Long-term planning issues

No new generation is planned within the Metro East Region. The majority of this region is in a high density area, which makes acquiring new transmission line routes difficult.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2015	Loss of the Klondike – Porterdale 230kV Line overloads the Conyers – Cornish Mountain 115kV line.	Conyers – Cornish Mountain 115kV line Reconductor	08839
2020	Loss of the Austin Drive 230/115kV transformer or switching Fairview & Transco to the Austin Drive – Morrow 115kV line overloads this line.	Austin Drive – Morrow 115kV Line Rebuild/Phase 2	10899
2021	Loss of Grady – Moreland Avenue 115kV Line overloads the Decatur – Moreland Avenue 115kV Line	Decatur – Moreland Avenue 115kV Upgrade	11235

Metro North Region – Zone 202

Overview
The Metro North Region is part of the Atlanta Metropolitan area and includes the following three (3) counties: Gwinnett, Forsyth, and the portion of Fulton County north of the city of Atlanta.

The 2009 Census Estimate places the Gwinnett County's population at 800,080, which is approximately 14 percent of the total Atlanta region population. Gwinnett is estimated to be the 9th fastest growing county in the country in terms of numerical growth. It is estimate to have captured approximately 26% of the region's growth since 2000.

In 2008, Forsyth County had been in the top ten fastest growing counties of the United States for several years. Close to Atlanta and the Blue Ridge Mountains and boarding the 37,000-acre Lake Sidney Lanier the county has attracted many of the Metro area's new residents.

The North Fulton county area has several municipalities with population above 50,000. These communities include Sandy Springs, Roswell, Johns Creek and Alpharetta.

There are two major 500/230kV substations in the Metro North Region and two that are barely outside its boundary. These substations are located at Norcross, Bull Sluice, McGrau Ford, and South Hall. They have a combine transformer capacity of approximately 10,450 MVA.

Generation located in the region:
There is only one generating unit located within the Metro East Region. The power consumed by the region flows through the transmission facilities located at Norcross, Bull Sluice, McGrau Ford, and South Hall.

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
Buford Dam	1	115 kV	Hydro	60
	2	115kV	Hydro	60
	3	115KV	Hydro	6

Existing Demand and Load Growth:
- 2012 – 4277 MW
- 2022 – 4926MW
- 15.2% growth over the ten year period, or approximately 1.52% per year

Key Planning Issues
The Metro North Region has been growing at an accelerated rate throughout the 90's and 2000's. The load growth is stressing the transmission infrastructure supplying this

region. This significant load growth will require substantial increase in transmission capacity to reliably serve the load.

The major issues that need to be addressed in the Metro North region in the ten-year planning period are as follows:

1. Loading on the Snellville 230/115kV and Bay Creek 230/115kV transformers.
2. Lack of a 230kV source in the area between Hopewell and Suwanee.
3. Power flow out of the McGrau Ford substation on the 230kV lines toward Hopewell and Cumming.
4. Power flow out of the South Hall substation on the 230kV line toward Shoal Creek.
5. Power flow out of the Norcross substation on the 230kV line toward Ocee.
6. Power flow on the 115kV and 230kV lines between Lawrenceville and Winder.

No new generation is planned in the ten year period for the Metro North Region.

Recently completed transmission projects:

- FIDVR Stability Project – Norcross
- FIDVR Stability Project – South Hall
- FIDVR : Dering Circle - Norcross 230kV Redundant Pilot Relaying
- FIDVR : North park – Perimeter Center 230kV Redundant Pilot Relaying
- FIDVR : Glaze Drive - Norcross 230kV Redundant Pilot Relaying
- Alpharetta – Woodstock 230kV Relay Panel Replacement

Major transmission line and or transformer additions needed in the Metro North Region in the next ten years:

- MEAG: Lawrenceville #4 115kV Switch Replacement (2018)
- Sharon Springs 230/115kV Substation (2019)
- GTC: Arnold Mill – Hopewell 230kV Area Project (2021)
- Lawrenceville – Lawrenceville #4 115kV Reconductor (2021)

Long-term planning issues:

No new generation is planned the Metro North Region. As in past years, the power needed to meet the demand of the Metro North Region will have to be imported from outside the region.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2018	Loss of Bay Creek 230kV transformer overloads the Lawrenceville – Moon Road 115kV line	MEAG: Lawrenceville #4 115kV Switch Replacement	13213
2019	Loss of either end of the Hopewell – Suwanee 115kV line overloads the other end.	Sharon Springs 230/115kV Substation	11671
2021	Loss of the Holly Springs to New Light Church section of the Holly Springs – Hopewell 115kV line overloads the Hopewell to Birmingham section.	GTC: Arnold Mill – Hopewell 230kV Area Project	13614
2021	Loss of 115kV tap serving Lawrenceville #4 and Bramlett Shoals	Lawrenceville – Lawrenceville #4 115kV Reconductor	09939

Metro South Region – Zone 208

Overview

The Metro South Region is geographically located in a triangular area that is roughly bounded by Greenbriar in Fulton County, Newnan in Coweta County and Lloyd Shoals near the Butts/Jasper county line. It includes most of the following counties: Coweta, Fayette, Clayton, Henry, Butts and also, the southern half of Fulton County.

There are two major 500/230-kV substations in the Metro South Region and one that is barely outside its territory. Together, they have a combined transformer capacity of just over 5,200 MVA. These stations are: Klondike, O'Hara and Union City. Also, the largest 230/115-kV substation in the region, Morrow, has a total transformer capacity of nearly 1,000 MVA.

There are only two generating facilities actually located in the region. They are the Yates Steam Plant and the Lloyd Shoals Hydro Plant. The power that flows through the region is significantly affected by the generation output level of the Branch, Bowen, McDonough, Scherer, and Wansley Plants. Even output from the distant Hatch and Vogtle nuclear plants as well as the availability of generation from the Middle Georgia, Robins, and Rumble Road CT sites, can have a significant impact on the transmission network in the region.

Generation located in the region:

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
Lloyd Shoals	1	115-kV	Hydro	18
Yates	1	115-kV	Coal	97
	2	115-kV		103
	3	115-kV		111
	4	230-kV		133
	5	230-kV		135
	6	230-kV		352
	7	230-kV		355

Existing Demand and Load Growth:

- 2012 – 2537 MW
- 2022 – 3002 MW
- 18% growth over the ten year period, or approximately 1.8% per year

Key Planning Issues
Although the load growth in the Metro South Region continues to increase at a higher than average pace, it has slowed considerably in the last several years. The main driver for the growth in this area is still the availability of land for residential and commercial development.

No new generation is currently planned for the ten year period, however, there is some generation uncertainty associated with the carbon reduction requirements at the Yates coal fired plant.

Recently completed transmission projects:

- Klondike – Ola 230-kV line
- Ola 230/115-kV Transformer Addition
- McDonough 115/12-kV Sub. 115-kV line breaker installation
- East Pont – Union City 230-kV, (black), line reconductor

Major transmission line and/or transformer additions needed in the Metro South Region in the next ten years:

- Dyer Road 230/115-kV transformer (2014)
- Dailey Mill – Flippen 115-kV line (2017)
- McDonough 230/115-kV transformer (2021)
- McDonough – O'Hara 230-kV line (2021)
- Highway-54 230/115-kV transformer (2022)
- Highway-54 to Tyrone & Ebenezer Rd. 115-kV lines (2022)

Long-term planning issues:
There are three areas of the region that will require additional power sources in the form of 230/115-kV transformers. The first area is located in and around Peachtree City / Hwy-54, the second is located in and around the city of McDonough and the third is near Plant Yates.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2013 & 2015	Loss of the S. Griffin end of the Lloyd Shoals – S. Griffin 115-kV line will overload the Porterdale end of the Lloyd Shoals – Porterdale 115-kV line.	Lloyd Shoals – Porterdale 115-kV Line Rebuild, Phase 1 &2	10488 & 14604
2014	Without additional 115-kV support in the Yates area, some of the Yates 115-kV generation will be required to remain on the must run list.	Dyer Road 230/115-kV Substation Addition	14505
2017	The Dailey Mill & Greenwood Park loads cannot be served from either end of the Hampton – McDon.115-kV line after 2016.	Hampton – McDonough 115-kV Line Rebuild and Dailey Mill – Flippen 115-kV Line Addition	12912
2018	Loss of the Mtn. View end of the Mtn. View – Willingham Dr.115-kV line, overloads the East Point – Willingham Dr. 115-kV line.	East Point – Willingham Dr. 115-kV Line Reconductor	13740
2021	Loss of any one of the three lines into the McDonough area will overload the remaining lines.	S. Metro Phase-3, McDonough – O'Hara 230-kV Line & McDonough 230/115-kV Transformer Addition	09347
2022	Loss of the Ohara 500/230-kV transformer will overload the S. Coweta 230/115-kV transformer.	Hwy-54 to Tyrone & Ebenezer to Hwy-54 115-kV lines & Hwy-54 230/115-kV transformer Addition	11242

Metro West Region – Zone 201

Overview
The Metro West Region is comprised of four counties in the west Atlanta metro area; Cherokee, Cobb, Paulding and Douglas.

Included in this area are the cities of Marietta, Kennesaw, Acworth, Smyrna, Powder Springs, and Douglasville, along with the primarily urban region outside the Atlanta perimeter to the north and west, including the I-75 corridor and the I-20 corridor.

The Metro West Region is a subset of the metro Atlanta area and can be expected to continue to grow at an average pace. However, the overall growth in the metro Atlanta area has slowed considerably.

Generation located in the region:

Generator	Unit	Hi-side Volt	Fuel Type	MW Output	Units Online
Plant Jack McDonough	4	230	CC	254	2011
	4A	115		254	2011
	4B	230		332	2011
	5	230		254	2011
	5A	115		254	2011
	5B	230		332	2011
	6	230		254	2013
	6A	230		254	2013
	6B	230		332	2013

Existing Demand and Load Growth:

- 2012 – 3378 MW
- 2022 – 3932 MW
- 16% growth over the ten year period, or approximately 1.6 % per year

Key Planning Issues
The Plant Jack McDonough generation expansion is scheduled for completion by 2013 with the installation of CC Units #4, #5 and #6. Also, there are many transmission line projects that have been completed to allow for the much needed generation to be delivered. They are listed below:

- New Jack McDonough – Smyrna 230 KV line
- Northwest – Northside Drive 115kV line rebuild
- Davis Street – West End Project 115 KV line re-conductor
- Grady – Moreland Ave. Project 115 KV line re-conductor

- North Marietta – Marietta #5 (MEAG) 115 KV line re-conductor
- North Marietta – Smyrna Project (Smyrna – Marietta #7 tap) (WHT) 115 KV line re-conductor
- North Marietta – Smyrna Project (Smyrna – Marietta #7 tap) (BLK) 115 KV line re-conductor
- Northside Drive – Spring St. 115kV line re-conductor
- Davis St – Northwest 115 KV line re-conductor
- Jack McDonough – Northwest 230 KV (WHT) line – upgrade to 100 C
- Jack McDonough – Northwest 230 KV (BLK) line – upgrade to 100 C
- Convert Peachtree to all 230 KV removing the 230/115 KV autotransformer

In addition to the generation expansion related projects listed above, construction of the Factory Shoals 230/115-kV substation and 230-kV transmission line from Buzzards Roost to Factory Shoals, have been completed.

The transmission system west of Atlanta contains many lines of older vintage. They have smaller-than-average conductor and go through densely populated urban/industrial areas. Consistent, intentional infrastructure improvements to the area to alleviate contingency overloads will continue to be a priority.

The Bull Sluice – North Marietta and North Marietta – Parkaire 230kV transmission lines are considered an interface limit for TVA imports due to the loss of the Bull Sluice – Big Shanty 500kV transmission line. This constraint was alleviated by installing 1% line reactors on the Bull Sluice – North Marietta and North Marietta – Parkaire 230kV transmission lines at the North Marietta substation. This project was completed in 2010.

There are no additional major transmission lines and/or transformers needed in the Metro West Region in the next ten years. However, the region's transmission problems and their proposed project fixes are detailed in the "Summary of Key Findings" section below.

Long-term planning issues:
The metro Atlanta area continues to grow. The primary long-term obstacles for transmission planning are rapid load growth, urbanization, and vintage transmission lines running through dense urban areas. Land acquisition will continue to be a major challenge. Pockets of average-to-higher-than-average load growth are expected to continue in the Holly Springs/Kennesaw, Cobb County/Marietta and Douglasville areas.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2013	The Ben Hill and Camp Creek loads cannot be served from the Douglasville – Post Road 115-kV circuit when their normal feed, from E. Point, is not available.	Douglasville – Post Road 115-kV Rebuild – Phase 1, (Anneewakee Tap section)	13635
2013	The Villa Rica 500/230-kV Tfm. has been re-rated from 1344 MVA to 1647 MVA and will require a larger 230-kV switch to handle the increased capacity.	Villa Rica Primary 500/230-kV Tfm. Low Side Switch Replacement	14542
2016	Loss of the Post Road end of the Douglasville – Post Road 115-kV line overloads the Douglasville end.	Douglasville – Post Road 115-kV Rebuild – Phase 2, (Douglasville - Anneewakee Jct. section)	12063
2022	Loss of the W. Marietta end of the Jack McDonough - W. Marietta 115-kV line overloads the Jack McDonough end.	Jack McDonough – W. Marietta 115-kV (white) Line Reconductor	12685

Northeast Region – Zone 212

Overview
The Northeast Region includes 20 counties: Rabun, Dawson, Lumpkin, White, Habersham, Stephens, Hall, Banks, Franklin, Hart, Jackson, Madison, Elbert, Barrow, Clarke, Oglethorpe, Oconee, Walton, Morgan, and Greene.

The major cities in the region are Athens and Gainesville. Athens is located in Clarke County, at the intersection of US Highways 29, 78, 129, and 441, and near the eastern terminus of Georgia 316. Athens is a college town. It grew around the University of Georgia, the oldest state university in Georgia, founded in 1785.

Gainesville is a city in Hall County, located about 40 miles northwest of Athens. It is known for a large number of poultry processing plants, and often called the chicken capital of the world. Parts of Gainesville lie along Lake Lanier, created in late 1950's by completion of Buford Dam on the Chattahoochee River. It is operated by the U.S. Army Corps of Engineers. The lake is also fed by the waters of the Chestatee River.

Generation Located in the Northeast Region
In the Northeast Region, all hydro generating plants were built between 1910 and 1925.

Generation	Unit	Hi-side Volt	Fuel Type	MW Output
Terrora	1	115 kV	Hydro	8
	2	115 kV		8
Tugalo	1	115 kV	Hydro	11.25
	2	115 kV		11.25
	3	115 kV		11.25
	4	115 kV		11.25
Yonah	1	115 kV	Hydro	7.5
	1	115 kV		7.5
	1	115 kV		7.5
Tallulah Falls	1	115 kV	Hydro	12
	2	115 kV		12
	3	115 kV		12
	4	115 kV		12
	5	115 kV		12
	6	115 kV		12

Generation	Unit	Hi-side Volt	Fuel Type	MW Output
Doyle	1	115 kV	Gas	54
	2	115 kV		61
	3	115 kV		61
	4	230 kV		86
	5	230 kV		86
Dahlberg	1	230 kV	Gas	81
	2	230 kV		81
	3	230 kV		81
	4	230 kV		81
	5	230 kV		81
	6	230 kV		81
	7	230 kV		81
	8	230 kV		81
	9	230 kV		81
	10	230 kV		81
Monroe Power Co	1	230 kV	Gas	163
	2	230 kV		163
Walton County Power (LG&E Monroe)	1	230 kV	Gas	160
	2	230 kV		160
	3	230 kV		160
OPC Hartwell Energy	1	230 kV	Gas	149
	2	230 kV		149
Rabun Gap	1	115 kV	Biomass	18

Existing Demand & Load Growth

- 2012 – 2395
- 2022 – 2860
- 19.42 % growth over the ten year period, or approximately 1.94 % per year

Key Planning Issues

There are no new generation projects planned for the ten year period within the region. The need for major 500 kV projects in the Northeast Region seen in the past has moved beyond the 10 year planning horizon (see long term planning issues).

Recently Completed Transmission Projects:

- 2010 --- Bethabara 230/115 kV Project
- 2010 --- East Social Circle - Monroe 115 KV line reconductor (Phase I).
- 2011 --- Bethabara - East Watkinsville 115KV line upgrade.
- 2011 --- East Social Circle 230 kV Series Reactors (Branch line)
- 2011 --- East Social Circle 230 kV Series Reactors (Eatonton line)

Major transmission line and/or transformer additions needed in the Northeast Region in the next ten years:

- Dawson Crossing – Gainesville #1 Rebuild (2014)
- Anthony Shoals 227228 – Washington 115 kV Rebuild Project (2018)

Long Term planning issues

During the early 2000's the Northeast area of the state was growing at an accelerated rate; at the time, the tremendous increase in load indicated the need for significant increases in transmission capacity for future years. Following the 2007-2009 recession, the reality is very different; the economic recovery has been one of moderate growth in output and employment, with most economic forecasts indicating that this pattern will continue. The moderate economic growth translates into the need of major transmission projects moving beyond the 10 year planning horizon for Northeast Georgia.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2014	For loss of the South Hall 500/230kV autobank, the Dawsonville - Gainesville #1 sections of the Dawson Crossing - Gainesville #1 115kV line exceeds its 124 MVA thermal conductor rating.	Dawson Crossing – Gainesville #1 Rebuild	11177
2018	Loss of the Thurmond Dam - Double Branches 115kv line section, and picking up the Double Branches load from the Anthony Shoals - Washington 115-kv radial line, loads the Anthony Shoals - Buckhead Point - Double Branches Tap 115kv line section past its 57 MVA conductor rating.	Anthony Shoals 227228 – Washington 115 kV Rebuild Project	10193

Northwest Region – Zone 211

Overview

The Northwest Region comprises those counties bordering the western edge of the state, from Dade County in extreme northwest Georgia, down to Heard County west of Atlanta, and also counties bordering the northern edge of the state from Dade County over to Murray County, additionally including Bartow, Pickens, Gordon, and Gilmer counties to the north of the metro area.

Counties: Dade, Walker, Chattooga, Floyd, Polk, Haralson, Carroll, Heard, Catoosa Whitfield, Murray, Bartow, Pickens, Gordon, Gilmer

Significant urban/industrial centers in the region are Cartersville, Ellijay, Dalton, Calhoun, Rome, Bremen, and Carrollton.

The Georgia Power control area overlaps the TVA control area in the Northwest Region, with several transmission line interconnection points including Conasauga-Bradley (TVA) 500kV, East Dalton–Rock Spring (TVA) 230kV, and Fort Oglethorpe (TVA)-Rock Spring 161kV.

Georgia Power and TVA overlap in the distribution substation arena as well, with GPC receiving transmission service from TVA at Morganville and Crawfish Creek substations, and Georgia Power serving TVA/NGEMC load at several stations in the Dalton and Calhoun areas. The planned removal of TVA's NGEMC load from GPC service has a beneficial impact with regards to possible network overloads both now and in the future.

Generation located in the region:

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
Allatoona Dam	1	115 kV	Hydro	35
Bowen	1	500 kV	Fossil	704
	2	500 kV		724
	3	500 kV		892
	4	500 kV		892
Calhoun	1	115 kV	CT	20
Carters Dam	1	230 kV	Hydro	147
	2	230 kV		147
	3	230 kV		147
	4	230 kV		147

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
Conasauga	1	500 kV		63
	1A	500 kV		42
	1B	500 kV	CC	42
Looper's Farm	2	230 kV		(0)*
	2A	230 kV	CC	(0)*
	2B	230 kV		(0)*
Hammond	1	115 kV		110
	2	115 kV	Fossil	110
	3	115 kV		110
	4	230 kV		503
OPC Chattahoochee	1	230 kV		164
	2	230 kV	CC	150
	3	230 kV		150
Rocky Mtn.	1	230 kV		290
	2	230 kV	P/S Hydro	290
	3	230 kV		350
Sewell Creek	1	230 kV		(0)*
	2	230 kV		(0)*
	3	230 kV	CT	70
	4	230 kV		70
Wansley	1	500 kV	Fossil	862
	2	500 kV		889
	6	500 kV	CC	240
	6A	500 kV		166
	6B	500 kV		166
	7	500 kV	CC	217
	7A	500 kV		172
	7B	500 kV		172
MEAG Wansley	1	230 kV	CC	(0)*
	1A	230 kV		(0)*
	1B	230 kV		(0)*

Existing Demand and Load Growth:

- 2012 – 2049 MW
- 2022 – 2464 MW
- 20% growth over the ten year period, or approximately 2.0% per year

Key Planning Issues

No new generation is planned for the ten year period.

There are no major interface concerns or major transmission constraints between connecting zones.

Recently completed transmission projects:

- Pegamore 230kV switching station with lines to Bowen, Villa Rica, and McConnell Rd. (2010)
- Gaston(SEGCO) – Yellowdirt 230kV Line Upgrade

Major transmission line and/or transformer additions needed in the Northwest Region in the next ten years:

- Judy Mountain 230/115kV substation (2014)
- Judy Mountain – Rocky Mountain #2 Reconductor (2014)
- Judy Mountain – Rome 115kV Line Reconductor (2015)
- Nelson 230/115kV Auto Bank Replacement (2019)

Long-term planning issues:

Growth in the Northwest Region will continue to increase at a moderate pace in the future years.

Power flows out of Nelson and McGrau Ford down to Holly Springs and Woodstock will continue to increase, with continued strong load growth in the Holly Springs and Hopewell areas. The area should continue to be monitored for contingency issues

Power flows around Cartersville and into the Paulding County area should continue to be closely monitored for contingency problems.

Load in the Rome and Dalton areas will continue to grow at a moderate pace, but the transmission system should remain robust enough to handle the growth.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2013	Loss of the Hickory Level – Possum Branch overloads the Bremen – Possum Branch 115kV	Dyer Road 230/115kV Substation	14505
2013	Loss of the Rocky Mountain – Hammond 230kV Line overloads the Pinson – Rome 115kV Line	Judy Mountain 230/115kV Substation	14535
2015	Loss of the Rocky Mountain – Pinson 230kV Line overloads the Judy Mountain – Rome 115kV Line	Judy Mountain – Rome 115kV Line Reconductor	14681

South Region – Zone 216

Overview

The South Region is located in the southern part of the state and included the following counties: Quitman, Randolph, Clay, Calhoun, Dougherty, Early, Baker, Miller, Decatur, Grady, Thomas, Colquitt, Worth, Mitchell, Lee, Terrell, Seminole, Brooks, Cook, Tift, Turner, Brooks, Lowndes, Echols, Lanier, Berrien, Irwin, Ben Hill, Coffee, Atkinson, Clinch, Ware, Bacon, Charlton, Brantley, and Pierce.

There major cities in the South region are Waycross, Valdosta, and Albany. Valdosta is located in Lowndes County about 20miles north of the Florida border and Albany in Dougherty County. Waycross is located in Ware County. Some of the large industrial customers in the area are Procter & Gamble (Albany), US Marine Corp. (Albany), and Sterling Pulp (Valdosta).

Generation located in the region:

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
Flint	1	115 kV	Hydro	6.5
George	1	115 kV	Hydro	32.5
	2	115 kV		32.5
	3	115 kV		32.5
	4	115 kV		32.5
Crisp	1	115kV	Hydro	25
Mitchell	3	115kV	Coal	155
	A	115kV		31.0
	B	115kV		31.0
	C	115kV		31.0
Sowega	1	230kV	Gas	45
	2	230kV		45
	3	230kV		49
	4	230kV		49
	5	230kV		49
	6	230kV		49
M. South Bainbridge	1	115kV	Gas	72

Existing Demand and Load Growth:

- 2012 – 2528 MW
- 2022 – 2980 MW
- 15.2% growth over the ten year period

Key Planning Issues

New generation is planned for the area beginning in 2011. In 2011, an additional 6 MW of gas generation will be available at M.S. Bainbridge. In 2012, the existing Unit 3 at Plant Mitchell will be converted to biomass and the unit capacity will be reduced by 59 MW. Also in 2012, Yellowpine CT (biomass) will have an additional 100 MW of generation.

Many of the tie lines in the South region interface with Florida. The Duval – Hatch and Duval – Thalmann 500kV lines are dedicated to serving the Florida interface. The loss of these lines induces heavy north to south flows on the 115kV and 230kV South region transmission system to Florida.

Recently completed transmission projects:

- Offerman – Gilman Paper 115 kV Line Upgrade
- Procter & Gamble Transmission Connection Modification

Major transmission line and/or transformer additions needed in the South Region in the next 10 years:

- North Tifton 500/230 kV Second Auto (2014)
- Jasper – Pine Grove 115 kV Rebuild (2014)
- Douglas – Pine Grove 230 kV Line (2015)
- Offerman 230/115kV Autobank Replacements (2015)
- Construction of McManus – W. Brunswick 115kV (Black) line (2022)

Long Term Planning Issues

As the South area load continues to grow, more Transmission infrastructure will be required to support this growth and sustain a reliable interface with Florida.

The 230kV and 115kV transmission system in the Waycross, Pine Grove, North Tifton, and East Bainbridge Areas incur heavy flows with loss of the area 500kV lines due to system contingencies or maintenance.

The challenges will be finding the optimum solutions to support the projected generation, the region's load growth, and integrate with the existing long transmission lines and infrastructure.

Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2014	This 1942-vintage line requires a rebuild due to Stage R4 OHGW deterioration and loss of conductor strength. Also, by 2015 loss of the Pine Grove - Suwannee 230 kV line causes the Pine Grove - Twin Lakes, Kettle Creek - West Homerville and Jasper - West Homerville 115 kV lines to exceed their ratings, largely because of expected generation changes within the Southern and Progress Energy Florida systems. Networking the rebuilt line will address these loading issues. 230 kV construction allows for future interface capability upgrades. Per an MOU signed by GPC, SCS and Progress management, Progress will rebuild their section of the line by 6/1/2015.	Jasper – Pine Grove 115 kV Rebuild	14319
2014	Loss of the Raccoon Creek 500/230 kV autobank causes the North Tifton 500/230 kV autobank to exceed its thermal rating.	North Tifton 500/230 kV Second Auto	14178
2015	Loss of either existing 230/115kV autobank at Offerman results in the other bank exceeding its thermal rating.	Offerman 230/115 kV Autobank Replacements	14204
2015	Loss of the East Moultrie - East Berlin segment causes the North Tifton - Osceola SW 230 kV segment of the North Tifton - Pine Grove 230 kV line to exceed its thermal rating.	Douglas – Pine Grove 230 kV Line	14278
2022	Loss of McManus - Troup Creek 115kV results in low voltages at Troup Creek	McManus - W. Brunswick (Black) 115kV Line	12101

West Region – Zone 213

Overview

The West Region is located in the West Central part of the state and includes the counties of Spalding, Troup, Meriwether, Pike, Lamar, Harris, Talbot, Upson, Crawford, Taylor, Muscogee, Chattahoochee, Marion, Schley, Macon, Stewart, Webster, Sumter, Dooly, and Crisp.

There are four major cities in the region of which Columbus is the largest. Columbus is located off of I-185 and Hwy 280 along the Chattahoochee River approximately 110 miles South-Southeast of Atlanta. Manchester is located about 35 miles Northeast of Columbus. Americus is located about 50 miles Southeast of Columbus. Lagrange is located about 40 miles Northwest of Columbus along West Point Lake.

Fort Benning is a major United States Army base in the West Region located near Columbus GA. A self-sustaining military community, Fort Benning is home to the US Army Armor and Infantry Schools, among others, and supports over 120,000 active-duty, reserve, retired, and civilian employees and their families. With other base closures happening around the country, this facility continues to experience significant growth.

KIA Automotive Manufacturing is a key customer in the region located in the City of West Point about 12 miles south of Lagrange.

The "Ready to Raft 2012" campaign is a project that will create 700 new jobs and is estimated to bring in $42 million annually to the Columbus area. The project will result in the longest urban whitewater rafting venue in the world, scheduled for completion in 2012.

There are several major and minor Hydro generation facilities located in the region including West Point Dam, Bartlett's Ferry, Goat Rock, Oliver Dam, and North Highland. The transmission system in the region continues to be impacted by generating facilities to the West and transmission flows through Goat Rock and Fortson.

Generation located in the region:

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
Bartlett's Ferry	1	115 kV	Hydro	15
	2	115 kV		15
	3	115 kV		15
	4	115 kV		20
	5	115 kV		55
	6	115 kV		55

Generator	Unit	Hi-side Volt	Fuel Type	MW Output
Franklin CC	1	230kV	Gas	558
	2	230kV		625
	3	230kV		620
Goat Rock	3	115kV	Hydro	5
	4	115 kV		5
	5	115 kV		5
	6	115 kV		5
	7	115 kV		9
	78	115 kV		9
Heard County/Tenaska	1	500kV	Gas	942
Hawk Road.	1	500kV	Gas	384
Lee Road	1	230kV	Gas	41
	2	230kV		41
North Highland	1-4	115 kV	Hydro	34
Oliver Dam	1	115kV	Hydro	17
	2	115kV		17
	3	115kV		17
	4	115kV		6
Talbot Co. #1	1	230kV	Gas	436
Talbot Co. #2	1	230kV	Gas	218
West Georgia	3	230kV	Gas	160
West Point Dam	1	115kV	Hydro	42

Existing Demand and Load Growth:

- 2012 – 1804 MW
- 2022– 2159 MW
- 19.7% growth over the ten year period, or approximately 1.8% per year

Key Planning Issues:

No new generation is planned for the ten year period.

There are no interface concerns for this region.

Recently completed transmission projects:

- GTC: North Americus Reactor projects
- Barnesville – Lamar County 115kV reconductor

Major transmission line and/or transformer additions needed in the West Region in the next ten years:

- Fortson – Talbot #1 230kV line reactor (2013)
- Dresden - Heard County 500kV line new construction (2014)
- MEAG: Crisp County #2 - Crisp County #8 115kV line new construction (2014)
- Bull Creek - Victory Drive 115-kV Line reconductor (2014)
- First Avenue – Victory Drive 115kV line reconductor (2015)
- Fortson – Talbot #1 230kV line reconductor (2015)
- Fortson – Talbot #2 230kV line reactors (2015)
- Dawson – South Columbus 115kV line reconductor (2015)
- Corn Crib 230/115-kV Substation (2018)
- First Avenue – North Columbus 115kV line reconductor (2018)
- Bull Creek - First Avenue 115kV line reconductor (2022)
- First Avenue 230/115kV bank replacement (2022)

Long-term planning issues:

The West region is seeing very modest growth around both the Columbus and West Point/Lagrange areas. The growth in the Columbus area is due mainly to the expansion of Fort Benning. The West Point/Lagrange area is seeing growth due to the recent addition of the KIA Automotive manufacturing facility and the location of several office parks in the area.

Generation dispatch patterns and moderate growth have revealed some future thermal limitations with several 115kV lines in downtown Columbus. These lines are due to be upgraded/reconductored over time.

Additionally, there have been strong West–to-East flows in the Goat Rock – Fortson – Talbot County – North Americus 230 kV corridor that are highly dependent on generation dispatch patterns and tied to the availability of the 500kV network. Creative application of reactors and reconductors will serve to mitigate impacts.

Transmission infrastructure improvements will be needed in the West Point / North Lagrange area near Coweta County. These areas should continue to see slight residential and industrial growth in association with the new Kia Automotive manufacturing facility. The biggest project planned for the area is to install a new 230/115 Substation (Corn Crib) to solve loading issues on the Dyer Road – Thomaston, Dyer Road – Newnan Primary, and the Dyer Road – Lagrange 115kV lines.

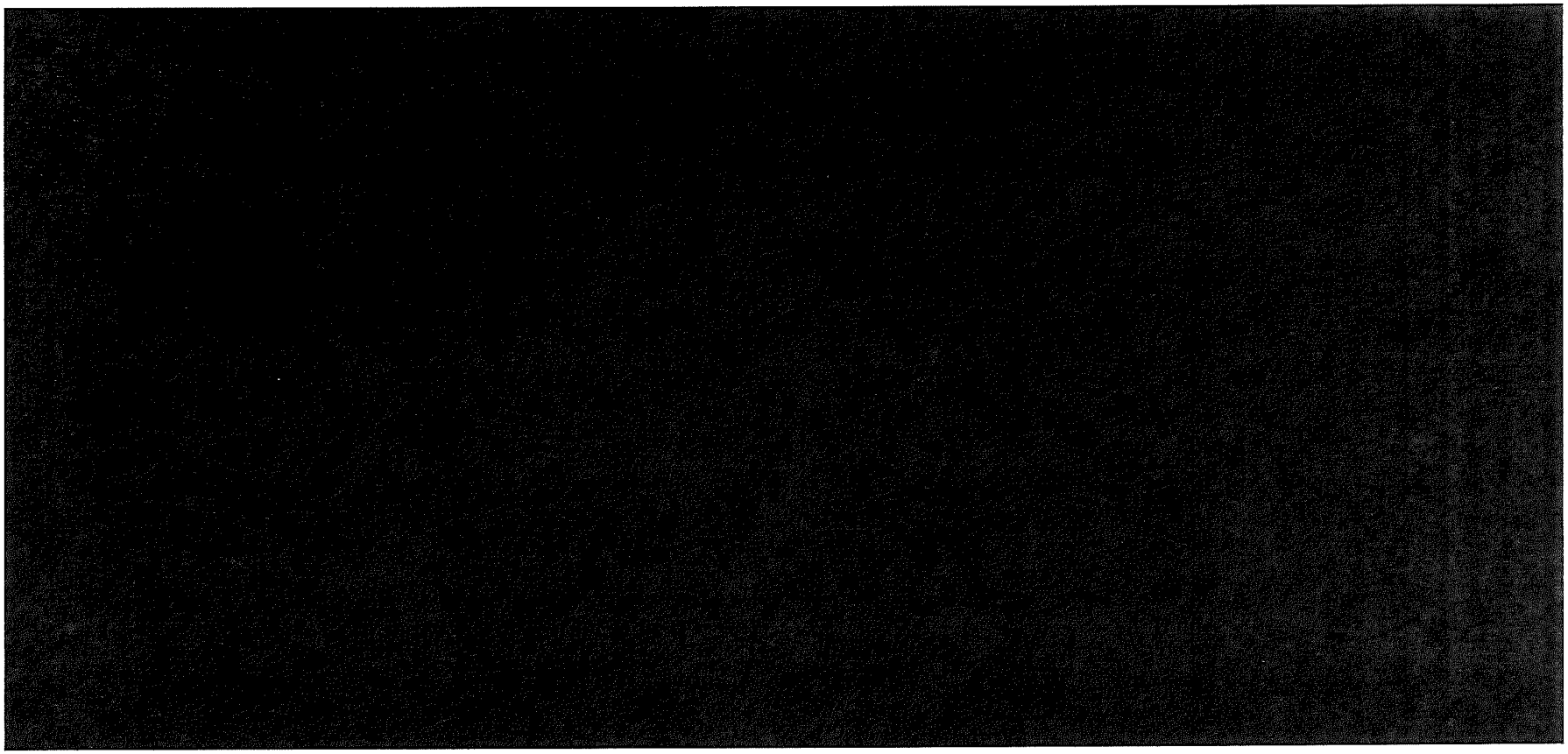
Summary of Key Findings

Year	Problem	Project Name	TEAMS #
2014	Generation output at Wansley Unit 7 is restricted by the transmission system in the area.	Dresden - Heard Co. 500kV line	13664
2015	Loss of Bonaire – Scherer 500kV line causes thermal overload on Fortson – Talbot Co. #1 230kV line. Later, similar contingencies cause overload of Fortson – Talbot Co. #2 230kV line & North Americus - Talbot Co #2 230kV lines (2015).	Talbot County Reactor and Reconductor Projects (GTC & MEAG)	14205, 14625
2015	New customer load and the addition of a second source at Fort Benning #2 drives the need to reconductor Dawson –South Columbus 115kV line.	Reconductor: Dawson –South Columbus 115kV line.	14200
2014	New customer load in Crisp County drives the need for a new 115kV source i	MEAG: Crisp County #2 - Crisp County #8/Pitts 115kV line (2014)	11286
2014, 2015, 2022	Loss of adjacent 115kV lines leads to thermal overload on the Bull Creek – Victory Drive, First Avenue – Victory Drive, and Bull Creek First Avenue 115 kV lines.	Reconductors: Bull Creek – Victory Dr. First Ave. – Victory Dr. Bull Creek First Ave 115 kV lines	11692, 14201, 14813
2018	Loss of the Dyer Road 230/115V autobank causes thermal overload on Dyer – Thomaston 115kV line	Corn Crib 230/115-kV Substation	12581
2018	Loss of Goat Rock 230/115V autobank causes overload on First Ave. – North Columbus 115kV line	Reconductor First Avenue – North Columbus 115kV line	13166

[C2D]

TRANSMISSION SERVICE REQUEST SUMMARY

The table below lists key transmission service requests (TSRs) confirmed in years 2010, 2011, and 2012 within the Georgia Integrated Transmission System.



[C2E]

SOUTHERN ELECTRIC SYSTEM

INTERFACE ANALYSIS

&

ASSOCIATED TEN YEAR

INTERFACE PLAN

FOR

GEORGIA POWER COMPANY

Introduction

Electric power transfers can have a significant effect on the reliability of the electric power system for a balancing authority and must be evaluated in the context of the entire interconnected system. The physics of interconnected transmission systems dictate the flow patterns involved in a bulk power transfer. Therefore, significant parallel flows across many balancing authorities beyond those specifically involved in the transaction are commonplace. Evaluations performed in a joint and/or coordinated manner are essential for maintaining the capability and reliability of the system for the benefit of all users. The scope of these joint and/or coordinated evaluations is to assess the transfer capabilities between the Southern Balancing Authority ("SBA") and its neighboring balancing authorities. From a SBA reliability standpoint, the import capabilities are a consideration in providing a reliable and cost effective system for the customers of the Southern Companies' operating companies, which includes Georgia Power Company ("GPC").

On behalf of GPC and the other operating companies of the Southern Companies, SCS Transmission Planning conducts various joint coordinated evaluations with neighboring systems and internal screens intended to track transfer capabilities with neighboring balancing authorities over a 10 year period. These evaluations are performed on an annual basis. The following sections describe the methods by which this is accomplished through the 10 year planning horizon and summarize the results from the most recent evaluation.

Terminology

In the evaluation of transfer capability, there are many terms and acronyms. In addition, there are many regional organizations and individual companies that influence the practices and methodologies used in interface analysis. Below is a list of definitions that will aid in the discussions that follow.

Base Transfers – transfers between balancing authorities that are modeled in the base cases utilized during interface evaluations. Base transfers in power flows used for interface import or export evaluations may not include all firm transactions in the opposite direction of the study transfers.

TRM (Transmission Reliability Margin) – amount of transmission transfer capability necessary to provide a reasonable level of assurance that the interconnected transmission network will be secure under a reasonable range of uncertainties in system conditions.

CBM (Capacity Benefit Margin) – amount of transmission transfer capability reserved by load serving entities or Resource Planners to ensure access to generation from interconnected systems to meet generation reliability requirements. Reservation of CBM provides for the reduction of installed generating capacity below that which may otherwise have been necessary without interconnections to meet its generation reliability requirements.

ITC (Incremental Transfer Capability) – amount of transfer capability that can be accommodated in addition to the modeled base transfers.

TTC (Total Transfer Capability) – base transfers plus incremental transfer capability

ATC (Available Transfer Capability) – a measure of the transfer capability remaining in the physical transmission network for further commercial activity over and above already committed uses. ATC is defined as the Total Transfer Capability (TTC), less the Transmission Reliability Margin (TRM), less the sum of existing transmission commitments (which includes retail customer interface reservations for future load growth and the Capacity Benefit Margin).

Loop Flows – the difference between the scheduled and actual power flow, assuming zero inadvertent interchange, on a given transmission path. Synonyms: Parallel Path Flows, Unscheduled Power Flows, and Circulating Power Flows

Generation Loop Flows – loop flows occurring from the configuration of the network and location of generating units

Transaction Loop Flows – loop flows resulting from electric power transactions and the configuration of the network.

NLR (Native Load Reservations) – interface and internal transmission reservations that the Federal Energy Regulatory Commission allows native load customers to reserve for future load growth.

TSA (Transmission Service Agreements) – power transactions that have been granted firm status. Normally these transactions are point– to– point service from a generation plant or control area to another control area or native load.

Operating Reserves – additional generation available in generating units already on line or that can be made available within 15 minutes in case of generation emergencies.

Organizations/Companies/Others

Power South – Power South Energy Cooperative

Dalton – City of Dalton, participant of Georgia ITS

FERC – Federal Energy Regulatory Commission

FRCC – Florida Reliability Coordination Council

GTC – Georgia Transmission Corporation, participant of Georgia ITS

LTSG – SERC Long – Term Study Group

MEAG – Municipal Electric Authority of Georgia, participant of Georgia ITS

MMWG – Multi– regional Modeling Working Group (NERC Group)

NERC – North American Electric Reliability Council

OPC – Oglethorpe Power Corporation

SBA – Southern Balancing Authority includes Southern Companies, GTC, MEAG, and Dalton as primary transmission providers.

SCE&G – South Carolina Electric & Gas

SCPSA – South Carolina Public Service Authority

SERC – SERC Reliability Corporation

SMEPA – South Mississippi Electric Power Association

TVA – Tennessee Valley Authority

VACAR – Subregion of SERC, Virginia and Carolina Companies. When discussed in terms of the SBA interface, VACAR refers to the interconnections with Duke, SCE&G and SCPSA.

Open Access Same – time Information System (OASIS)

As part of FERC order 889, all FERC jurisdictional utilities are required to maintain and post on an OASIS site the transfer capabilities of its balancing authority's interfaces. For the Southern Companies, this is done on a rolling thirteen (13) month basis (operations planning). All reservations for transmission service must be made through interaction with the OASIS sites of the SBA (Southern Companies, GTC and MEAG). Information relating to firm service that has been granted or reserved can be obtained through access to the various OASIS sites. For information on the OASIS of Southern Companies, please visit the OASIS website at www.weboasis.com. This document contains OASIS data as of November, 2012.

Southern Balancing Authority Transfer Capability

The ability to import power from outside sources is one of the many factors considered in developing a reliable and cost effective plan for the SBA, including GPC.

It should be emphasized that the base case used to calculate these transfer capabilities represents one snapshot of the system. There are great multitudes of transactions between balancing authorities that can and do occur, and it would be impossible to predict the actual transfer capability for any given future point in time. Therefore, as previously mentioned, the calculation and posting of transfer capabilities is only performed in the operations planning horizon (rolling 13 months). Furthermore, actual power flows resulting from energy transactions do not necessarily follow their scheduled contract paths, and the resulting parallel flows can greatly influence the transfer capability on an interface to which the scheduling parties are not even directly connected. Although the actual real – time transfer capability can be very difficult to predict, this coordinated practice of interface analysis has allowed the electric system to take advantage of economically beneficial, and emergency, bulk power transfers to provide a reliable and cost effective system for the retail customers in the SBA, including GPC. For more information on the ATC calculation methodology utilized in the operations planning horizon, please visit the ATC Implementation Document ("ID") on the OASIS website at www.weboasis.com/OASIS/SOCO/ATC/SOCO_ATCID.pdf.

Methodology for Evaluating Transfer Capability in the Planning Horizon

Transmission transfer capabilities for the SBA are evaluated in accordance with NERC planning and transfer capability guidelines and are designed to meet all firm obligations, including TSAs, CBM, TRM and NLR.

The evaluation of transfer capability begins with power flow base cases, each one representing a snapshot of the future. These cases are developed in coordination with many regional and balancing authorities' representatives. For example, the annual SERC LTSG databank update and NERC MMWG are data sources for external system representations used to develop the power flow base cases for the SBA evaluations. These power flow base cases include the modeling of power transfers that represent existing contractual obligations between balancing authorities that are expected when the database update occurs. Immediately prior to major joint interface evaluations such as the LTSG or Florida Interface studies, the SBA and outside areas of the models are updated by the participating utilities. For internally performed (non – joint) evaluations, the SBA portion of the base cases is updated with the latest information regarding modeling assumptions.

For the "northern" interfaces of Entergy, TVA, Duke, SCPSA and SCE&G, importing power on one interface may mutually impact the ability to import power on the other interfaces. Therefore, transfer capability for the SBA is evaluated to ensure not only that there is sufficient import capability across each interface to accommodate all firm transactions across that particular interface, but also that there is sufficient import capability across all of the interfaces to accommodate all firm obligations simultaneously. The Florida interface is fundamentally radial from the SBA and would not have significant impact on the "northern" interfaces. The Florida interface is jointly evaluated with the Florida utilities and will be discussed separately from the "northern" interfaces.

There are many transactions modeled in the base cases between various companies. Before any transfer evaluation is begun, a list of firm transactions involving the SBA for the relevant periods is obtained from the OASIS and applicable transactions are added to the cases as base transfers.

In general, linear, DC analysis is used to perform transfer capability analysis on all interfaces except Florida, and AC analysis is used in the joint studies with the Florida utilities. Along the Florida interface, heavy reactive power flows under certain conditions preclude the effective use of DC analysis, so AC analysis is used.

Ten Year Interface Capability Plan for SBA

Adequate transfer capability of the SBA should be maintained to:

1. To support contractual sales and/or purchases
2. Ensure reliable operation of the system

Because the transmission providers within the SBA have an obligation to provide firm transmission service to all transactions that are granted "firm" service, transfer capability on the interfaces should be maintained to meet these obligations for importing power as listed on the OASIS for SBA members. This is significant in fulfilling the obligations listed in item 1 above.

Per its order 888, FERC allows balancing authorities to reserve capacity on the interfaces to ensure that the interconnected transmission network is secure under a reasonable range of uncertainties in system conditions. This reservation is called Transmission Reliability Margin ("TRM"). For the SBA, this import transfer capability value is established at 900 MW which is then divided between the Entergy (206 MW), TVA (296 MW), Duke (328 MW) and Florida (70 MW) interfaces. For more information on the TRM methodology, please visit the TRM Implementation Document ("ID") on the OASIS website at www.weboasis.com/OASIS/SOCO/ATC/SOCO_TRMID.pdf.

Additionally, FERC allows native load and network customers to reserve import interface capability for future load growth purposes. Southern Companies, on behalf of the Operating Companies (which includes GPC), may maintain native load transmission reservations across external interfaces with neighboring utilities in order to facilitate the Company in procuring off system reliability capacity and energy which is needed because there is some uncertainty in the projection of native – load generation capacity requirements. This uncertainty is the result of economic conditions, weather, load forecast uncertainty and unanticipated (long – term)

generation unit failure or retirements. The amount of interface native load reservation capacity is influenced significantly by the present and projected markets for power supply, both inside the SBA and outside the SBA. There are two interface reservations for native – load, one on the TVA (500 MW) interface and another on the EES (500 MW) interface. These interface native – load reservations are in support of access to renewable wind energy resources across those respective interfaces.

In addition, several network customers have reserved import transfer capacity to serve their network load within the SBA: Power South has reserved import transfer capacity on the Entergy (150 MW) and Duke (50 MW) interfaces; SMEPA has reserved import transfer capacity on the EES (196 MW) interface; and AMEA has reserved import transfer capacity on the SCPSA (50 MW) interface.

Per its order 888, FERC also allows native load customers to reserve import interface capability to ensure access to adequate capacity resources outside of the SBA to maintain system reliability and to reduce the amount of generation reserves required. This reservation of interface capacity is termed Capacity Benefit Margin ("CBM"). Studies are performed periodically to determine the amount of generation capacity reserves and emergency interface capacity (CBM) required to maintain system reliability in a cost effective manner for the customers of the Operating Companies, including GPC. The most recent approved study indicates that reserve margins can be maintained at the appropriate level without CBM through 2013. However, beginning in 2014, 1050 MW of CBM is needed to maintain the appropriate reserve margin level. The ability to obtain and import power for CBM is a function both of the transmission system and the availability of power on the other side of the interfaces under consideration. Because there is a distinct probability that all 1050 MW may not be available from a single neighboring balancing authority, CBM is reserved across several neighboring balancing authorities. The balancing authorities chosen for allocation of CBM are those anticipated to have available excess resources and transfer capability at the time when CBM is most likely to be utilized. For more information on the CBM methodology, please visit the CBM Implementation Document ("ID") on the OASIS website at www.weboasis.com/OASIS/SOCO/ATC/SOCO_CBMID.pdf.

Import Capability

The methodology for calculating import capability on the "northern" interfaces of Entergy, TVA, Duke, SCE&G and SCPSA has been described in some detail in earlier parts of this document. The evaluation performed to develop the 10 year projection of adequate import capability on these interfaces to meet existing firm commitments utilizes the most recent internal base cases available at the time of the study. The cases are modified to remove all export transactions that may mask problems that can occur if the export transactions are not scheduled during the time when significant imports into the system are needed. This impact is typically called "netting". For the import evaluation, the cases were further modified to import all TSAs, NLRs, CBM, and TRM for the applicable interfaces. The import capability from Florida is evaluated jointly with the Florida utilities and is discussed in the "Florida" section below.

Northern Interfaces

Import capability across all of the interfaces with the SBA is sufficient to accommodate all firm transactions including TSAs, NLR, TRM and CBM for all years.

Florida interface

Import capability from the FRCC is evaluated jointly with the Florida utilities. Transfer capability assessments for future years indicate that the import capability should remain at or close to the same values with anticipated system upgrades. For the Florida interface, there are two firm TSRs: the 150 MW GPC transaction for the Intercession CTs import and the 15 MW Blountstown import from FPL.

Power South and SMEPA Interfaces

There are two other interfaces with the SBA. These are the internal interfaces with the PSEC and the SMEPA balancing authorities. The import capabilities, as well as the typical available generation at peak periods, from these systems are significantly lower than the external interfaces of the SBA listed above. The interfaces with PSEC and SMEPA play a much lesser role in the reliability and, in general, economic import capability for the SBA. There are no NLRs, CBM, or TRM reservations for these interfaces. Therefore, the internal interfaces with PSEC and SMEPA have been excluded from the discussions.

[C2F]

REGIONAL TRANSMISSION PLANNING

SERTP

Southern Companies, along with the other GA ITS members, PowerSouth, and SMEPA, participate in the Southeastern Regional Transmission Planning ("SERTP") process. The SERTP process is a coordinated, open and transparent process that allows for stakeholder (e.g. any interested party) feedback regarding the current ten year transmission expansion plan. Stakeholders have the opportunity to propose alternatives to projects in the latest transmission expansion plan for Southern Companies to consider. The SERTP process did not produce any stakeholder-proposed alternatives that were included in the ITS Ten Year Transmission Expansion Plan (2013-2022). Additional information on the SERTP process is available on the SERTP website at http://www.southeasternrtp.com/.

SIRPP

Southern Companies, along with several other transmission owners within SERC, participate in the Southeast Inter-regional Participation Process ("SIRPP"). The SIRPP process is a coordinated, open and transparent process that allows stakeholders to propose up to five inter-regional economic planning studies. Although regional/inter-regional planning is considered during the annual transmission planning cycle, the SIRPP did not produce any projects proposed in the ITS Ten Year Transmission Expansion Plan (2013-2012). Additional information on the SIRPP is available on the SIRPP website at http://www.southeastirpp.com/.

FERC Order No. 1000

Also of note, FERC issued Order No. 1000 on "Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities" on July 21, 2011 with an effective date of October 11, 2011. FERC Order No. 1000 requires each public utility transmission provider to develop a compliance filing, in consultation with stakeholders, within one year of the effective date of the Order. Therefore, the SERTP process has been used as the forum to actively engage stakeholders with respect to the required filing.

In a recent development, Tennessee Valley Authority ("TVA"), Associated Electric Cooperative Inc. ("AECI"), Louisville Gas and Electric Company and Kentucky Utilities Company ("LGE & KU"), and Ohio Valley Electric Corporation ("OVEC") have expressed interest in joining the SERTP. Southern Companies are actively engaged with these parties and the original SERTP participants in evaluating the steps necessary to expand the SERTP region, and therefore requested, and were granted, an extension of time of 120 days beyond the FERC Order No. 1000 regional compliance filing due date, resulting in a revised date of February 8th, 2013.

FERC Order No. 1000 requires the following:

- Participation in a regional planning process, including the development of a single, regional transmission plan
- Consideration of transmission needs driven by public policy requirements established by state or federal laws or regulations, including stakeholder input regarding these types of transmission needs.

- Development of qualification criteria for non-incumbent transmission developers to propose transmission projects for the purposes of regional cost allocation
- Development of a regional cost allocation methodology to allocate costs of those regional facilities selected in a regional plan for purposes of cost allocation
- Development of a common interregional cost allocation methodology to allocate costs of those interregional facilities selected in two neighboring regional plans for purposes of cost allocation

After FERC denied rehearing of all substantive issues raised in request for rehearing of Order No. 1000 with its issuance of Order 1000-A in May 2012, Southern Companies filed a Petition for Review with the U.S. Court of Appeals, D.C. Circuit. The basis for Southern Companies' appeal includes:

- The basis for reform (theory contrary to record evidence);
- The authority to mandate reforms, including the regulation of substantive transmission planning;
- The intrusion into State-regulated IRP and transmission planning processes; and
- The impacts to reliability and native load service obligations.

The status of the appeal is ongoing at this time.

Additional information on FERC Order No. 1000, as it pertains to the SERTP, can be found on the SERTP website at http://www.southeasternrtp.com/.

EIPC

Southern Companies, along with several other transmission Planning Authorities across the Eastern Interconnect, participate in Eastern Interconnect Planning Collaborative ("EIPC"). The EIPC is a coordinated, open, and transparent process that models the impact of various policy options determined to be of interest by state, provincial, and federal policy makers and other stakeholders. Analysis performed in the EIPC will be used to "inform" transmission Planning Authorities responsible for the analysis/development of the respective transmission expansion plan. The EIPC did not produce any projects proposed in the ITS Ten Year Transmission Expansion Plan (2013-2022). Additional information on the EIPC is available on the EIPC website at http://www.eipconline.com.

[C2G]
OPTIMUM TRANSMISSION SITES
FOR GENERATION
IN
GEORGIA

Interconnection

The following list of optimum generation location sites is provided in accordance with the Commission's requirements in its "Order on Triennial Market Power Updates and Announcing New, Interim Generation Market Power Screen and Mitigation Policy" (97 FERC 61,219) issued November 20, 2001 and "Notice Delaying Effective Date of Mitigation and Announcing Technical Conference" issued December 20, 2001.

Southern Companies have identified optimal sites on the transmission system for the interconnection of new generation, particularly base or intermediate load facilities. These sites have been identified assuming a 600 MW facility. Generation facilities larger than 600 MW may not be feasible in these identified areas. Some sites are listed based on interconnection studies that Southern Companies have previously conducted. Other sites have not been explicitly studied, but are included based upon Southern Companies' current knowledge of and experience with their transmission system.

Generation located at these sites appears to be less likely to cause severe transmission system impacts and as such, are not expected to necessitate extensive transmission network upgrades. There may be other sites (which are not listed) that may offer similar capabilities. It must be emphasized that the full extent of the impact of a particular generation facility on the system and any required transmission system improvements cannot be determined absent a specific study associated with the generation facility and the desired transmission service.

Included in the links below are maps showing areas with known stability constraints. Substantial, long lead-time transmission improvements may be required to accommodate additional transmission service in these areas.

Parties interested in interconnecting generation should independently evaluate these sites as they would evaluate any potential generation site, and transmission base cases are available upon request (subject to appropriate CEII and confidentiality requirements) to facilitate such an evaluation. Potential generators assume all risks should they decide to interconnect generation at one or more of these sites. Moreover, this list of sites reflects only a transmission perspective and does not consider other issues that may be relevant, such as fuel supply, water supply or environmental concerns.

Southern Companies do not make, and expressly disclaim, any representation regarding the suitability of the sites for locating new generation. By posting this list of sites, Southern Companies are not offering to purchase the output of any generation that may be constructed at such sites, nor do Southern Companies warrant or otherwise guarantee the availability of transmission service from these sites.

September, 2012

Optimum Interconnection Sites - North Georgia

County	State	Potential Area of Interconnection	Delivery Voltage
Banks, Hall	GA	Gainesville	230 or 500
Cherokee, Dawson, Forsyth	GA	Ball Ground, Cumming, Dawsonville	230
Clarke, Jackson, Oconee	GA	Athens, Center	230
Gwinnett, Dekalb	GA	Metro Atlanta, Lawrenceville, Suwanee, Snellville	230 or 500
Walton, Newton, Barrow, Rockdale	GA	Monroe, Covington, Winder, Conyers	230

Optimum Interconnection Sites - Central Georgia

County	State	Potential Area of Interconnection	Delivery Voltage
Baldwin, Hancock, Putnam, Washington	GA	Milledgeville, Devereux, Eatonton, Sandersville	230 or 500

Optimum Interconnection Sites - South Georgia

County	State	Potential Area of Interconnection	Delivery Voltage
Appling	GA	Baxley	230 or 500
Glynn	GA	Thalmann, Brunswick	230 or 500
Lowndes	GA	Pine Grove	230
Tift	GA	Tifton	230 or 500

Note: Based on a transmission perspective. Other sites in close proximity to the areas listed may offer similar capabilities. The need for transmission improvements may not be equal in all listed areas and may be impacted significantly by the choice of generation connecting voltage and magnitude of addition. Also, improvements may be impacted by other generation development within or external to the control area.

Stability Constrained Areas

Area
Southwest Quadrant. Includes coastal Mississippi, Alabama, and Florida. Map

Note: The boundaries of stability limited areas could change based upon dispatch and load patterns. The boundaries shown extending outside of the Southern Control Area are approximate.

[C2H]

APPROVED PROJECTS

(BCA WITH DOCUMENTATION)

(REDACTED SAMPLE)

PUBLIC DISCLOSURE

TMCRPR25
Page: 1 of 2
Project ID: 12727

GEORGIA POWER COMPANY
BUDGET CHANGE - FROM SAVED VERSION

Date: 02/11/2010
Time: 01:16:55PM

Originator: POWELL JR.,EDWARD LEE Department: TRANSMISSION PLANNING - EAST

Project Manager: BARTLING, JE

Project Name: GOAT ROCK 230/115KV AUTO LOWSIDE JUMPER REPLACEMENT
Project Need Date: 06/01/2010
Estimated Start Date: 03/18/2010
Latest Required Date: 06/01/2010
PE Number: 6021

Present Budget: [redacted]
This Revision: [redacted]
Increase (Decrease) [redacted]

Category: TRANSMISSION
Region: WEST
Area: MIDDLE GA-COLUMBUS

Type: Capital

Approvals and Dates:

TP Project Manager	BATTAGLIO, EC	TP Project Manager	
Project Manager	BARTLING, JE	Lead Project Manager	Forehand,France
Lead Project Manager		Rec. Mgr. Trans. Planning East	
Mgr. Area Planning		Budget Control Committee	
BUDGET COORDINATOR			

Project Description:
Replace the 1590 AAC lowside jumpers with 2000 AAC jumpers on the Goat Rock 230/115kV Auto.

Supporting Statement:
In 2010, the Goat Rock 230/115kV transformer overloads to 100.3% of its 298MVA element rating under shoulder conditions with a Firm Alabama Generation scenario and the loss of the First Avenue 230/115kV Autobank.

PE Item/ Project Item No.	Facility Name / Fac Reqd / Area Location / Project Item Description	Plt Addn Ownr	Engr. Loc
AH	GOAT ROCK	[redacted]	
1272702	06/01/2010	GPCO	15-421

Replace the 1590 AAC lowside jumpers with 2000 AAC jumpers on the Goat Rock 230/115kV Auto.

Sub Design Note (J. Franko 1/26/10)
1. Replace low side transformer jumpers with (2) 1590AAC (instead of 2000AAC)

PE Item/ Facility Name
Project Fac Reqd Area Location
Item No. Project Item Description

Plt Addn
Ownr Engr. Loc

2. Replace first segment of 115kV main bus with (2) 1590AAC
3. Replace 1400A disconnect switch #819 with a 2000A switch

	AH	PE Totals
PE Item :		
Proj Item:	1272702	
Plt Add :	[redacted]	[redacted]
(CIAC) :		
Net Add :		
(Plt Tfr):		
Removal :		
(CIRC) :		
(Salvage):		
Cash Rqd :		
OCR :		

*** End of Report ***

GOAT ROCK 230/115 KV LOWSIDE JUMPER REPLACEMENT PROJECT
TEAMS 12727
Project Date: June 1, 2010
Documentation Date: February 4, 2010

I. Executive Summary

In 2010, the Goat Rock 230/115kV transformer overloads to 100.3% of its 298 MVA rating under shoulder conditions with a Firm Alabama Generation scenario and the loss of the First Avenue 230/115kV autotransformer. The transformer has a re-rated rating of 312 MVA and is limited by the 1590 AAC lowside jumpers. This project is to replace the 1590 AAC lowside jumpers with dual 1590 AAC jumpers on the Goat Rock 230/115kV auto-transformer.

II. Compliance Statement

This project addresses problems associated with Category B events. These problems were identified as part of Southern Company's transmission planning process in compliance with NERC Standards TPL-002-0.

III. Study Assumptions

- Series 2009, Version 3C Shoulder case.
- Study years: 2010-2014
- Firm Alabama Generation Sensitivity

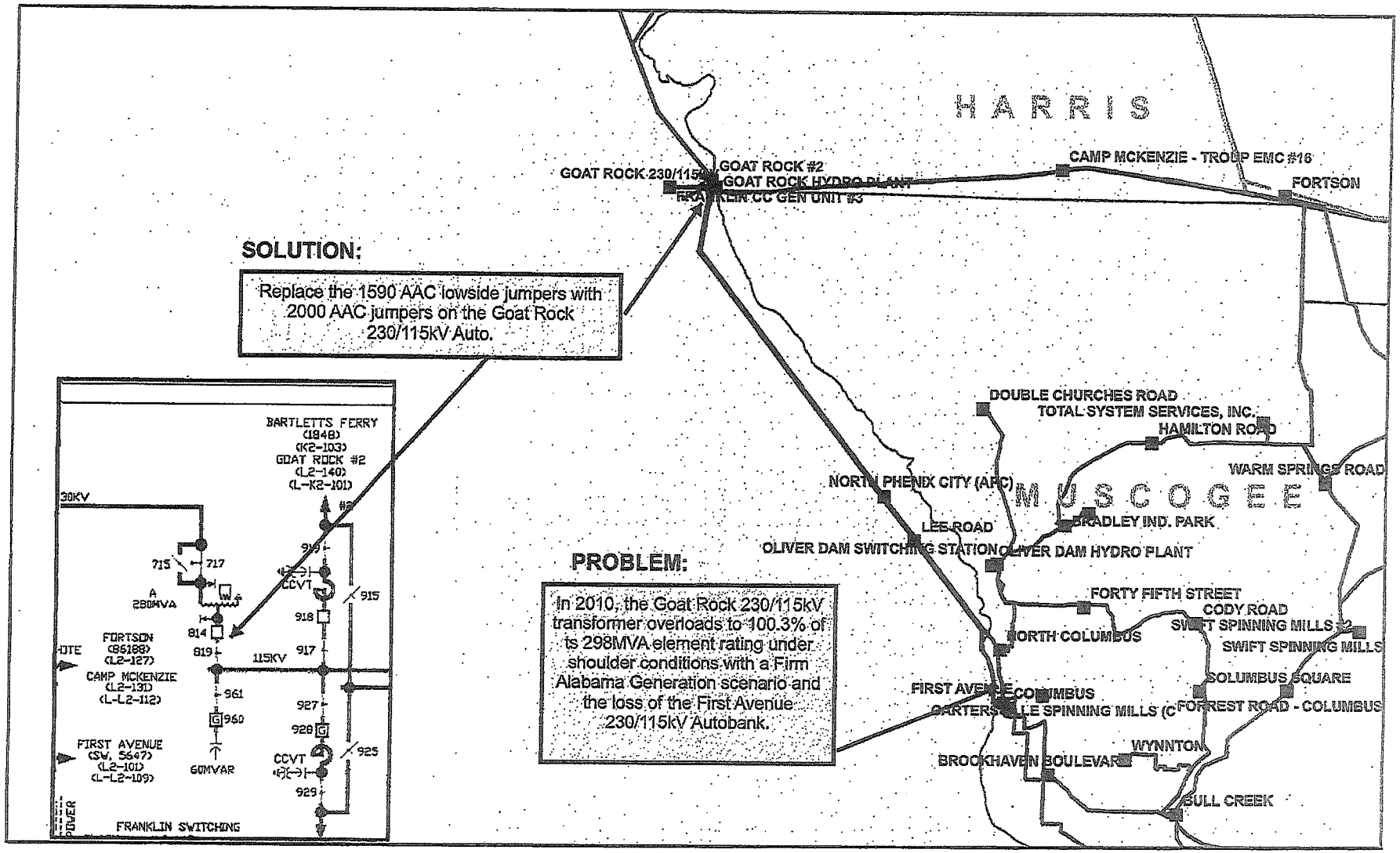
IV. Conclusion and Recommendations

The preferred plan is to replace the 115kV low side jumpers in order to utilize the re-rated rating of 312 MVA for the autotransformer. No other alternative was considered because replacing the lowside jumpers is the most cost effective and timely solution to solve the overload.

Goat Rock 230/115kV Auto Lowside Jumper Replacement

TEAMS # 12727

2010



PUBLIC DISCLOSURE

GEORGIA POWER COMPANY
Job Network Report

Date: 02/04/2010
Time: 09:57:59AM

Project Item: 1272702
Job Name: GOAT ROCK
Job Desc: Replace the 1590 AAC lowside jumpers with 2000 AAC jumpers on the Goat Rock 230/
Job Type: MODIFICATION
Area: M. GA-COLUMBUS
In Service Date: 05/24/2010 (Scheduled) Facility Required Date: 06/01/2010
Project Manager: BARTLING, JE

Job ID: 1272702
Job Status: WORKING
Region: WEST
Owner: GPCO

Activity ID	Activity Description	Activity Start	S/A	Activity Finish	S/A	Mstn	Supv	Eng /For	Org Dur	Rem Dur	Float Total	Float Free	Predecessor Activity	Pred Type	Lag Days
EECSK	PROTECTION & CONTROL PACKAGE	[redacted]	A	[redacted]	A	B	PBWI	UNAS	[redacted]	[redacted]	[redacted]	[redacted]	HPB01	FS	[redacted]
													REPE2	FS	
EEC01	CONTROL ENGINEERING		A		A	B	BRTH	UNAS							
DESC	GOAT ROCK		S		S		TGSM	UNAS					HPB01	FS	
													HPB02	FS	
HPB01	BUDGET APPROVAL		S		S		TGSM	UNAS							
DEDRQN	ORDER MATERIAL (expedite switch)		S		S		JRBY	UNAS					HPB01	FS	
REPE2	SET UP PRE-ENGINEERING CONFERENCE		S		S		JRBY	UNAS					HPB01	FS	
BAS01	DEVELOP BASELINE		S		S		TGSM	UNAS					HPB01	FS	
													REPE2	FS	
DED01	PHYSICAL ENGINEERING		S		S	B	JRBY	UNAS					REPE2	FS	
DEDQA	PHYSICAL ENGINEERING QA		S		S		JRBY	UNAS					DED01	FS	
DED02	TRANSMIT PHYSICAL ENGINEERING		S		S	E	JRBY	UNAS					DED01	FS	
													DEDQA	FS	
REPE3	SET UP PRE-CONSTRUCTION CONFERENCE		S		S		TGSM	UNAS					DED02	FS	
													GCS01	SS	
EEGREV	REVIEW TEAMS ESTIMATE (LABOR/MATERIAL)		S		S		UNAS	UNAS					REPE3	FS	
MCS01	RECEIVE MATERIAL		S		S		GPEE	SUBS					DEDRQN	FS	
GCS01	SUBSTATION CONSTRUCTION		S		S	EE	UNAS	UNAS					DED02	FS	
													MCS01	SS	
OUTAGE	BUS OUTAGE - CAPITAL		S		S		TGSM	UNAS					GCS01	SS	
GTS01	TEST & CUT-IN		S		S	E	JSSN	UNAS					GCS01	FF	
HPB02	REQUIRED FINISH / IN-SERVICE DATE		S		S	E	TGSM	UNAS					EEGREV	FF	
													GTS01	FF	

** End of Report **

PUBLIC DISCLOSURE

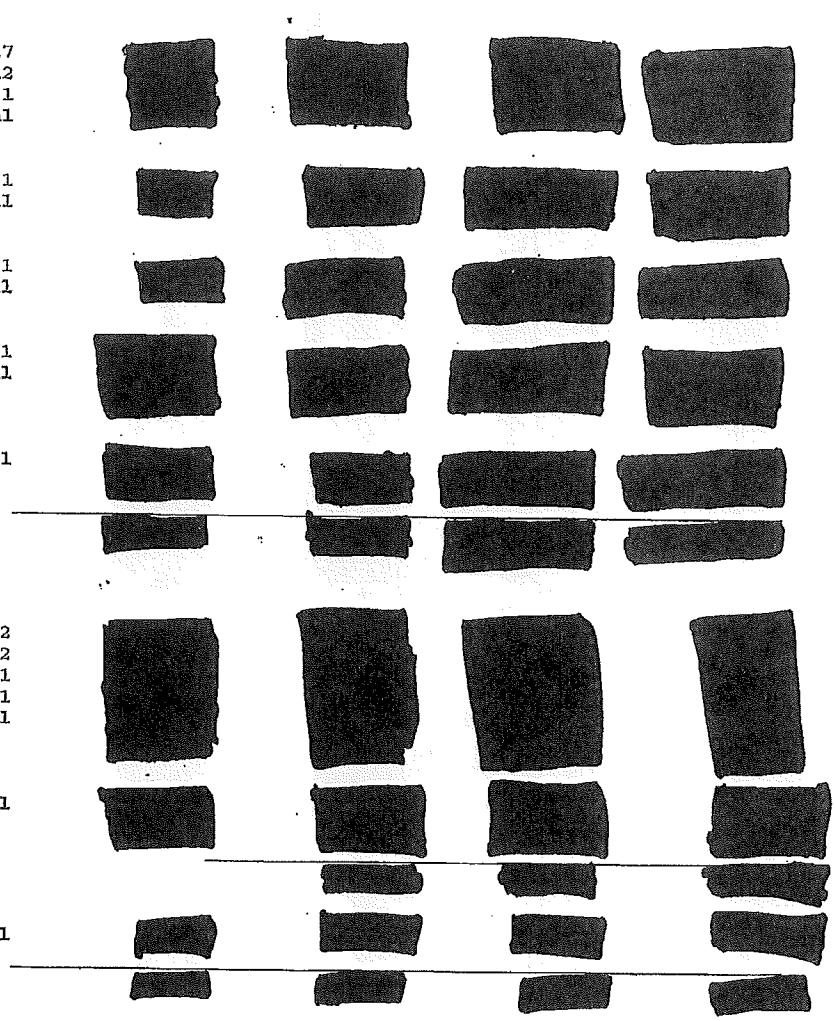
PUBLIC DISCLOSURE

GEORGIA POWER COMPANY
ESTIMATED COST BY RETIREMENT UNITS

Project Item: 1272702 Version: Budget
PE: 6021 PE Item:
Type Work: MODIFICATION
Facility Name: GOAT ROCK
Nearest Town: COLUMBUS
Work Order:
Schd Const Finish Date: 05/24/2010
Originator: POWELL JR.,EDWARD LEE
Description:
Replace the 1590 AAC lowside jumpers with 2000 AAC jumpers on the Goat Rock 230/115kV Auto.

Sub Design Note (J. Franko 1/26/10)
1. Replace low side transformer jumpers with (2) 1590AAC (instead of 2000AAC)
2. Replace first segment of 115kV main bus with (2) 1590AAC
3. Replace 1400A disconnect switch #819 with a 2000A switch

Discipline / Retirement Unit	UM	Quantity	Material	Labor	Equipment	Total
PLANT ADDITIONS						
CONSTRUCTION (Estimator: FRANKO,JOHN)						
BUSWORK-CABLE, ALUMINUM	FT	617				
INSULATOR-STRAIN 10" DISC	EA	12				
SWITCH-GO, AB, 3PH 115KV	EA	1				
Discipline Total						
ENGINEERING (Estimator: FRANKO,JOHN)						
DIRECT ENGINEERING	LT	1				
Discipline Total						
PLAN & PROJ (Estimator: FRANKO,JOHN)						
DIRECT ENGINEERING	LT	1				
Discipline Total						
TEST (Estimator: FRANKO,JOHN)						
DIRECT ENGINEERING	LT	1				
Discipline Total						
Sub-Total Additions						
PLANT TRANSFER ADDITIONS						
Discipline Total						
Sub-Total Plant Transfer Additions						
TOTAL PLANT ADDITIONS WITHOUT OVERHEADS						
PLANT REMOVALS						
CONSTRUCTION (Estimator: FRANKO,JOHN)						
BUSWORK-CABLE, ALUMINUM	FT	272				
INSULATOR-STRAIN 10" DISC	EA	12				
OVERHEAD GROUNDING	LT	1				
SWITCH-GO, AB, 3PH 115KV	EA	1				
Discipline Total						
Sub-Total Removals						
PLANT TRANSFER REMOVALS						
Discipline Total						
Sub-Total Plant Transfer Removals						
TOTAL PLANT REMOVALS WITHOUT OVERHEADS						
MAINTENANCE						
Discipline Total						
TOTAL MAINTENANCE						



PUBLIC DISCLOSURE

TMCRET40

Project Item: 1272702 Version: Budget
PE: 6021 PE Item:
Type Work: MODIFICATION
Facility Name: GOAT ROCK
Nearest Town: COLUMBUS

GEORGIA POWER COMPANY
ESTIMATED COST BY RETIREMENT UNITS

Date: 02/04/2010
Time: 09:57:16AM

Work Order:
Schd Const Finish Date: 05/24/2010
Originator: POWELL JR.,EDWARD LEE

ESTIMATE SUMMARY TOTALS

Plant Additions (Labor, Matl, Eqp)	[redacted]
Overheads	[redacted]
Total Plant Additions	[redacted]
Plant Removals (Labor, Matl, Eqp)	[redacted]
Overheads	[redacted]
Total Plant Removals	[redacted]
Plant Transfer Additions (Material Only)	[redacted]
Plant Salvage	[redacted]
Total PI CIAC	[redacted]
Total Cash Required	[redacted]
Total Maintenance Cost	[redacted]
Original Cost Retired	[redacted]
Plant Transfer Removal (Material)	[redacted]

*** End of Report ***

[C2I]

TEN YEAR PLAN PROJECTS
(PROJECT SUMMARIES)

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 4/30/2013

Project Name: **VILLA RICA PRIMARY 230KV LOW SIDE SWITCH REPLACEMENT**

TEAMS Number: 14542

Description: Replace the existing 3000 amp, 230-kV, low side bank switch, (#159209), with a 4000 amp switch.

Supporting Statement: The Villa Rica 500/230 kV autobank has a nameplate rating of 1344 MVA, and the existing 3000 amp low side switch matches that capacity. Due to a bank re-rate of 1647 MVA, (or approximately 123% of nameplate capacity), the existing switch is the limiting element and needs to be replaced.

Change from 2010 IRP: New project

Need Date: 5/1/2013

Project Name: **FIDVR: BOULEVARD 230KV REDUNDANT BUS DIFFERENTIAL RELAYING**

TEAMS Number: 14024

Description: Install secondary 230kV bus differential panel and ensure redundancy in tripping circuits.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install secondary 230kV bus differential panel and ensure redundancy in tripping circuits.

Change from 2010 IRP: New project

Need Date: 5/1/2013

Project Name: **FIDVR: SUWANEE 230/115KV REDUNDANT BANK DIFF RELAYING**

TEAMS Number: 14029

Description: Install primary and secondary bank differential panels for 230/115kV Bank A.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install primary and secondary bank differential panels for 230/115kV Bank A.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 5/1/2013

Project Name: **MCDONOUGH 4&5 NETWORK IMPV (ATK-NSD & NSD-NW 115 KV RECONDS)**

TEAMS Number: 11597

Description: Rebuild and reconfigure the Atkinson - Northside Drive and Northside Drive - Northwest 115 kV lines to increase capacity between Northside Drive and Northwest.

Supporting Statement: By 2013, McDonough generation will increase from 520 MW to 2520 MW. This project of one of several that are needed prevent contingency overloading of various facilities associated with delivery of the generation from Units 4 and 5.

Loss of the Atkinson - Northside Drive 115 kV line or Jack McDonough - Peachtree 230 kV line causes the Northside Drive - Northwest 115 kV line to exceed its 182 MVA rating.

Change from 2010 IRP: Delay from 2011

Need Date: 5/1/2013

Project Name: **MCDONOUGH 4&5 NETWORK IMPV (LASSITER-N MAR 115 KV RECOND)**

TEAMS Number: 12046

Description: MEAG: Reconductor the North Marietta - Marietta #5 section (approximately 1.2 miles of 636 ACSR) with conductor capable of carrying 1500 amperes.

GTC: Replace termination equipment at North Marietta.

Supporting Statement: With the increased generation capability at Jack McDonough and for loss of the North Marietta - Marietta #4 115 kV line section of the North Marietta Roswell 115kV line,the North Marietta - Marietta #5 section of the Lassiter Road - North Marietta 115 kV loads beyond its 188 MVA rating.

Change from 2010 IRP: No change

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 5/1/2013

Project Name: **MCDONOUGH 6 NETWK IMPV (JACK MCDONOUGH-NW B&W 230 KV UPG)**

TEAMS Number: 12044

Description: This project upgrades the two existing 230 kV lines from their 50C rating to a 75C rating, increasing their capacity from 306 to 481 MVA.

Supporting Statement: By 2013, McDonough generation will increase from 520 MW to 2520 MW. At that time, loss of the Jack McDonough – Peachtree 230 kV lines causes the Jack McDonough – Northwest BLK 230kV line to exceed its 306 MVA rating.

Change from 2010 IRP: Delay from 2012

Need Date: 5/1/2013

Project Name: **MCDONOUGH 6 NETWORK IMPV (DAVIS ST-NORTHWEST 115 KV RECOND)**

TEAMS Number: 09563

Description: Reconductor the Davis Street - Northwest 115 kV line (approximately 2.6 miles of 1033 AAC) with conductor capable of at least 1500 amperes.

Supporting Statement: By 2013, McDonough generation will increase from 520 MW to 2520 MW. At that time, loss of the Northwest – Jefferson Street 115 kV line causes the Davis Street - Northwest 115 kV line to exceed its 199 MVA rating.

Change from 2010 IRP: Delay from 2011

Need Date: 5/1/2013

Project Name: **MCDONOUGH 6 NETWORK IMPV (NSIDE DR-SPRING ST 115 KV RECOND)**

TEAMS Number: 12469

Description: Reconductor the Northside Drive - Spring Street 115 kV line (approximately 1.2 miles of 1033 AAC) with conductor capable of carrying 1500 amperes.

Supporting Statement: With the addition of McDonough Units 4, 5 and 6, loss of the Jack McDonough - Peachtree 230 kV line causes the Northside Drive - Spring Street 115 kV line to exceed its 199 MVA rating.

Change from 2010 IRP: Delay from 2012

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 5/1/2013

Project Name: **MCDONOUGH 6 NETWORK IMPV (REMOVE PEACHTREE 115 KV)**

TEAMS Number: 12045

Description: At Peachtree, convert all load transformers to 230 kV highside, remove the 230/115 kV transformer (Bank A) and add two 230 kV bus tie breakers in series. Tie the Boulevard and Rottenwood Creek 115 kV lines together outside the substation. RLB 115251 at Rottenwoood Creek will remain normally open.

Supporting Statement: By 2013, McDonough generation will increase from 520 MW to 2520 MW. Loss of the Boulevard – Peachtree 230kV line causes the Boulevard – Peachtree 115kV line to exceed its 188 MVA rating and loads the Peachtree 230/115kV transformer beyond its 280 MVA rating.

Change from 2010 IRP: Delay from 2012

Need Date: 6/1/2013

Project Name: **BREMEN-HICKORY LEVEL 115KV WHITE LINE**

TEAMS Number: 14888

Description: Move the Bremen - Hickory Level 115kV white line from Bremen Bus#1 to Bus#2.

Supporting Statement: For the loss of the Bremen 115kV Bus tie, the Hickory Level - Possum Branch 115kV line will exceed its 188MVA rating in 2013. Voltage will also be depressed at several buses on the Bremen - South Tallapoosa 115kV line

Change from 2010 IRP: New project

Need Date: 6/1/2013

Project Name: **CELANESE - METAL CONTAINER 115KV LINE UPGRADE**

TEAMS Number: 12856

Description: On the Celanese - Metal Container 115kV line, upgrade 3.53 miles of 50C 477 ACSR on the Celanese - Calhoun Rd. segment to operate at 100C.

Supporting Statement: For the loss of the Rocky Mtn - Hammond 230kV line the Calhoun Rd - Celanese section of the Celanese - Metal Container 115kV line overloads.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2013

Project Name: **DOUGLASVILLE - POST RD 115KV REBUILD - PHASE 1 (ANNEEWAKEE)**

TEAMS Number: 13635

Description: Reconductor the 2.1 mile section of 75 degree C 397 ACSR conductor from the Annewakee Jct. to Annewakee with 1033 ACSR. (**NOTE: the entire line SEGMENT is 3.8 miles long and has a 1.7 mile section that already consists of 1033 ACSR conductor).

Supporting Statement: The Ben Hill and Camp Creek loads are served radial from East Point. The Annewakee load is served from a tap on the Douglasville - Post Road 115kV line, with a normally open segment between Annewakee and Camp Creek. A 2.1 mile segment of the Annewakee tap is constructed with 75 degree C 397 ACSR conductor. The 75 degree C 397 ACSR conductor is rated for 113 MVA. By 2013, the Annewakee, Camp Creek and Ben Hill loads are forecasted to be larger than the capacity of the 75 degree C segment of 397 ACSR, 115-kV conductor in this line.

If the East Point to Ben Hill section of the East Point to Camp Creek line is out, the normally open section of line between Annewakee and Camp Creek will have to be closed, resulting in the 397 ACSR conductor overloading.

Change from 2010 IRP: New project

Need Date: 6/1/2013

Project Name: **FIDVR: ADAMSVILLE 230KV REDUNDANT BUS DIFFERENTIAL (GTC)**

TEAMS Number: 14818

Description: Install redundant bus differential relaying.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install redundant bus differential relaying.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2013

Project Name: **FIDVR: BAY CREEK 230/115KV REDUNDANT XFMR DIFF (GTC)**

TEAMS Number: 14824

Description: Install redundant bank differential relaying.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install redundant bank differential relaying.

Change from 2010 IRP: New project

Need Date: 6/1/2013

Project Name: **FIDVR: EAST SOCIAL CIRCLE 230KV REDUNDANT BUS DIFF (GTC)**

TEAMS Number: 14823

Description: Install redundant bus differential relaying.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install redundant bus differential relaying.

Change from 2010 IRP: New project

Need Date: 6/1/2013

Project Name: **FIDVR: GOSHEN 230KV REDUNDANT BUS DIFFERENTIAL (GTC)**

TEAMS Number: 14820

Description: Install redundant bus differential relaying.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install redundant bus differential relaying.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2013

Project Name: **FIDVR: HOPEWELL – OCEE 230KV REDUNDANT PILOT RELAYING (GTC)**

TEAMS Number: 13824

Description: Install dual pilot relaying on the Hopewell – Ocee 230kV line.

Supporting Statement: Per the Zone 2 v. Dual pilot analysis results completed in September 2009, install dual pilot relaying on the Hopewell – Ocee 230kV line.

Change from 2010 IRP: New project

Need Date: 6/1/2013

Project Name: **FIDVR: PARKAIRE 230KV REDUNDANT BUS DIFFERENTIAL (GTC)**

TEAMS Number: 14821

Description: Install redundant bus differential relaying.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install redundant bus differential relaying.

Change from 2010 IRP: New project

Need Date: 6/1/2013

Project Name: **GTC: DANIEL SIDING - RICEBORO 115-KV LINE**

TEAMS Number: 12711

Description: GTC: Create the Daniel Siding - Riceboro 115-kV line by building the Burnt Church - Tradeport 115-kV line section in 2011 (11.65 mi).

Supporting Statement: GTC is building this line with an in-service date of 6/1/2013 for substation reliabilty.

Change from 2010 IRP: No change

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2013

Project Name: **GTC: DAWSON CROSSING - GAINESVILLE #1 115 KV REBUILD (PHASE 1)**

TEAMS Number: 11177

Description: GTC: Rebuild the 6.45 mile, 100°C 336.4 ACSR, Dawsonville - Leach Road section of the Dawson Crossing - Gainesville #1 115kV line with 100°C 795 ACSR Drake conductor.

At Dawsonville, replace the 750 AAC and 336 ACSR line jumpers with 1590 AAC jumpers. At Leach Road, replace the 750 AAC jumpers with 1590 AAC jumpers.

Supporting Statement: For loss of the South Hall 500/230kV autobank, the Dawsonville - Gainesville #1 sections of the Dawson Crossing - Gainesville #1 115kV line exceed their 124 MVA thermal conductor rating.

Change from 2010 IRP: Advance from 2017

Need Date: 6/1/2013

Project Name: **GTC: UNION CITY 500/230KV AUTOTRANSFORMER SPARE PHASE**

TEAMS Number: 13832

Description: Purchase and install one single-phase 448MVA 500/230kV autotransformer spare for Bank A.

Supporting Statement: There is no spare single-phase 500/230kV autotransformer at Union City and there is no 500/230kV spare "pool" in the ITS. For loss of any phase on the 500/230kV Bank A, it would require 30 days to procure, transport, prep, and cut-in a new phase from another location, presuming one was available. The next contingency following loss of Bank A during peak hours results in multiple thermal overloads in the area as early as 2010.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2013

Project Name: **LLOYD SHOALS - PORTERDALE 115 KV LINE REBUILD (PHASE-1)**

TEAMS Number: 10488

Description: Rebuild 3.5 miles of the Lloyd Shoals - Porterdale 115-kV line from Porterdale to the S. Covington Junction. Replace the existing 50 degree C, 397 ACSR conductor with 795 ACSR sagged for 100 C operation.

Supporting Statement: An overload on the Porterdale to S. Covington Jct. section of the Lloyd Shoals - Porterdale 115-kV line will occur for the loss of the S. Griffin end of the Lloyd Shoals - S. Griffin 115-kV line.

Change from 2010 IRP: No change in project timing. Changed scope from upgrad

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Need Date: 6/1/2013

Project Name: **PINSON - METAL CONTAINER SWITCH AND JUMPER REPLACEMENT**

TEAMS Number: 14678

Description: Replace two 600A 115kV disconnect switches (028057, 028059) and one 600A bypass switch (028055) with 2000A 115kV switches and replace 500 cu jumpers with jumpers carrying at least 1352 A

Supporting Statement: For the loss of the Rocky Mtn - Hammond 230kV line the Pinson - Metal Container 115kV line overloads

Change from 2010 IRP: New project

Need Date: 6/1/2013

Project Name: **SOUTH COLUMBUS 115 KV JUMPER/SWITCH REPLACEMENTS**

TEAMS Number: 13673

Description: On the Dawson Primary 115 kV line termination, replace 600 A switches 006857 and 006859 with 1200 A switches, and replace the existing 4/0 Cu jumpers with 1590 AAC jumpers.

Supporting Statement: Loss of the North Tifton 500/230kV transformer causes the 4/0 copper jumpers in the South Columbus substation to exceed their 104 MVA maximum rating. By 2015, the loading on the jumpers will exceed the 104 MVA rating under normal conditions. The switches will be close to their 135 MVA rating by then also.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2013

Project Name: **SPRING CREEK 115 KV SWITCHING STATION**

TEAMS Number: 11070

Description: GTC: Construct a four-breaker 115 kV switching station at the East Colquitt/West Donalsonville junction of the Blakely-East Bainbridge 115 kV line.

GPC: Loop the Blakely - East Bainbridge line and the West Donalsonville tap into the new switching station.

Also, create another networked East Bainbridge - Spring Creek 115 kV line by changing RLB 74429 at Donalsonville to normally-closed.

Supporting Statement: Loss of the Farley-South Bainbridge 230 kV line with Lansing Smith 3 off loads the North Camilla - Raccoon Creek segment of the Raccoon Creek - Thomasville 230 kV line in 2013 and the Blakely-East Bainbridge line to 108% of its 79-MVA 50°C rating in 2014.

Change from 2010 IRP: Advance from 2014

Need Date: 6/1/2013

Project Name: **VILLA RICA PRIMARY 500/230KV AUTOBANK SPARE PHASE**

TEAMS Number: 13034

Description: Purchase and install one single-phase 448MVA 500/230kV autotransformer spare for Bank A.

Supporting Statement: There is no spare single-phase 500/230kV autotransformer at Villa Rica and there is no 500/230kV spare "pool" in the ITS. For loss of any phase on the 500/230kV Bank A, it would require 30 days to procure, transport, prep, and cut-in a new phase from another location, presuming one was available. The next contingency following loss of Bank A during peak hours results in multiple thermal overloads in the area as early as 2010.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 12/1/2013

Project Name: **FIDVR: SOUTH ACWORTH 230KV REDUNDANT BUS DIFFERENTIAL (GTC)**

TEAMS Number: 14822

Description: Install redundant bus differential relaying.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install redundant bus differential relaying.

Change from 2010 IRP: New project

Need Date: 12/1/2013

Project Name: **FIDVR: WILSON CT 230KV REDUNDANT BUS DIFFERENTIAL RELAYING**

TEAMS Number: 14027

Description: Install additional lockout relay for 230kV bus differential tripping.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install additional lockout relay for 230kV bus differential tripping.

Change from 2010 IRP: New project

Need Date: 12/1/2013

Project Name: **FIDVR: WOODSTOCK 230KV REDUNDANT BUS DIFFERENTIAL (GTC)**

TEAMS Number: 14819

Description: Install redundant bus differential relaying.

Supporting Statement: Per the recommendations from the FIDVR Redundant Bus Differential Study completed in March 2011, install redundant bus differential relaying.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 5/1/2014

Project Name: **FIDVR: ASHFORD–DERING CIRCLE 230KV REDUNDANT PILOT RELAYING**

TEAMS Number: 14034

Description: Install dual pilot relaying on the Ashford – Dering Circle 230kV line.

Supporting Statement: Per the Zone 2 v. Dual pilot analysis results completed in September 2009, install dual pilot relaying on the Ashford – Dering Circle 230kV line.

Note: The official recommendations were to lower the Zone 2 total clearing times at both Ashford and Dering Circle. Upon further analysis, the zone 2 total clearing times could not be lowered due to coordination issues with other lines out of Ashford.

Change from 2010 IRP: New project

Need Date: 5/1/2014

Project Name: **FIDVR: ASHFORD–PERIMETER CNTR 230KV REDUNDANT PILOT RELAYING**

TEAMS Number: 14035

Description: Install dual pilot relaying on the Ashford – Perimeter Center 230kV line.

Supporting Statement: Per the Zone 2 v. Dual pilot analysis results completed in September 2009, install dual pilot relaying on the Ashford – Perimeter Center 230kV line.

Change from 2010 IRP: New project

Need Date: 5/1/2014

Project Name: **GTC: WANSLEY 7 NETWK IMPV (DRESDEN 500/230 EXPANSION)**

TEAMS Number: 13667

Description: GTC: Terminate the new Heard County - Dresden 500kV line and convert the Dresden 230kV switching station to operate as a 500/230kV network substation. Install 2% reactors on Dresden –Yates 230kV line. Coordinate with TEAMS 13596 & 13662 to add and remove temporary reactors at Villa Rica.

Supporting Statement: The Transmission Improvement Plan for the 575MW network service request from the Wansley CC7 Generation Facility by GTC requires certain network improvements, including 500/230kV expansion at Dresden and the installation of reactors on the Dresden-Yates 230kV line.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2014

Project Name: **BULL CREEK - VICTORY DRIVE 115 KV LINE RECONDUCTOR**

TEAMS Number: 11692

Description: Reconductor 2.5 miles of 115 kV line with 795 ACSR from Victory Drive to St. Marys Jct. on the Bull Creek - Victory Drive 115 kV line.

Supporting Statement: Under contract sales conditions and a Firm Alabama Generation scenario, the loss of the First Avenue end of the Bull Creek - First Avenue 115 kV line causes the Victory Drive - Chloride segment of the Bull Creek - Victory Drive 115 kV line to load beyond its 124 MVA rating.

Change from 2010 IRP: Advance from 2018

Need Date: 6/1/2014

Project Name: **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**

TEAMS Number: 14505

Description: Construct a new 230/115kV substation with a 400 MVA autotransformer on Plant Yates property. Loop in the Thomaston - Yates 230kV line creating the Dyer Road - Yates 230kV line and the Dyer Road -Thomaston 230kV line. Loop in the Thomaston - Yates 115kV line creating the Dyer Road - Yates (White) 115kV line and Dyer Road - Thomaston 115kV line. Loop in the Lagrange - Yates 115kV line creating the Dyer Road - Lagrange Primary 115kV and Dyer Road - Yates (Black) 115kV lines. Terminate the East Roanoke (APC) - Yates, South Coweta - Yates, and Yates - Newnan Primary 115kV lines at Dyer Road. This will create the Dyer Road - East Roanoke, Dyer Road - South Coweta, and Dyer Road - Newnan Primary 115kV lines.

Supporting Statement: Installation of the 230/115kV autotransformer will remove Yates Units 1 – 3 from must run generation list.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2014

Project Name: **EAST POINT SUBSTATION 115-KV SWITCH & JUMPER REPLACEMENTS**

TEAMS Number: 14657

Description: On the East Point 115-kV bus #2, replace 600 amp disconnecting switches with 1600 amp or larger switches in the Camp Creek circuit #120648, (switch #'s 120647 & 120649). Also, replace all 750 AAC jumpers in circuit #120608, (Willingham Drive), with 1590 AAC jumpers.

Supporting Statement: Starting in 2014, transmission contingency outages will cause overloads to occur on the 600 amp switches in the Camp Creek 115-kV circuit and also on the jumpers in the Willingham Drive circuit.

Change from 2010 IRP: New project

Need Date: 6/1/2014

Project Name: **FORT BENNING #2 (AL) CAPACITOR BANK**

TEAMS Number: 14318

Description: At the new Fort Benning 2 (AL) substation, install a single stage 15 MVAR capacitor bank.

Supporting Statement: Low voltage occurs on the Dawson-South Columbus 115kV line at Fort Benning for loss of the South Columbus end.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2014

Project Name: **GTC: DAWSON CROSSING - GAINESVILLE #1 115 KV REBUILD (PHASE 2)**

TEAMS Number: 14748

Description: GTC: Rebuild the 6.35 mile, 100°C 336.4 ACSR, Leach Road - Gainesville #1 section of the Dawson Crossing - Gainesville #1 115kV line with 100°C 795 ACSR Drake conductor.

GPC: At Gainesville #1, replace the 600 A switch, 071239, with a 1200 A switch and replace the 350 Cu jumpers with 1590 AAC jumpers.

Supporting Statement: For loss of the South Hall 500/230kV autobank, the Dawsonville - Gainesville #1 sections of the Dawson Crossing - Gainesville #1 115kV line exceed their 124 MVA thermal conductor rating.

Change from 2010 IRP: New project

Need Date: 6/1/2014

Project Name: **GTC: WANSLEY 7 NETWK IMPV (DRESDEN - HEARD COUNTY 500 KV)**

TEAMS Number: 13632

Description: UNA: Construct 8 miles of new 500kV line between Heard County and Dresden substations.

GTC: Construct an additional 500kV bay at Heard County and terminate the new Dresden – Heard County 500 kV line.

Supporting Statement: The Transmission Improvement Plan for the 575MW network service request from the Wansley CC7 Generation Facility by GTC requires certain network improvements to prevent overload.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2014

Project Name: **JUDY MOUNTAIN 230/115KV - ROME AREA IMPROVEMENTS**

TEAMS Number: 14535

Description: GTC: Construct a new 230/115KV substation near the existing Coosa substation. The Bowen - Rocky Mtn 230kV, Hammond - Rocky Mtn 230kV, Hammond - Lafayette 115kV and Hammond - Rome 115kV lines all pass through this Georgia Power owned property. Install a 230kV Ring bus to loop in both 230kV lines (4 lines total) and Install a 400MVA 230/115kV auto bank. Install a 115kV ring bus and terminate the four 115kV lines.

Supporting Statement: Make improvements to the transmission system in the Rome Area to allow for the removal of Hammond 1-3 from the must run generation list.

Change from 2010 IRP: New project

Need Date: 6/1/2014

Project Name: **MCINTOSH - BLANDFORD - MELDRIM 230KV BLACK/WHITE RECONDUCTOR**

TEAMS Number: 12093

Description: Reconductor the McIntosh - Blandford - Meldrim 230 kV Black/White lines (8.6 + 9.6 miles of 1033 ACSR) with 210C 1622 ACCR/TW conductor.

Supporting Statement: Loss of one of the McIntosh - Meldrim 230 kV lines will load the other line past its 509 MVA conductor rating.

Change from 2010 IRP: Advance from 2017

Need Date: 6/1/2014

Project Name: **MCMANUS - WEST BRUNSWICK 115 KV REBUILD**

TEAMS Number: 13514

Description: Rebuild the McManus - West Brunswick 115kV line (5.7 miles) with a concrete H-frame configuration and 1351 ACSR conductor at 100C sag. Re-use existing OPGW fiber on the McManus - W. Brunswick 115 kV.

Supporting Statement: Loss of the McManus - West Brunswick 230-kV line under a Brunswick Area Max generation scenario, loads the McManus - West Brunswick 115-kV line above its 181 MVA conductor rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2014

Project Name: **MEAG: CRISP COUNTY AREA IMPROVEMENTS - PHASE II**

TEAMS Number: 11286

Description: Construct a 12-mile, 115 kV line using 636 ACSR from MEAG's Crisp #2 (Warwick) substation to their new, Crisp #8 substation, and add 3 - 115 kV breakers at Warwick to create the N. Americus - Crisp #2 and N. Tifton - Crisp #2, 115 kV circuits. Also, construct a 2.1 mile, 636 ACSR line section between MEAG's new Crisp Co. #8 substation and MEAG's Crisp Co. #6 substation to create the Crisp #2 - Pitts, 115 kV circuit.

Supporting Statement: Loss of the Crisp #4 to Crisp 4 Junction segment of the North Americus-Pitts 115kV line caused voltage violations at multiple stations, including Crisp #4, Crisp #5, Crisp #6, Vienna, and GP Vienna, with voltages below 90%. The preferred alternative is to create a Crisp #2 – Pitts 115kV line serving Crisp #4, Crisp #6, and future station Crisp #8, and also configuring the the North Americus – Pitts 115kV line to serve Vienna, GP Vienna, Crisp #1, Crisp #3, and Crisp #7.

Change from 2010 IRP: New project

Need Date: 6/1/2014

Project Name: **MOULTRIE - NORTH TIFTON 115 KV JUMPER REPLACEMENT**

TEAMS Number: 13666

Description: Replace 500 Cu jumpers at North Tifton.

Supporting Statement: For loss of North Tifton - East Moultrie the North Tifton - Tifton Junction section of the Moultrie - North Tifton 115 kV line exceed its thermal rating.

Change from 2010 IRP: New project

Need Date: 6/1/2014

Project Name: **NORTH TIFTON SECOND 500/230 KV AUTO**

TEAMS Number: 14178

Description: Install a new 2016 MVA 500/230 kV auto in addition to the existing 1344-MVA auto.

Supporting Statement: Loss of the Raccoon Creek 500/230 kV autobank causes the North Tifton 500/230 kV autobank to exceed its thermal rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2014

Project Name: **WANSLEY 7 NETWK IMPV (OHARA-WANSLEY 500 KV LINE LOOP IN)**

TEAMS Number: 13664

Description: Loop the Wansley – O'Hara 500 kV line into the expanded Dresden substation.

Supporting Statement: Beginning in 2010, 575 MW is requested out of the Wansley CC 7 Plant Site. A System Impact Study was conducted by GTC to determine the impact on the ITS. To accommodate the construction of the new Heard County – Dresden 500 kV line recommended in the study, the existing O'Hara – Wansley 500 kV line needs to be looped into Dresden where it can cross the new dresdan - Heard County 500 kV line without being connected to it.

Change from 2010 IRP: New project

Need Date: 6/1/2014

Project Name: **WANSLEY 7 NETWK IMPV (REMOVE VILLA RICA 230 REACTORS)**

TEAMS Number: 13662

Description: Remove the 230kV reactors on the low side of the 500/230kV autobank, Bank A.

Supporting Statement: The Transmission Improvement Plan for the 575MW network service request from the Wansley CC7 Generation Facility by GTC requires certain network improvements, including temporary installation of reactors at Villa Rica. In this phase, two 2% reactors will be removed, with one set relocated to Dresden and one set moved to the spare pool.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2014

Project Name: **WANSLEY 7 NETWK IMPV (YATES 230-KV OVERSTRESSED BKR REPLMTS)**

TEAMS Number: 14110

Description: Replace eight, (8), existing 43kA, 230-kV, BZO overstressed breakers, (Co. #s 4383, 4384, 4385, 4386, 4387, 4388, 4389 and 4390), with 63kA breakers at Plant Yates.

Note: Equipment Operating #s are 050890, 050870, 050780, 050850, 050790, 050960, 050750, & 050880.

Supporting Statement: Eight, (8), 230-kV breakers at Plant Yates will become overstressed due to the addition of the Dresden 500/230-kV autobank, in 2014.

Change from 2010 IRP: New project

Need Date: 12/31/2014

Project Name: **JASPER - PINE GROVE PRIMARY 115 KV REBUILD**

TEAMS Number: 14319

Description: Tear down and rebuild the GPC portion of the line using 230 kV constructed, single-pole 100°C-sagged 1351 ACSR on the existing 100' ROW, a distance of 21.6 miles. Replace 600A switches and jumpers at Pine Grove with 2000A switches.

Supporting Statement: This 1942-vintage line requires a rebuild due to Stage R4 OHGW deterioration and loss of conductor strength. Also, by 2015 loss of the Pine Grove - Suwannee 230 kV line causes the Pine Grove - Twin Lakes, Kettle Creek - West Homerville and Jasper - West Homerville 115 kV lines to exceed their ratings, largely because of expected generation changes within the Southern and Progress Energy Florida systems. Networking the rebuilt line will address these loading issues. 230 kV construction allows for future interface capability upgrades. Per an MOU signed by GPC, SCS and Progress management, Progress will rebuild their section of the line by 6/1/2015.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 5/1/2015

Project Name: **FIDVR: BOWEN - PEGAMORE 230KV REDUNDANT PILOT RELAYING**

TEAMS Number: 14036

Description: Install dual pilot relaying on the Bowen - Pegamore 230kV line.

Supporting Statement: Per the Zone 2 v. Dual pilot analysis results completed in September 2009, install dual pilot relaying on the Bowen - Pegamore 230kV line.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **BONAIRE - KATHLEEN 115 KV RECONDUCTOR**

TEAMS Number: 13588

Description: Reconductor the entire line, 5.86 miles of 100C 336 ACSR, using 100C 795 ACSR.

Supporting Statement: For loss of the Bonaire - Kathleen 230kV line, the Bonaire - Waterford 115kV line section exceeds its 143 MVA thermal line rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2015

Project Name: **BOULEVARD 230/115-KV PROJECT**

TEAMS Number: 12916

Description: At a new substation site, Gamble Road, across the I-516 Interchange from the Boulevard 115/46/13.8-kV substation, build a 230/115-kV substation with a 400 MVA, 230/115-kV transformer and 60 MVAR, 115-kV capacitor. Terminate the Little Ogeechee 115-kV Black/White lines, the Boulevard 115-kV Black/White lines, and the Dean Forest 115-kV and 230-kV lines.

Expand the Dean Forest 230-kV ring-bus and terminate the Gamble Road 115-kV and 230-kV lines and the Cemetery Hill 230-kV line.

Rebuild the Boulevard – Dean Forest 115-kV Black/White common tower lines, to 230-kV specs using 170C, 1351 ACSS conductor and terminate into Gamble Road. Operate one side at 230-kV and the other side at 115-kV.

At a point approximately 2.0 miles from Plant Kraft on the Kraft – McIntosh 230-kV Black/White lines, construct a three-element, 230-kV ring-bus switching station. Tap the Kraft – McIntosh 230-kV White line creating the Dean Forest, Kraft and McIntosh 230-kV lines.

Construct a 5.5 mile, Cemetery Hill - Dean Forest 230-kV line using 170C, 1351 ACSS conductor.

Supporting Statement: Loss of one Deptford – Kraft 115-kV line will load the other line beyond its 212 MVA rating and overload the underground cable section above its 216 MVA rating. Loss of both lines will cause thermal loading problems on numerous transmission elements in the Savannah system.

Additionally, this project will remove Plant Kraft from the must run generation list.

Change from 2010 IRP: No change

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2015

Project Name: **CONYERS - CORNISH MOUNTAIN 115 KV LINE RECONDUCTOR**

TEAMS Number: 08839

Description: Reconductor the Conyers - Salem Gate Jct. section of the Conyers - Cornish Mtn. 115 kV line (3.9 miles of 636.0 ACSR) with1351 ACSR. Replace 750 AAC jumpers at North Conyers with 1590 AAC jumpers.

Supporting Statement: In 2015, the loss of the Klondike to Porterdale 230kV line will load the Conyers to Salem Gate section of the Conyers - Cornish Mountain 115 kV line beyond its 188 MVA rating.

Change from 2010 IRP: No change

Need Date: 6/1/2015

Project Name: **DAWSON PRIMARY - SOUTH COLUMBUS 115 KV RECONDUCTOR**

TEAMS Number: 14200

Description: Reconductor 8.9 miles of the Dawson - South Columbus 115 kV line from South Columbus to Fort Mitchell Jct (7.2 mi) and Fort Mitchell Jct to Fort Benning #2 (1.9 mi) with 795 ACSR (from 336 ACSR).

Supporting Statement: As early as 2015, the South Columbus to Fort Mitchell Jct. segment of the Dawson Primary - South Columbus 115 kV line overloads for multiple contingencies due to new Fort Benning #2 load.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2015

Project Name: **DOUGLAS - PINE GROVE 230 KV LINE**

TEAMS Number: 14278

Description: Acquire new right of way and build a new 53 miles (100°C 1351 ACSR 54/19) 230 kV line from Douglas substation to Pine Grove substation.

GPC: Build 15 miles (100°C 1351 ACSR 54/19) 230 kV line from Lakeland to Pine Grove substation.

Supporting Statement: Loss of the East Moultrie - East Berlin segment causes the North Tifton - Osceola SW 230 kV segment of the North Tifton - Pine Grove 230 kV line to exceed its thermal rating. Additionally, this line alleviates other 115 kV constraints in the area.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **FIRST AVENUE - VICTORY DRIVE 115 KV LINE RECONDUCTOR**

TEAMS Number: 14201

Description: Reconductor the entire line (6.4 miles of 75C 1033 AAC) with 100C 1033 ACSR.

Supporting Statement: As early as 2015, loss of any segment of the Bull Creek - First Avenue 115 kV line, causes overload on the First Avenue - Blanchard Industrial Park segment of the First Avenue - Victory Drive 115 kV line.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **FIRST AVENUE 230/115 KV AUTO #2 LS JUMPER REPLACEMENT**

TEAMS Number: 12719

Description: Replace the 1590 AAC jumpers on the lowside of Auto #2 with 2000 AAC jumpers or better.

Supporting Statement: Under shoulder load conditions with Farley #1 off line and loss of the Goat Rock - First Avenue 230kV line causes the First Avenue 230/115kV Auto #2 to load to beyond its contingency rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2015

Project Name: **FORREST RD - RUMBLE RD 115 KV SWITCH REPLACEMENTS**

TEAMS Number: 14569

Description: GTC: Replace 1200A switches 031213 & 031221 @ Smarr Tap and 031749 @ Bolingbroke with 2000A switches. Replace 1590 AAC jumpers @ Rumble Rd. and Bolingbroke with 2-750 AAC jumpers.

GPC:Replace 1590 AAC jumpers @ Forrest Rd with 2-750 AAC jumpers.

Supporting Statement: For the loss of the Dorsett - Thomaston 230kV line, the Forrest Road - Rumble Road 115kV line 269 MVA thermal line rating is exceeded.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **GTC: BONAIRE PRIMARY 115 KV SWITCH REPLACEMENTS**

TEAMS Number: 14567

Description: GTC: Replace 600A switches 096439 & 096437 and 500 CU jumpers @ Bonaire with 1200A switch and 1590 jumpers.

Supporting Statement: For the loss of the Bonaire Primary - Hatch 500kV line, the Bonaire Primary - Eastman Primary 115kV line 135 MVA thermal line rating is exceeded.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **GTC: NORTH AMERICUS-TALBOT CO #2 230KV SERIES REACTORS**

TEAMS Number: 14625

Description: GTC: At Talbot County #2, install 2% series reactor on the North Americus – Talbot County #2 230kV line. At North Americus, provide means to bypass the existing 2% series reactors on the North Americus - North Tifton 230kV line. The North Americus - Talbot County #2 230kV line will have two 2% series reactors installed for 4%.

Supporting Statement: As early as 2015, the Fortson - Talbot County #2 230 kV line exceeds its 433MVA rating for loss of the Fortson-North Tifton 500kV line.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2015

Project Name: **JUDY MOUNTAIN - ROME 115KV LINE RECONDUCTOR**

TEAMS Number: 14681

Description: Reconductor the North Coosa - Rome 115kV Line with 1033 ACSS 200C conductor. Replace existing 1200A trap at Rome with a 2000A trap.

Supporting Statement: For the loss of the Rocky Mtn - Pinson 230kV line the North Coosa - Rome 115kV line overloads.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **LLOYD SHOALS - PORTERDALE 115 KV REBUILD, (PHASE 2)**

TEAMS Number: 14604

Description: Rebuild 5.6 miles of the existing 50 Degree C, 397 ACSR 115-kV line with 100 degree C, 795 ACSR conductor, from the S. Covington Jct. to Jackson Lake, on the (GPC) Lloyd Shoals - Porterdale 115-kV line.

Supporting Statement: An overload on the Jackson Lake to S. Covington Jct. section of the Lloyd Shoals - Porterdale 115-kV line will occur for the loss of the S. Griffin end of the Lloyd Shoals - S. Griffin 115-kV line.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **MCINTOSH - YEMASSEE (SCE&G) 115KV TIE-LINE RECONDUCTOR**

TEAMS Number: 13670

Description: Reconductor the GPC portion (1.43 mi) of the McIntosh - Jasper section (4.43 miles) of the McIntosh - Yemassee (SCE&G) 115kV tie line with 160C, 1351 ACSS.

Supporting Statement: Loss of McIntosh - Purrysburg (SCE&G) 230-kVv tie-line will load the McIntosh - Jasper (SCE&G) 115-kV tie-line past its 75C, 1272 ACSR, 230 MVA conductor rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2015

Project Name: **MCINTOSH 230/115-KV TRANSFORMER REPLACEMENT**

TEAMS Number: 11662

Description: Replace the existing 280 MVA, 230/115 kV transformer with 400 MVA, 230/115 kV transformer.

Supporting Statement: Loss of the McIntosh - Purrysburg 230-kv tie-line will load the McIntosh 230/115-kV transformer past its 319 MVA Bonus rating.

Change from 2010 IRP: Advanced from 2018

Need Date: 6/1/2015

Project Name: **MEAG: FORTSON - TALBOT COUNTY #1 230 KV RECONDUCTOR**

TEAMS Number: 14205

Description: MEAG: Reconductor the Fortson - Talbot County #1 230 kV line (13 miles of 100°C 795 ACSR) using 200°C 1351 ACSS.

Supporting Statement: As early as 2013, the Fortson - Talbot County #1 230 kV line exceeds it's 433MVA rating for loss of the Bonaire-Scherer 500kV line or also loss of the Fortson-North Tifton 500kV line.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **OFFERMAN 230/115 KV AUTOBANK REPLACEMENTS**

TEAMS Number: 14204

Description: Replace the existing 140 MVA 230/115 kV auto transformers with two 280-300 MVA 230/115 kV auto transformers.

Supporting Statement: Loss of either existing 230/115kV autobank at Offerman results in the other bank exceeding its thermal rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2015

Project Name: **PLANT KRAFT 115/46KV #2 TRANSFORMER**

TEAMS Number: 13191

Description: Install a second 115/46 kV LTC transformer in the Plant Kraft switchyard.

Supporting Statement: With Kraft 46-kV units off, loss of the Kraft 115/46-kV transformer results in a depressed voltage profile on the 46-kv network system.

Change from 2010 IRP: Delay from 2013

Need Date: 6/1/2015

Project Name: **RACCOON CREEK - THOMASVILLE 230 KV LINE RECONDUCTOR**

TEAMS Number: 13626

Description: MEAG: Reconductor the Raccoon Creek - North Camilla 230 kV section (8.8 miles 100°C 1033.5 ACSR) of the Raccoon Creek - Thomasville 230 kV line with 170°C 1033 ACSS 54/7.

GPC: Replace 1600 amp switches 109167 & 109159 and 1590 AAC jumper at Cotton Primary with 2000 amp switches and 2500 AAC jumpers.

Supporting Statement: Loss of South Bainbridge - Farley 6 230 kV causes the Raccoon Creek - Cotton 230 kV section of the Raccoon Creek - Thomasville 230 kV line to exceed its thermal rating of 509 MVA.

Change from 2010 IRP: New project

Need Date: 6/1/2015

Project Name: **WEST MCINTOSH 230-KV REACTORS**

TEAMS Number: 13103

Description: Install 1% - 4,000 amp reactors at West McIntosh on the McIntosh - West McIntosh 230-kV Black and White lines.

Supporting Statement: Loss of a McIntosh - West McIntosh 230-kV line will load the other line beyond its 1614 MVA conductor rating.

Change from 2010 IRP: Advanced from 2019

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2016

Project Name: **CLAXTON - STATESBORO PRIMARY 115 KV RECONDUCTOR**

TEAMS Number: 13096

Description: GPC: Reconductor the Claxton - Statesboro Primary 115kV line with 100°C 795 ACSR conductor (17.8 miles). Replace 600 amp switches (053617 & 053619) at Statesboro Primary with 2,000 amp switches.

GTC: Replace 600 amp switches (111961 & 111963) at the Langston tap with 2,000 amp switches. Replace switches at Langston.

Supporting Statement: Loss of the Vidalia - Loop Road section of the Claxton - Vidalia 115kV line, will load the Statesboro Pri - Langston - Jimps section section past its 124 MVA conductor rating.

Change from 2010 IRP: New project

Need Date: 6/1/2016

Project Name: **DEAL BRANCH - SYLVANIA 115-KV UPGRADE**

TEAMS Number: 12095

Description: Upgrade the Deal Branch - Sylvania 115kV line, 23.1 miles, to 100 C. Replace 2/0 copper jumpers at King Mfg.

Supporting Statement: Loss of the Vogtle - West McIntosh 500 kV line will load the Deal Branch- Sylvania 115 kV line past its 63 MVA conductor rating.

Change from 2010 IRP: Advance from 2019

Need Date: 6/1/2016

Project Name: **DOUGLASVILLE - POST RD 115 KV RECONDUCTOR - PHASE 2**

TEAMS Number: 12063

Description: Reconductor the Douglasville - Anneewakee Jct section to RLB switch #026209 of the Douglasville - Post Road 115 kV line (6.0 miles of 336 ACSR and 397 ACSR) using 1033 ACSR.

Supporting Statement: Loss of the Post Road end of the Douglasville - Post Road 115 kV line overloads the Douglasville end.

Change from 2010 IRP: Delay from 2014

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2016

Project Name: **EAST VIDALIA 115KV SWITCH REPLACEMENT**

TEAMS Number: 13032

Description: Replace 600A BLD switch 076001 at East Vidalia with a 1200A BLD switch.

Supporting Statement: Under summer peak conditions, loss of the Hatch - South Hazlehurst 230 kV line with Farley unit 2 off causes switch 076001 to exceed its 135 MVA contingency rating.

Change from 2010 IRP: No change

Need Date: 6/1/2016

Project Name: **GORDON - SANDERSVILLE #1 115 KV LINE UPGRADE**

TEAMS Number: 10442

Description: Upgrade the 30 mile, 50 C 336.4 ACSR, Gordon - Robin Springs section of the Gordon - Sandersville 115kV line for 100 degree C operation.

Supporting Statement: For loss of the Branch - Gordon 230 kV line, the Gordon - Robin Spring section of the Gordon - Sandersville 115kV line will exceed its 63 MVA thermal rating.

Change from 2010 IRP: No change

Need Date: 6/1/2016

Project Name: **GTC: OSELIGEE 115 KV CAPACITOR BANK**

TEAMS Number: 13238

Description: GTC: Install a two stage, 20 MVAR 115 kV capacitor bank at Oseligee.

Supporting Statement: In 2015 under contract shoulder conditions and Farley #1 offline, loss of the Pittman Road - Oseligee section of the Pittman Road - West Point Dam 115kV line causes a voltage deviation of 10.4% at Oseligee.

Change from 2010 IRP: Delayed from 2015

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2016

Project Name: **MEAG: AULTMAN ROAD - BONAIRE PRIMARY 115 KV RECONDUCTOR**

TEAMS Number: 12576

Description: Reconductor the 3.65 mile, Bonaire - Peach Blossom 115 kV line section (100°C 336 ACSR) of the Aultman Road - Bonaire 115 kV line, with 100°C 795 ACSR.

Supporting Statement: For loss of the Bonaire - 96 Highway 115 kV line section, the Bonaire - Peach Blossom 115 kV line section exceed its 124 MVA thermal line rating.

Change from 2010 IRP: Advance from 2018

Need Date: 6/1/2016

Project Name: **VOGTLE 3&4 NETWORK IMPV (THOMSON - VOGTLE 500 KV LINE)**

TEAMS Number: 11285

Description: Construct a 500 kV line from Plant Vogtle to the Thomson Primary 500/230 kV substation. Terminate at Thomson with two 500 kV breakers to complete the ring.

Supporting Statement: To support the expansion of Plant Vogtle, a new 500 kV line is required from Plant Vogtle to Thomson Primary to address transmission thermal and generator stability issues.

Change from 2010 IRP: No change

Need Date: 6/1/2016

Project Name: **WAYNESBORO 230/115 KV AUTOBANK ADDITION**

TEAMS Number: 12720

Description: Install a second 300MVA 230/115kV autotransformer.

Supporting Statement: Loss of the Wadley - Waynesboro 230-kV line loads the Waynesboro 230/115-kV transformer beyond its 280 MVA nameplate rating. Loss of the Waynesboro Primary 230/115-kV transformer load the Wadley Primary - Waynesboro Primary 115-kV line past its 124 MVA conductor rating.

Change from 2010 IRP: Advance from 2019

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2017

Project Name: **DONALSONVILLE 115 KV CAPACITOR BANK**

TEAMS Number: 10891

Description: Install a 2-stage, 25 MVAr 115 kV capacitor bank.
Replace the AOM/AGS with AIM 2010 circuit switcher
Convert 3 distribution circuits to UG.

Supporting Statement: For loss of the East Bainbridge - Commodore Jct., the bus voltages at Commodore drops by 8.4%.

Change from 2010 IRP: Delay from 2014

Need Date: 6/1/2017

Project Name: **EAST POINT - CAMP CREEK 115-KV LINE RECONDUCTOR -- PHASE 2**

TEAMS Number: 12461

Description: Reconductor, using 230-kV specs, approximately one span of the existing 397 ACSR conductor with 1351 ACSR, on the East Point - Camp Creek 115-kV line, starting at the East Point substation. This will make the conductor in the entire 115-kV line segment, from East Point to the Ben Hill tap, 1351 ACSR.

Supporting Statement: The Ben Hill and Camp Creek loads are served radial from East Point. The Annewakee load is served from a tap on the Douglasville - Post Road 115kV line, with a normally open segment between Annewakee and Camp Creek. The Annewakee, Camp Creek and Ben Hill loads are forecasted to be larger than the capacity of the section of 397 ACSR, 115-kV conductor between East Point and the Ben Hill Junction. If Anneewakee is shifted to this line, after loss of the normal source (Douglasville - Post Road), it will become overloaded.

Change from 2010 IRP: Delay from 2013

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2017

Project Name: **HAMPTON-MCDON.115-KV REBUILD & DAILEY MILL-FLIPPEN LN ADD'N**

TEAMS Number: 12912

Description: Rebuild approximately 2.1 miles of the existing Hampton - McDonough 115-kV tap line, from McDonough to the Dailey Mill Tap. Use double circuit construction and 1351 ACSR conductor at 230-kV specs. to accommodate the addition of a future 230-kV circuit from O'Hara to McDonough, (see TEAMS #09347, South Metro Phase-3 Project). Also, construct a new, 4.6 mile, single circuit, 115-kV, 1351 ACSR line segment between Dailey Mill and Flippen. Use the new line segment to form a network line from McDonough to Stockbridge by way of Greenwood Park, Dailey Mill and Flippen. Open the existing McDonough - Flippen 115-kV line segment at McDonough, (breaker # 031808).

Supporting Statement: By summer of 2017, the existing 336 ACSR conductor in the Hampton - McDonough tap line will overload while serving the Dailey Mill and Greenwood Park loads radially from either end.

Change from 2010 IRP: Delay from 2013 and adjusted scope.

Need Date: 6/1/2017

Project Name: **STATESBORO - WADLEY 115KV UPGRADE (PHASE II)**

TEAMS Number: 13024

Description: GPC: Upgrade the Nunez tap - Stillmore - Metter section of the Statesboro - Wadley 115kV line, 17.0 miles of 50°C, 477 ACSR conductor, to 100°C. Replace 600 amp line switches 042651 & 042653 at the Nunez Tap with 2,000 amp switches.

MEAG: Replace 600 amp switches 053139 & 053137 at Wadley Primary with 2,000 amp switches.

Supporting Statement: Loss of the Vogtle - West McIntosh 500kV line will load the Nunez tap - Stillmore - Metter section of the Statesboro - Wadley 115kV line past its 79MVA conductor rating.

Change from 2010 IRP: Advance from 2019

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2017

Project Name: **WADLEY 500/230 KV PROJECT**

TEAMS Number: 14663

Description: MEAG: Construct a 500 kV ring bus. Install a 2016 MVA 500/230 kV transformer with two LSB breakers, one to each 230 kV bus. Rebuild the 230 kV main buses with 2-1590 AAC or better. Replace 125-MVA Bank "A" with a 300 MVA autobank.

GPC: Loop in the Vogtle - Warthen 500 kV line.

Supporting Statement: Additional transmission capacity is needed for Vogtle unit 4 generator stability and for transmission loading problems in the East Region area.

Change from 2010 IRP: New project

Need Date: 6/1/2018

Project Name: **ANTHONY SHOALS - WASHINGTON 115 KV REBUILD PROJECT**

TEAMS Number: 10193

Description: Rebuild the Anthony Shoals - Buckhead Point - Double Branches Tap 115kv line section, 15.1 miles of 50C, 4/0 copper, with 795 ACSR. Replace the line switch, 040823, at Delhi Tap with a 2,000 amp switch.

Supporting Statement: Loss of the Thurmond Dam - Double Branches 115kV line section, and picking up the Double Branches load from the Anthony Shoals - Washington 115-kV radial line, loads the Anthony Shoals - Buckhead Point - Double Branches Tap 115kV line section past its 57 MVA conductor rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2018

Project Name: **CORN CRIB 230/115 KV SUBSTATION**

TEAMS Number: 12581

Description: UNA: Construct a new 230/115 kV substation with a 300 MVA autotransformer. The substation will have a three terminal 230 kV ring bus and a four terminal 115 kV ring bus.

GPC: Loop in the Dyer Road - Thomaston 230 kV line into Corn Crib and create the Corn Crib - Dyer Road 230 kV line and the Corn Crib - Thomaston 230 kV line. Loop in the Dyer Road - Thomaston 115 kV line into Corn Crib and create the Corn Crib - Dyer Road (Black) 115 kV line and Corn Crib - Thomaston 115 kV line. Terminate the Dyer Road - Newnan #3 Junction line creating the Corn Crib - Dyer Road (White) 115 kV line.

MEAG: Install three 115kV breakers at Newnan Primary.

Supporting Statement: Loss of the South Coweta - Sharpsburg segment of the South Coweta - Dyer Road 115kV line will cause the Lagrange Primary - Lagrange #3 segment of the Lagrange Primary - Dyer Road 115kV line to load beyond its thermal rating. Loss of either end of the Thomaston - Dyer Road 115kV line will cause the opposite end of the line to exceed its thermal rating. Several stations along the Thomaston - Yates 115kV line have voltage problems that fall outside of allowable voltage limits due to contingency operations on the line.

Change from 2010 IRP: Delay from 2012

Need Date: 6/1/2018

Project Name: **FIRST AVENUE - NORTH COLUMBUS 115KV LINE RECONDUCTOR**

TEAMS Number: 13166

Description: Reconductor the 0.9 Mile North Columbus - First Avenue 115kV line replacing the 75C 657 ACAR conductor with 100C 795 ACSR conductor.

Supporting Statement: Loss of the Goat Rock 230/115kV autobank causes the North Columbus - First Avenue 115kV line to load beyond its 149MVA rating.

Change from 2010 IRP: Delay from 2013

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2018

Project Name: **GTC: UPPER PIKE CAPACITOR BANK**

TEAMS Number: 13078

Description: GTC: Install a two stage, 15 MVAR per stage, 115 kV capacitor bank at Upper Pike.

Supporting Statement: As early as 2018, outage of S.Griffin - Griffin #8 segment on the Barnesville - S.Griffin 115kV line causes a voltage violation at Griffin #4 and Griffin #8.

Change from 2010 IRP: Delay from 2012

Need Date: 6/1/2018

Project Name: **MEAG: EAST POINT - WILLINGHAM DR 115-KV RECONDUCTOR**

TEAMS Number: 13740

Description: MEAG: Reconductor the existing 636 ACSR, 2.7 mile East Point - Willingham Drive circuit with 1033 ACSR conductor sagged for 100 C operation.

Supporting Statement: Loss of the Mountain View end of the Mountain View - Willingham Drive 115kV line, causes an overload on the East Point to East Point #4 section of the East Point - Willingham Drive 115kV line.

Change from 2010 IRP: New project

Need Date: 6/1/2018

Project Name: **MEAG: LAWRENCEVILLE #4 115KV SWITCH REPLACEMENT**

TEAMS Number: 13213

Description: Replace BLD switch #216773 at Lawrenceville #4 with an RLB switch.

Supporting Statement: The Lawrenceville - Moon 115kV line overloads as early as 2020 for loss of the Bay Creek 230/115kV autobank. An operating solution to switch the Lawrenceville #4 load to the Lawernceville to North Lawrenceville tap is available and will mitigate the need to reconductor the line. The operation solution requires the motor operator BLD switch #216773 to be replaced with a RLB switch.

Change from 2010 IRP: Delay from 2012

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2019

Project Name: **COLEMAN 115/46-KV PROJECT**

TEAMS Number: 12159

Description: Install a 115/46-kV, 112 MVA, LTC auto-transformer in the Coleman 115/13.8 kV substation. Loop the Pooler - Ga. Pacific 46-kV line section into the Coleman substation.

Supporting Statement: Loss of the Meldrim 115/46-kV transformer or the Meldrim end of the Meldrim - Rossignol Hill 46-kV line causes low voltages at Meldrim and/or the 46-kV circuit.

Change from 2010 IRP: No change

Need Date: 6/1/2019

Project Name: **DACULA 115-KV CAPACITOR BANK**

TEAMS Number: 08916

Description: Install a 115kV, 30 MVAR capacitor Bank at the Dacula Substation.

Supporting Statement: The loss of the Lawrenceville - Winder 115kV line at Winder will result in suppresed voltages in the Dacula area.

Change from 2010 IRP: New project

Need Date: 6/1/2019

Project Name: **DU: NELSON 230/115KV AUTOBANK REPLACEMENT**

TEAMS Number: 10811

Description: Replace both existing 230/115kV autotransformers with a new 400MVA 230/115kV autotransformer.

Supporting Statement: The existing autotransformers have name plate ratings of 140 MVA. The loss of bank #1 will cause bank #2 to load over its rating of 180 MVA.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2019

Project Name: **GTC: BAXLEY - SOUTH HAZLEHURST 115KV LINE IMPROVEMENT**

TEAMS Number: 13864

Description: GTC: Replace the 115kV bus, line switch (076113), and line jumpers at Pine Grove Substation.

Supporting Statement: For loss of the E. Vidalia - W. Lyons section of the Baxley - Vidalia 115kV line, the line jumpers (350 AAC) at Pine Grove exceed their thermal capacity rating.

Change from 2010 IRP: New project

Need Date: 6/1/2019

Project Name: **HATCH - VIDALIA 230KV RECONDUCTOR**

TEAMS Number: 13606

Description: Reconductor 23 miles of 100C 1033 ACSR with 170C 1033 ACSS conductor on the Hatch - Vidalia 230 kV line.

Vidalia end of the Hatch - Vidalia 230 kV line:
Replace 800Cu jumpers with 2X1590 AAC jumpers. Replace 1200 amp switches 069679 and 069677 with 2000 amp. switches. Replace main 1590 AAC bus with 3" AL Tube bus.

Hatch end of the Hatch - Vidalia 230 kV line:
Replace 1590 AAC jumpers with 2X1590 AAC jumpers.

Supporting Statement: The Hatch - Vidalia 230-kV line thermal rating is exceeded under the loss of the McCall Rd - Thalmann 500-kV line.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2019

Project Name: **LITTLE OGEECHEE 230-KV CAPACITOR**

TEAMS Number: 12071

Description: Install a 120 MVAR, 230-kV capacitor bank in the Little Ogeechee (SAV) 230/115-kV substation.

Supporting Statement: Loss of a McIntosh - West McIntosh 230-kv line or the McIntosh CTs under a Jasper off scenario, drops the Savannah and Hinesville area voltages 6% - 9%.

Change from 2010 IRP: New project

Need Date: 6/1/2019

Project Name: **SHARON SPRINGS 230/115-KV SUBSTATION**

TEAMS Number: 11671

Description: GTC - Construct a 230kV line from Cumming to Sharon Springs. Install in the Sharon Springs distribution substation a 230/115kV, 300 MVA transformer with two (2) 115kV line breakers. Terminate 115kV lines from Hopewell and Suwanee.

GTC - Re-rate the Hopewell 230/115 kV transformer.

GPC - Install a 230kV PCB in the Cumming Substation and terminate 230kV line to Sharon Springs.

Supporting Statement: The Suwanee - Old Atlanta Road segment of the Hopewell - Suwanee 115kV line will load beyond its 207 MVA rating for the loss of the Hopewell - Brandywine segment. The Hopewell - Brandywine section loads beyond its 207 MVA rating for the loss of the Suwanee - Old Atlanta Road section.

Change from 2010 IRP: Delay from 2013

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 5/1/2020

Project Name: **AUSTIN DRIVE - MORROW 115-KV REBUILD PROJECT/PHASE-2**

TEAMS Number: 10899

Description: Reconductor the Austin Drive - River Road (7.1 miles of 336 ACSR with 795 ACSR conductor rated for 100 C operation) and the Morrow - Ellenwood (2.0 miles of 795 ACSR with 1351 SSAC conductor rated for 170 C operation) 115kV line sections of the Austin Drive - Morrow 115kV line. Replace switches and/or jumpers as necessary at Austin Drive, Rainbow Drive, River Road, Ellenwood, and Morrow.

Supporting Statement: Loss of the Morrow end of the Austin Drive - Morrow 115kV line will load the Austin Drive to Rainbow segment beyond its 124 MVA rating. Also, an outage of the Austin Dr. 230/115-kV transformer will load the River Road to Rainbow Dr. section of the Austin Drive - Morrow 115kV line beyond its 124MVA rating.

Furthermore, the Transco and Fairview 115kV substations are served radially from Stockbridge with normally open tie from Ellenwood to Fairview. If the Stockbridge end of this line is out, the normal open point between Ellenwood and Fairview will have to be closed to serve the Fairview and Transco substations (approximately 95 MVA). When this normal point is closed it will put the 95MVA of load on the Austin Drive - Morrow 115kV line and will load the Morrow to Ellenwood section to beyond its 216 MVA rating.

NOTE: With the loss of the Austin Drive transformer or the loss of the Morrow to Ellenwood section of the Austin Drive - Morrow 115kV line, a operating procedure has been identified that can be utilized until 2020. Also, for the loss of the Transco tap and with the loss of the Morrow end of the Austin Drive - Morrow 115kV line a operating procedure can be utilized.

Change from 2010 IRP: Delay from 2014

Need Date: 6/1/2020

Project Name: **DEAN FOREST 230-KV CAPACITOR**

TEAMS Number: 14779

Description: Install a 120 MVAR, 230-kV capacitor bank in the Dean Forest (SAV) 230/115-kV substation.

Supporting Statement: Loss of a McIntosh - West McIntosh 230-kv line or the McIntosh CTs under a Jasper off scenario, drops the Savannah and Hinesville area voltages 6% - 9%.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2020

Project Name: **KETTLE CREEK - OFFERMAN (WHITE) 115 KV REBUILD (PHASE I)**

TEAMS Number: 13029

Description: Rebuild the Offerman - Blackshear Junction section (9.4 miles of 100°C 336 ACSR Linnet 26/7) with 100°C 795.0 ACSR Drake. Perform survey and ROW services as required.

Supporting Statement: Loss of the Douglas - Wilsonville 230kV line results in the Offerman - Blackshear Junction exceeding its 124 MVA rating.

Change from 2010 IRP: Delay from 2017

Need Date: 6/1/2020

Project Name: **WHITEOAK 115-KV CAPACITOR**

TEAMS Number: 09272

Description: Install a 2x15 MVAR, 115-kV capacitor bank.

Supporting Statement: Loss of the Thomson Primary - East Thomson segment of the Thomson Primary - Warrenton Primary 115kV Black line causes voltage deviation beyond 8% at Whiteoak substation.

Change from 2010 IRP: New project

Need Date: 6/1/2020

Project Name: **YATES 115KV BUS REBUILD**

TEAMS Number: 14878

Description: Replace the 115kV bus at Yates with bus capable of at least 2000A.

Supporting Statement: For this loss of either Dyer Road - Yates 115kV WHTor BLK 115kV lines, the Yates 115kV bus (500 CU) will exceed its 180 MVA rating begining in 2020.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2021

Project Name: **BULL CREEK - FIRST AVENUE 115KV LINE RECONDUCTOR**

TEAMS Number: 14813

Description: Reconductor 4.7 mi from Bull Creek to First Avenue with 160C SSAC wire.

Supporting Statement: Loss of the First Ave - Blanchard segment of the First Ave - Victory Drive 115kV line causes the 130C SSAC conductor on Bull Creek - First Ave 115kV line to overload

Change from 2010 IRP: New project

Need Date: 6/1/2021

Project Name: **DECATUR - MORELAND AVE 115-KV UPGRADE**

TEAMS Number: 11235

Description: Upgrade approximately 1.6 miles of 50C sagged 636 ACSR conductor from Decatur to Kirkwood for 100C operation.

Supporting Statement: Starting in 2016, loss of the Grady - Moreland Avenue 115-kV line will cause the Decatur - Moreland Avenue line to load beyond its 50C rating of 96 MVA. Opening the Decatur - Scottdale 115kV line at Decatur or Scottdale will relieve this overload from 2016 through 2020. Due to the anticipated increase in load at Emory by 2021, the upgrade project on the Decatur - Kirkwood section of the Decatur - Moreland Ave 115kV line is necessary.

Change from 2010 IRP: Delayd from 2012

Need Date: 6/1/2021

Project Name: **GOAT ROCK 230/115KV AUTOTRANSFORMER REPLACEMENT**

TEAMS Number: 14317

Description: Replace the existing 300MVA 230/115kV autobank with a new 400MVA autobank (purchase).

Supporting Statement: As early as 2021, the 230/115kV autobank at Goat Rock exceeds its 312MVA rerated value for loss of First Avenue 230/115kV Bank #2.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2021

Project Name: **GOSHEN - MCINTOSH 115KV RECONDUCTOR**

TEAMS Number: 14730

Description: Reconductor the Goshen - McIntosh 115-kv line (8.3 miles) with 1351 ACSR.

Supporting Statement: Loss of the Cemetery Hill - McIntosh 230-kv line will load the Goshen - McIntosh 115-kv line past its 181 MVA conductor rating.

Change from 2010 IRP: New project

Need Date: 6/1/2021

Project Name: **GTC: ARNOLD MILL - HOPEWELL 230 KV AREA PROJECT**

TEAMS Number: 13614

Description: UNA: Acquire ROW for a new 230kV line from Arnold Mill substation to the Batesville Road substation and additional ROW as necessary adjacent to the Holly Springs - Hopewell 115kV line from the Batesville Road junction to the Hopewell substation.

UNA: Construct a 230kV line from Arnold Mill to Batesville Road (approximately 3.8 miles) using 1033 ACSR conductor, rebuild & convert the existing Batesville 115kV tap (approximately 2.2 miles) to 230kV using 1033 ACSR conductor, and construct a 230kV line from Batesville Road junction to Hopewell (approximately 8.7 miles) using 1033 ACSR conductor. Provide for looping the Arnold Mill - Hopewell 230kV line through the converted Batesville Road and Birmingham substations.

GTC: Convert Batesville Road and Birmingham from 115kV to 230kV load serving substations. Install three 230 kV breakers at Arnold Mill. Install one 230kV breaker at Hopewell.

Supporting Statement: This project will solve several loading and voltage problems on the Holly Springs - Hopewell 115kV line. This project will also solve loading and voltage issues in the Metro North area by creating a new 230kV North - South flow in this area.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2021

Project Name: **GTC: EATONTON - LAKE OCONEE 115 KV RECONDUCTOR**

TEAMS Number: 12579

Description: Reconductor approx. 7.34 miles from structure # 238D to Lick Creek On the Eatonton Primary - Lake Oconee 115 kV line from 100C 4/0 ACSR to 100C 795 ACSR conductor.

Supporting Statement: By 2021, for loss of the Greensboro – Gum Hill J segment on the Greensboro – Lake Oconee 115 kV line, the operating procedure calls for closing the segment between Lake Oconee – Walkers Church using RLB switch 274881 at Lake Oconee. This causes an overload on the segment between Eatonton - Harmony J.

Change from 2010 IRP: New project

Need Date: 6/1/2021

Project Name: **KETTLE CREEK - OFFERMAN (WHITE) 115 KV UPGRADE (PHASE II)**

TEAMS Number: 10378

Description: Upgrade the Jamestown - Northeast Waycross section (3.7 miles of 50°C 336 ACSR SWP and WHF, part of the NE Waycross tap line) for 100°C operation.

Supporting Statement: For loss of the Kettle Creek - Glenmore Jct. line section, SE Waycross and Glenmore can be restored by closing switch 099143 at SE Waycross. This overloads the Jamestown - NE Waycross line section.

Change from 2010 IRP: Delay from 2018

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2021

Project Name: **LAWRENCEVILLE - LAWRENCEVILLE #4 115-KV RECONDUCTOR**

TEAMS Number: 09939

Description: GPC: Reconductor 1.05 miles of 115-kV, 336 ACSR conductor using a conductor capable of carrying at least 1000 amps from Lawrenceville to North Lawrenceville.

MEAG: Replace jumpers at Lawrenceville.

Supporting Statement: The Lawrenceville #4 substation is served on a tap off the Bay Creek - Moon Road 115kV line. The alternate source of feed to Lawrenceville #4 is from the Lawrenceville Primary substation by way of the Blaze Recycling junction.

When the Lawrenceville #4 tap is lost, the normal open point between Lawrenceville #4 and Blaze Recycling will be closed in order to serve this load from Lawrenceville Primary. The section of 336 ACSR conductor between Lawrenceville and North Lawrenceville will then load beyond its 124 MVA rating.

Change from 2010 IRP: Delay from 2014

Need Date: 6/1/2021

Project Name: **MEAG: AULTMAN ROAD - BONAIRE PRIMARY 115 KV RECONDUCTOR II**

TEAMS Number: 13787

Description: Reconductor the 1.99 mile, Sleepy Hollow - Peach Blossom 115 kV line section (presently 100°C 336 ACSR) of the Aultman Road - Bonaire 115kV line, with 100°C 795 ACSR.

Supporting Statement: For loss of the Bonaire - 96 Highway 115 kV line section, the Bonaire - Peach Blossom 115 kV line section exceed its 124 MVA thermal line rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2021

Project Name: **MEAG: PALMYRA - SLAPPEY DRIVE 115 KV LINE RECONDUCTOR**

TEAMS Number: 11051

Description: Reconductor 2.5 miles of 100°C-sagged 477 ACSR, from Slappey Drive to the Albany #2 Jct, with 795 ACSR.

Supporting Statement: Loss of the Albany - Palmyra 115 kV line causes the Slappey Drive - Albany #2 Jct section to exceed its 155-MVA thermal rating.

Change from 2010 IRP: New project

Need Date: 6/1/2021

Project Name: **PINE GROVE PRIMARY - WEST VALDOSTA 115 KV RECONDUCTOR**

TEAMS Number: 10487

Description: Reconductor 3.7 miles of 100°C 4/0 ACSR conductor with 100°C 795 ACSR Grosbeak 26/7 on the Bemis - Pine Grove Primary section of the Pine Grove Primary - West Valdosta 115kV line.

Supporting Statement: Loss of the West Valdosta 230/115 kV autobank causes the Pine Grove - Bemiss 115 kV line section to exceed its 91 MVA rating.

Change from 2010 IRP: Delay from 2019

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2021

Project Name: **S. METRO ATLANTA PHASE-3 PROJECT, (OHARA-MCDONOUGH 230-KV)**

TEAMS Number: 09347

Description: Rebuild the existing O'Hara - Bonanza - Hampton 115-kV line sections, (approximately 12 miles), with double circuit, 1351 ACSR conductor at 230-kV specs and rebuild from Hampton to the Dailey Mill Tap at 230-kV, (approximately 5.5 miles), to create a new 230-kV circuit from O'Hara to McDonough. Install a 230/115 kV, 400 MVA autobank at McDonough - (GPC)
(**Note: Construction of the Dailey Mill Tap to McDonough 2.1 mile line section is listed under TEAMS #12912, for 2017 completion).

Supporting Statement: Loss of the Klondike end of the Klondike - Ola 230-kV line will overload the Ola - Porterdale 115-kV line. Also, loss of the Ohara end of the Ohara - S. Griffin 230-kV line will overload the S. Coweta to Brooks section of the S. Coweta - S. Griffin 115-kV line.

Change from 2010 IRP: Delay from 2017 and adjusted scope.

Need Date: 6/1/2021

Project Name: **WADLEY PRIMARY 230/115-KV TRANSFORMER REPLACEMENT**

TEAMS Number: 14732

Description: Replace the Wadley Primary 125 MVA, 230/115-kV transformer with a 300 MVA transformer.

Supporting Statement: Loss of the Vogtle - West McIntosh 500-kV line will load the Wadley Primary 230/115-kV transformer past its 147 MVA bonus rating (Nameplate rating = 125 MVA).

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2022

Project Name: **ALBANY - PALMYRA 115 KV LINE**

TEAMS Number: 14521

Description: Install motor operator & SCADA to 115 kV NO switch #065903

Supporting Statement: Loss of the Slappey Drive - Albany 2J segment will load the Albany 7J - Albany 7 of the Albany - Palmyra 115 kV Line. This overload could be mitigate by closing NO 065903 & opening 153351. In order to do that System Operations required to add motor operator and scada to NO switch 0658903.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV UPGRADE**

TEAMS Number: 14758

Description: Upgrade the Cochran - Cochran Junction segment associated with the the Bonaire Primary - Eastman Primary 115 kV line to 100C operation (approx. 1.5 miles).

Supporting Statement: The loss of the 115 kV source from Kathleen 625778 requires to close NOP RLB 90579 at Hawkinsville to pick up the load on several stations from the Bonaire Primary - Eastman Primary 115 kV line. This overloads the Cochran - Cochran Junction segment.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **CAGLES 115 KV JUMPER REPLACEMENT**

TEAMS Number: 14760

Description: Replace 350 AAC jumpers at Cagles 115 kV Substation with 1590 AAC jumpers.

Supporting Statement: For the loss of Bonaire Primary - Highway 96 on the Bonaire Primary- Perry 115 kV line, the segment between Kathleen - Cagles on the Kathleen - Perry 115 kV line exceeds its thermal rating.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2022

Project Name: **FIRST AVENUE 230/115KV AUTOBANK #6 REPLACEMENT**

TEAMS Number: 14814

Description: Replace First Avenue 300MVA 230/115kV autobank Bank #6 with a 400MVA bank.

Supporting Statement: First Avenue Bank #6 overloads for loss of Bank #4

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **GEORGIA TECH SS (SAV)**

TEAMS Number: 14789

Description: At the Georgia Tech switching site construct a four element 115-kV ring bus.
Terminate the Goshen, Kraft and Godley Tract 115-kv lines.
Install a 115-kv, 45 MVAR capacitor bank.

Supporting Statement: Loss of the McIntosh - GP Rincon section of the McIntosh - Goshen - Kraft 115-kv will cause low voltage at GP Rincon.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **GTC: BONAIRE PRIMARY 230 KV CAPACITOR BANK**

TEAMS Number: 14873

Description: Install a 230 kV, 170 MVAR capacitor Bank at Bonaire Primary.

Supporting Statement: The loss of the Bonaire 500/230 kV transformer will result in suppresed voltages in several busses around the middle Georgia area.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2022

Project Name: **GTC: GOSHEN 230-KV NON-CONDUCTOR IMPROVEMENTS**

TEAMS Number: 14221

Description: GTC: Replace 1200 amp switches 037/039 with 2,000 amp switches.

Note: GTC needs to confirm line trap is rated for 2,000 amps ---Replace 1200 amp line trap at Goshen w/ 2,000 amp line trap on the Dum Jon 230-kv line.

Supporting Statement: Loss of the Thomson 500/230-kV transformer loads the Dum Jon - Goshen 230-kV line terminations at Goshen past their rating.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **GTC: HIGHWAY-54 230/115-KV TFM. ADDITION**

TEAMS Number: 11242

Description: GTC: Install a 230/115kV transformer at the Highway 54 substation. Also, at Hwy-54, install 115-kV circuit breakers and terminate two new 115kV lines from Tyrone and Bernhard Rd., a distance of approximately 4.0 and 4.5 miles respectively. Add approximately 1.5 miles of 115kV conductor to loop the Line Creek – South Coweta line into Tyrone substation and re-terminate the Ebenezer tap, (off the O'Hara – South Coweta 115kV line), into a newly established breaker position at the Bernhard Road substation. Install three 115kV circuit breakers at Tyrone and three at Bernhard Road

Supporting Statement: Loss of the Ohara 500/230-kV autobank will overload the S.Coweta 230/115-kV autobank and in the following years, loss of one end of the O'Hara - S.Coweta 115-kV line will overload the other end. The same situation will occur on the Line Creek - S.Coweta 115-kV line.

Change from 2010 IRP: Delay from 2014

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2022

Project Name: **HATCH - OFFERMAN 230 KV LINE RECONDUCTOR**

TEAMS Number: 13210

Description: Reconductor 38.45 miles of 100C 1033 ACSR with 1351 ACSR conductor on the Hatch - Offerman 230 kV line.

Supporting Statement: For the lost of Thalmann 500/230 kV autobank the Hatch - Offerman 230 kV line exceeds its 509 MVA thermal rating.

Change from 2010 IRP: Delay from 2014

Need Date: 6/1/2022

Project Name: **JACK MCDONOUGH - WEST MARIETTA 115KV (WHITE) RECONDUCTOR**

TEAMS Number: 12685

Description: Rebuild approximately 4 miles of 115 kV line from the Plant Jack McDonough 115 kV substation to King Springs Road (3.18mi 739ACAR, 0.88mi 636) with 1033 ACSR. Replace the 750 AAC jumpers with 1590 AAC at King Springs Road. Transfer existing distribution facilities as required to the newly rebuilt 115kV line as part of the Jack McDonough to King Springs Road rebuild.

Supporting Statement: Loss of the West Marietta-Fair Oaks segment of the Jack McDonough-West Marietta 115kV (White) line causes the Jack McDonough - King Springs segment to load beyond its 156 MVA rating.

Change from 2010 IRP: Delay from 2012

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2022

Project Name: **MCMANUS - WEST BRUNSWICK (BLACK) 115 KV LINE**

TEAMS Number: 12102

Description: Construct 8 miles of 795 ACSR CSP 115 kV line from West Brunswick to point 2.4 miles north of Altamaha Boulevard on the McManus - Darien 115-kv line. Terminate the line at West Brunswick with a 115-kV breaker on 115-kV bus #1. Terminate the other end of the line on the Altamaha Boulevard – Darien 115-kV line section with a motor operated, BLD switch. Continue serving Darien from this new network line from Altamaha Boulevard.

Supporting Statement: For the loss of the McManus end of the McManus - Troup Creek 115 kV radial line, Troupe Creek and Altamaha Boulevardf can be restored from Riceboro, but post-contingency voltages exceed the 8% deviation guideline.

Change from 2010 IRP: Delay from 2014

Need Date: 6/1/2022

Project Name: **MEAG: MILLEN PRIMARY - WAYNESBORO PRIMARY 115KV RECONDUCTOR**

TEAMS Number: 14877

Description: MEAG: Re-conductor the Millen Primary - Waynesboro Primary 115-kV line, 19.4 miles, with 1033 ACSR conductor.

GPC: Replace 750 AAC jumpers on the Waynesboro Prrimary 115-kV line with 1590 AAC jumpers.

Supporting Statement: Loss of the Vogtle - West McIntosh 500-kv line will load the Millen Primary - Waynesboro Proimary 115-kv line past its 188 MVA conductor rating.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **NORTH TIFTON 230/115 KV TRANSFORMER REPLACEMENTS**

TEAMS Number: 14788

Description: Replace the two(2) 230/115-kV, 300-MVA transformers with two(2) 400-MVA transformers.

Supporting Statement: With the loss of one of the transformers the other transformer will overload.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2022

Project Name: **REIDSVILLE JUNCTION (GTC) 115-KV CAPACITOR INCREASE**

TEAMS Number: 14791

Description: GTC: Increase the two 15.26 MVAR, 115-kv capacitor banks to 22 MVAR each.

Supporting Statement: Loss of the Vidalia - Loop Road section of the Claxton - Vidalia 115-kv line causes excessive voltage drop at Loop Road and West Lyons.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **STATESBORO PRIMARY - WADLEY PRIMARY 115-KV RECONDUCTOR**

TEAMS Number: 14879

Description: Re-conductor the Wadley Primary - Wadley - Swainsboro sections (6.2 + 16.1 miles) of the Statesboro Primary - Wadley Primary 115-kv line with 1033 ACSR conductor.

Supporting Statement: Loss of the Vogtle - West McIntosh 500-kv line will load the Wadley Primary - Wadley - Swainsboro sections (6.2 + 16.1 miles) of the Statesboro Primary - Wadley Primary 115-kv line past its 155 MVA condyctor rating.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **THOMASTON 230/115KV BANK REPLACEMENT**

TEAMS Number: 14563

Description: Replace existing 180/240/300MVA 230/115kV Bank C at Thomaston (T12487) with new 400MVA 230/115kV bank.

Supporting Statement: For the loss of the 230kV bus tie breaker at Thomaston, the existing 230/115kV Bank C will exceed its thermal raing of 300MVA.

Change from 2010 IRP: New project

TEN YEAR PLAN PROJECTS
(2013 - 2022)

Need Date: 6/1/2022

Project Name: **THOMSON PRI - WARRENTON PRI 115KV WHITE LINE RE-CONDUCTOR**

TEAMS Number: 14271

Description: Reconductor the Thomson Primary - Warrenton Primary 115-kV White line (16.8 mi) with 1033 ACSR conductor.

Note:
750 AAC jumpers at Warrenton and Thomson do not need to be replaced.

Supporting Statement: Loss of the Thomson Primary - Warrenton Primary 230-kV line loads the Thomson Primary - Warrenton Primary 115-kV past its 124 MVA conductor rating.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **THOMSON PRIMARY 230/115-KV #2 TRANSFORMER**

TEAMS Number: 14222

Description: Install a 2nd 300 MVA, 230/115-kV transformer.

Supporting Statement: Loss of the Thomson 230/115-kV transformer loads the Evans Primary - Thomson Primary 115-kV line past its 124 MVA conductor rating. Loss of the Warrenton - Thomson Primary 230-kV line loads the Thomson Primary 230/115-kV transformer past its 300 MVA nameplate rating.

Change from 2010 IRP: New project

Need Date: 6/1/2022

Project Name: **VIDALIA - WADLEY PRIMARY 230KV NON-CONDUCTOR**

TEAMS Number: 14731

Description: Wadley Primary: Replace 800 copper jumpers and 1,200 amp line traps on the Vidalia 230-kv B/W lines.
Vidalia: Replace 800 copper jumpers and 1,200 amp line traps on the Wadley Primary 230-kv B/W lines.

Supporting Statement: Loss of the Vogtle - West McIntosh 500-kv line will load the Vidalia - Wadley Primary 230-kv B/W lines past their 486 MVA non-conductor rating. Conductor is 1033 ACSR rated for 509 MVA.

Change from 2010 IRP: New project

[C3]

DISTRIBUTION SUBSTATION FORECAST (FIVE-YEAR LOADING PLAN)

DISTRIBUTION SUBSTATION FORECAST
(FIVE-YEAR LOADING PLAN)

The following items outline the distribution expansion plans for Georgia Power:

- Ten Year Substation Load Forecast (on file in Transmission & Distribution Area planning Department)
- Five-Year Construction Budget & Forecast (see Attachment /section G6)
- Distribution Substation Project File

These plans are very dynamic and are revised on an annual basis. Substation projects have the longest equipment lead times and require more advance planning. However, it is not efficient to plan distribution feeder improvement work years in advance since construction lead times are relatively short and system changes occur frequently. These changes are usually initiated by unforeseen new business loads that may alter the priority of distribution expenditures. Substation planning is accomplished by performing a ten-year peak loading forecast. Banks that exceed Georgia Power's "Transformer Loading Guidelines" are candidates for upgrade projects if load shifts are not possible. A five-year budget is then prepared for these banks.

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
DALTON - OOSTANAULA 115KV LINE TAP TO ANTIOCH ROAD SUB	[redacted]	1/1/2013

BCA YCO: 08/13/12

Problem: The Dalton - Antioch Road 46kV line will exceed is ampacity rating for the loss of the Dalton - Dalton City #7 115kV line.

Construct a 115kV line tap from the Dalton - Oostanaula 115kV line near Dalton City #9 substation (

BOGART 230/25 KV SUBSTATION [redacted] 2/1/2013

Construct distribution substation to provide service to Caterpillar plant in Clark/Oconee counties. This substation will also serve the remainder of the industrial park near the Caterpillar site and area loads.

COWETA FAYETTE FEEDER RELAY UPGRADE PROJECT (GTC PCD #17-11) [redacted] 2/1/2013

At the Shenandoah Industrial Park substation, replace existing 25-kV feeder breaker M0272 with a new breaker. Replace existing CO-9 electromechanical relays with SEL 351S relays on the following feeder breakers that serve GTC / Coweta Fayette EMC load:
□

ATLANTA WATER TREATMENT (BOLTON RD) - OVERSTRESSED BREAKERS [redacted] 3/30/2013

Three 4kV breakers at the Atlanta Water Treatment (Bolton Rd) substation have been identified by Protection & Control as overstressed. These breakers (W0500, W0514 and W0524) will be replaced on PE 7113.

SUMNER 46-12KV : VOLTAGE REGULATOR ADDITION [redacted] 4/1/2013

AMI data confirms low voltage conditions exist on many customer locations. No voltage regulators exist at this substation. This project adds feeder regulators.

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
ARLINGTON 46-12KV: IMPROVEMENTS WITH BREAKER REPLACEMENT	[redacted]	5/1/2013
Make additional substation improvements concurrent with replacement of an obsolete distribution breaker under PE 7113, TEAMS 14302. BCA Rev 4/2/12. Year change only - perform construction in 2013 to synchronize with 14302.		
ARLINGTON 46-12KV: OBSOLETE DISTRIBUTION BREAKER REPLACEMENT	[redacted]	5/1/2013
Transmission Support requests replacement of 12kV feeder PCB #G0502 due to its age and lack of spare parts. See companion project 14303. BCA Rev 4/2/12. Year change only, due to budget constraints on PE 7113.		
BLAKELY PRIMARY 115-46KV: PROTECTIVE RELAY MODERNIZATION	[redacted]	5/1/2013
Replace and upgrade all protective relaying in the station. The control house and cables are being replaced under project #13976. PROBLEMS - With the exception of the capacitor bank controls, all of the protective relaying in this substation is 1975 vi		
BLAKELY PRIMARY 115-46KV: TRANSMISSION BREAKER REPLACEMENT	[redacted]	5/1/2013
Replace obsolete 46kV breakers #068248 and 068258. PROBLEMS - Transmission Support requests replacement of both 46kV oil circuit breakers. Company numbers B2147 & B2148, Siemens PH-20C-2, manufactured 1957 This project is to be worked concurrent wi		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
BLAKELY PRIMARY 115-46KV:TRANSMISSION SUBSTATION IMPROVEMENT	[redacted]	5/1/2013
Replace the control house, station batteries, DC distribution panel, 46kV station service transformers, station service cabinet, and lightning shield wire. Install cable pull box system, new control cables, communications dog pen and transmission SIA p		
BLAKELY PRIMARY: 46KV RELIABILITY IMPROVEMENT	[redacted]	5/1/2013
Provide fault locating capability on 46kV breakers #068248 and #068258. Install three new 46kV single phase bus potential transformers and structure, and switchboard panel with SEL-351/551 relays for the two 46kV line breakers. PROBLEMS - The Blakely P		
EAST BAINBRIDGE 115-25-12KV : OBSOLETE MED VOLTAGE BREAKER	[redacted]	5/1/2013
The Albany Transmission Maintenance Center requests replacement of obsolete 25kV breaker V1244 (co #B2235).		
MOULTRIE 115-46-25-12KV TRANSMISSION RELAY MODERNIZATION	[redacted]	5/1/2013
This project replaces the balance of protective relaying, after project 14373, to remove all electromechanical relays from the substation. Project approved by the ITS Reliability Working Group 19 January 2012. Breakers B1399, B1815 and B2446 are to		
MOULTRIE 115-46-25-12KV TRANSMISSION RELIABILITY IMPROVEMENT	[redacted]	5/1/2013
The failure of the after differential restoration scheme controls to operate correctly has resulted in several extended outages on this substation. A bus differential interrupts two distribution transformers, one sub-transmission transformer and a radial		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
NORTH CAMILLA - HOPEFUL 46KV	[redacted]	5/1/2013
This project primarily solves normal voltage and line contingency overloads on the Camilla Area 46kV system in Mitchell County including forecasted loads for Hopeful beyond the ten year planning period. This is Phase 2 of the Camilla-Hopeful-Cotton Pri		
ALEXANDER DRIVE 2012 OBSOLETE BREAKER REPLACEMENT	[redacted]	6/1/2013
Replace breakers N0562 and N3182 that were identified as obsolete breakers by Substation Support. BCA Rev 5/3/2012. Year change only. Work re-scheduled for 2013 due to test resource availability in Fall of 2012.		
ALEXANDER DRIVE 2012 SUBSTATION IMPROVEMENTS	[redacted]	6/1/2013
Substation improvements to worked in conjunction with the replacement of obsolete breakers N3182 and N0562 (TEAMS 14324). BCA Rev 5/3/2012. Year change only - Work re-scheduled for 2013 due to test resource availability in Fall of 2012.		
ATHENS 070638 - BEAVER DAM 46 KV RELIABILITY PROJECT	[redacted]	6/1/2013
Improve reliability of feeder ATHENS 070638 - BEAVER DAM 46 KV. This circuit ranked 16th on the statewide 46 kV reliability ranking. It had 3.67 events/yr and 1282.39 MVA minutes.		
ATLANTIC DRIVE SUBSTATION (AKA CONNECTOR WEST)	[redacted]	6/1/2013
7-27-2012 TR BCA to reflect new work plan that moves dollars from 2012 into 2013. Also, due to projected material underruns (items 22 and 24) and civil work (item 20) running under budget, reducing the total project budget by $1.0M. Current budget		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
BOLTON ROAD 46 KV GANG SWITCH REPLACEMENT SUBSTATION PROJECT	[redacted]	6/1/2013

Replace the existing 600 amp 46 kV Gang Operated RLB switch 464419.
This project should be done with Bolton Proactive Transformer Replacement Project 1343401.
The switch replacement was identified at the Solution Team Meeting after the Proactive Transfo

BOULEVARD CONTROL HOUSE	[redacted]	6/1/2013

This project constructs a control house with batteries in the Boulevard substation in Savannah in conjunction with SCIP work in Savannah.

CARROLLTON-WEST GA COLLEGE 46KV LINE RELIABILITY IMPROVEMENT	[redacted]	6/1/2013

On the Carrollton - West Georgia College 46kV line, install a motor operator with SCADA and fault indicators with transmit capability to line switch #26001.

This project is to be worked concurrent with the Carrollton substation 46kV improvement proje

COLONIAL PIPELINE POWDER SPRINGS SUBSTATION PROJECT	[redacted]	6/1/2013

At the request of Georgia Control Center, replace BLD switch #139961 at Colonial Pipeline Powder Springs substation with an RLB switch.
The RLB is needed to deenergize the section of 115 kV line between West Marietta and Colonial Pipeline Powder Springs s

COTTON PRIMARY - COTTON 46KV: COTTON SUB RETERMINATION	[redacted]	6/1/2013

GTC requests GPC to install structures as necessary to re-terminate the Cotton Primary – Cotton 46 kV line into the GTC Cotton substation.
PCD #8-12 (GTC PCD#110-12PN). GTC has expanded the GTC Cotton substation to facilitate a capacity increase. GPC will

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
DEPTFORD TRANSMISSION BREAKER REPLACEMENTS (SAVANNAH)	[redacted]	6/1/2013
Replace (5) 115kV Obsolete Oil Circuit Breakers at the Deptford Substation in Savannah Op# 28948 Op# 28958 Op# 28918 Op# 28978 Op# 28928		
FERGUSON AVENUE 115KV CAPITAL IMPROVEMENT PROJECT	[redacted]	6/1/2013
FERGUSON AVENUE (SAVANNAH CAPITAL IMPROVEMENT PROJECT) Replacement of obsolete switches, potential transformers and cap and pin insulators. Create a 115kV transfer bus.		
FIFTY SECOND STREET CONTROL HOUSE	[redacted]	6/1/2013
This project adds a control house and batteries at the 52nd Street substation in Savannah in conjunction with on-going SCIP work in Savannah.		
GAILLARD PRIMARY 230/46 KV BANK ADDITION	[redacted]	6/1/2013
Install a second 230/46kV LTC transformer at Gaillard Primary. CONTINGENCY PROBLEM: In 2011, if the 230/46kV bank fails at Gaillard Primary and all load is served from Butler (Gaillard and Roberta through the Gaillard Primary bus), the voltage at Rober		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
LEXINGTON 101742 – CRYSTAL BLUE GRANITE 46 RELIABILITY PROJ	[redacted]	6/1/2013

Improve reliability on feeder LEXINGTON 101742 – CRYSTAL BLUE GRANITE 46 KV.

This circuit ranked 43rd on the statewide 46 kV reliability ranking. It had 7.33 events/yr and 368.32 MVA minutes.

MOHAWK SUMMERVILLE 115/25KV CUSTOMER SUBSTATION	[redacted]	6/1/2013

Construct a 115/25 kV Class-B customer substation at the Mohawk Summerville facility with (2)-40MVA LTC banks, (2)-25 kV low side bank (feeder) breakers and a bus tie breaker. Loop the Hammond Lafayette 115kV line (via Bolling Road) into the station. Cons

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RCMOS AVALON JUNCTION - BIO 115 KV FAULT INDICATORS	[redacted]	6/1/2013

At the request of GTC, Install 115 kV PDP Non Directional Fault Indicators at existing RCMOS 214603 on the Aquilla Tap.

RCMOS WINDER PRIMARY 021748 - HARRISON POULTRY 46 KV	[redacted]	6/1/2013

Convert BLD 24221 to a RCMOS by installing a new pole, new switch, motor operator ,SCADA, Fault Indicator and AC. Add a motor operator, SCADA, Fault Indicator and AC to BLD24331 Add a motor operator, SCADA,and AC to Normal open BLD 24261 on the Winder Pr

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RCMOS: DORAVILLE 055818 - NORDIC COLD STORAGE #2 46KV	[redacted]	6/1/2013

PE 8327 STIMULUS FUNDED RCMOS PROJECT ITEMS

Install motor operator, SCADA, & fault indicators and AC to BLDs 24439 and 24433 on the DORAVILLE 055818 - NORDIC COLD STORAGE #2 46 KV line. Install motor operator, SCADA, and AC to normal open BLD 24431.

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
TARVER 115-46KV IMPROVEMENTS WITH TRANSFORMER REPLACEMENT	[redacted]	6/1/2013
Balance of improvements concurrent with PE 6005 project 11142 to replace the single phase transformers with a three phase transformer. 22May2012 Sam T - substation operator reports poor BLD performance on the 115kV line switch to Jasper. Transmission Sup		
TARVER 115-46KV: 115KV V2LB SWITCH REPLACEMENT	[redacted]	6/1/2013
Replace obsolete 115kV line switch #094471 in Tarver substation. This work scheduled concurrent with projects #11142(PE6005) and #14228 (PE6010).		
TIOGA 064348 - ALKEN ZEIGLER 46KV RELIABILITY IMPROVEMENT	[redacted]	6/1/2013
Install Fault Indicators with Radio Transmitters and Receivers at the following Remote Control Motor Operated Switch (RCMOS) locations: 1. Existing RCMOS RLB 634111 at Talking Rock Tap 2. Existing RCMOS RLB 26773 at Talking Rock Tap 3. New RCMOS BLD 26		
UNADILLA 46/12KV BANK A/B CAPACITY INCREASE	[redacted]	6/1/2013
Remove the two 46/12kV 7MVA transformer Bank A/B and install two 46/12kV 10.5 MVA transformers in hard parallel. Problem: The Unadilla 46/12kV bank is projected to load to 102% of capability by 2013. Two Plant Transfer transformers will be used inst		
VANNA PRIMARY 142712 - SANDY CROSS 46 KV RELIABILITY PROJECT	[redacted]	6/1/2013
Improve reliability on feeder VANNA PRIMARY 142712 - SANDY CROSS 46 KV. This circuit ranked 4th on the statewide 46 kV reliability ranking. It had 3.33 events/yr and 3274.31 MVA minutes.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
VIENNA PRI - BRATCHER CREEK 46KV RELIABILITY IMPROVEMENT	[redacted]	6/1/2013

Reduce the outage duration of the Vienna Primary 112412 – Bratcher Creek 46 kV line by performing the following work:

Install Schweitzer SEL-351 relay on line breaker 112412, GPS clock, and PTs on the 46 kV bus in Vienna Primary. This will allow fault

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VIENNA PRIMARY 115/46KV BANK CONTINGENCY	[redacted]	6/1/2013

Install a 115/12 kV 25MVA bank in Vienna Primary and retire the Vienna 46/12 kV substation. Serve the 12kV distribution from Vienna Primary which relieves loading on the 115/46kV banks at Vienna Primary.

In 2012, if the 115/46kV Bank B fails in Vienna

WRIGHTSBORO ROAD 115/12KV SUBSTATION	[redacted]	6/1/2013

FKA Butler Creek substation - prl 1/12/10

Build new 115/12kV substation for area loading.
Wheeler Rd Bank A is 92.1% of capability in 2013.
Ropers Corner Feeder N5712 is 102% of planning guideline in 2014.
Beaver Drive Feeder N5002 is 100% of planni

AUGUSTA CORPORATE PARK (STARBUCKS CUSTOMER CHOICE)	[redacted]	8/1/2013

Install new area substation to serve Starbucks manufacturing facility in the Augusta Corporate Park industrial site in Augusta. Augusta Corporate Park substation will initially be a three element 230kV ring bus with a 230/25kV 25MVA distribution bank.
□

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
FIRST GEORGIA BIOENERGY 115-25KV (BRANTLEY COUNTY)	[redacted]	8/1/2013
PROJECT NEED DATE - CUSTOMER HAS STATED THAT PROJECT COULD START BY SEPTEMBER 2012 (LFR) Construct a 115-25kV 40MVA LTC, two circuit customer substation on a purchased site. Extend the 115kV Waynesville tap of the Kingsland - West Brunswick 115kV line to		
COLUMBUS FOUNDRY BANK B LOW-SIDE PROTECTION	[redacted]	9/1/2013
Install a low-side breaker on 115/12kV Bank B along with an SEL-351 relay to improve protection for feeder faults on the customer-owned distribution system. Install air conditioning equipment to prevent contamination of the control house from customer		
FLINT RIVER PRIMARY 115-12KV BANK ADDITION	[redacted]	11/1/2013
The 115/12kV, 22.4MVA joint-use transformer at the GTC Century substation is expected to exceed its capability rating by the winter of 2013/2014. To delay a capacity increase at Century a 115/12kV source will be installed at Flint River Primary that w		
FLINT RIVER PRIMARY 115-46KV: 46KV POTENTIAL TRANSFORMERS	[redacted]	11/1/2013
The 46kV potential transformers in this substation are approximately 50 years old and some have developed leaks. As part of a larger capital project, these potential transformers will be replaced for reliability and possible PCB spill avoidance.		
FLINT RIVER PRIMARY 115-46KV: CABLE SYSTEM & CONTROL HOUSE	[redacted]	11/1/2013
This substation has direct-buried power and control cables and a minimal ground grid. This project installs temporary control cabling on the surface to allow for trenching of a pull box and conduit system as well as installing grounding conductors. The ex		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
FLINT RIVER PRIMARY 115-46KV: RELAY MODERNIZATION	[redacted]	11/1/2013

Replace the protective relaying for four 46kV lines and one 115kV capacitor bank. Replace SCADA equipment.

NOTES:
1) A new control house and pull box system will be installed at this location under Project #14574.
2) The transformer differential prot

SOUTH CLEVELAND – TALLULAH LODGE 115KV TAP PCD# 105-11PN [redacted] 11/1/2013

Georgia Transmission Corporation requests that Georgia Power Company:

1.Install a tap structure between existing structures 89 and 90 on the South Cleveland – Tallulah Lodge 115kV transmission line for the connection of GTC's new Mount Yonah substatio

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CEDAR SPRINGS 115-13.8.12KV : RELAY MODERNIZATION [redacted] 11/15/2013

Replacement of obsolete protective relay schemes due to spare part availability problems.
Companion project is 14591.

CEDAR SPRINGS 115-13.8.12KV : RELIABILITY IMPROVEMENT [redacted] 11/15/2013

This substation is located on paper mill property with corrosive effluent. This project replaces corroded equipment and replaces two 1988 115kV circuit switchers, a Mark IV and a Mark V. Due to long travel time for the TMC, the 115kV fuses are removed and

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ROSSIGNOL HILL CAP & PIN PROJECT [redacted] 11/15/2013

This project replaces or removes multiple 46kV Cap and Pin insulators and associated switches.

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
2012 DIST. FEEDER BKR PROJ. #1 - CALHOUN ROAD 115 S/S	[redacted]	11/16/2013
Adding feeder breaker where existing circuits are operating outside Distribution Planning Guidelines. New circuit to relieve loading on Calhoun Road X0652.		
14763RIVERSIDE DRIVE 115/12 KV: AOM/AGS REPLACEMENT	[redacted]	12/1/2013
Replace obsolete AOM/AGS assemblies for both Bank A and Bank B with 115 kV circuit switchers. 8/11/11 BCA-YC JEB: Year Change BCA to postpone project two years so planning has time to evaluate future plans for this station. The station is very congest		
AIRLINE 021878 - LAVONIA MFG 46 KV RELIABILITY PROJ	[redacted]	12/1/2013
Inprove reliabilty on the AIRLINE 021878 - LAVONIA MANUFACTURING 46 KV feeder. This circuit ranked 17th on the statewide 46 kV reliability ranking. It had 1.67 events/yr and 1234.95 MVA minutes.		
AUSTELL 115-12KV OBSOLETE DISTRIBUTION BREAKER REPLACEMENT	[redacted]	12/1/2013
Transmission Support requests replacement of obsolete 12kV feeder breakers A6312, A6322 and A6332.		
BROADWAY 115-12KV : MED VOLTAGE BREAKER REPLACEMENT	[redacted]	12/1/2013
Replace obsolete distribution feeder breakers due to age and lack of spare parts.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
BROADWAY 115-12KV : RELAY MODERNIZATION	[redacted]	12/1/2013

Replace obsolete protective relaying equipment and transmission bus potential transformers. Companion reliability projects 14572 (PE 7010), 14642 (PE 6006), 14644 (PE 7113).
The 12kV capacitor banks are removed to clear space for a new control house.
Pr

BROADWAY 115-12KV : RELIABILITY IMPROVEMENT	[redacted]	12/1/2013

Companion relay modernization project 14571. Companion reliability projects 14642 (PE 6006) and 14644 (PE 7113).
Armstrong load is served radial from a Broadway 115kV line so a transformer or low side fault at Broadway drops the radial line when the 115k

CLARKESVILLE 46/12 KV - AOM/AGS REPLACEMENT	[redacted]	12/1/2013

Replace the obsolete 46kV AOM/AGS assembly at the Clarkesville 46/12kV substation with a 46kV transrupter.

CRAWFISH CREEK 46 KV RELIABILITY	[redacted]	12/1/2013

Install PTs, SEL-351's and fault indicators to improve 46 kV reliability and allow for fault locating. 28086 MVA* minutes ranked #1.

HAMPTON BANK A CAPACITY RELIEF PROJECT	[redacted]	12/1/2013

Construct a new 25-kV feeder off of 115/25-kV, 60MVA bank B and move load from bank A to bank B by converting circuit A3442 to 25-kV in the field and moving that load to the new 25-kV feeder.

SUPPORTING STATEMENT: The existing 115/12-kV, 22.4-MVA tran

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
MARIETTA ROSWELL ROAD 115-12KV OBSOLETE BREAKER REPLACEMENT	[redacted]	12/1/2013
Transmission Support requests replacement of obsolete 12kV feeder breakers R0862 and R0852.		
MONTGOMERYVILLE BANK LOADING CAPACITY INCREASE	[redacted]	12/1/2013
MONTGOMERYVILLE BANK LOADING CAPACITY INCREASE The Montgomeryville 46/12kV substation Bank A loads to 103 percentage of winter capability by 2013. Montgomeryville's load exceeded nameplate in winter of 2009. Montgomeryville's load projected to exceed		
N JEFFERSON - MAYSVILLE 46 KV RELIABILITY IMPROVEMENT PROJ	[redacted]	12/1/2013
Increase reliability of this 46 kV line. This circuit ranked 37th on the statewide 46 kV reliability ranking. It had 1.67 events/yr and 446.14 MVA minutes.		
NORTH COMMERCE 210552 - JIM CAREY 46 KV RELIABILITY PROJECT	[redacted]	12/1/2013
Improve reliability on feeder NORTH COMMERCE 210552 - JIM CAREY 46 KV. This circuit ranked 3rd on the statewide 46 kV reliability ranking. It had 3.00 events/yr and 8816.4 MVA minutes.		
OCMULGEE STREET 115-12KV : PROTECTIVE RELAY MODERNIZATION	[redacted]	12/1/2013
Replacement of all electromechanical and SEL 200 series protective relays. New control house to improve cable exits, provide adequate working space and remove an asbestos tainted control house.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
OCMULGEE STREET 115-12KV : V2LB SWITCH REPLACEMENT	[redacted]	12/1/2013

Replacement of obsolete 115kV V2LB switches prone to SF6 leaks. Relocates switches from the top of the 115kV structure trusses to ground structures to improve future maintenance access.

PATRIOTS PARK BANK ADDITION (BAKER PLACE BANK LOADING)	[redacted]	12/1/2013

Install 115/12kV 25MVA bank at Patriots Park to relieve bank loading issue at Baker Place. Baker Place will reach 109% of capability in winter 2013/2014.

QUITMAN PRIMARY - THOMASVILLE 69KV	[redacted]	12/1/2013

Problems:
Loss of the Thomasville Primary 115/69kV transformer or the Thomasville Primary - Pavo tap line segment causes these segments to exceed their loading limits:
(2013) Dixie-Spain Jct 99%, Boston-Dixie 97%
(2014) Dixie-Spain Jct 103%, Boston-Di

RCMOS GAINESVILLE #1 071102 - SAPA EXTRUDER 46 KV RCMOS PROJ	[redacted]	12/1/2013

Install new pole, new switch, motor operator, SCADA and AC at the following locations:
1. Normal Open point 24842
2. Normal Open point 24861
3. At or in the vicinity of str 75 near Mountain View Road and Fox Trace PM

On 4/2/2012 @ 11:43 McEver Road

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
RCMOS MARIETTA 005138 - LOCKHEED MARTIN EMERGENCY 46 KV	[redacted]	12/1/2013
Install a motor operator, SCADA , AC and Fault Indicators that report back to EMS to BLD 26933 on the Marietta 005138 - Lockheed Martin Emergency 46 kV line.		
STANTON SPRINGS SUBSTATION (SERVICE TO BAXTER HEALTHCARE)	[redacted]	12/1/2013
Construct the new Stanton Springs area distribution substation to serve Baxter Healthcare in the Stanton Springs Business Park. Construct approximately 11.0 miles of new 115kV line to loop the Stanton Springs Substation from the Alcovy Road - Pony Expres		
SUMMERVILLE PRIMARY 46 KV RELIABILITY	[redacted]	12/1/2013
Improve Summerville Primary 46 kV reliability by adding PTs and SEL 351 relays in substation. 279.14 MVA*Minutes ranked # 51.		
TERRORA 163232 – BURTON 46 KV RELIABILITY PROJECT	[redacted]	12/1/2013
Improve reliability of the TERRORA 163232 – BURTON 46 KV line. This circuit ranked 47th on the statewide 46 kV reliability ranking. It had 3.67 events/yr and 307.56 MVA minutes.		
THOMSON PRIMARY - TEMPLE 46KV RELIABILITY IMPROVEMENT	[redacted]	12/1/2013
Improve the outage duration of the Thomson Primary 040168 - Temple 46kV line. This line was ranked #20 in MVA/minutes in the latest rankings. This project will add fault indicators to line switches 40603 and 404893. At Thomson Primary, replace CO-9 relay		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
UNION POINT - CRAWFORDVILLE 46KV RELIABILITY IMPROVEMENT	[redacted]	12/1/2013

Improve the outage duration of the Union Point 51668 - Crawfordville 46kV line. This line was ranked #14 in MVA/minutes in the latest rankings. This project will add fault indicators to line switch 40473 and add RCMOS and fault indicators to switch 051

GORDON - MIXON PROJECT	[redacted]	12/21/2013

The Original Project - TEAMS # 13354, a 2011 project, was developed by Maintenance & Reliability to provide for replacing a 14.2 mile long section of '5/16 inch steel OHGW' on the 15.5 mile long Gordon - Southern Aggregate 46 kV line. The steel core of t

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ARLINGTON PRIMARY - DAMASCUS 46KV : RELIABILITY ENHANCEMENT	[redacted]	12/31/2013

Rank 12 of 20 in initiative listing.

BAXLEY 115/46 KV - 46 KV RELIABILITY IMPROVEMENT PROJECT	[redacted]	12/31/2013

46 kV Enhancement - Baxley 115/46 kV S/S - GPC is trying to improve the SAIDI,SAIFI, CAIFI, and MAIFI for the 46 kV system in 2011.

At 46 kV Breaker # 037228:
Modify the Schweitzer SEL351S7 relay settings to provide fault locating capability as well a

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BIBB MANUFACTURING (PERCALE) BATTERY UPGRADE	[redacted]	12/31/2013

Install new 125 volt battery system at Bibb Manufacturing (Percale) substation. Currently, each piece of equipment has self contained batteries and they have proven to be unreliable.

See also companion project 14554 obsolete breaker replacement.

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
BIBB MANUFACTURING (PERCALE) OBSOLETE BREAKER REPLACEMENT	[redacted]	12/31/2013
Replace obsolete breaker at Bibb Manufacturing (Percale) substation. See also companion project 14553, 125V control voltage upgrade.		
BUTLER ST AOM/AGS REPLACEMENT PROJECT	[redacted]	12/31/2013
Replace the obsolete AOM/AGS switches located on the high side of 115/20kV Banks 1, 2, 3, and 4 with AIM switches. This is part of a continuing program to retire all AOM/AGS schemes on the GPC transmission system. Note: This project to be worked concu		
BUTLER ST BREAKER REPLACEMENT PROJECT	[redacted]	12/31/2013
Replace bus-tie breaker B600 at Butler St 115/20kV substation. Note: The work for project 13954 and 13476 will be performed in conjunction with this project.		
CHEROKEE - GRANGE ROAD 46KV IMPROVEMENT PROJECT	[redacted]	12/31/2013
This project adds (3) RF fault indicators on the Gulfstream Tap off the Cherokee - Grange Road 46kV line in Savannah in 2013. NOTE: The (1) 351 relay at Grange Road substation is to be added in project TEAMS [14508] in 2014.		
CHEROKEE (SCIP)	[redacted]	12/31/2013
This project completes the capital improvements required at Cherokee substation in Savannah.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
COCHRAN PRIMARY - REPLACE OBSOLETE MEDIUM VOLTAGE BREAKER	[redacted]	12/31/2013

Transmission Support requests replacement of this circuit breaker due to age and lack of spare parts.

Replace obsolete breaker on distribution feeder R0502, Co. # B3231 - manufactured 1/1/66.

COLEMAN 46-12KV : OBSOLETE BREAKER REPLACEMENT	[redacted]	12/31/2013

Transmission Support requests replacement of 12kV OCB G0742 (Co.#1759) due to age and lack of spare parts. No 12kV bus outage will be required.

DOVER 46KV TAP	[redacted]	12/31/2013

This project taps GPC's Sylvania - Egypt 46kV line and terminates on a new 46kV breaker at GTC's Dover substation. This line work is in conjunction with GTC's project to install a 115/46kV - 25MVA LTC bank in the Dover substation. This project is only for

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ECHECONNEE - REPLACE OBSOLETE MEDIUM VOLTAGE BREAKERS	[redacted]	12/31/2013

Transmission Support requests replacement of these circuit breakers due to age and lack of spare parts.

At Echeconnee:

Replace obsolete 12kV circuit breakers as follows:

At PCB (Operating No. S8042)
Remove CoNo B3106 - manufactured on 1/1/65.
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Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
J.M HUBER (REIDS) AOM/AGS REPLACEMENT	[redacted]	12/31/2013
Replace AOM/AGS with AIM switch.		
JESUP SS 115KV : RELAY MODERNIZATION	[redacted]	12/31/2013
Electromechanical and SEL 100 series protective relaying. Obsolete masonry control house with no accommodation for pull box system. All direct burial control and power cables. Corroded and aged 115kV power pot. No safety switches.		
Companion project 14		
JESUP SS 115KV : RELIABILITY IMPROVEMENTS	[redacted]	12/31/2013
Reliability improvements concurrent with the relay modernization project 14492. Corroded and aged distribution transformer. No safety switches. Cap and pin insulators on two 115kV line disconnect switches. Aged 115kV strain bus insulators.		
Solution tea		
KRAFT - MILLHAVEN ANNEX 46KV IMPROVEMENT PROJECT (SWITCHES)	[redacted]	12/31/2013
This project adds (5) RCMOS's on the Kraft - Millhaven Annex 46kV line in Savannah.		
NOTE: The (3) 351 relays are to be added in a separate project TEAMS [14507] in 2013.		
KRAFT (PLANT) STORM SURGE RETROFIT	[redacted]	12/31/2013
Construct raised control house in the Kraft (Plant) 115kV Substation critical equipment above the storm surge elevation resulting from a Category 3 hurricane. Controls migration to be addressed in TEAMS 14509.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
MADISON OBSOLETE BREAKER REPLACEMENT PROJECT	[redacted]	12/31/2013
Replace obsolete breaker		
MCRAE 115/46 KV - 46 KV RELIABILITY	[redacted]	12/31/2013
46 kV Enhancement - McRae 115/46 kV S/S - GPC is trying to improve the SAIDI,SAIFI, CAIFI, and MAIFI for the 46 kV system in 2011.		
Install 3 - 46 kV Bus Potential Transformers on bus for relaying.		
At 46 kV Breaker # 047138: Modify the Schweitzer SE		
MELDRIM-ROSSIGNOL HILL 46KV RELIABILITY IMPROVEMENT PROJECT	[redacted]	12/31/2013
This 46kV enhancement project updates the relays at the Meldrim and Rossignol Hill substations.		
METTER PRIMARY - SWAINSBORO PRIMARY AREA 46KV BAD WIRE	[redacted]	12/31/2013
This project addresses the bad 46kV wire between the Metter Primary and Swainsboro Primary substations in Coastal Region.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
MOULTRIE 46KV LINES: FAULT LOCATORS	[redacted]	12/31/2013
x		
MOV - THOMSON PRIMARY - WARRENTON PRIMARY BLACK 115 KV	[redacted]	12/31/2013
Add MOV's in certain sections around the West Thomson Junction.		
This was approved by the RWG in September of 2009.		
BCA Rev 7/5/2012. Year Change Only. Project delayed to gather additional operating history on the line to determine if the improvement		
OCMULGEE STREET - REPLACE OBSOLETE MEDIUM VOLTAGE BKRS	[redacted]	12/31/2013
Transmission Support requests replacement of this circuit breaker due to age and lack of spare parts.		
At Ocmulgee Street:		
Replace obsolete 12kV circuit breakers as follows:		
At PCB (Operating No. S632) Remove CoNo B2615 - manufactured on 1/1/60.□		
RCMOS - BARNEYVILLE - PINE GROVE PRIMARY 115 KV	[redacted]	12/31/2013
Install Remote Controlled Motor operators, fault indicators, and SCADA on line switches 65733 and 65741.		
South TMC has identified these switches as a priority to be motor operated. They are on either side of the South Adel substation. South Adel has		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
RCMOS - WARRENTON PRIMARY - AGGREGATES USA 46 KV	[redacted]	12/31/2013

Install Remote Controlled Motor operators with SCADA on switches 040403 and 040581 near the Aggregates USA (Sparta) tap.

On 6/15/2011, a tree fell on the line near structures 542 and 543. Aggregates USA #1 pad was out of power for 447 minutes. If swit

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RCMOS DOUGLASVILLE 144422 - FLINT HILL ROAD 46 KV	[redacted]	12/31/2013

At Str 263, BLD 26309, Install motor operator, SCADA, AC and Fault Indicators that report to EMS. These fault indicators will provde the system operator with fault location so the 46 kV line can reconfigured and power restored to the remaining customers f

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RCMOS WEST MARIETTA 174622 - LOCKHEED MARTIN #2 46 KV	[redacted]	12/31/2013

Install a motor operator , SCADA and AC to BLD 26881
Install a motor operator , SCADA, AC and Fault Indicators that report back to the control center at BLD 26883.
The Cobb County jail is served of the West Marietta - Lockheed Martin #2 46 kV line.

RCMOS: ALBANY-SYLVESTER PRIMARY 115KV	[redacted]	12/31/2013

Install remote controlled motor operators on 115kV line switches 42161 and 42173.

RCMOS: EAST BAINBRIDGE - DONALSONVILLE 115 KV	[redacted]	12/31/2013

Install Remote Controlled Motor operator and SCADA on line switches 73721 and 73733.

South TMC has identified these switches as a priority to be motor operated. They are on either side of the Commodore Park tap. Commodore Park has over 12 MVA of load

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
RCMOS: VIENNA PRIMARY-UNADILLA 46KV	[redacted]	12/31/2013
Install new 46kV remote controlled motor operated switches on either side of the Dooly K8 tap. On 1/21/2012, structure #130 broke during a storm and Dooly K8 was out of power for 631 minutes. If there had been a switch near the Dooly K8 tap, the outa		
SASSER 46-12KV : VOLTAGE REGULATOR ADDITIONS	[redacted]	12/31/2013
Substation has no regulation off the 12kV bus. Add three single phase 167kVA regulators.		
SHURLING DRIVE - REPLACE OBSOLETE MEDIUM VOLTAGE BRKRS	[redacted]	12/31/2013
Transmission Support requests replacement of this circuit breaker due to age and lack of spare parts. At Shurling Drive: Replace obsolete 12kV circuit breaker as follows: At PCB (Operating No. S0722) Remove CoNo B3270 - manufactured on 1/1/60.		
SLAPPEY DRIVE 115-12KV : OBSOLETE DISTR BREAKER REPLACEMENT	[redacted]	12/31/2013
Transmission Support requests replacement of two obsolete 12kV feeder breakers at Slappey Drive substation. Replace G0442 (Co.#4231) and G0472 (Co.#4604) with new 1200 Amp breakers. G0472 serves GTC/Mitchell EMC #3.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
SMITHVILLE - CREEKWOOD SUBDIVISION 46KV FAULT INDICATORS	[redacted]	12/31/2013
Fault Indicators		
SMITHVILLE RELIABILITY IMPROVEMENT	[redacted]	12/31/2013
Install 46 kV PTs on the 46 kV bus and install a SEL-351 relay on the 46 kV line breaker.		
VALENTINE FARMS 230KV LOOP	[redacted]	12/31/2013
Loop the Center - South Hall 230kV line into GTC's Valentine Farms 230/25kV substation. The 230kV loop will be constructed on a common ROW approximately 0.8 miles in length.		
NORTH TIFTON 500KV : POST INSULATOR REPLACEMENT	[redacted]	5/1/2014
The in-service 500kV post insulators are a non-standard height and several have developed cracks. Coordinate with autobank replacement project 14178.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
BUCKHEAD POINT SUBSTATION	[redacted]	6/1/2014

Convert the Buckhead Point 115/7.2 kV substation to 115/12 kV.

BCA - S : Revision (2-7-2012, GCS): Year Only Change. Area Planning reevaluated this project and updated the need date for this project to 6/1/2014.

BCA - S: Revision (04-21-2011, GCS

CARTERSVILLE-KINGSTON 230KV LINE (ANTI-FLICKER PROJECT)	[redacted]	6/1/2014

This project will reduce the flicker seen at Kingston due to Ameristeel and will eliminate a future project to solve a Cassville Bank loading issue. Load to be shifted from Cassville to Kingston. This project is being moved forward from 2016 to 2014 and b

CLERMONT - GAINESVILLE #1 46 KV LINE UPGRADE	[redacted]	6/1/2014

In 2012, for loss of source at Gainesville #1, the first section of the Clermont 061928 - Clarks Bridge 46 kV line loads to 106.4% at contingency loading. This is a 2.37 mile section of 4/0 ACSR constructed at 50°C.

GAINESVILLE AREA 46 KV IMPROVEMENT PROJECT II	[redacted]	6/1/2014

There are currently multiple contingency issues (bank loading, line loading and voltage) between Gainesville #1 115/46 kV and Gainesville #2 46 kV. (old project - 13257)

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
MILLHAVEN (SCIP)	[redacted]	6/1/2014

This project retires the Millhaven 46kV substation and installs a 115/13.8kV 40 MVA bank in Millhaven Annex substation..

NORTH CLARKESVILLE 46/12 CAPACITY INCREASE PROJECT	[redacted]	6/1/2014

In 2014, North Clarkesville 46/12 kV substation will be at 86% of its capability.

NORTH TIFTON 500KV : 500KV AIR BREAKER REPLACEMENT	[redacted]	6/1/2014

Replace three obsolete Dell Alsthom air circuit breakers and remove three related air compressors. The circuit breakers were rebuilt in 2002 by TMC crews with contractor oversight. Air compressors were replaced the following year. A ten year life extensio

PROTECTIVE RELAY MODERNIZATION - ALBANY AREA	[redacted]	6/1/2014

Transmission Support requests the replacement of protective relaying, CCVTs, traps and tuners at the Slappey Drive substation. Also, replace the Slappey Drive 115kV line protective relaying systems at the remote-end Palmyra and Mitchell substations.

Co

SLAPPEY DRIVE 115-12KV : RELIABILITY IMPROVEMENTS	[redacted]	6/1/2014

Improve the reliability of this substation and simplify the control schemes by installing 115kV high side breakers on both distribution transformers.

Companion project 14460

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
TALLAPOOSA 115/12 KV BANK PROJECT	[redacted]	6/1/2014
Due to increasing maintenance problems with the 46/12 kV system and the fact that both of the 115/46 kV banks are on the proactive replacement list, it was determined at the 01/18/12 solution team meeting to replace T9675 (Bank #1) with a 115/ 12 kV non L		
TIFTON PRIMARY - TY TY 46KV LINE CAPACITY	[redacted]	6/1/2014
In 2012, overloads are expected on the following line segments: Tifton Primary - Ashburn Jct (501); 1.77 miles, 2/0ACSR 50C Ashburn Jct (501) - TyTy; 6.39 miles, 2/0ACSR 50C Ashburn Primary - Menswear Jct (149A); 0.19 miles, 2/0ACSR 50C (resag) In 2		
ALBANY - M&M MARS 46KV	[redacted]	9/1/2014
Problems: OHGW replacement PI 1338801 for the Flint River Primary - Ga Pacific 46kV line (R4 condition). Encroachments on the Albany - M&M Mars 46kV line. Pole and hardware replacements along DOT Slappey Drive will require new setback from the street curb		
DUTCHTOWN ROAD (NEW)- OAKHURST (NEW) 115KV TIMELY LAND	[redacted]	9/1/2014
Note: Future line project - see TEAMS #13072		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
HOUSTON CHAPEL 115/20KV SUB (EMORY UNIVERSITY NEW BUSINESS)	[redacted]	12/1/2014
Construct the Houston Chapel 115/20kV area substation on a previously purchased site on the Emory University-Clifton campus. The station will be sized to accommodate a maximum of three power transformers although only two will be installed initially. The		
BOULEVARD (SAV) SCIP	[redacted]	12/31/2014
This project addresses the SCIP related work at the Boulevard i.e. replace cap/pin insulators and related switches and 115kV OCB's.		
DORAVILLE AREA 12 KV SYSTEM IMPROVEMENTS	[redacted]	12/31/2014
This project is an alternative to the Park Proactive Transformer Replacement Project #13480. 1) At GM-Doraville substation remove the 115/12kV, 33.6MVA Delta-Wye Bank B. Bank A will remain in service. 2) At Doraville substation remove both 115/12kV,		
EAST BAINBRIDGE - ATTAPULGUS 69KV	[redacted]	12/31/2014
Progress Energy has abandoned their 69kV line from Quincy to the Georgia state line. This line was the alternate source for the Attapulgus and Hangdog Crossing substations. This project restores that alternate source. The STWG agreed to declare the East		
KINGSLAND 230-115-12KV : RELAY MODERNIZATION	[redacted]	12/31/2014
Upgrade protective relaying to remove all electromechanical relaying, relaying without spare parts and improve reliability.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
LOCKHEED MARTIN #1 SUBSTATION IMPROVEMENT PROJECT	[redacted]	12/31/2014

Based on SCS ranking criteria replace transformer T6232, T6378, and T8710 (Banks #1, 2, & 3) at Lockheed Martin # 1 substation with (2) new purchase transformers four letter MARK TTJO (115.5 - 13.09 kV, 65 C, NLTC).

Retire the station differential sche

STATESBORO PRIMARY - METTER PRIMARY AREA 46KV BAD WIRE	[redacted]	12/31/2014

Retires the 46kV line between Statesboro Primary and Swainsboro Primary and converts (3) substations to 115kV.

ELLIJAY PRIMARY SUBSTATION-MODIFICATION FOR 230KV LOOP LINE	[redacted]	4/1/2015

GTC is constructing a new 230kV line from Roundtop substation to the Ellijay Primary substation. This project is for GPC to install 230kV dead end structures and switches in order to enable GTC to loop the 230kV into Ellijay Primary substation.

GTC has

BALDWIN AREA CAPACITY INCREASE PROJECT	[redacted]	6/1/2015

Add capacity in the Baldwin Area due to new customers in the airport/industrial park area.

OAKHURST (NEW) SUBSTATION PROJECT	[redacted]	6/1/2015

Construct the Oakhurst (new) 115/13.8kV substation in the Oakhurst substation area in South Chatham County near Savannah. Build new 115kV line from Dutchtown Road (new) to Oakhurst (new) substation.

Refer to TEAMS #13069 & #13070 for land activities.

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
SOUTH CHATHAM AREA 46KV REMAINDER PROJECTS	[redacted]	6/1/2015
This project is the placeholder for projects not previously identified with Area Planning projects in the South Chatham Area 46kV conversion to 115kV. The other related projects are TEAMS 13070, 14315, 13072 and 14032.		
TROUPE CREEK BANK B CAPACITY INCREASE	[redacted]	6/1/2015
This project addresses the capacity increase project for the Troupe Creek Bank B in Brunswick.		
TRUMAN PARKWAY - OAKHURST 115KV	[redacted]	6/1/2015
Estimate to construct the 2.75 mile 115kV line from Truman Parkway to Oakhurst (new) substation.		
LAKE OCONEE CAPACITY INCREASE PROJECT	[redacted]	10/1/2015
Load growth in Reynolds Plantation requires additional substation capacity.		
2015 DIST. FEEDER BKR PROJ. - RED TOP MOUNTAIN S/S	[redacted]	11/16/2015
Adding feeder breakers where existing circuits are operating outside Distribution Planning Guidelines. New circuit to relieve loading on Red Top Mountain E7882.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
BRUNSWICK AREA RELAY MODERNIZATION	[redacted]	12/31/2015
Protective relaying improvements. Coordinate schedule with project 14496.		
FIFTY SECOND STREET SCIP	[redacted]	12/31/2015
Savannah Capital Improvement Project to address the metal clad switchgear, 48V DC conversion to 125V DC, relay modernization and NESC needs for the 52nd Street substation.		
KRAFT (230KV SUBSTATION) STORM SURGE RETROFIT	[redacted]	12/31/2015
Retrofit existing Kraft (230kV) substation to keep critical equipment, mainly in the control house, above the storm surge elevation resulting from a Category 3 hurricane.		
RIVER STREET BANK ADDITION	[redacted]	12/31/2015
This project adds a 3rd substation transformer in the River Street substation in Savannah		
SOUTH MACON 230-115-12KV : OBSOLETE MED VOLT BREAKERS	[redacted]	12/31/2015
Replacement of obsolete medium voltage breakers due to lack of spare parts and age. Companion projects 14577 and 14578.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
SOUTH MACON 230-115-12KV : RELAY MODERNIZATION	[redacted]	12/31/2015
Replacement of obsolete protective relaying equipment, potential transformers, carrier traps and carrier tuners.		
SOUTH MACON 230-115-12KV : RELIABILITY IMPROVEMENTS	[redacted]	12/31/2015
Balance of improvements to increase the reliability of this substation and facilitate protective relaying replacements. Companion projects 14577 and 14579.		
WHITEOAK 2015 CIRCUIT SWITCHER REPLACEMENT	[redacted]	12/31/2015
Replace Mark II circuit switcher on Bank C.		
Work in conjuction with TEAMS #13448		
PURCELL ROAD 230/25 KV BREAKER ADDITION	[redacted]	4/1/2016
BCA -S: Install additional 25 kV breaker on existing bank and shift load from Herrington Road to solve bank loading at Herrington Road.		
BCA Revision 09/08/09 - Updated planning information allows this project to be delayed from 2010 to 2013 - consult M		
BRUNSWICK CAPACITY INCREASE	[redacted]	6/1/2016
EXT EST: Replace bank B with a 40 MVA bank, add a feeder and breaker.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
BUCHANAN BANK CAPACITY PROJECT	[redacted]	6/1/2016

BCA - S: The Buchanan 46/12kV Bank A is projected to load to 91% of capability in 2010. Due to the age of the 46 KV line, send PCD to GTC to add a GPC feeder at South Buchanan substation. This will allow for the retirement of both Buchanan substation and

CALHOUN ROAD 115/12 KV CAPACITY INCREASE	[redacted]	6/1/2016

In 2015 115/12kv Bank A will reach 93% of capability.

Remove 115/12kV 10.5MVA Bank A and install a 25MVA Non-LTC transformer. This project could be replaced with a new feeder at Galey & Lord.

CLOVERLEAF 230/12KV BANK A CAPACITY PROJECT	[redacted]	6/1/2016

The Cloverleaf 230/12kV Bank A is projected to be over 90% of capability by 2016. Add a 2nd 230/12kV, 25MVA bank.

MIDDLE FORK BANK B CAPACITY INCREASE PROJECT	[redacted]	6/1/2016

In 2016, Middle Fork Bank B will be at 94% of capability.

OLD DALTON ROAD 115/12 KV CAPACITY INCREASE	[redacted]	6/1/2016

Late in 2004, permits were issued for the construction of 600 homes in the area served by the Old Dalton Road substation. This new development increased the growth rate previously used for planning. Even after shifting 4.47 MVA to Armuchee between 2006-20

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
SPRING ST 80S NETWORK LOAD RELIEF PROJECT	[redacted]	6/1/2016
The existing Spring St 80s five-cable 20kV underground network is projected to load to 85% of its cable capacity by 2009 and 92% by 2010. This network is served from Spring St Bank B.		
VIRGINIA AVE THIRD BANK ADDITION	[redacted]	6/1/2016
Install a conventional third transformer in the Bank C position at the Virginia Ave 230/20kV substation. This is NOT an engineering grade estimate.		
YOUNG STATION BANK A&B NORMAL LOAD PROJECT	[redacted]	6/1/2016
The Young Station 46/12 kV Bank "A&B" is projected to load to 91 % of capability in 2015.		
EAST BAINBRIDGE - THOMASVILLE 69KV : FAILED CONDUCTOR	[redacted]	9/1/2016
STWG approved end of life status for the 1925/1927 age 4/0 ACSR conductor through this corridor. Budgeted solution removes all of the 69kV line from East Bainbridge to Thomasville. Adds a 230kV line breaker at South Bainbridge to serve a new GTC construc		
SILK HOPE AREA DISTRIBUTION PHASE II	[redacted]	11/15/2016
Project to build new 230/25kV substation and convert (2) 13.2kV distribution feeders to 25kV. This project is the continuation of 12831. Items 01 - 03 of this project have already been estimated in 12831.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
ARBOR SPRINGS TIMELY SITE PURCHASE -- FORECAST	[redacted]	12/1/2016
Purchase substation site suitable for a two bank 115/25KV substation. SUPPORTING STATEMENT: The "Madras" area of Coweta County, roughly the east - west area between and along I-85 and the Roosevelt Hwy (US Hwy 29) and the north - south area between H		
CARTERSVILLE AREA 230 KV FLICKER MITIGATION (AMERISTEEL SVC)	[redacted]	12/1/2016
Flicker on the Cartersville area 230 kV system produced by the electric arc furnace in the local steel mill must be reduced. The installation of a Static Var Compensator will reduce flicker levels in the area to acceptable levels.		
EXECUTIVE PARK SUBSTATION TIMELY LAND PURCHASE	[redacted]	12/31/2016
BCA - S: A new substation will be needed to serve the proposed 685 acre master planning quadrant bounded by I-85 - North Druid Hills Rd - Sheridan Rd - Kittredge Park Rd. and to provide relief to the North Druid Hills substation. BCA year change only		
HUNTER FIELD SCIP	[redacted]	12/31/2016
This project address the SCIP for the Hunter Army substation in Savannah to include: 48V DC conversion to 125V DC, NESC, relay mod and new control house.		
WHITE SUBSTATION TIMELY LAND PURCHASE - 2016	[redacted]	12/31/2016
Advanced land purchase to construct the White 115/12kV substation (Project #12552). An advanced land purchase will facilitate the timely construction of the substation to alleviate distribution loading problems. BCA Revision - 07/08/08 - Revision moves		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
WILMINGTON ISLAND (SCIP)	[redacted]	12/31/2016
This project addresses removing or replacing the cap and pin insulators and switches mounted in the horizontal position. It also includes removing obsolete PTs and enhancing the station service.		
NORTHWINDS 230/25 KV SUBSTATION	[redacted]	4/1/2017
Construct new 230/25 kV substation in Alpharetta Area. Problem Statement: In 2015, Old Alabama Bank D will be loaded to 102% of capability during a contingency for the loss of Kimball Bridge feeder K6112. In 2015, Alpharetta Bank A will be loaded to		
ATLANTA AREA SUB TIMELY LAND PURCHASE	[redacted]	6/1/2017
Purchase land for a substation in the Atlanta area. Due to the continued growth in the Metro Area there is a need to add capacity to the present system. Specifically the Spring Street substation is continuing to see load increases on the distributio		
BOLTON/CHATTAHOOCHEE AREA SUB TIMELY LAND PURCHASE	[redacted]	6/1/2017
The Bolton/Chattahoochee area is starting to see redevelopment. Begin looking for land for a minimum two bank substation with space for a future third. Note: Future substation project - see TEAMS #12096.		
BOYD AVENUE SUBSTATION	[redacted]	6/1/2017
Due to the continued growth in the Metro Area there is a need to add capacity to the present system. Specifically the Huff Road area of Atlanta. Build a two bank substation with space for a future third. (See TEAMS Project 12523 for the Timely Land Pur		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
BURKHALTER ROAD 115/12-KV SUBSTATION	[redacted]	6/1/2017
The Burkhalter 115/12kV Bank A will reach 93% of capability in 2016. Replace Bank A with a 40MVA unit.		
CARPENTER FLAT 230/25 KV SUBSTATION	[redacted]	6/1/2017
Construct the new Carpenter Flat 230/25kV substation. This new substation will serve the Waleska area and off load Canton #2 substation.		
CAVE SPRING 46/12KV CAPACITY INCREASE	[redacted]	6/1/2017
Area load is expected to exceed bank capacity.		
CHEVIS ROAD 115/25KV (FORMERLY S. CHATHAM 13.8/25 KV CONV.)	[redacted]	6/1/2017
Construct a new area 115/25 kV distribution substation to serve the South Chatham Area Development. (NOTE: Previously, the preferred plan was to convert the Grove Point Road and Georgetown 115/13.8 kV substations to 25 kV operation)		
CUMMING SUBSTATION BANK C CAPACITY INCREASE	[redacted]	6/1/2017
BCA - S: Add capacity at Cumming substation for distribution at 25 kV.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
EATONTON AREA SUBSTATION SITE TIMELY LAND PURCHASE	[redacted]	6/1/2017
Purchase site for new in-line GPC 115/12 kV substation. (Refer to TEAMS Project 12557 for details)		
EVANS PRIMARY CAPACITY INCREASE	[redacted]	6/1/2017
This project involves increasing capacity at the Evans Primary 115/12kV substation.		
LAWRENCEVILLE HWY SUBSTATION TRANSFORMER CAPACITY PROJECT	[redacted]	6/1/2017
The Lawrenceville Highway 115/20kV Bank B will reach 93% of capability in 2013. This project adds a second bank, using a 115/25 kV transformer and reconfiguring the substation.		
MCINTOSH TRAIL 115/25 KV NEW SUBSTATION -- FORECAST	[redacted]	6/1/2017
Install additional transformer and feeder capacity in the McIntosh Trail area of Coweta County (between Sharpsburg and Senoia south of Peachtree City) to serve expected area growth. The area from Newnan east over towards Senoia is expected to grow, esp		
MONROE BANK B UPGRADE AND BREAKER REPLACEMENT	[redacted]	6/1/2017
Upgrade Bank B at Monroe substation. Bank B serves Walton EMC load only. Replace obsolete breaker R5382 (Co # B3219) with new Southern Company standard breaker (Mk: BUJE).		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
MOUNT ZION 46/12KV	[redacted]	6/1/2017
Remove the 46/12kV, 1.5MVA transformer Bank A (Co.#'s 7285, 7286 & 7287) and install a 46/12 kV, 5.25 MVA plant transfer transformer. The Mount Zion 46/12kV Bank A is projected to load to 90% of capability in 2017.		
NEW HAMPSTEAD 230/25 KV SUBSTATION PROJECT	[redacted]	6/1/2017
Construct a new 230/25 kV distribution substation to serve the New Hampstead development in Savannah		
PIEDMONT ROAD SUBSTATION (FORMERLY GA 400 WEST)	[redacted]	6/1/2017
Yearly budget change BCA routed: Old budget-2012 111k, 2013 21M, 2014 14.7M, 2015 0, 2016 0 New budget-2012 15k, 2013 100k, 2014 6M, 2015 22M, 2016 7M TR 5/8/12 This project is to construct a future substation in the Buckhead area to accommodate		
RICE HOPE 115/25 KV SUBSTATION PROJECT	[redacted]	6/1/2017
Construct a new 115/25 kV distribution substation near the Rice Hope development in Savannah.		

Local Area Substation and Transmission Line Projects [5 Year]

Project Name	*Cost*	*Need Date*
ROYSTON 46/12 KV SUBSTATION CAPACITY UPGRADE PROJECT	[redacted]	6/1/2017
In 2017, Royston 46/12 kV substation is projected to be at 90% of capability.		
ARAGON PRIMARY 115/12KV BANK ADDITION	[redacted]	12/1/2017
The Aragon 46/12kV Bank A will load to exceed 91% of capability in 2014. At Aragon Primary add a 115/12 kV bank, two feeders with regs, and AIM high side protection.		
WHITE STREET TRANSMISSION LINE TIMELY LAND PURCHASE	[redacted]	12/1/2017
Purchase transmission ROW from White Street to West End, a distance of approximately 1.5 miles. This is a timely land purchase (TLP). Provide for preliminary line engineering. Refer to TEAMS 11228 for the substation and line project Note: Substation site		

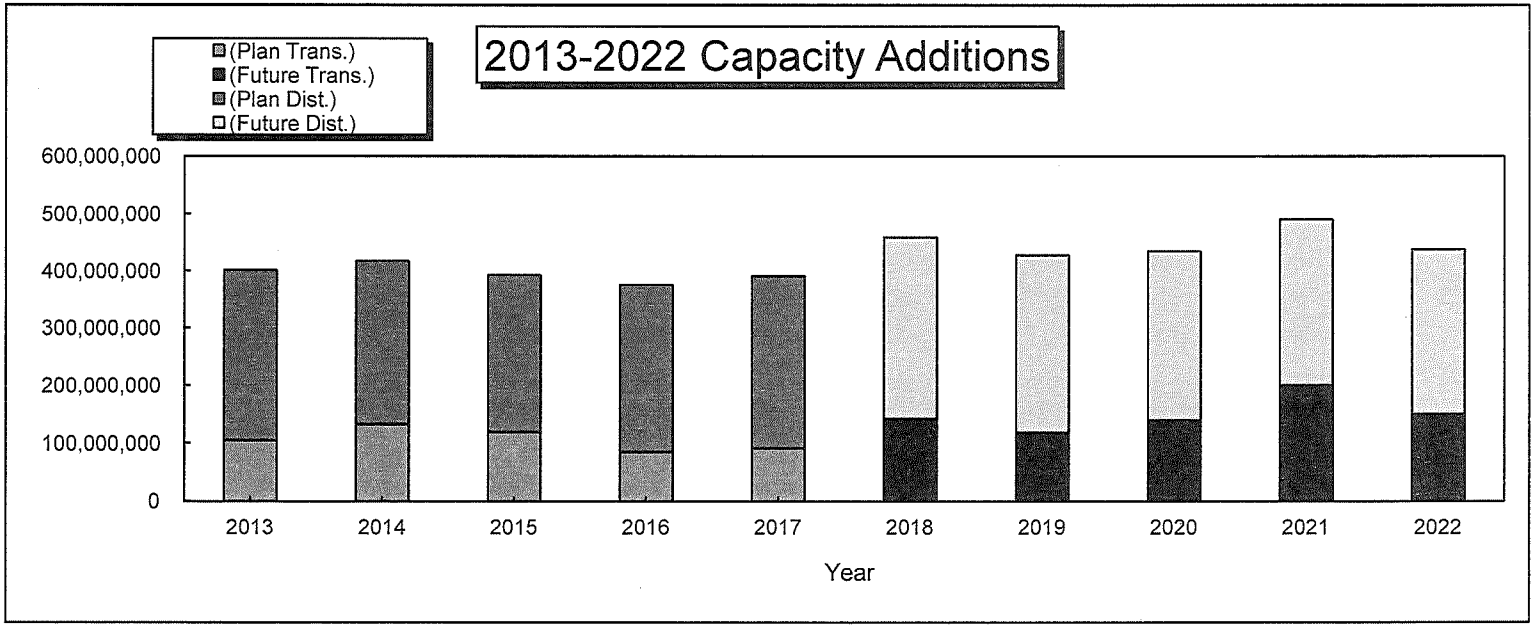
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T&D CAPACITY ADDITION EXPANSION PLAN

(2013 – 2022)

2013 - 2022 T & D CAPACITY ADDITION EXPANSION PLAN

		NETWORK TRANSMISSION		LOAD SERVING DISTRIBUTION		TOTALS
		(Plan Trans.)	(Future Trans.)	(Plan Dist.)	(Future Dist.)	
1	2013	105,000,000		296,200,000		401,200,000
2	2014	132,500,000		284,500,000		417,000,000
3	2015	119,300,000		273,200,000		392,500,000
4	2016	85,100,000		290,800,000		375,900,000
5	2017	91,300,000		299,900,000		391,200,000
6	2018		141,900,000		316,900,000	458,800,000
7	2019		118,800,000		308,700,000	427,500,000
8	2020		139,200,000		295,400,000	434,600,000
9	2021		200,000,000		290,100,000	490,100,000
10	2022		150,000,000		287,200,000	437,200,000
		533,200,000	749,900,000	1,444,600,000	1,498,300,000	4,226,000,000



[C5]

ITS LOSS STUDY

DRAFT
2008 ITS LOSS STUDY

REPORT TO THE

JOINT SUBCOMMITTEE FOR TRANSMISSION PLANNING

Members of ITS Loss Study Working Group

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David Majors	Municipal Electric Authority of Georgia
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October 2009

ITS LOSS STUDY REPORT

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ITS LOSS STUDY REPORT

I. EXECUTIVE SUMMARY

INTRODUCTION

The ITS Loss Study Working Group has completed an analysis of estimated losses on the Integrated Transmission System for calendar year 2008. This study used ITS loss studies performed in 2002 and 1987 which included estimates of peripheral components contributing to overall system losses that have not been reflected in typical load flow computer program analysis. This study involved three engineers who contributed to the study in a 6-months period between May – October 2009. In addition the services of the staff of Southern Company Services Resource Planning were used in the Generation availability analysis.

METHODOLOGY

This study was conducted in two stages. The first stage consisted of modeling the transmission system (115 kV and above) as well as determining values to be used for estimating bulk transmission losses, losses in 230/xx and 115/xx transformers, losses resulting from serving station service loads, and losses on the subtransmission system (46 kV and 69 kV). These estimated losses were computed from load flow results for both peak demand and average energy, using peak hour cases for six different day types: Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend. The peak demand loss factor is based on a composite of 75 load flow cases and the average energy loss factor is based on a composite of 10,800 load flow cases.

The second stage of the study addressed 15 components which the working group felt could be contributing to system losses but which would not be reflected in traditional load flow modeling. This analysis involved recalculating the loss values of the 15 components based on 2008 data.

An adjustment was made to the resulting loss factors to account for the difference between bulk system losses in the cases used in this loss study update and more recent ITS base cases. An adjustment of –0.05% was agreed upon to account for the trend in base case losses over the years.

RESULTS

Summaries of the numerical results of these studies are included as Exhibits 1 and 2. Based on this study, total demand loss on ITS transmission system is 3.32% of the total system load, while total energy loss is 3.15% of the average load. These values do not account for the base case adjustment of -0.05%. Exhibit 3 illustrates the service level designation and the system power flow orientation.

Majority of both demand and energy losses come from bulk transmission, transmission substations, station service transformers and subtransmission. These losses are 3.09% for demand and 2.81% for energy, which account for approximately 93.07% and 89.21% of total demand and energy losses respectively, which was the expected result.

Losses due to the other components on the system, such as capacitors and reactors, catenary, contact resistances, corona, deviation from base case schedules, deviation in inadvertent interchange, electro-magnetic fields, harmonics, insulator leakage, line out operation, overhead ground wire losses, power factor, temperature compensation resistance, unbalanced system operation and unmetered auxiliary equipment were calculated for both demand and energy by using the 2008 data for the ITS system and applying the appropriate formulas identified in 1987 study. Demand losses for this case account for 0.2318% of total load, while energy losses account for 0.3393% of the average load.

If we include the adjustment of –0.05% for the long-term trend in base case losses, total demand losses are 3.27% while total energy losses are 3.10%.

In summary, peak demand and average energy losses are in similar range as in previous years. As expected, the highest percentage loss on the bulk transmission system should occur during peak load conditions. However, the largest percentage losses on a number of other components occur during lower load levels due to the no-load components of transformers, adverse weather conditions affecting corona losses, etc.

CONCLUSIONS

Because of the consistency in results of this study with prior studies and consistency between demand and energy losses, the Working Group concluded that the loss factors shown on the attached summary sheets are the most accurate information available at this time. Further because there are several major changes planned in the transmission system and major changes expected in patterns of load and generation on the integrated system these numbers should be updated more frequently.

RECOMMENDATIONS

1. That the attached 'loss factors' be recognized as the most accurate available at this time.

EXHIBIT 1

ITS DEMAND LOSSES

		2008 DEMAND LOSSES
A TO D		
BULK TRANSMISSION	B	2.1535
230/xx & 115/xx TRANSFORMERS	T	0.6077
STATION SERVICE	SS	0.1161
SUBTRANSMISSION (69kV & 46 kV)	S	0.2110
	TOTAL	3.0883
OTHER COMPONENTS		
CAPACITORS AND REACTORS	1.695 MW	0.0061
CATENARY	(B+S)*2%	0.0473
CONTACT RESISTANCES	NEGLIGIBLE	0.0001
CORONA	7.486 MW	0.0170
DEVIATION FROM BASE SCHEDULES	NEGLIGIBLE	0.0000
DEVIATION IN INADVERTENT INTERCHANGE LOSS	7.67 MW	0.0277
E/M FIELDS	0.3% * B	0.0065
HARMONICS	0.02686^2*(B+T+S)	0.0021
INSULATOR LEAKAGE	17.14 MW	0.0618
LINE OUT OPERATION	1.74 MW	0.0063
OHGW LOSSES	1.4% * (B+S)	0.0331
POWER FACTOR	-2.3 MW	-0.0083
TEMPERATURE COMPENSATION OF RESISTANCE	NEGLIGIBLE	0.0000
UNBALANCED SYSTEM OPERATION	1.00%*(B+T+S)	0.0297
UNMETERED AUXILIARY EQUIPMENT	0.65 MW	0.0024
	TOTAL	0.2318
Total Demand Losses		3.3201
Adjustment For Trend In Base Case Losses		-0.0500
TOTAL TRANSMISSION SYSTEM DEMAND LOSSES [%]		**3.2701**

2008 PEAK DEMAND	27,712 MW
2008 LOAD FACTOR	0.5542
2008 ENERGY USE	134,901,169 MWhr

EXHIBIT 2

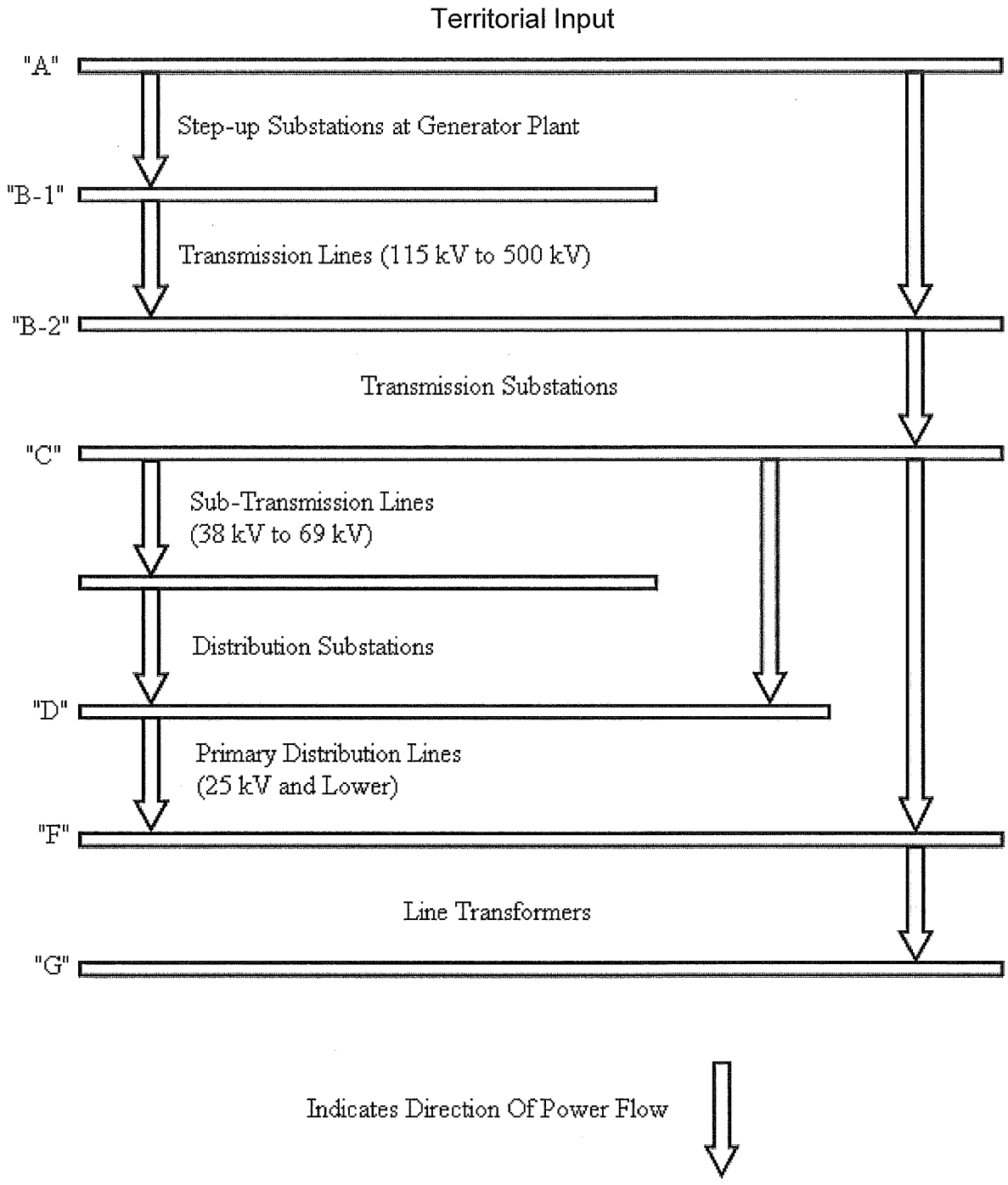
ITS ENERGY LOSSES

		2008 ENERGY LOSSES
A TO D		
BULK TRANSMISSION	B	2.0130
230/xx & 115/xx TRANSFORMERS	T	0.5649
STATION SERVICE	SS	0.1137
SUBTRANSMISSION (69kV & 46 kV)	S	0.1208
	TOTAL	2.8124
OTHER COMPONENTS		
CAPACITORS AND REACTORS		0.0014
CATENARY	(B+S)*2%	0.0427
CONTACT RESISTANCES	NEGLIGIBLE	0.0001
CORONA	12.224 MW	0.0817
DEVIATION FROM BASE SCH EDULES	NEGLIGIBLE	0.0000
DEVIATION IN INADVERTENT INTERCHANGE LOSS	(7.67 MW)	0.0050
E/M FIELDS	0.008%/LF	0.0144
HARMONICS	0.02686^2*(B+T+S)	0.0019
INSULATOR LEAKAGE	17.14 MW	0.1116
LINE OUT OPERATION	0.31 MW	0.0011
OHGW LOSSES	1.4% * (B+S)	0.0299
POWER FACTOR	- 0.3 MW	-0.0020
TEMPERATURE COMPENSATION OF RESISTANCE	NEGLIGIBLE	0.0000
UNBALANCED SYSTEM OPERATION	1.75%*(B+T+S)	0.0472
UNMETERED AUXILIARY EQUIPMENT	(0.65 MW)	0.0043
	TOTAL	0.3393
Total Energy Losses		3.1517
Adjustment For Trend In Base Case Losses		- 0.0500
TOTAL TRANSMISSION SYSTEM ENERGY LOSSES [%]		**3.1017**

2008 PEAK DEMAND	27,712 MW
2008 LOAD FACTOR	0.5542
2008 ENERGY USE	134,901,169 MWhr

EXHIBIT 3
Service Level Designation
and
Power Flow Diagram

Service Level



ITS LOSS STUDY REPORT

II. Introduction

This report is the most recent in a series of studies directed at determining losses on the Integrated Transmission System. The primary purpose of these studies has been to determine loss factors to be used in adjusting metered loads at delivery points to a common reference point (B1). These factors are currently used by the ITS participants for allocation of transmission investment responsibility and are made available to other parties for use as appropriate. In this study, 15 peripheral components, which contribute to overall system losses but are not reflected in load flow computer programs, were computed to more accurately reflect the total system losses.

Workplan

This study was conducted in two stages. The first stage consisted of modeling the transmission system (115 kV and above) as well as determining values to be used for estimating bulk transmission losses, losses in 230/xx and 115/xx transformers, losses resulting from serving station service loads, and losses on the subtransmission system (46 kV and 69 kV). These estimated losses were computed from load flow results for both peak demand and average energy, using peak hour cases for six different day types: Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend. The peak demand loss factor is based on a composite of 75 load flow cases and the average energy loss factor is based on a composite of 10,800 load flow cases.

The second stage of the study addresses 15 components as specified in ITS Planning Procedure No. 21, ITS Loss Study Methodology. This analysis involved recalculating the loss values of the 15 components based on 2008 data.

Outline of Report

The following section includes a brief summary of the methodology and results of each of the approximately 20 factors which have been analyzed as contributing to overall system losses. The next section of the report contains the conclusions and recommendations with regard to the results of this study as well as suggestions for further study. In addition, a limited number of extensive appendices have been prepared which contain the detailed work papers, relevant source documents and other references used in the analysis.

III. Electrical Losses at the "A" Level

Generator Step-up Transformer Loss

For the purposes of this study, we have modeled the system so that all GSUs included in ITS system were assigned to separate area (we chose area 3 in this case). At the peak, the step-up losses on GSUs were 49.3 MW or 0.1845% of the ITS connected generation, which was 26,727.8 MW.

IV. Electrical Losses at the B1 to D Levels Bulk

A. Transmission Losses (B)

Load Flow

The primary purpose of the utility load flow computer program is to simulate the behavior of the power system in terms of line loadings and bus voltages for a given set of input conditions. The load flow program models steady state performance; that is, the load flow solution of the given set of input conditions assumes that the system is free to operate in this mode until the input is changed. One of the many features of the utility load flow program is its ability to calculate "I squared R" losses for a designated system representation. As a result the bulk transmission (115 kV, 230 kV and 500 kV network system) estimated losses were calculated using the load flow computer program.

Even though the aggregate Georgia load and territorial supply can be forecasted with reasonable accuracy, individual substation loads and individual generator outputs can not be predicted with the same confidence. Fortunately, all of the individual loads are distributed throughout the state and each particular load is small with respect to the total aggregate Georgia load. As a result the ability to forecast each load accurately does not greatly impact the ability to estimate "I squared R" losses for the Georgia ITS. The generation, however, is aggregated and in terms of megawatts (with respect to the Georgia Territorial Supply) some of the plants are sizable. As a result, the generation dispatch does significantly affect losses. A probabilistic generation dispatch approach was utilized so as to not have a disproportionate effect of any one particular dispatch on transmission losses.

Load Flow Cases

This study was performed on a set of power flow cases based on the 2008 Summer Peak case from the 2008 Series Southern Electric System transmission planning base cases. The peak demand loss factor is based on a composite of 75 unit out load flow cases and the average energy loss factor is based on a composite of 10,800 load flow cases that differed only in load level with loads representing hourly cases for six different day types: Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend.

Tools used in this analysis were Power Technology Incorporated's PSS/E power flow software and the SCS-developed DISP economic dispatch program. This process captured the megawatt losses on the ITS as modeled from the generator, or low-side of the generator step-up transformers, to the high-side of the distribution transformers. This is different from the previous studies, as the GSU transformers are now modeled in the load flow data base.

A unit-out probability analysis was conducted in 75 different scenarios that represented the most likely unit-out(s) scenarios on ITS system, based on the data obtained from SCS Resource Planning Department. Using the forced outage rates of the largest units in the state of Georgia and other large units in the Southern Electric System's Bulk Power pool, the probability that one large unit at each plant was forced off-line was calculated for each case. Sibling unit outages were considered as identical conditions and smaller units were considered always available. A cumulative probability for all single and double and triple unit-out cases was determined and all cases were sorted.

The recommended units were taken off-line and then the Southern System was economically re-dispatched to pick up the generation deficit. Once a given unit-out scenario was dispatched, a power flow activity was used to document the bulk transmission MW losses in the ITS system. The resultant Bulk Transmission percentage loss was calculated as the weighted average megawatt loss divided by the sum of the loss and the load. The ITS Loss Study Working Group found that the value of loss attributable to the Bulk Transmission system, excluding GSU transformers, to be 2.1535 % for Demand Loss and 2.0130 % for Energy Loss.

B. 230/XX and 115/XX Transformer Loss (T)

The same process that was utilized in the load flow portion of the study was used to calculate losses for the 230/XX and 115/XX transformers. Estimated losses were computed by calculating the I^2R losses through the transformer banks for the 144 time periods for both peak demand and average energy, using hourly cases for six different day types: Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend.

Existing computer files, containing relevant substation transformer information, are updated annually to obtain an accurate model. The base case update is accomplished in two steps. First, actual metered demands for each substation, at the time of the system peak hour, are loaded to the files. The second step involves the manual update of all transformer-related data, such as transformer rating, impedance and core loss. The no load transformer losses were approximated by counting the total number of banks and applying generic approximations from a sample of typical test reports. This generic value was 25 kW per transformer.

The methodology described above is new for this year's study. The ITS Loss Study Working Group found that the value of loss attributable to 230/XX and 115/XX transformers to be 0.6077 % for Demand Loss and 0.5649% for Energy Loss.

C. Station Service Transformer Loss (SS)

This study views all station service energy (such as lighting, control house air conditioning, meters, clocks, heaters, pumps and fans) as loss and estimates an energy and demand loss component for station service.

There are 3 types of SS transformers, based on the voltage levels:

1) SS XMFR in 500/230 kV substation
2) SS XMFR in 230/115 kV substation
3) SS XMFR in 230/xx and 115/xx substation

The load connected to these station service transformers was estimated based on the anticipated utilization throughout the year. Based on the thorough analysis, the ITS Loss Study Working Group estimated the value of loss attributable to station service energy as 0.1161% for Demand Loss and 0.1137% for Energy Loss.

D. Subtransmission Line Loss and 69/XX and 46/XX Transformer Loss(S)

The same process that was utilized in the load flow portion of the study was used to calculate losses for the subtransmission line loss and 69/XX and 46/XX transformers. The 46kV and 69 kV subtransmission system database is now modeled in the PSSE databases in separate zones, so that the zone activity now can capture the losses at these voltage levels. Estimated losses were captured by dispatching the 2008 peak case for the 144 time periods: Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend. The losses for the time periods were then annualized to estimate the energy losses.

The value for the demand and energy losses on subtransmission system was obtained from the 2008 subtransmission loss study done by the area planning department. The loss values attributable to Subtransmission Line Losses and 69/XX and 46/XX Transformer Losses are 0.2110% for Demand Loss and 0.1208% for Energy Loss.

V. Other Components of Loss

A. Capacitor and Reactor Loss

Losses attributable to capacitors and reactors are those electrical losses resulting from the operation of shunt capacitors and shunt reactors. These devices are represented in the power flow simulation as ideal devices (no power consumption) supplying or consuming reactive power. Capacitors consume power in proportion to their reactive output, and their control circuitry also consumes power. Reactors are similar to transformers, and in that respect, their power consumption is analogous to "No Load Losses." As in capacitors, the control circuitry of reactors also consumes power.

Based on the nameplate data, losses in capacitors are estimated to be 0.15 W/kVA or 0.015 %. In 2008, at peak, the capacitive reactive power was 11,300 MVAR. Losses in reactors, based on the available data are estimated at 150 kW for 60 MVA phase unit. Since the reactive power from shunt reactors was 0, the total losses were only due to the capacitor losses.

The ITS Loss Study Working Group found the loss values attributable to capacitors and reactors to be 0.0061% for Demand Loss and 0.0014% for Energy Loss.

B. Catenary/Equivilation in Load Flow Loss

Losses due to catenary distances in load flow equivilation consist of two components: 1) losses that occur as "I squared R" losses but are not included in the load flow due to the use of "sight" distances rather than actual wire distances and 2) the equivilation of short tap transmission lines (that is representing a short tap as a junction on the main transmission line).

In 1987,the Engineering Departments of both Georgia Power and Oglethorpe Power stated that the catenary distance (conductor length) is approximately 1.5% greater than the "sight" distance of a span of transmission line. An additional 0.5% represents the short tap transmission connections that are not represented in the load flow model.

The ITS Loss Study Working Group agreed to include these losses as 2.0% of the bulk transmission and subtransmission losses (demand and energy). This calculation results in a value of 0.0473% for Demand Loss and 0.0427% for Energy Loss.

C. Contact Resistance Loss

Losses attributable to contact resistances are those electrical losses associated with switches, connectors and terminations resulting in heat production at the contact point and in the device. Load current flowing through the device and the resistance of the device (contact resistance and the resistance and the resistance of the device itself) combine to product the "I squared R" heating effect.

The Engineering Departments of both Georgia Power and Oglethorpe Power stated that contact resistances (switches, connectors and terminations) vary but are measured in

micro-ohms. They are negligible in comparison to the transmission line resistances (which are represented within load flow).

The ITS Loss Study Working Group agreed that these losses exist, but when compared to other system losses they are negligible. The group assigned a value to this component of 0.0001% for both Energy Loss and Demand Loss.

D. Corona Loss

Corona is a phenomenon which exists on high-voltage transmission lines (conductors). Corona exists when the electric field intensity (voltage gradient) "exceeds the threshold" or ionizes the atmosphere surrounding the conductor. This field intensity is approximately 3000 kV/m. Corona losses depend mostly on the voltage level of the conductor, but are also influenced by the presence of water vapor, air pressure, conductor material and incident photoionization. The ionization of the air generates heat, light, audible noise and radio interference. These examples are all forms of energy release that must be supplied by the transmission system.

Corona loss is weather dependent and is larger during inclement weather. Since peak conditions on the ITS usually occur during optimal weather conditions, it is expected that demand corona loss will be less than energy corona loss. Using the research performed in 1987 by the ITS Loss Study Working Group and 2008 ITS transmission system miles data, the electrical losses attributable to corona are 0.0170% Demand Loss and 0.0817% Energy Loss. Note that for the peripheral energy loss components, corona loss is the largest component. The impact of corona energy loss is due to the fact that all weather components are factored into the result, and corona energy loss does not relate on a percentage basis because it is independent of line loading.

E. Deviation from Base Case Schedules Loss

Electrical losses attributable to the deviation from base case schedules are a result of the difference between the load flow base case system interchange and the actual system interchange. The abundance of short-term economic transactions and deviations from contractual off-system sales does not allow the system to be appropriately modeled for energy consumption. Thus, a journal entry is needed to correct the mismatch between base case interchange and actual system interchange. If the actual system interchange is less than the base case schedule, the adjustment will be negative.

The base case interchange schedule accurately reflects the actual system conditions during peak load levels. As a result no adjustment is necessary for demand losses or energy losses.

F. Deviation in Inadvertent Interchange Loss

Economic sales and purchases of electrical energy occur on an hourly basis between interconnected electrical systems. The decision to purchase or to sell energy for one

hour is predicated on the economics of the available fuel mix and transmission costs (wheeling charges). When transactions are made between electrical energy suppliers, a dedicated transmission path is usually designated to carry the energy from one party to the other. However, power flows over the transmission path of least impedance. Thus, some energy transactions affect the transmission systems of third parties without any wheeling charges being levied. The Integrated Transmission System, with its abundance of 500 kV transmission facilities, has in the past been the third party to some of these transactions.

By assigning electrical losses attributable to deviations in inadvertent interchange, an attempt is made to capture losses for loop flows (Energy which flows completely through a transmission system) which occur on the ITS. Using the work done by the 1987 ITS Loss Study Working Group, the new value of loss is 0.0277 % for Demand Loss and 0.0500 % for Energy Loss.

G. E/M Fields Loss

Electrical losses attributable to E/M (Electromagnetic) fields from conductors are those losses which result from the magnetic coupling of the phase conductors to their surroundings. This magnetic coupling is the same coupling effect used in electrical transformers. This loss is analogous to "No Load Losses" within a transformer.

For the Demand Loss component, the ITS Loss Study Working Group estimated the losses to be 0.3% of the bulk transmission losses. For the recommended bulk transmission demand factor this estimate gives a value of 0.0065% for Demand Loss. For the Energy Loss component, the Working Group estimated the losses to be 0.008 % / Load Factor. This estimate gives a value of 0.0144% for Energy Loss.

H. Harmonic Distortion Loss

Harmonic Content is the distortion of sinusoidal waveforms characterized by indication of the magnitude and order of Fourier series terms describing the wave. The harmonic content of the electric field coincides with that of the line voltage, and the harmonic content of the magnetic field coincides with that of the line current for single-phase systems. For transmission lines, the harmonic content is small, except during transient conditions, and of little concern for the purpose of field measurements except at points near large industrial loads such as saturated power transformers, n-pulse rectifiers, or aluminum and chlorine plants.

For the purpose of this study, we had no data that was measured anywhere on the system. The ITS Loss Group agreed to assume that the current harmonics on the system are not larger than limits outlined in IEEE 519-1992 application guide for harmonics. Based on that data, estimated current system harmonics on the ITS are around 2.68%. As the amount of non-linear load grows on the system, the amount of harmonics is expected to increase. The working group calculated the value of loss attributable to harmonic distortion to be 0.0021% for Demand Loss and 0.0019% for Energy Loss.

I. Insulator Leakage Loss

Losses due to insulator leakage are those electrical losses which result from a current flowing from the electrical conductor (busbar or switch) to ground. This current is caused by the potential difference between the conductor and ground and the internal resistance of the insulator (or insulating device). The electrical loss is real power loss that results from heating of the insulator. This heating is represented by the square of the current times the resistance or "I squared R". The leakage current is a function of the conductor voltage and the insulator resistance (not a function of the load current). The resistivity of the insulator may be affected by contamination, moisture and/or insulator damage (lightning and gunshot damage).

The ITS Loss Study Working Group calculated the value of losses due to insulator leakage to be 0.0618% Demand Loss and 0.1116% Energy Loss.

J. Line Out Operation Loss

Periodically, transmission lines are removed from service for maintenance and for emergency conditions. This practice changes the flow of power on the transmission grid. Thus, with fewer lines available existing lines and possibly substations see additional loading. Additional real power losses which occur as a result of this increased loading are attributable to line out operation.

A sensitivity analysis was performed on base case data to determine the affect of line out operation on transmission system losses. The ITS Loss Study Working Group determined the value of losses attributable to line out operation to be 0.0063% for Demand Loss and 0.0011% for Energy Loss.

Additional information on the line out operation loss components is located in the Appendix.

K. Overhead Ground Wire (OHGW) Loss

Losses due to induced current in the OHGW loop are those electrical losses which result from the magnetic coupling of the overhead ground wire and the three electrical phases. This coupling produces a voltage and induced current in the OHGW loop. The magnetic coupling is the same coupling effect used in electrical transformers to convert from one voltage to another. A portion of the loss is attributed to induction of a voltage on the OHGW which is analogous to "no load losses" within a transformer; the remainder of the loss occurs as "I squared R" loss resulting form induced current flowing in the OHGW loop. A previous EMTP study conducted by Mr. R. A. (Bobby) Jones of Southern Company Services investigating the benefits of segmenting the OHGW was utilized in preparing an estimate of OHGW loss.

The ITS Loss Study Working Group agreed to include these losses as 1.4% of the bulk transmission and subtransmission losses (demand and energy). This calculation results in a value of 0.0331% for Demand Loss and 0.0299% for Energy Loss.

L. Power Factor Loss

Electrical losses attributable to reactive loads are those real power losses resulting from an increase in the magnitude of current by the reactive component of the load. The reactive component of the load current has an impact on the magnitude of the load current and therefore the losses associated with that current.

In the development of 2008 base case, the ITS power factor was estimated to be 0.9321. Based on the real time data, during the peak, the power factor was 0.9372 (slightly better than estimated). The values for power factor as agreed upon by the ITS Loss Study Working Group are - 0.0083% for Demand Loss and - 0.0020% for Energy Loss.

Additional information on the power factor loss components is located in the Appendix.

M. Temperature Compensation of Test Resistances Loss

Real power losses which occur on transmission line conductors are a function of conductor resistance. In turn, conductor resistance is dependent on conductor temperature (as the temperature of the conductor increases, so does the conductor resistance). When the power system is simulated with the load flow program, conductor resistance is not properly modeled, for varying temperatures and conductor loading. Temperature compensation of test resistances can result in an upward or a downward change in system losses, depending on system conditions.

The research performed by the ITS Loss Study Working Group shows that electrical losses attributable to temperature compensation of test resistances are negligible. The working group assigned 0.0000% Demand Loss and 0.0000% Energy Loss to be attributable to temperature compensation of test resistances.

N. Unbalanced system Operation Loss

Unbalanced system operation losses are those electrical losses which result from operation of the power system with phase currents and voltages that are not equal in magnitude and not exactly 120 electrical degrees apart. System unbalance results from unbalanced loads and transmission lines that have slightly different impedance characteristics in each phase due to either a non-equidistant phase spacing or not utilizing phase transposition. System unbalance also results from mutual coupling between parallel lines.

In 1987, an EMTP study set up by Mr. Hamish Wong of Southern Company Services and conducted by Mr. R. A. (Bobby) Jones also of Southern Company Services provided the working group with enough information to make an estimate of the loss due to unbalanced system operation.

The ITS Loss Study agreed that the loss due to unbalance should be:

1. 1.0% of the sum of the bulk transmission, the 230/XX and 115/XX kV transformers and the subtransmission losses for the demand component of loss. This calculation results in a value of 0.0297% for Demand Loss.

2. 1.75% of the sum of the bulk transmission, the 230/XX and 115/XX kV transformers and the subtransmission losses for the energy component of loss. This calculation results in a value of 0.0472% for Energy Loss.

O. Unmetered Auxiliary Equipment

Losses defined as the energy used by unmetered auxiliary equipment is the energy used by regulators, current transformers, potential transformers, relays, etc. that is not metered. This energy is the energy required for the device to work (both "I squared R" and "No Load" losses).

The ITS Loss Study Working Group agreed to use a constant loss of 0.65 MW (demand and energy). A review of potential transformer burdens within Georgia Power Company served as the basis for this estimate. This loss constant results in a value of 0.0024% for Demand Loss and 0.0043% for Energy Loss.

APPENDIX

The following Appendix contains material supporting loss components identified in the previous section. In some instances the group arrived at estimated component values based on experience and informed engineering judgment. For these components there is no supporting data.

PROCEDURE FOR CALCULATING ITS MEGAWATT LOSSES

Load Flow Cases

This study was performed on a set of power flow cases based on the 2008 Summer Peak case from the 2008 Series Southern Electric System transmission planning base cases. The study base cases differed only in load level with loads representing hourly cases for six different day types: Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend. The peak demand loss factor is based on a composite of 75 load flow cases and the average energy loss factor is based on a composite of 10,800 load flow cases.

Tools used in this analysis were Power Technology Incorporated's PSS/E power flow software and the SCS-developed DISP economic dispatch program. This process captured the megawatt losses on the ITS as modeled from the generator, or low-side of the generator step-up transformers, to the high-side of the distribution transformers. This is different from the previous studies, as the GSU transformers are now modeled in the load flow data base.

A unit-out probability analysis was conducted based on the probability scenarios obtained from SCS Resource Planning department. Using the forced outage rates of the largest units in the state of Georgia and other large units in the Southern Electric System's Bulk Power pool, the probability that one large unit at each plant was forced off-line was calculated for each case. Sibling unit outages were considered as identical conditions and smaller units were considered always available. A cumulative probability for all single and double unit-out cases was determined and all cases were sorted. The cases with the highest probability were recommended for the loss analysis.

The recommended unit outages were examined at several load levels and are shown in this Appendix. These units were taken off-line and then the Southern System was economically re-dispatched to pick up the generation deficit. Once a given unit-out scenario was dispatched, a power flow activity was used to document the bulk power MW losses in the bulk ITS system. The resultant Bulk Power percentage loss was calculated as the weighted average megawatt loss divided by the sum of the loss and the load.

Dispatches

Three different dispatch files have been prepared, for summer weekday/weekend (August), winter weekday/weekend January, and valley weekday/weekend (April). The August file differs from the standard peak dispatch file in that the nuclear units are forced on. The April file differs from the July file in that the following units are forced off for maintenance:

McDonough 2	Gorgas 6
Conasauga 1A	Gaston 1
Hammond 1	Barry 5
Hammond 4	Barry CC2
Franklin CC2	Harris 1
Branch 4	Crist 4
Middle GA Cogeneration	Crist 5
Vogtle 1	Daniel 2
Bowen 3	McIntosh 7
Miller 1	McIntosh 8

The January file differs from the August file in that the following units are forced off for maintenance:

BRANCH 2
CHEVRON 4

For each day type, load, generation and net interchange changes, derived as described previously, are applied for the peak hour for that day type. The case is then dispatched using the appropriate dispatch data and cost files. A new dispatch data file is then created. It is the same as the one just used to dispatch the case, except that the status of each steam unit is locked down. This new file will be used to dispatch all of the other hours in that day type. Therefore, each steam unit is either on all day or off all day, although it is allowed to vary between its Pmax and Pmin. All of the other hours for that day type are then dispatched (in order of required generation, descending).
The hydro schedule used is fixed beforehand, as follows:

Hour	July Weekday	July Weekend	February Weekday	February Weekend	April Weekday	April Weekend
0100	Motoring/ Pumping	Motoring/ Pumping	Motoring	Motoring	Motoring/ Pumping	Motoring/ Pumping
0200	Motoring/ Pumping	Motoring/ Pumping	Motoring	Motoring	Motoring/ Pumping	Motoring/ Pumping
0300	Motoring/ Pumping	Motoring/ Pumping	Motoring	Motoring	Motoring/ Pumping	Motoring/ Pumping
0400	Motoring/ Pumping	Motoring/ Pumping	Motoring	Motoring	Motoring/ Pumping	Motoring/ Pumping
0500	Motoring/ Pumping	Motoring/ Pumping	Motoring	Motoring	Motoring/ Pumping	Motoring/ Pumping
0600	Motoring/ Pumping	Motoring/ Pumping	Summer Low Water	Motoring	Motoring/ Pumping	Motoring/ Pumping

0700	Motoring/ Pumping	Motoring/ Pumping	Summer Normal	Motoring	Summer Low Water	Motoring/ Pumping
0800	Motoring/ Pumping	Motoring/ Pumping	Summer Normal	Summer Low Water	Summer Low Water	Summer Low Water
0900	Motoring/ Pumping	Motoring/ Pumping	Summer Normal	Summer Low Water	Summer Low Water	Summer Low Water
1000	Summer Low Water	Motoring/ Pumping	Summer Normal	Summer Normal	Summer Low Water	Summer Low Water
1100	Summer Low Water	Winter Low Water	Summer Normal	Summer Low Water	Summer Low Water	Motoring/ Pumping
1200	Summer Normal	Winter Normal	Summer Normal	Summer Low Water	Summer Low Water	Motoring/ Pumping
1300	Summer Normal	Summer Low Water	Summer Normal	Motoring	Summer Low Water	Motoring/ Pumping
1400	Summer Normal	Summer Normal	Summer Low Water	Motoring	Summer Low Water	Motoring/ Pumping
1500	Summer Normal	Summer Normal	Summer Low Water	Motoring	Summer Low Water	Motoring/ Pumping
1600	Summer Normal	Summer Normal	Summer Low Water	Motoring	Summer Low Water	Motoring/ Pumping
1700	Summer Normal	Summer Low Water	Summer Normal	Summer Low Water	Summer Low Water	Summer Low Water
1800	Summer Normal	Winter Normal	Summer Normal	Summer Normal	Summer Normal	Summer Normal
1900	Summer Normal	Winter Normal	Summer Normal	Summer Normal	Summer Normal	Summer Normal
2000	Summer Low Water	Winter Low Water	Summer Normal	Motoring	Summer Low Water	Summer Low Water
2100	Summer Low Water	Winter Low Water	Summer Low Water	Motoring	Motoring/ Pumping	Motoring/ Pumping
2200	Motoring/ Pumping	Motoring/ Pumping	Motoring	Motoring	Motoring/ Pumping	Motoring/ Pumping
2300	Motoring/ Pumping	Motoring/ Pumping	Motoring	Motoring	Motoring/ Pumping	Motoring/ Pumping
2400	Motoring/ Pumping	Motoring/ Pumping	Motoring	Motoring	Motoring/ Pumping	Motoring/ Pumping

For each of the load levels evaluated in this study, a weighted average dispatch mix was calculated based on the individual case probabilities. The ITS Bulk Transmission Demand Loss of 2.14% is calculated as the weighted average of all 75 power flow cases at the 100% load level. A composite of up to 75 different cases was made for each load level average loss. As a result, the ITS Bulk Transmission Energy Loss of 2.0325 % is based on a composite of 10,800 power flow cases. Similarly, No weighting composite among different hydro states was necessary for the demand loss calculation.

Transactions in the Base Case

Off-system transactions in the 100% load level case were based on 2008 contractual agreements. The demand loss component was derived from the 100% load level case. During off-peak situations, actual transfers of energy differ from the contractual amount, and economic transactions occur on a frequent basis. An adjustment was made for the energy loss component on the peripheral losses (Deviation from Base Case Schedules) to show more realistic off-peak transactions.

Computation of the Loss Factor

1. The individual case loss factor represents Ga. Losses/Ga. Load.
2. The demand loss factor is a composite of the 75 cases at 100% load level.
3. The energy loss factor represents a convolution of the loads using hourly cases for six different day types: Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend and combining the results to calculate the percent losses for each individual hour.

The following tables show the calculations for ITS demand losses on a Bulk Transmission System:

Rank	Units Outaged	Number of Units Outaged	Probability	ITS Losses MW	ITS Load MW	ITS % Losses	ITS wt% Losses
1	No Outages	0	42.34%	609.5	27968.0	2.13%	0.903%
2	1-Hatch	1	6.37%	620.6	27968.0	2.17%	0.138%
3	1-Bowen	1	5.80%	610.6	27968.0	2.14%	0.124%
4	1-Farley	1	4.46%	608.8	27968.0	2.13%	0.095%
5	1-Vogtle	1	4.46%	610.5	27968.0	2.14%	0.095%
6	1-Branch	1	4.23%	601.0	27968.0	2.10%	0.089%
7	1-Wansley	1	4.09%	599.5	27968.0	2.10%	0.086%
8	1-Scherer	1	3.96%	603.4	27968.0	2.11%	0.084%
9	1-Franklin	1	3.13%	598.4	27968.0	2.09%	0.065%
10	1-McIntosh	1	2.60%	606.3	27968.0	2.12%	0.055%
11	1-Bowen 1-Hatch	2	0.87%	640.8	27968.0	2.24%	0.020%
12	1-Hatch 1-Farley	2	0.67%	623.5	27968.0	2.18%	0.015%
13	1-Hatch 1-Vogtle	2	0.67%	650.9	27968.0	2.27%	0.015%
14	1-Branch 1-Hatch	2	0.64%	623.7	27968.0	2.18%	0.014%
15	1-Wansley 1-Hatch	2	0.62%	632.2	27968.0	2.21%	0.014%
16	1-Bowen 1-Farley	2	0.61%	619.9	27968.0	2.17%	0.013%
17	1-Bowen 1-Vogtle	2	0.61%	637.3	27968.0	2.23%	0.014%
18	1-Scherer 1-Hatch	2	0.60%	624.1	27968.0	2.18%	0.013%
19	1-Bowen 1-Branch	2	0.58%	619.6	27968.0	2.17%	0.013%
20	1-Bowen 1-Wansley	2	0.56%	624.1	27968.0	2.18%	0.012%
21	1-Bowen 1-Scherer	2	0.54%	619.4	27968.0	2.17%	0.012%
22	1-Hatch 1-Franklin	2	0.47%	626.2	27968.0	2.19%	0.010%
23	1-Vogtle 1-Farley	2	0.47%	625.2	27968.0	2.19%	0.010%
24	1-Branch 1-Farley	2	0.45%	612.3	27968.0	2.14%	0.010%
25	1-Branch 1-Vogtle	2	0.45%	628.7	27968.0	2.20%	0.010%
26	1-Wansley 1-Farley	2	0.43%	610.0	27968.0	2.13%	0.009%
27	1-Wansley 1-Vogtle	2	0.43%	620.3	27968.0	2.17%	0.009%
28	1-Bowen 1-Franklin	2	0.43%	614.2	27968.0	2.15%	0.009%
29	1-Scherer 1-Farley	2	0.42%	612.8	27968.0	2.14%	0.009%
30	1-Scherer 1-Vogtle	2	0.42%	626.8	27968.0	2.19%	0.009%
31	1-Branch 1-Wansley	2	0.41%	606.4	27968.0	2.12%	0.009%
32	1-Branch 1-Scherer	2	0.40%	609.9	27968.0	2.13%	0.008%

33	1-Hatch 1-McIntosh	2	0.39%	623.1	27968.0	2.18%	0.009%
34	1-Scherer 1-Wansley	2	0.38%	606.9	27968.0	2.12%	0.008%
35	1-Bowen 1-McIntosh	2	0.36%	623.1	27968.0	2.18%	0.008%
36	1-Farley 1-Franklin	2	0.33%	608.7	27968.0	2.13%	0.007%
37	1-Vogtle 1-Franklin	2	0.33%	619.7	27968.0	2.17%	0.007%
38	1-Branch 1-Franklin	2	0.31%	605.2	27968.0	2.12%	0.007%
39	2-Bowen	2	0.30%	631.8	27968.0	2.21%	0.007%
40	1-Wansley 1-Franklin	2	0.30%	602.8	27968.0	2.11%	0.006%
41	1-Scherer 1-Franklin	2	0.29%	605.6	27968.0	2.12%	0.006%
42	1-Farley 1-McIntosh	2	0.27%	618.8	27968.0	2.16%	0.006%
43	1-Vogtle 1-McIntosh	2	0.27%	630.8	27968.0	2.21%	0.006%
44	1-Branch 1-McIntosh	2	0.26%	615.7	27968.0	2.15%	0.006%
45	1-Wansley 1-McIntosh	2	0.25%	612.8	27968.0	2.14%	0.005%
46	1-Scherer 1-McIntosh	2	0.24%	615.8	27968.0	2.15%	0.005%
47	2-Hatch	2	0.24%	663.4	27968.0	2.32%	0.006%
48	1-Franklin 1-McIntosh	2	0.19%	611.2	27968.0	2.14%	0.004%
49	2-Wansley	2	0.15%	607.0	27968.0	2.12%	0.003%
50	2-Scherer	2	0.12%	604.6	27968.0	2.12%	0.003%
51	2-Farley	2	0.12%	618.1	27968.0	2.16%	0.003%
52	2-Vogtle	2	0.12%	624.7	27968.0	2.18%	0.003%
53	2-Branch	2	0.11%	612.1	27968.0	2.14%	0.002%
54	1-Bowen 1-Hatch 1-Farley	3	0.09%	651.8	27968.0	2.28%	0.002%
55	1-Bowen 1-Hatch 1-Vogtle	3	0.09%	650.0	27968.0	2.27%	0.002%
56	1-Bowen 1-Branch 1-Hatch	3	0.09%	653.3	27968.0	2.28%	0.002%
57	1-Bowen 1-Wansley 1-Hatch	3	0.08%	642.1	27968.0	2.24%	0.002%
58	1-Bowen 1-Scherer 1-Hatch	3	0.08%	656.6	27968.0	2.29%	0.002%
59	1-Hatch 1-Vogtle 1-Farley	3	0.07%	660.4	27968.0	2.31%	0.002%
60	1-Branch 1-Hatch 1-Farley	3	0.07%	637.5	27968.0	2.23%	0.001%
61	1-Branch 1-Hatch 1-Vogtle	3	0.07%	694.4	27968.0	2.42%	0.002%
62	1-Wansley 1-Hatch 1-Farley	3	0.06%	631.2	27968.0	2.21%	0.001%
63	1-Wansley 1-Hatch 1-Vogtle	3	0.06%	659.4	27968.0	2.30%	0.001%
64	1-Bowen 1-Hatch 1-Franklin	3	0.06%	642.5	27968.0	2.25%	0.001%
65	1-Bowen 1-Vogtle 1-Farley	3	0.06%	639.8	27968.0	2.24%	0.001%
66	1-Scherer 1-Hatch 1-Farley	3	0.06%	635.6	27968.0	2.22%	0.001%
67	1-Scherer 1-Hatch 1-Vogtle	3	0.06%	650.0	27968.0	2.27%	0.001%
68	1-Branch 1-Wansley 1-Hatch	3	0.06%	636.4	27968.0	2.22%	0.001%
69	1-Bowen 1-Branch 1-Farley	3	0.06%	622.0	27968.0	2.18%	0.001%
70	1-Bowen 1-Branch 1-Vogtle	3	0.06%	657.6	27968.0	2.30%	0.001%
71	1-Branch 1-Scherer 1-Hatch	3	0.06%	641.5	27968.0	2.24%	0.001%
72	1-Bowen 1-Wansley 1-Farley	3	0.06%	646.3	27968.0	2.26%	0.001%
73	1-Bowen 1-Wansley 1-Vogtle	3	0.06%	650.0	27968.0	2.27%	0.001%
74	2-Franklin	2	0.06%	603.5	27968.0	2.11%	0.001%
75	1-Scherer 1-Wansley 1-Hatch	3	0.06%	639.5	27968.0	2.24%	0.001%

Total	**2.140%**

Adjusting for the losses in tie lines based on current ownership of those lines (the software assumes 50-50%), we get this factor to be 2.1535%.

The following tables show the calculations for ITS energy losses on a Bulk Transmission System:

Case	Total MWH losses per month	Load MWH
August Week Day	9,019.77	454,581
August Week End	8,086.64	423,184
January Week Day	8,231.89	399,276
January Week End	7,544.67	367,596
April Week Day	6,775.95	328,418
April Week End	6,151.68	292,636

					Months/Year
Summer	=	4	months/year	=	0.333333333
Winter	=	3	months/year	=	0.25
Valley	=	5	months/year	=	0.416666667
					Days/Week
Week Day	=	5	days/week	=	0.714285714
Week End	=	2	days/week	=	0.285714286
Days in 2008	=	366			

	Days/Week	Months/Year	Days/Year Represents by Each Daytype
August Week Day	0.714285714	0.333333333	87.14285714
August Week End	0.285714286	0.333333333	34.85714286
January Week Day	0.714285714	0.25	65.35714286
January Week End	0.285714286	0.25	26.14285714
April Week Day	0.714285714	0.416666667	108.9285714
April Week End	0.285714286	0.416666667	43.57142857

Units Outaged	Number of Units Outaged	Probability	ΣP	ITS Losses MW	ITS Load MWhr	ITS % Losses	ITS wt% Losses
No Outages	0	42.34%	42.34%	2,838,676	134,901,169	2.06%	0.873%
1-Hatch	1	6.37%	48.71%	2,930,079	134,901,169	2.13%	0.135%
1-Bowen	1	5.80%	54.51%	2,775,775	134,901,169	2.02%	0.11[illegible]
1-Farley	1	4.46%	58.96%	2,854,535	134,901,169	2.07%	0.092%

1-Vogtle	1	4.46%	63.42%	2,795,762	134,901,169	2.03%	0.090%
1-Branch	1	4.23%	67.65%	2,775,726	134,901,169	2.02%	0.085%
1-Wansley	1	4.09%	71.75%	2,783,503	134,901,169	2.02%	0.083%
1-Scherer	1	3.96%	75.70%	2,710,091	134,901,169	1.97%	0.078%
1-Franklin	1	3.13%	78.83%	2,826,920	134,901,169	2.05%	0.064%
1-McIntosh	1	2.60%	81.43%	2,831,125	134,901,169	2.06%	0.053%
1-Bowen 1-Hatch	2	0.87%	82.30%	2,876,661	134,901,169	2.09%	0.018%
1-Hatch 1-Farley	2	0.67%	82.97%	2,963,916	134,901,169	2.15%	0.014%
1-Hatch 1-Vogtle	2	0.67%	83.64%	2,908,016	134,901,169	2.11%	0.014%
1-Branch 1-Hatch	2	0.64%	84.28%	2,877,171	134,901,169	2.09%	0.013%
1-Wansley 1-Hatch	2	0.62%	84.89%	2,860,927	134,901,169	2.08%	0.013%
1-Bowen 1-Farley	2	0.61%	85.51%	2,793,251	134,901,169	2.03%	0.012%
1-Bowen 1-Vogtle	2	0.61%	86.12%	2,747,484	134,901,169	2.00%	0.012%
1-Scherer 1-Hatch	2	0.60%	86.71%	2,826,894	134,901,169	2.05%	0.012%
1-Bowen 1-Branch	2	0.58%	87.29%	2,725,752	134,901,169	1.98%	0.011%
1-Bowen 1-Wansley	2	0.56%	87.85%	2,746,854	134,901,169	2.00%	0.011%
1-Bowen 1-Scherer	2	0.54%	88.39%	2,676,889	134,901,169	1.95%	0.011%
1-Hatch 1-Franklin	2	0.47%	88.86%	2,927,846	134,901,169	2.12%	0.010%
1-Vogtle 1-Farley	2	0.47%	89.33%	2,815,483	134,901,169	2.04%	0.010%
1-Branch 1-Farley	2	0.45%	89.78%	2,802,897	134,901,169	2.04%	0.009%
1-Branch 1-Vogtle	2	0.45%	90.22%	2,764,069	134,901,169	2.01%	0.009%
1-Wansley 1-Farley	2	0.43%	90.65%	2,804,783	134,901,169	2.04%	0.009%
1-Wansley 1-Vogtle	2	0.43%	91.08%	2,741,868	134,901,169	1.99%	0.009%
1-Bowen 1-Franklin	2	0.43%	91.51%	2,773,934	134,901,169	2.01%	0.009%
1-Scherer 1-Farley	2	0.42%	91.93%	2,727,491	134,901,169	1.98%	0.008%
1-Scherer 1-Vogtle	2	0.42%	92.35%	2,697,005	134,901,169	1.96%	0.008%
1-Branch 1-Wansley	2	0.41%	92.75%	2,722,640	134,901,169	1.98%	0.008%
1-Branch 1-Scherer	2	0.40%	93.15%			1.94%	0.008%

				2,669,089	134,901,169		
1-Hatch 1-McIntosh	2	0.39%	93.54%	2,938,068	134,901,169	2.13%	0.008%
1-Scherer 1-Wansley	2	0.38%	93.92%	2,682,800	134,901,169	1.95%	0.007%
1-Bowen 1-McIntosh	2	0.36%	94.28%	2,781,424	134,901,169	2.02%	0.007%
1-Farley 1-Franklin	2	0.33%	94.61%	2,854,535	134,901,169	2.07%	0.007%
1-Vogtle 1-Franklin	2	0.33%	94.94%	2,795,762	134,901,169	2.03%	0.007%
1-Branch 1-Franklin	2	0.31%	95.25%	2,775,726	134,901,169	2.02%	0.006%
2-Bowen	2	0.30%	95.55%	2,751,321	134,901,169	2.00%	0.006%
1-Wansley 1-Franklin	2	0.30%	95.86%	2,782,403	134,901,169	2.02%	0.006%
1-Scherer 1-Franklin	2	0.29%	96.15%	2,710,091	134,901,169	1.97%	0.006%
1-Farley 1-McIntosh	2	0.27%	96.42%	2,856,109	134,901,169	2.07%	0.006%
1-Vogtle 1-McIntosh	2	0.27%	96.70%	2,807,532	134,901,169	2.04%	0.006%
1-Branch 1-McIntosh	2	0.26%	96.96%	2,780,543	134,901,169	2.02%	0.005%
1-Wansley 1-McIntosh	2	0.25%	97.21%	2,788,202	134,901,169	2.02%	0.005%
1-Scherer 1-McIntosh	2	0.24%	97.45%	2,722,944	134,901,169	1.98%	0.005%
2-Hatch	2	0.24%	97.69%	3,105,571	134,901,169	2.25%	0.005%
1-Franklin 1-McIntosh	2	0.19%	97.88%	2,833,249	134,901,169	2.06%	0.004%
2-Wansley	2	0.15%	98.03%	2,763,658	134,901,169	2.01%	0.003%
2-Scherer	2	0.12%	98.16%	2,682,028	134,901,169	1.95%	0.002%
2-Farley	2	0.12%	98.28%	2,915,050	134,901,169	2.12%	0.002%
2-Vogtle	2	0.12%	98.39%	2,939,515	134,901,169	2.13%	0.003%
2-Branch	2	0.11%	98.50%	2,767,024	134,901,169	2.01%	0.002%
1-Bowen 1-Hatch 1-Farley	3	0.09%	98.59%	2,897,306	134,901,169	2.10%	0.002%
1-Bowen 1-Hatch 1-Vogtle	3	0.09%	98.68%	2,858,215	134,901,169	2.07%	0.002%
1-Bowen 1-Branch 1-Hatch	3	0.09%	98.77%	2,830,427	134,901,169	2.06%	0.002%
1-Bowen 1-Wansley 1-Hatch	3	0.08%	98.85%	2,828,893	134,901,169	2.05%	0.002
1-Bowen 1-Scherer 1-Hatch	3	0.08%	98.94%	2,789,249	134,901,169	2.03%	0.002%

1-Hatch 1-Vogtle 1-Farley	3	0.07%	99.01%	2,926,341	134,901,169	2.12%	0.001%
1-Branch 1-Hatch 1-Farley	3	0.07%	99.07%	2,906,437	134,901,169	2.11%	0.001%
1-Branch 1-Hatch 1-Vogtle	3	0.07%	99.14%	2,877,188	134,901,169	2.09%	0.001%
1-Wansley 1-Hatch 1-Farley	3	0.06%	99.20%	2,887,007	134,901,169	2.10%	0.001%
1-Wansley 1-Hatch 1-Vogtle	3	0.06%	99.27%	2,837,218	134,901,169	2.06%	0.001%
1-Bowen 1-Hatch 1-Franklin	3	0.06%	99.33%	2,875,703	134,901,169	2.09%	0.001%
1-Bowen 1-Vogtle 1-Farley	3	0.06%	99.40%	2,760,022	134,901,169	2.00%	0.001%
1-Scherer 1-Hatch 1-Farley	3	0.06%	99.46%	2,847,802	134,901,169	2.07%	0.001%
1-Scherer 1-Hatch 1-Vogtle	3	0.06%	99.52%	2,823,522	134,901,169	2.05%	0.001%
1-Branch 1-Wansley 1-Hatch	3	0.06%	99.59%	2,807,977	134,901,169	2.04%	0.001%
1-Bowen 1-Branch 1-Farley	3	0.06%	99.65%	2,743,713	134,901,169	1.99%	0.001%
1-Bowen 1-Branch 1-Vogtle	3	0.06%	99.71%	2,720,566	134,901,169	1.98%	0.001%
1-Branch 1-Scherer 1-Hatch	3	0.06%	99.77%	2,788,580	134,901,169	2.03%	0.001%
1-Bowen 1-Wansley 1-Farley	3	0.06%	99.83%	2,759,422	134,901,169	2.00%	0.001%
1-Bowen 1-Wansley 1-Vogtle	3	0.06%	99.88%	2,710,512	134,901,169	1.97%	0.001%
2-Franklin	2	0.06%	99.94%	2,827,149	134,901,169	2.05%	0.001%
1-Scherer 1-Wansley 1-Hatch	3	0.06%	100.00%	2,785,263	134,901,169	2.02%	0.001%

Peak Energy Loss Factor	**2.050%**

Subtracting the GSU losses and Savannah losses we get the peak energy loss factor of 2.0130%.

230/XX and 115/XX Transformer Loss (T)

The same process that was utilized in the load flow portion of the study was used to calculate losses for the 230/XX and 115/XX transformers. These losses were computed by calculating the I^2R losses through the transformer banks for the 144 time periods for both peak demand and average energy, using hourly cases for six different day types:

Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend.

Existing computer files, containing relevant substation transformer information, are updated annually to obtain an accurate model. The base case update is accomplished in two steps. First, actual metered demands for each substation, at the time of the system peak hour, are loaded to the files. The second step involves the manual update of all transformer-related data, such as transformer rating, impedance and core loss. The no load transformer losses were approximated by counting the total number of banks and applying generic approximations from a sample of typical test reports.

The methodology described above is new for this year's study. The ITS Loss Study Working Group found that the value of loss attributable to 230/XX and 115/XX transformers to be 0.6077% for Demand Loss and 0.5649% for Energy Loss.

The following table shows the calculations:

2002 230/xx &115/xx Transformer Demand & Energy Losses

	Load Factor	**ITS Est. Loss Percent**	**ITS Est. Losses MW**	**Peak Load MW**
Peak Hour	1.0000	**0.6077**	168.41	**27,712**
		Peak	**Demand %**	**0.6077 %**
JULY_WEEK_DAY	**LF**	**Loss %**	**Loss MW**	**Load MW**
100	0.5166	0.2887%	80.0030	14,315
200	0.4928	0.2783%	77.1105	13,657
300	0.4784	0.2722%	75.4235	13,258
400	0.4772	0.2717%	75.2892	13,225
500	0.4985	0.2807%	77.7924	13,815
600	0.5521	0.3052%	84.5835	15,300
700	0.5741	0.3160%	87.5742	15,911
800	0.5935	0.3259%	90.3016	16,447
900	0.6273	0.3438%	95.2779	17,384
1000	0.6704	0.3681%	102.0124	18,577
1100	0.7129	0.3937%	109.1103	19,756
1200	0.7497	0.4171%	115.6000	20,776
1300	0.7823	0.4389%	121.6151	21,678
1400	0.8056	0.4549%	126.0748	22,324
1500	0.8179	0.4637%	128.4972	22,667
1600	0.8244	0.4683%	129.7842	22,847
1700	0.8197	0.4650%	128.8490	22,716
1800	0.8022	0.4526%	125.4331	22,232

1900	0.7750	0.4339%	120.2431	21,476
2000	0.7602	0.4241%	117.5201	21,068
2100	0.7354	0.4079%	113.0367	20,379
2200	0.6746	0.3706%	102.6971	18,694
2300	0.6077	0.3333%	92.3636	16,842
2400	0.5533	0.3058%	84.7354	15,332

JULY_WEEK_END	**LF**	**Loss %**	**Loss MW**	**Load MW**
100	0.4948	0.2791%	77.3515	13,713
200	0.4686	0.2681%	74.3034	12,986
300	0.4513	0.2612%	72.3844	12,506
400	0.4416	0.2574%	71.3416	12,238
500	0.4412	0.2573%	71.2944	12,226
600	0.4489	0.2603%	72.1208	12,439
700	0.4552	0.2628%	72.8152	12,616
800	0.4909	0.2774%	76.8836	13,604
900	0.5413	0.3001%	83.1596	15,001
1000	0.5916	0.3249%	90.0307	16,395
1100	0.6382	0.3498%	96.9449	17,687
1200	0.6807	0.3742%	103.6975	18,864
1300	0.7151	0.3951%	109.4924	19,818
1400	0.7423	0.4123%	114.2684	20,571
1500	0.7597	0.4237%	117.4252	21,054
1600	0.7694	0.4301%	119.2017	21,321
1700	0.7700	0.4305%	119.3129	21,337
1800	0.7517	0.4184%	115.9573	20,831
1900	0.7198	0.3980%	110.2954	19,946
2000	0.7041	0.3883%	107.6040	19,512
2100	0.6826	0.3753%	104.0096	18,916
2200	0.6314	0.3461%	95.9046	17,499
2300	0.5747	0.3163%	87.6550	15,927
2400	0.5314	0.2955%	81.8787	14,727

APR_WEEK_DAY	**LF**	**Loss %**	**Loss MW**	**Load MW**
100	0.3985	0.2417%	66.9757	11,044
200	0.3887	0.2383%	66.0466	10,773
300	0.3860	0.2374%	65.7877	10,696
400	0.3941	0.2402%	66.5524	10,921
500	0.4254	0.2513%	69.6445	11,788
600	0.4905	0.2773%	76.8413	13,594
700	0.5154	0.2882%	79.8599	14,284

800	0.5133	0.2872%	79.6015	14,226
900	0.5165	0.2887%	79.9989	14,314
1000	0.5225	0.2914%	80.7397	14,478
1100	0.5263	0.2931%	81.2216	14,584
1200	0.5285	0.2941%	81.5038	14,645
1300	0.5329	0.2962%	82.0708	14,768
1400	0.5350	0.2971%	82.3423	14,827
1500	0.5386	0.2988%	82.8097	14,927
1600	0.5424	0.3006%	83.3017	15,031
1700	0.5423	0.3005%	83.2823	15,027
1800	0.5371	0.2981%	82.6167	14,885
1900	0.5331	0.2962%	82.0926	14,773
2000	0.5556	0.3069%	85.0435	15,396
2100	0.5475	0.3030%	83.9695	15,172
2200	0.5061	0.2841%	78.7163	14,026
2300	0.4579	0.2638%	73.1057	12,689
2400	0.4181	0.2486%	68.9018	11,586

APR_WEEK_END	**LF**	**Loss %**	**Loss MW**	**Load MW**
100	0.3866	0.2376%	65.8438	10,712
200	0.3711	0.2325%	64.4339	10,285
300	0.3633	0.2300%	63.7428	10,069
400	0.3606	0.2292%	63.5066	9,994
500	0.3663	0.2310%	64.0027	10,150
600	0.3805	0.2356%	65.2830	10,544
700	0.3936	0.2400%	66.5040	10,907
800	0.4224	0.2502%	69.3442	11,707
900	0.4490	0.2603%	72.1366	12,443
1000	0.4639	0.2662%	73.7711	12,855
1100	0.4718	0.2694%	74.6663	13,075
1200	0.4762	10.1742%	27.3465	13,197
1300	0.4782	0.2721%	75.3954	13,251
1400	0.4773	0.2717%	75.2925	13,226
1500	0.4774	0.2718%	75.3096	13,230
1600	0.4790	0.2724%	75.4917	13,274
1700	0.4814	0.2734%	75.7686	13,340
1800	0.4801	0.2729%	75.6190	13,305
1900	0.4771	0.2716%	75.2697	13,221
2000	0.5014	0.2820%	78.1453	13,896
2100	0.4979	0.2805%	77.7240	13,799
2200	0.4663	0.2672%	74.0393	12,921

2300	0.4290	0.2527%	70.0162	11,888
2400	0.4111	0.2461%	68.2044	11,393

JAN_WEEK_DAY	**LF**	**Loss %**	**Loss MW**	**Load MW**
100	0.5198	0.2901%	80.4027	14,404
200	0.5174	0.2891%	80.1054	14,338
300	0.5219	0.2911%	80.6711	14,463
400	0.5379	0.2985%	82.7113	14,906
500	0.5781	0.3180%	88.1249	16,020
600	0.6499	0.3564%	98.7531	18,010
700	0.6823	0.3751%	103.9544	18,907
800	0.6687	0.3671%	101.7389	18,530
900	0.6571	0.3605%	99.8946	18,210
1000	0.6424	0.3521%	97.5825	17,801
1100	0.6244	0.3422%	94.8312	17,302
1200	0.6059	16.4701%	44.2688	16,790
1300	0.5914	0.3248%	89.9959	16,388
1400	0.5780	0.3179%	88.1095	16,017
1500	0.5713	0.3146%	87.1796	15,831
1600	0.5756	0.3167%	87.7700	15,950
1700	0.5985	0.3284%	91.0166	16,585
1800	0.6489	0.3558%	98.6033	17,983
1900	0.6608	0.3626%	100.4728	18,311
2000	0.6561	0.3599%	99.7390	18,183
2100	0.6340	0.3475%	96.2934	17,569
2200	0.5970	0.3277%	90.8090	16,545
2300	0.5589	0.3085%	85.4921	15,488
2400	0.5307	0.2951%	81.7902	14,708

JAN_WEEK_END	**LF**	**Loss %**	**Loss MW**	**Load MW**
100	0.5087	0.2852%	79.0332	14,098
200	0.5038	0.2830%	78.4356	13,962
300	0.5045	0.2833%	78.5163	13,981
400	0.5108	0.2861%	79.2889	14,156
500	0.5252	0.2926%	81.0916	14,556
600	0.5478	0.3032%	84.0140	15,181
700	0.5738	0.3159%	87.5330	15,902
800	0.5992	0.3288%	91.1168	16,605
900	0.6095	0.3342%	92.6229	16,891
1000	0.5998	0.3291%	91.2113	16,623

1100	0.5800	0.3189%	88.3827	16,072
1200	0.5622	0.3101%	85.9424	15,581
1300	0.5434	0.3011%	83.4376	15,060
1400	0.5282	0.2940%	81.4726	14,639
1500	0.5185	0.2896%	80.2474	14,370
1600	0.5196	0.2900%	80.3767	14,398
1700	0.5411	0.3000%	83.1338	14,996
1800	0.5879	0.3230%	89.5026	16,292
1900	0.5987	0.3285%	91.0464	16,591
2000	0.5985	0.3284%	91.0112	16,584
2100	0.5843	0.3211%	88.9951	16,193
2200	0.5611	0.3096%	85.7915	15,550
2300	0.5353	0.2973%	82.3832	14,835
2400	0.5210	0.2907%	80.5617	14,439

		Losses in MWH for all days of a given day type	Load MWh
JWD	Summation of MWH	2,460.93	440,675
JWE	Summation of MWH	2,245.33	401,730
AWD	Summation of MWH	2,150.31	399,241
AWE	Summation of MWH	2,035.15	367,552
FWD	Summation of MWH	1,863.03	328,453
FWE	Summation of MWH	1,666.86	292,680

	WEIGHTING Days/Week	Months/Year	Days/Year Represented By Each Day type	Losses (MWH) by day type over the year	Load MWh
JWD	0.71429	0.33333	87.14285714	214,452	38,401,654
JWE	0.28571	0.33333	34.85714286	78,266	14,003,174
AWD	0.71429	0.41667	65.35714286	140,538	26,093,278
AWE	0.28571	0.41667	26.14285714	53,205	9,608,869
FWD	0.71429	0.25000	108.9285714	202,937	35,777,911
FWE	0.28571	0.25000	43.57142857	72,627	12,752,464
Total			366	762,025	134,901,169

Energy Loss = %0.5649

Subtransmission Line Loss and 69/XX and 46/XX Transformer Loss(S)

The same process that was utilized in the load flow portion of the study was used to calculate losses for the subtransmission line loss and 69/XX and 46/XX transformers. The 46kV and 69 kV subtransmission system database is now modeled in the PSSE databases in separate zones, so that the zone activity now can capture the losses at these voltage levels. Estimated losses were captured by dispatching the 2002 peak case for the 144 time periods: Summer weekday & weekend, Winter weekday & weekend and Valley weekday & weekend. The losses for the time periods were then annualized to estimate the energy losses. The ITS Loss Study Working Group found that the value of loss attributable to Subtransmission (46 kV and 69 kV) to be 0.2110% for Demand Loss and 0.1208% for Energy Loss.

ITS JOINT SUBCOMMITTEE FOR TRANSMISSION PLANNING

2008 ITS LOSS STUDY

APPROVAL PAGE

_____	_____
John Thomas – Dalton Utilities / Date	Mike Jolley – Dalton Utilities / Date
_____	_____
Russell Schussler – GTC / Date	Angela Battle – GTC / Date
_____	_____
Jack Comer – GPC / Date	Maryanne Mujica – GPC / Date
_____	_____
David Weekley – MEAG Power / Date	Jerry Tang – MEAG Power / Date

[C6]

AVERAGE INCREMENTAL COST OVERVIEW

Distribution Average Incremental Cost Overview

In 2011, Georgia Power Company commissioned a study to re-evaluate Distribution Average Incremental Costs. This study considered recently completed and future projects. The distribution substation and distribution feeder costs from this study have been included in Georgia Power's Profitability / Reliability Incremental Cost Evaluation Model (PRICEM). The PRICEM model applies these capacity costs based on the added load and the demand coincident with the system demand.

Summary of the Study

Distribution Substations

The Company compiled a list of recently completed and future distribution substation projects from 2009 through 2013. This sample of 47 projects was evaluated as to cost and additional capacity added. A per kW substation cost was calculated for the group of projects. The kW used in the study was added capacity, not added load. The result of the formula below provides the Company with the Distribution Substation Average Incremental cost.

$$\$/kW = \frac{\sum \text{(Project Costs in 2011\$)}}{\sum \text{(Delta kW Capacity)}}$$

Note: A power factor of .95 was used to convert kVA capacity to kW capacity.

Distribution Feeders

A similar dollar per kW capacity study was done in 2011 for distribution feeders. The Company extracted data from a GIS mapping system for approximately 1650 existing feeders to determine the average length of the "trunk" feeder portion. The trunk feeder is the large conductor, three phase portion originating at the substation and often running for several miles to an open point, smaller conductor, or less than three phases. Current feeder construction cost estimates were used to establish the average cost per mile of distribution trunk feeders. Using the average length and average cost per mile along with the feeder planning capacity limit allows the calculation of the cost per kW of capacity.

It should be noted that the trunk feeder method does not capture the cost of taps off of the main trunk feeder. Taps off the main trunk feeder are only for a portion of the total feeder customers and the cost is more related to distance than load. The cost of these taps should be captured as customer connection cost or direct input cost.

$$\$/kW = \frac{\sum \text{(Avg. trunk feeder mi. x Costs per mi.)}}{\sum \text{(Trunk feeder planning capacity limit)}}$$

$$\$/kW = \frac{\text{(\$/kW @ 25 kV + \$/kW @ less than 25 kV)}}{2}$$

Note: A power factor of .96 was used to convert kVA capacity to kW capacity.

Transmission Average Incremental Cost Methodology

- "Future Look" Method
- Capital Budget Projects required to meet the load growth needs within the study window were identified and costs for these projects were summed (numerator)
- Load growth across study window was identified
- Load was added at each bus until a constraint was identified for the starting year and ending year of the study window
- Additional transmission load-capacity was calculated for starting year and ending year of study window
- Starting year load-addition was subtracted from ending year load-addition (here after referred to as transmission load-capacity)
- Load growth and transmission load-capacity were summed (denominator)
- Load growth related Capital Budget Project costs were divided by (Load growth + transmission load-capacity) for study window

FORMULA (for study window):

$$\$/kW = \frac{\sum \text{(Project Costs)}}{\text{Load growth + Load capacity}}$$

[C7]

BUDGETING & BUDGET CONTROL DETAILS

Transmission Capital Project and Blanket Approval

This procedure describes the funding approval process for Transmission capital projects and blankets.

Transmission Capital Project Approval

Early each year, Southern Company Services (SCS) Transmission Planning-East, Georgia Power Company (GPC) Area Planning, GPC Transmission Support and GPC Transmission and Distribution (T&D) Priority Committee review Transmission project requests and recommend the Project Priority List to the T&D Council for approval.

The T&D Priority Committee Chair presents the Project Priority List to the T&D Council for consideration and approval. In presenting this List to the Council, the Committee Chair discusses certain of the projects on the List in high level detail (factors considered to select projects for presentation include high costs, public exposure such as significant land acquisition, distribution duct systems).

The T&D Council reviews the Project Priority List submitted by the T&D Priority Committee. The Council recommends modification to these project requests as necessary and then approves the modified Project Priority List. Once the Council reviews and approves the Project Priority List submitted by the Priority Committee, it does not review these approved projects again.

After the Project Priority List is approved by the Council for a budget cycle, new project requests for that year are routed to the Budget Change Committee (BCC) Chair. The BCC Chair checks these projects against the T&D Council approved Project Priority List. If these projects have not been approved and the cost of each is less than $1,000,000, the BCC Chair reviews and approves these projects, if acceptable.

If the project costs are more than $1,000,000 but less than $5,000,000, the BCC reviews and approves these projects, if acceptable.

Projects with costs greater than $5,000,000 are reviewed by the BCC and, if acceptable, are recommended to the T&D Council for approval.

Any increase in project costs or significant scope changes after approval must be approved by the appropriate level as outlined above with the exception that minor scope changes in projects and/or allocation of project dollars between budget years can be approved by the BCC Chair without functional management approval.

The overall budget can not be increased within the budget year without T&D Council approval.

Once projects are approved, engineering groups or the Land Department can create work orders in TEAMS.

When Capital Projects are for business units other than Transmission, the T&D Priority Committee or BCC Chair will get business unit management approvals before sending these projects forward through the approval process (e.g. modification to transmission facilities for Generation).

T&D Capital Blanket Approval

True Blankets: (Transmission Maintenance: equipment failures, Transmission Maintenance Center jobs, spare equipment blankets, e.g. PE 6000, 6010, 6030, 6075, 7010, 7070; Other: PE 6002 NESC, PE 6338 oil containment, PE 6427 grounding, 8205 SWAN – Projects must have estimates in TEAMS and can have schedules)

Distribution True Blankets – e.g. PE 5500 through 5514 (including outdoor lighting), PE 7000 through 7099 (excluding Transmission projects) and PE 8060. The actual estimates and DWEs are created in JETS. The Distribution business units present these requests to the T&D Priority Committee for consideration and approval.

The T&D Priority Committee reviews funding level requests from the various T&D business units and recommends funding levels to the T&D Council for consideration and approval.

The T&D Council reviews and approves funding level requests, if acceptable, which authorizes spending to these approved levels.

Any approved blankets which exceed the approved funding levels by the lesser of 10% of the approved amount or $1,000,000 must have the increased funding levels approved. These are routed to the BCC for review.

If the increased blanket funding levels are less than $50,000, the BCC Chair reviews and approves these increases, if acceptable. Increases in blanket funding levels greater than $50,000 are reviewed by the BCC and if acceptable are recommended to the T&D Council for approval.

The T&D Council reviews blanket funding level increase requests, modifies these requests as necessary and approves these requests.

Limited Blankets: (e.g. PE 6005, 6006, 6020, 6021, 6100, 7051, 7113, 8000, 8040 – Projects must have estimates and schedules)

Limited Blanket individual projects must go through the normal project approval process outlined above.

Formal BCA Approvals:

Initial BCA or BCA with changes less than $1,000,000 net plant additions: Functional Manager

Initial BCA or BCA with changes greater than $1,000,000 but less than $5,000,000 net plant additions: Functional Manager & the General Manager.

Initial BCA or BCA with changes greater than $5,000,000 net plant additions: Functional Manager, General Manager, and Vice President.

Exhibit 1 below illustrates all authorized approval limits outlined in this procedure.

Exhibit 1
Authorized Approval Limits

Project Approval Authorizations

Project Cost	**Authorized Approval**
Less Than or Equal to $1,000,000	**Budget Change Committee Chair**
Greater Than $1,000,000 & Less Than or Equal to $5,000,000	**Budget Change Committee**
Greater Than $5,000,000	**T&D Council**

Blanket Funding Level Approval Authorizations

Blanket Funding Level Increase	**Authorized Approval**
Less Than or Equal to $50,000	**Budget Change Committee Chair**
Greater Than $50,000	**T&D Council**

Budget Change Authorizations Approvals

Budget Change Authorization Cost	**Authorized Approval**
Less Than or Equal to $1,000,000	**Functional Manager**
Greater Than $1,000,000 & Less Than or Equal to $5,000,000	**Functional Manager & General Manager**
Greater Than $5,000,000	**Functional Manager, General Manager & Vice President**

[C8]

APPENDIX

[C8A]

THERMAL PROBLEMS

&

SOLUTIONS

DOUGLASVILLE - POST ROAD 115 KV

TEAMS # 12063 Need Date 6/1/2016 DOUGLASVILLE - POST RD 115 KV RECONDUCTOR - PHASE 2 GPC Cost [redacted]

Comment Date 2/22/2012 2014 - 2015: OP - Close M.O. RLB switch #13071 to form an E.Pt.-Douglasv'l circuit, or switch Anneewakkee to the East Point - Camp Creek 115 kV line.
2016: Reconductor the Douglasville - Annawakee Jct. section (6.0 miles of 100°C 397 ACSR) with 1033 ACSR

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2014										
982 ANNEWAKEE J 115 1713 PPL AUST J 115 1	100°C 397.5 ACSR Ibis 26/7	21	**140**	138	**100.4**	138	1	1719 MASON CK 115 2203 POST RD 115 1	Peak G	Firm AL on, McD 6 off
985 DOUGLASVL 115 1713 PPL AUST J 115 1	100°C 397.5 ACSR Ibis 26/7	21	**141**	138	**100.4**	138	1	1719 MASON CK 115 2203 POST RD 115 1	Peak G	Firm AL on, McD 6 off
2015										
982 ANNEWAKEE J 115 1713 PPL AUST J 115 1	100°C 397.5 ACSR Ibis 26/7	21	**143**	138	**102.4**	138	1	1719 MASON CK 115 2203 POST RD 115 1	Peak G	Firm AL on, McD 6 off
985 DOUGLASVL 115 1713 PPL AUST J 115 1	100°C 397.5 ACSR Ibis 26/7	21	**144**	138	**102.5**	138	1	1719 MASON CK 115 2203 POST RD 115 1	Peak G	Vogtle 2 off
2016										
982 ANNEWAKEE J 115 1713 PPL AUST J 115 1	100°C 397.5 ACSR Ibis 26/7	22	**146**	138	**104.7**	138	1	1719 MASON CK 115 2203 POST RD 115 1	Peak G	Firm AL on, McD 6 off
985 DOUGLASVL 115 1713 PPL AUST J 115 1	100°C 397.5 ACSR Ibis 26/7	21	**146**	138	**104.8**	138	1	1719 MASON CK 115 2203 POST RD 115 1	Peak G	McDonough 6 off
2017										
982 ANNEWAKEE J 115 1713 PPL AUST J 115 1	100°C 397.5 ACSR Ibis 26/7	23	**147**	138	**107.0**	138	1	1719 MASON CK 115 2203 POST RD 115 1	Peak G	McDonough 6 off
985 DOUGLASVL 115 1713 PPL AUST J 115 1	100°C 397.5 ACSR Ibis 26/7	23	**149**	138	**107.1**	138	1	1719 MASON CK 115 2203 POST RD 115 1	Peak G	Firm AL on, McD 6 off

DOUGLASVILLE - POST ROAD 115 KV (ANNEEWAKEE TAP)

TEAMS # 13635 Need Date 6/1/2013 DOUGLASVILLE - POST RD 115KV REBUILD - PHASE 1 (ANNEEWAKEE) GPC Cost [redacted]

Comment Date 2/27/2012 2013: Reconductor 2.1 miles of 397 ACSR, (of the 3.8 total miles), in the Anneewakee - Anneewakee Jct. 115-kV line section, with 1033 ACSR conductor.

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2013										
982 ANNEWAKEE J 115 2213 ANNEEWAKEE 115 1	75°C 397.5 ACSR Lark 30/7	24	**129**	113	**118.3**	113	1	OPEN 237-251, CLOSE 239-2213	Peak G	No Unit off
2014										
982 ANNEWAKEE J 115 2213 ANNEEWAKEE 115 1	75°C 397.5 ACSR Lark 30/7	25	**133**	113	**121.6**	113	1	OPEN 237-251, CLOSE 239-2213	Peak G	No Unit off
2015										
982 ANNEWAKEE J 115 2213 ANNEEWAKEE 115 1	75°C 397.5 ACSR Lark 30/7	26	**136**	113	**124.9**	113	1	OPEN 237-251, CLOSE 239-2213	Peak G	No Unit off
2016										
982 ANNEWAKEE J 115 2213 ANNEEWAKEE 115 1	75°C 397.5 ACSR Lark 30/7	27	**139**	113	**127.9**	113	1	OPEN 237-251, CLOSE 239-2213	Peak G	No Unit off
2017										
982 ANNEWAKEE J 115 2213 ANNEEWAKEE 115 1	75°C 397.5 ACSR Lark 30/7	27	**142**	113	**130.9**	113	1	OPEN 237-251, CLOSE 239-2213	Peak G	No Unit off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario

NORTH MARIETTA - SMYRNA (WHITE) 115 KV

TEAMS # N/A Need Date

GPC Cost [redacted]

Comment Date 4/25/2012 2014: OP - Open overloaded line @ N. Marietta toward Marietta/Smyrna, (Bkr. #127308), [in base case, open 948 - 1260].

2014

950	MAR 8 J	115	952	LOCKHEED JW	115	1	75C, 657 ACAR conductor	100	**154**	149	**101.9**	149	2	243 SMYRNA	115	1262 MAR 14 JB	115 1	Shoulder C	Bowen 1 off
950	MAR 8 J	115	1260	MARIETTA JW	115	1	75C, 657 ACAR conductor	100	**155**	149	**101.8**	149	2	243 SMYRNA	115	1262 MAR 14 JB	115 1	Shoulder C	Bowen 1 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario

LAWRENCEVILLE - MOON ROAD 115 KV

TEAMS # 13213 Need Date 6/1/2017 **MEAG: LAWRENCEVILLE #4 115KV SWITCH REPLACEMENT** **GPC Cost** [redacted]

Comment Date 5/29/2012 2017: MEAG – Lawrenceville #4 115kV switch replacement. This project allows the Lawrenceville #4 substation to be switched to the North Lawrenceville tap in 2014 & 2016 (DYNAMP = 34.7 min. @ 102.1% loading).

2017

434	LAWRENCEVL	115	1363	LAWRNCEVL 3	115	1	100°C 636.0 ACSR Grosbeak 26/7	114	**190**	188	**102.1**	188	1	337 BAY CREEK	230	1937 BAY CREEK	115 1	Peak G	Franklin Area + Firm AL

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
AUSTIN DRIVE - MORROW 115 KV	TEAMS # 10899 Need Date 5/1/2018 Comment Date 2/27/2012							AUSTIN DRIVE - MORROW 115-KV REBUILD PROJECT/PHASE-2	GPC Cost [redacted]	
								2016 - 2017: OpSol - For loss of Morrow - Ellenwood section, close RLB #122931 @Fairview. (DYNAMP = 26.9 min.) 2018: Austin Drive - Morrow 115 KV Rebuild Project/Phase-2 (Morrow to Ellenwood & Austin Drive to River Road)		
2016										
360 AUSTIN DR 115	366 RAINBOW DR 115 1 100°C 336.4 ACSR Linnet 26/7	26	**123**	124	100.1	124	1	297 MORROW 115 368 ELLENWOOD 115 1	Peak G	Firm AL on, L Smith 3 off
2017										
360 AUSTIN DR 115	366 RAINBOW DR 115 1 100°C 336.4 ACSR Linnet 26/7	31	**125**	124	101.8	124	1	297 MORROW 115 368 ELLENWOOD 115 1	Peak G	Firm AL on, Bowen 4 off
AUSTIN DRIVE - MORROW 115 KV (Open/close problem)	TEAMS # 10899 Need Date 5/1/2018 Comment Date 4/26/2012							AUSTIN DRIVE - MORROW 115-KV REBUILD PROJECT/PHASE-2	GPC Cost [redacted]	
								2014-2017: OpSol - When switching Fairview and Transco to this line, open between Rainbow Drive and River Road beforehand. (DYNAMP = 27.7 min. @105.1% loading) 2018: Austin Drive - Morrow 115kV Line Rebuild Project/Phase-2 (Morrow to Ellenwood & Austin Drive to River Road).		
2014										
297 MORROW 115	368 ELLENWOOD 115 1 100°C 795.0 ACSR Drake 26/7	149	**224**	216	103.3	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off
2015										
297 MORROW 115	368 ELLENWOOD 115 1 100°C 795.0 ACSR Drake 26/7	148	**225**	216	103.6	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off
2016										
297 MORROW 115	368 ELLENWOOD 115 1 100°C 795.0 ACSR Drake 26/7	145	**223**	216	102.7	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off
2017										
297 MORROW 115	368 ELLENWOOD 115 1 100°C 795.0 ACSR Drake 26/7	149	**228**	216	105.1	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off
CONYERS - CORNISH MOUNTAIN 115 KV	TEAMS # 08839 Need Date 6/1/2015 Comment Date 6/1/2012							CONYERS - CORNISH MOUNTAIN 115 KV LINE RECONDUCTOR	GPC Cost [redacted]	
								2015: Reconductor 3.9 miles of 636 ACSR conductor with 1351 ACSR conductor from Conyers to Salem Gate and replace 750 AAC jumper at North Conyers.		
2015										
464 N CONYERS 115	465 CONYERS 115 1 AAC 750 jumper N. Conyers	122	**216**	187	116.1	188	4	73 KLONDIKE 230 1210 SMYRNA CH 230 1	Peak G	Vogtle 1 off
464 N CONYERS 115	1312 SALEM GT J 115 1 100C 636.0 ACSR COND	93	**186**	188	100.2	188	1	73 KLONDIKE 230 1210 SMYRNA CH 230 1	Peak G	Vogtle 1 off
2016										
464 N CONYERS 115	465 CONYERS 115 1 AAC 750 jumper N. Conyers	115	**202**	187	108.2	188	2	73 KLONDIKE 230 1210 SMYRNA CH 230 1	Peak G	Vogtle 1 off
2017										
464 N CONYERS 115	465 CONYERS 115 1 AAC 750 jumper N. Conyers	113	**190**	187	102.0	188	1	73 KLONDIKE 230 1210 SMYRNA CH 230 1	Peak G	Vogtle 1 off

DECATUR - MORELAND AVENUE 115 KV

TEAMS # 11235 Need Date 6/1/2018 DECATUR - MORELAND AVE 115-KV UPGRADE GPC Cost [redacted]

Comment Date 5/31/2012 2014 - 2017: OP -Open Decatur - Scottdale 115kV line @ Decatur (PCB #080728). (DYNAMP = 23.4 min. @ 107.2% loading)
2018: Upgrade between Decatur and Kirkwood (1.1 miles of 50°C-sagged 636 ACSR) for 100°C operation.

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2014										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	22	**95**	96	100.4	96	2	379 MORELAND A 115 1215 R_GRADY 115 1	Peak G	Wansley Area Max
2015										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	25	**96**	96	100.4	96	2	379 MORELAND A 115 1215 R_GRADY 115 1	Peak G	Wansley Area Max
2016										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	26	**100**	96	104.9	96	2	379 MORELAND A 115 1215 R_GRADY 115 1	Peak G	Franklin Area + Firm AL
2017										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	26	**102**	96	107.2	96	2	379 MORELAND A 115 1215 R_GRADY 115 1	Peak G	Firm AL on, Bowen 4 off

GRADY - WEST END 115 KV

TEAMS # Need Date GPC Cost [redacted]

Comment Date 5/29/2012 2014 - 2015: OpSol - Open PCB #044168 at Grady facing West End. (DYNAMP = 37.5 min. @ 102% loading)

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2014										
256 WEST END 115 285 GRADY 3 115 1	100 636.0 ACSR Grosbeak 26/7	90	**192**	188	101.8	188	1	36 JACK MCD 230 41 PEACHTREE 230 1	Shoulder G	Vogtle 1 off
2015										
256 WEST END 115 285 GRADY 3 115 1	100 636.0 ACSR Grosbeak 26/7	92	**190**	188	100.8	188	1	36 JACK MCD 230 41 PEACHTREE 230 1	Shoulder G	Vogtle 1 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
EAST POINT - WILLINGHAM DRIVE 115 KV	TEAMS # 13740 Need Date 6/1/2018 Comment Date 5/30/2012							**MEAG: EAST POINT - WILLINGHAM DR 115-KV RECONDUCTOR**		**GPC Cost** [redacted]
								2014: Jumper replacement, at E.Pt., on Non-Conductor Project #14657 2014 - 2017: OP - open E.Pt-Morrow 115-kV line at Morrow (in base cases open 291-297) 2018: Project to reconductor E.Pt. - Willingham Dr., (MEAG).		
2014										
251 E POINT B2 115	264 E POINT 4 115 1 JUMPER 750 AAC @ East Point	148	**190**	187	**101.5**	188	2	252 DAVIS ST 115 2216 UNIV CTR 115 1	Peak G	Rome Area Max + Sewell
2015										
251 E POINT B2 115	264 E POINT 4 115 1 JUMPER 750 AAC @ East Point	150	**193**	187	**103.1**	188	2	252 DAVIS ST 115 2216 UNIV CTR 115 1	Peak G	Vogtle 1 off
2016										
251 E POINT B2 115	264 E POINT 4 115 1 JUMPER 750 AAC @ East Point	150	**194**	187	**103.8**	188	3	252 DAVIS ST 115 2216 UNIV CTR 115 1	Peak G	Rome Area Max + Sewell
2017										
251 E POINT B2 115	264 E POINT 4 115 1 JUMPER 750 AAC @ East Point	152	**195**	187	**104.6**	188	3	252 DAVIS ST 115 2216 UNIV CTR 115 1	Peak G	Rome Area Max + Sewell
EAST POINT 120648 - CAMP CREEK 115 KV	TEAMS # 12461 Need Date 6/1/2017 Comment Date 5/30/2012							**EAST POINT - CAMP CREEK 115-KV LINE RECONDUCTOR -- PHASE 2**		**GPC Cost** [redacted]
								2014: Switch replacements, at E.Pt., on Non-Conductor Project #14657 2017: Advance recond'r proj. #12461 from '18 to '17, (replace 1st-span of 397 ACSR @ E.Pt.)		
2016										
237 BEN HILL J 115	251 E POINT B2 115 1 600A SWITCHES @ East Pt.	111	**137**	135	**101.5**	140	1	OPEN 982-2213, CLOSE 239-2213	Peak G	No Unit off
2017										
237 BEN HILL J 115	251 E POINT B2 115 1 600A SWITCHES @ East Pt.	112	**140**	135	**103.7**	140	1	OPEN 982-2213, CLOSE 239-2213	Peak G	No Unit off
LINE CREEK - SOUTH COWETA 115 KV	TEAMS # 14505 Need Date 6/1/2014 Comment Date 2/28/2012							**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		**GPC Cost** [redacted]
								2014: Dyer Road, (Yates), 230/115-kV Substation Proj.		
2015										
298 TYRONE TP 115	1900 LINE CREEK 115 1 100°C 636.0 ACSR Grosbeak 26/7	95	**189**	188	**100.5**	188	1	1523 TURIN EAST 230 1594 DRESDEN 230 1	Peak G	Scherer 4 off
2016										
298 TYRONE TP 115	1900 LINE CREEK 115 1 100°C 636.0 ACSR Grosbeak 26/7	95	**190**	188	**101.2**	188	3	1523 TURIN EAST 230 1594 DRESDEN 230 1	Peak G	Scherer 4 off
2017										
298 TYRONE TP 115	1900 LINE CREEK 115 1 100°C 636.0 ACSR Grosbeak 26/7	97	**194**	188	**103.7**	188	3	1523 TURIN EAST 230 1594 DRESDEN 230 1	Peak G	Scherer 4 off

LLOYD SHOALS - PORTERDALE PRIMARY 115 KV

TEAMS # 10488 Need Date 6/1/2013 Comment Date 5/30/2012

LLOYD SHOALS - PORTERDALE 115 KV LINE REBUILD (PHASE-1)

GPC Cost [redacted]

2013: (for Porterdale - S. Covington Jct section), temporarily change N.O. Point to switch Lloyd Shoals 69-kV load to alternate feed from N. Monticello.
2014: (for Porterdale - S. Covington Jct section), rebuild w/795 ACSR from Porterdale to the S. Covington jct. for 100 degree C operation, (TEAMS #10488).
2014 - 2015: OP- (for Jackson Lake - S. Covington Jct section), switch Lloyd Shoals 69-kV load to alternate feed from N. Monticello, (Dynamp time = 21 min.).
2016 - 2017: Up-rate from Jackson Lake to S. Covington Jct., (TEAMS #14604).

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2013										
462 PORTERDALE 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	50	**77**	71	**107.5**	71	3	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Athens-Monroe Area Max
2014										
461 JACKSON LK 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	36	**73**	71	**102.1**	71	1	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Athens-Monroe Area Max
462 PORTERDALE 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	54	**90**	71	**125.2**	71	6	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Athens-Monroe Area Max
2015										
461 JACKSON LK 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	28	**71**	71	**100.5**	71	1	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Franklin Area Max
462 PORTERDALE 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	46	**89**	71	**124.6**	71	3	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Franklin Area Max
2016										
461 JACKSON LK 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	35	**79**	71	**111.9**	71	2	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Mid Georgia Cogen off
462 PORTERDALE 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	53	**97**	71	**136.6**	71	6	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Mid Georgia Cogen off
2017										
461 JACKSON LK 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	33	**76**	71	**106.9**	71	2	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Mid Georgia Cogen off
462 PORTERDALE 115 1917 S COV J 115 1	50°C 397.5 ACSR Ibis 26/7	51	**95**	71	**132.7**	71	6	746 S GRIFFIN 115 750 GA BRD COR 115 1	Peak G	Mid Georgia Cogen off

O'HARA - SOUTH COWETA 115 KV

TEAMS # 14505 Need Date 6/1/2014 Comment Date 2/28/2012

DYER ROAD 230/115KV SUBSTATION (YATES AUTO)

GPC Cost [redacted]

2014: Dyer Road, (Yates), 230/115-kV Substation Proj.

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2017										
735 FAYETTEVL 115 736 OHARA 115 1	100°C 636.0 ACSR Grosbeak 26/7	70	**187**	188	**100.4**	188	1	1523 TURIN EAST 230 1594 DRESDEN 230 1	Peak G	Yates 7 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
O'HARA - SOUTH GRIFFIN 115 KV		TEAMS # 12912	Need Date 6/1/2017		HAMPTON-MCDON.115-KV REBUILD & DAILEY MILL-FLIPPEN LN ADD'N					GPC Cost [redacted]
		Comment Date 5/30/2012			2017: Delay the "Hampton - McDon. 115-kV Rebuild & Dailey Mill - Flippen Line Addition" project, TEAMS 12912, (currently scheduled for 2015).					
2017										
743 MCDONOUGH 115 1675 GREENWD PK 115 1	100°C 336.4 ACSR Linnet 26/7	68	**124**	124	**101.0**	124	1	OPEN 744-1220, CLOSE 1220-1675 (Sw. Dailey Mill)	Peak G	No Unit off
744 HAMPTON 115 1220 DAILYMIL TP 115 1	100°C 336.4 ACSR Linnet 26/7	59	**126**	124	**102.0**	124	1	OPEN 743-1675, CLOSE 1220-1675 (Sw.Greenwood Par	Peak G	No Unit off
SOUTH COWETA - SOUTH GRIFFIN 115 KV		TEAMS # 09347	Need Date 6/1/2018		SOUTH METRO ATLANTA PROJECT PHASE 3					GPC Cost [redacted]
		Comment Date 5/30/2012			2014-2017: OP - Open overloaded line at South Griffin, (in base cases, open 746-747). 2018: South Metro Atlanta Phase-3 project					
2014										
719 S COWETA 115 876 BROOKS 115 1	100°C 477.0 ACSR Hawk 26/7	113	**167**	155	**105.7**	155	3	171 OHARA 230 1629 WOOLSEY 230 1	Peak G	Wansley Area Max
2016										
719 S COWETA 115 876 BROOKS 115 1	100°C 477.0 ACSR Hawk 26/7	106	**159**	155	**100.7**	155	1	171 OHARA 230 1629 WOOLSEY 230 1	Peak G	Wansley Area Max
2017										
719 S COWETA 115 876 BROOKS 115 1	100°C 477.0 ACSR Hawk 26/7	110	**165**	155	**104.9**	155	3	171 OHARA 230 1629 WOOLSEY 230 1	Peak G	Wansley Area Max
SOUTH COWETA - YATES 115 KV		TEAMS # 14505	Need Date 6/1/2014		DYER ROAD 230/115KV SUBSTATION (YATES AUTO)					GPC Cost [redacted]
		Comment Date 2/28/2012			2013: OP-open @ Yates toward Mtn.Ck./Thomaston 115-kv, (bus 620 - 621) 2014: Dyer Road, (Yates), 230/115-kV Substation Proj.					
2013										
719 S COWETA 115 1934 SHARPSBG TP 115 1	100°C 477.0 ACSR Hawk 26/7	124	**161**	155	**104.1**	155	3	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Yates 3 off
2015										
719 S COWETA 115 1934 SHARPSBG TP 115 1	100°C 477.0 ACSR Hawk 26/7	134	**179**	155	**118.2**	155	24	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin 2 off
2016										
719 S COWETA 115 1934 SHARPSBG TP 115 1	100°C 477.0 ACSR Hawk 26/7	136	**184**	155	**122.0**	155	28	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin 2 off
2017										
719 S COWETA 115 1934 SHARPSBG TP 115 1	100°C 477.0 ACSR Hawk 26/7	141	**187**	155	**124.2**	155	44	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin 1 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
SOUTH COWETA 230/115 KV AUTO										
2016										
129 S COWETA 230 719 S COWETA 115 1	Transformer nameplate rating	346	**406**	400	**101.5**	400	1	16 OHARA 500 171 OHARA 230 1	Peak G	Franklin Area + Firm AL
2017										
129 S COWETA 230 719 S COWETA 115 1	Transformer nameplate rating	349	**414**	400	**103.4**	400	4	16 OHARA 500 171 OHARA 230 1	Peak G	Firm AL on, McD 6 off

TEAMS # 14505 **Need Date** 6/1/2014 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)** **GPC Cost** [redacted]

Comment Date 5/30/2012 2014: Dyer Road, (Yates), 230/115-kV Substation Proj.
Note: Rerate Pending, (GTC Auto)

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario

BOWEN - CARTERSVILLE 115 KV

TEAMS # 12101 Need Date 6/1/2018 **BOWEN-CARTERSVILLE 115KV LINE REBUILD** GPC Cost [redacted]

Comment Date 4/26/2012 2015 - 2017: OP - Open Cartersville-South Acworth 115kV line between Cart #4 and Cart#1 Jct. RLB 064661. (ALT Project TEAMS 12101 Rebuild appx. 8.55 miles 477ACSR with 1033.)
Dynamp: 24.2 mins

2015

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
933 BOWEN 115 1787 BROWN FARMJ 115 1	100 477.0 ACSR Hawk 26/7	102	**162**	155	**103.1**	155	1	184 BREMEN 230 3027 SEWELL CRK 230 1	Peak G	Rome Area Max + Sewell
934 BURNT HIC J 115 1787 BROWN FARMJ 115 1	100 477.0 ACSR Hawk 26/7	98	**158**	155	**100.9**	155	1	184 BREMEN 230 3027 SEWELL CRK 230 1	Peak G	Rome Area Max + Sewell

2016

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
933 BOWEN 115 1787 BROWN FARMJ 115 1	100 477.0 ACSR Hawk 26/7	99	**158**	155	**101.0**	155	1	184 BREMEN 230 3027 SEWELL CRK 230 1	Peak G	Rome Area Max + Sewell

2017

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
933 BOWEN 115 1787 BROWN FARMJ 115 1	100 477.0 ACSR Hawk 26/7	100	**158**	155	**101.1**	155	1	184 BREMEN 230 3027 SEWELL CRK 230 1	Peak G	Rome Area Max + Sewell

BREMEN - HICKORY LEVEL 115 KV (BLACK)

TEAMS # 14505 Need Date 6/1/2014 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)** GPC Cost [redacted]

Comment Date 5/29/2012 Fixed by Dyer Rd

2017

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
1729 W V RICA 115 2486 HICKORY LVL 115 1	100°C 336.4 ACSR Linnet 26/7	52	**125**	124	**101.4**	124	1	184 BREMEN 230 969 BREMEN 115 1	Shoulder G	Franklin 2 off

BREMEN - POSSUM BRANCH 115 KV

TEAMS # 14505 Need Date 6/1/2014 DYER ROAD 230/115KV SUBSTATION (YATES AUTO) GPC Cost [redacted]

Comment Date 4/26/2012 2013: OpSol - Open Possum Branch-Yates 115 kV line at Possum Branch PCB 920248.
Dynamp time 13.2 mins
Fixed by Dyer Rd starting in 2014

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2013										
969 BREMEN 115 1731 N MOUNTZION 115 1	100C 636.0 ACSR COND	141	**209**	188	**111.2**	188	2	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
1731 N MOUNTZION 115 2209 JONESVL J 115 1	100 636.0 ACSR Grosbeak 26/7	133	**200**	188	**106.5**	188	1	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
2014										
969 BREMEN 115 1731 N MOUNTZION 115 1	100C 636.0 ACSR COND	139	**204**	188	**108.8**	188	2	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
1731 N MOUNTZION 115 2209 JONESVL J 115 1	100 636.0 ACSR Grosbeak 26/7	130	**195**	188	**104.1**	188	1	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
2015										
969 BREMEN 115 1731 N MOUNTZION 115 1	100C 636.0 ACSR COND	153	**226**	188	**121.2**	188	3	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
1599 POSSUM BR 115 2209 JONESVL J 115 1	100°C 636.0 ACSR Grosbeak 26/7	125	**195**	188	**106.7**	188	1	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
1731 N MOUNTZION 115 2209 JONESVL J 115 1	100 636.0 ACSR Grosbeak 26/7	144	**216**	188	**116.3**	188	3	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
2016										
969 BREMEN 115 1731 N MOUNTZION 115 1	100C 636.0 ACSR COND	156	**231**	188	**124.1**	188	4	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
1599 POSSUM BR 115 2209 JONESVL J 115 1	100°C 636.0 ACSR Grosbeak 26/7	128	**193**	188	**106.2**	188	1	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
1731 N MOUNTZION 115 2209 JONESVL J 115 1	100 636.0 ACSR Grosbeak 26/7	146	**217**	188	**117.3**	188	3	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
2017										
969 BREMEN 115 1731 N MOUNTZION 115 1	100C 636.0 ACSR COND	159	**235**	188	**127.0**	188	5	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
1599 POSSUM BR 115 2209 JONESVL J 115 1	100°C 636.0 ACSR Grosbeak 26/7	130	**197**	188	**108.3**	188	2	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
1731 N MOUNTZION 115 2209 JONESVL J 115 1	100 636.0 ACSR Grosbeak 26/7	149	**221**	188	**119.8**	188	3	976 SAND HILL 115 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell

BREMEN 230/115 KV AUTO #1

TEAMS # 14505 Need Date 6/1/2014 DYER ROAD 230/115KV SUBSTATION (YATES AUTO) GPC Cost [redacted]

Comment Date 2/22/2012 Fixed by Dyer Rd

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2016										
184 BREMEN 230 969 BREMEN 115 1	Transformer nameplate rating	299	**402**	400	**100.5**	400	1	2485 HICKORY LV 230 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell
2017										
184 BREMEN 230 969 BREMEN 115 1	Transformer nameplate rating	301	**406**	400	**101.4**	400	1	2485 HICKORY LV 230 2486 HICKORY LV 115 1	Peak G	Rome Area Max + Sewell

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
CELANESE - METAL CONTAINER 115 KV	TEAMS # 12856 Need Date 6/1/2013 Comment Date 4/26/2012	CELANESE - METAL CONTAINER 115KV LINE UPGRADE Upgrade 3.53 miles of 50C 477ACSR to 100C							GPC Cost [redacted]	
2013										
916 CALHOUN RD 115 917 CELANESE 115 1	50C 477.0 ACSR COND	46	**102**	79	**126.4**	79	1	181 ROCKY MTN 230 182 HAMMOND 230 1	Peak G	Athens-Monroe Area Max
2015										
916 CALHOUN RD 115 917 CELANESE 115 1	50C 477.0 ACSR COND	50	**93**	79	**116.2**	79	2	181 ROCKY MTN 230 182 HAMMOND 230 1	Peak G	Hammond Common Scrubber
2016										
916 CALHOUN RD 115 917 CELANESE 115 1	50C 477.0 ACSR COND	57	**105**	79	**132.1**	79	5	181 ROCKY MTN 230 182 HAMMOND 230 1	Peak G	Hammond Common Scrubber
2017										
916 CALHOUN RD 115 917 CELANESE 115 1	50C 477.0 ACSR COND	57	**104**	79	**131.6**	79	5	181 ROCKY MTN 230 182 HAMMOND 230 1	Peak G	Hammond Common Scrubber
HICKORY LEVEL - POSSUM BRANCH 115 KV	TEAMS # 14505 Need Date 6/1/2014 Comment Date 2/22/2012	DYER ROAD 230/115KV SUBSTATION (YATES AUTO) Fixed by Dyer Rd							GPC Cost [redacted]	
2015										
976 SAND HILL 115 2486 HICKORY LVL 115 1	100 795 DRAKE ACSR 26/7	109	**197**	188	**106.0**	216	2	969 BREMEN 115 1731 N MOUNTZIO 115 1	Peak G	Franklin 2 off
2016										
976 SAND HILL 115 2486 HICKORY LVL 115 1	100 795 DRAKE ACSR 26/7	111	**202**	188	**108.7**	216	2	969 BREMEN 115 1731 N MOUNTZIO 115 1	Peak G	Franklin 2 off
2017										
976 SAND HILL 115 2486 HICKORY LVL 115 1	100 795 DRAKE ACSR 26/7	112	**206**	188	**111.3**	216	3	969 BREMEN 115 1731 N MOUNTZIO 115 1	Peak G	Rome Area Max + Sewell
HICKORY LEVEL 230/115 KV AUTO	TEAMS # 14505 Need Date 6/1/2014 Comment Date 5/29/2012	DYER ROAD 230/115KV SUBSTATION (YATES AUTO) Fixed by Dyer Rd							GPC Cost [redacted]	
2017										
2485 HICKORY LVL 230 2486 HICKORY LVL 115 1	Transformer nameplate rating	227	**401**	400	**100.1**	400	1	184 BREMEN 230 969 BREMEN 115 1	Peak G	Rome Area Max + Sewell

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
METAL CONTAINER - PINSON 115 KV TEAMS # 14535 Need Date 6/1/2014 Comment Date 5/31/2012 — NORTH COOSA 230/115KV - ROME AREA IMPROVEMENTS — GPC Cost [redacted]										
2016										
915 PINSON 115 1754 METAL CON 115 1	100C 477.0 ACSR COND	92	**139**	135	102.1	155	1	181 ROCKY MTN 230 182 HAMMOND 230 1	Peak G	Hammond Common Scrubber
2017										
915 PINSON 115 1754 METAL CON 115 1	100C 477.0 ACSR COND	93	**139**	135	102.8	155	1	181 ROCKY MTN 230 182 HAMMOND 230 1	Peak G	Hammond Common Scrubber
PINSON - ROME 115 KV TEAMS # 14535 Need Date 6/1/2014 Comment Date 5/31/2012 — NORTH COOSA 230/115KV - ROME AREA IMPROVEMENTS — GPC Cost [redacted]										
2016										
911 ARMUCHEE J 115 914 GALEY&LORD+ 115 1	50 636.0 ACSR Grosbeak 26/7	59	**102**	96	105.4	96	3	915 PINSON 115 1754 METAL CON 115 1	Peak G	Hammond Common Scrubber
914 GALEY&LORD+ 115 915 PINSON 115 1	50C 636.0 ACSR Grosbeak 26/7	59	**104**	96	106.3	96	4	915 PINSON 115 1754 METAL CON 115 1	Peak G	Hammond Common Scrubber
2017										
911 ARMUCHEE J 115 914 GALEY&LORD+ 115 1	50 636.0 ACSR Grosbeak 26/7	59	**103**	96	106.8	96	4	915 PINSON 115 1754 METAL CON 115 1	Peak G	Hammond Common Scrubber
914 GALEY&LORD+ 115 915 PINSON 115 1	50C 636.0 ACSR Grosbeak 26/7	59	**105**	96	107.9	96	4	915 PINSON 115 1754 METAL CON 115 1	Peak G	Hammond Common Scrubber
POSSUM BRANCH - YATES 115 KV TEAMS # 14505 Need Date 6/1/2014 Comment Date 2/22/2012 — DYER ROAD 230/115KV SUBSTATION (YATES AUTO) Fixed by Dyer Rd — GPC Cost [redacted]										
2015										
1599 POSSUM BR 115 1748 TISINGER 115 1	100 636.0 ACSR Grosbeak 26/7	153	**196**	188	107.3	188	6	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin 2 off
2016										
1599 POSSUM BR 115 1748 TISINGER 115 1	100 636.0 ACSR Grosbeak 26/7	158	**199**	188	109.0	188	8	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin 2 off
2017										
1599 POSSUM BR 115 1748 TISINGER 115 1	100 636.0 ACSR Grosbeak 26/7	160	**200**	188	111.0	188	9	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Rome Area Max + Sewell

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
BULL CREEK - VICTORY DRIVE 115 KV	TEAMS # 11692 Need Date 6/1/2014 Comment Date 4/25/2012							**BULL CREEK - VICTORY DRIVE 115 KV LINE RECONDUCTOR** 2017: Reconductor 1.2 + 1.3 mi. Vict-StMaryJct with 795 ACSR (Note: second segment overloads as early as 2020)		**GPC Cost** [redacted]
2017										
615 VICTORY DR 115 1500 CHLORIDE + 115 1	100°C 336.4 ACSR	39	**127**	124	**101.5**	124	2	614 BROOKHAVEN 115 1561 RIVERFRONT 115 1	Peak G	Firm AL on, McD 6 off
DAWSON PRIMARY - SOUTH COLUMBUS 115 KV	TEAMS # 13673 Need Date 6/1/2013 Comment Date 4/25/2012							**SOUTH COLUMBUS 115 KV JUMPER/SWITCH REPLACEMENTS** 2013: Replace 4/0 Cu jumpers and 600A switches at South Columbus 2015: Reconductor South Columbus - Fort Benning (AL) sections (7.2+1.9 mi. of 100°C 336 ACSR) with 795 ACSR (TEAMS 14200).		**GPC Cost** [redacted]
2013										
618 S COLUMBUS 115 1102 FT MITCH J 115 1	90C, 4/0 Copper Jumpers @ S.Col	91	**115**	104	**108.1**	124	3	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Hatch 2 off
2014										
618 S COLUMBUS 115 1102 FT MITCH J 115 1	90C, 4/0 Copper Jumpers @ S.Col	95	**119**	104	**111.7**	124	11	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off
2015										
618 S COLUMBUS 115 1102 FT MITCH J 115 1	90C, 4/0 Copper Jumpers @ S.Col	111	**138**	104	**130.0**	124	166	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off
1102 FT MITCH J 115 1114 FT BENN #2 115 1	336 ACSR @ 100 C	110	**135**	124	**109.0**	124	4	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off
2016										
618 S COLUMBUS 115 1102 FT MITCH J 115 1	90C, 4/0 Copper Jumpers @ S.Col	105	**133**	104	**125.1**	124	58	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off
1102 FT MITCH J 115 1114 FT BENN #2 115 1	336 ACSR @ 100 C	103	**131**	124	**104.9**	124	1	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off
2017										
618 S COLUMBUS 115 1102 FT MITCH J 115 1	90C, 4/0 Copper Jumpers @ S.Col	103	**130**	104	**122.3**	124	41	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off
1102 FT MITCH J 115 1114 FT BENN #2 115 1	336 ACSR @ 100 C	102	**128**	124	**102.6**	124	1	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
FIRST AVENUE - VICTORY DR 115 KV	TEAMS # 14201 Need Date 6/1/2015 Comment Date 4/25/2012	**FIRST AVENUE - VICTORY DRIVE 115 KV LINE RECONDUCTOR** 2015: Reconductor 4.4 + 2.0 mi of 1033 AAC with 100C 1033 ACSR (note: adjacent section overloads as early as 2020).							GPC Cost [redacted]	
2015										
612 FIRST AVE + 115	616 BLNCHARD IP 115 1	75C 1033.5 AAC COND	141	**209**	199	**102.8**	199	2	614 BROOKHAVEN 115 1561 RIVERFRONT 115 1	Peak G	Firm AL on, Hatch 1 off
2016										
612 FIRST AVE + 115	616 BLNCHARD IP 115 1	75C 1033.5 AAC COND	139	**208**	199	**102.0**	199	2	612 FIRST AVE 115 1561 RIVERFRONT 115 1	Peak G	Firm AL on, Hatch 1 off
2017										
612 FIRST AVE + 115	616 BLNCHARD IP 115 1	75C 1033.5 AAC COND	140	**210**	199	**103.0**	199	2	614 BROOKHAVEN 115 1561 RIVERFRONT 115 1	Peak G	Firm AL on, Hatch 1 off
FIRST AVENUE 230/115 KV AUTO #2	TEAMS # 12719 Need Date 6/1/2015 Comment Date 4/25/2012	**FIRST AVENUE 230/115 KV AUTO #2 LS JUMPER REPLACEMENT** 2015: Replace 1590 AAC lowside jumpers with 2000 AAC jumpers or better on Bank 1&2.							GPC Cost [redacted]	
2015										
132 FIRST AVE B 230	612 FIRST AVE + 115 1	1590 AAC lowside jumpers	243	**310**	298	**104.0**	330	2	130 GOAT ROCK 230 131 FIRST AVE 230 1	Shoulder G	Farley 1 off
2016										
132 FIRST AVE B 230	612 FIRST AVE + 115 1	1590 AAC lowside jumpers	245	**312**	298	**104.5**	330	3	130 GOAT ROCK 230 131 FIRST AVE 230 1	Shoulder G	Franklin Area + Firm AL
2017										
132 FIRST AVE B 230	612 FIRST AVE + 115 1	1590 AAC lowside jumpers	248	**316**	298	**105.9**	330	5	131 FIRST AVE 230 612 FIRST AVE 115 1	Shoulder G	Franklin Area + Firm AL
FORTSON - TALBOT COUNTY #1 230 KV	TEAMS # 14202 Need Date 6/1/2013 Comment Date 5/29/2012	**GTC: FORTSON - TALBOT #1 230 KV SERIES REACTORS** 2013: (GTC) Install 2% reactors at Talbot #1 2015: (MEAG) Remove reactors & reconductor (4.7+8.3)mi of 795 ACSR with 160C 1351 SSAC (TEAMS 14205)							GPC Cost [redacted]	
2014										
125 FORTSON 230	2522 SONAT ELL J 230 1	100 C, 795.0 ACSR Drake 26/7	330	**457**	433	**103.7**	433	1	13 BONAIRE 500 18 SCHERER 500 1	Peak G	Athens-Monroe Area Max
2015										
125 FORTSON 230	2522 SONAT ELL J 230 1	100 C, 795.0 ACSR Drake 26/7	335	**454**	433	**103.7**	433	2	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off
2016										
125 FORTSON 230	2522 SONAT ELL J 230 1	100 C, 795.0 ACSR Drake 26/7	324	**439**	433	**100.3**	433	1	13 BONAIRE 500 18 SCHERER 500 1	Peak G	Firm AL on, Hatch 1 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario

FORTSON - TALBOT COUNTY #2 230 KV TEAMS # 14625 Need Date 6/1/2015 **GTC: NORTH AMERICUS-TALBOT CO #2 230KV SERIES REACTORS** GPC Cost [redacted]

Comment Date 5/29/2012 2015: (GTC) At N. Americus, remove the 2% reactors on the N. Americus-N.Tifton 230kV line and re-install in series with the existing 2% reactors on the N. Americus-Talbot Co.#2 230kV line.

	Overloaded Segment			Limiting Element			Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2015															
125	FORTSON	230	3039	TALBOT CO 2	230	1	100 795.0 ACSR Drake 26/7	338	**450**	433	**105.3**	433	1	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Firm AL on, Hatch 1 off
2016															
125	FORTSON	230	3039	TALBOT CO 2	230	1	100 795.0 ACSR Drake 26/7	325	**436**	433	**101.2**	433	1	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Hatch 2 off

LAGRANGE - YATES 115 KV TEAMS # 14505 Need Date 6/1/2014 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)** GPC Cost [redacted]

Comment Date 5/29/2012 2014: Dyer Road 230/115kV

	Overloaded Segment			Limiting Element			Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2015															
623	LAGRANGE 3	115	624	RAGLAND ST	115	1	100 477.0 ACSR Hawk 26/7	146	**177**	155	**113.4**	155	27	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin Area + Firm AL
624	RAGLAND ST	115	625	LAGRANGE PR	115	1	100C 477.0 ACSR COND	147	**178**	155	**113.4**	155	28	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin Area + Firm AL
2016															
623	LAGRANGE 3	115	624	RAGLAND ST	115	1	100 477.0 ACSR Hawk 26/7	149	**181**	155	**115.9**	155	41	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin Area + Firm AL
624	RAGLAND ST	115	625	LAGRANGE PR	115	1	100C 477.0 ACSR COND	150	**181**	155	**115.9**	155	41	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin Area + Firm AL
2017															
623	LAGRANGE 3	115	624	RAGLAND ST	115	1	100 477.0 ACSR Hawk 26/7	154	**185**	155	**118.6**	155	97	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin Area + Firm AL
624	RAGLAND ST	115	625	LAGRANGE PR	115	1	100C 477.0 ACSR COND	154	**186**	155	**118.7**	155	98	1599 POSSUM BR 115 1748 TISINGER 115 1	Peak G	Franklin Area + Firm AL

NORTH AMERICUS - NORTH TIFTON 230 KV TEAMS # 14178 Need Date 6/1/2014 **NORTH TIFTON SECOND 500/230 KV AUTO** GPC Cost [redacted]

Comment Date 5/31/2012 2014: Second North Tifton 500/230 kV Auto

	Overloaded Segment			Limiting Element			Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2015															
222	N TIFTON	230	1565	R_NANTIFTON	230	1	50C 795 ACSR	113	**222**	220	**103.3**	220	1	24 N TIFTON 500 222 N TIFTON 230 1	Peak G	Franklin Area + Firm AL
2016															
222	N TIFTON	230	1565	R_NANTIFTON	230	1	50C 795 ACSR	110	**221**	220	**101.3**	220	1	24 N TIFTON 500 222 N TIFTON 230 1	Peak G	Franklin Area + Firm AL

NORTH AMERICUS - PALMYRA 230 KV

TEAMS # 10838 Need Date 6/1/2030 GTC: NORTH AMERICUS - PALMYRA 230 KV LINE UPGRADE (GTC) GPC Cost [redacted]

Comment Date 4/25/2012 2015: Not a problem in unstripped cases with all other fixes in. Verify with VAL cases. (Alt: TEAMS 10838 GTC - Upgrade 33 mi of 50C 1033.5 ACSR to 75C or better)

2015

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
140 N AMERICUS 230 141 PALMYRA 230 1	50C 1033 ACSR	180	**263**	259	**102.9**	259	1	2500 RACCOON CK 500 2510 RACCOON CK 230 1	Peak G	Franklin Area Max

NORTH AMERICUS - TALBOT COUNTY #2 230 KV

TEAMS # 14625 Need Date 6/1/2015 GTC: NORTH AMERICUS-TALBOT CO #2 230KV SERIES REACTORS GPC Cost [redacted]

Comment Date 5/29/2012 2015: (GTC) At N. Americus, remove the 2% reactors on the N. Americus-N.Tifton 230kV line and re-install in series with the existing 2% reactors on the N. Americus-Talbot Co.#2 230kV line.

2015

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
138 ELLAVILLE 2 230 1570 R_NAFORTSON 230 1	100C 795 ACSR DRAKE 26/7	319	**418**	433	**100.1**	433	1	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Franklin Area + Firm AL
138 ELLAVILLE 2 230 1592 TAZEWELL 230 1	100 795.0 ACSR Drake 26/7	332	**427**	433	**102.3**	433	1	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Franklin Area + Firm AL
1592 TAZEWELL 230 2218 BOX SPRINGS 230 1	100C 795 ACSR Drake 26/7	354	**456**	433	**107.5**	433	4	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Franklin Area + Firm AL
2218 BOX SPRINGS 230 3039 TALBOT CO 2 230 1	100 795.0 ACSR Drake 26/7	370	**479**	433	**109.4**	433	4	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Franklin Area + Firm AL

2016

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
1592 TAZEWELL 230 2218 BOX SPRINGS 230 1	100C 795 ACSR Drake 26/7	345	**445**	433	**104.1**	433	2	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Franklin Area + Firm AL
2218 BOX SPRINGS 230 3039 TALBOT CO 2 230 1	100 795.0 ACSR Drake 26/7	360	**467**	433	**106.1**	433	4	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Franklin Area + Firm AL

2017

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
1592 TAZEWELL 230 2218 BOX SPRINGS 230 1	100C 795 ACSR Drake 26/7	338	**433**	433	**101.3**	433	1	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Franklin Area + Firm AL
2218 BOX SPRINGS 230 3039 TALBOT CO 2 230 1	100 795.0 ACSR Drake 26/7	355	**455**	433	**103.3**	433	2	10 FORTSON 500 24 N TIFTON 500 1	Peak G	Franklin Area + Firm AL

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario

ARKWRIGHT - FORREST ROAD 115 KV

TEAMS # | Need Date | Comment Date 5/30/2012 | GPC Cost [redacted]

OP 2015: Move Bloomfield load to Dorsett by temporary closing N.O. 111003 and opening N.C. 111001 on the S. Macon - Bloomfield 115 kV line.
Alternate Project PI 11686 Arkwright 115 kV Switching Station Rebuild; This project will construct a new breaker-and-a-half scheme substation with 3000A capacity adjacent to the existing substation. Allow for future 230 kV and 115 kV expansion. Retire the existing sub and install a new control house.

2015																				
756	ARKWRIGHT	115	1659	BASS RD J	115	1	350 copper bus at Arkwright	106	**156**	145	**105.8**	188	1	758 FORREST RD 115 2303 WESLEYANDR 115 1	Shoulder G	Macon Area Max

AULTMAN ROAD - BONAIRE PRIMARY 115 KV

TEAMS # 12576 | Need Date 6/1/2016 | Comment Date 5/30/2012 | MEAG: AULTMAN ROAD - BONAIRE PRIMARY 115 KV RECONDUCTOR | GPC Cost [redacted]

2014-15: OP - Open PCB 908938 @ Aultman Rd - Dorsett 115 kV line at Aultman Rd. (Dynamp 25.2 minutes)
2016 PI 12576: Reconductor the 3.65 mile, Bonaire - Peach Blossom 115 kV line section (presently 100°C 336 ACSR) of the Aultman Road - Bonaire 115kV line, with 100°C 795 ACSR.

2014																				
804	BONAIRE	115	2319	PCH BLOSSOM	115	1	100°C 336.4 ACSR Linnet 26/7	96	**126**	124	**101.0**	124	1	804 BONAIRE 115 806 96 HWY 115 1	Peak C	Athens-Monroe Area Max
2015																				
804	BONAIRE	115	2319	PCH BLOSSOM	115	1	100°C 336.4 ACSR Linnet 26/7	90	**125**	124	**100.4**	124	1	782 WEST BYR 115 787 DORSETT 115 1	Peak G	Mid Georgia Cogen off
2016																				
804	BONAIRE	115	2319	PCH BLOSSOM	115	1	100°C 336.4 ACSR Linnet 26/7	99	**128**	124	**103.2**	124	3	804 BONAIRE 115 806 96 HWY 115 1	Peak C	Albany Area Max
2017																				
804	BONAIRE	115	2319	PCH BLOSSOM	115	1	100°C 336.4 ACSR Linnet 26/7	102	**133**	124	**106.4**	124	4	804 BONAIRE 115 806 96 HWY 115 1	Peak G	Mid Georgia Cogen off

BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV

TEAMS # 14567 | Need Date 6/1/2015 | Comment Date 5/8/2012 | GTC: BONAIRE PRIMARY 115 KV SWITCH REPLACEMENTS | GPC Cost [redacted]

2015: PI 14567 Replace 600 Amp switches 096439/096437 and 500 CU Jumpers @ Bonaire with 1200 Amp switch and the 1590 Jumpers.
Note: 2015 PI 14200 Dawson Primary - S. Columbus 115 kV Reconductor needs to be complete in order to utilize OP.
2015: OP Open Breaker 096438 @ Bonaire Primary (Dynamp 16.3 min)

2015																				
804	BONAIRE	115	1633	BLECKLEY	115	1	600A SWITCH @ Bonaire	94	**145**	135	**105.6**	138	1	13 BONAIRE 500 14 HATCH 500 1	Peak G	Hatch 1 off

Overloaded Segment							Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency					Case Type	Generation Scenario
BONAIRE PRIMARY - KATHLEEN 115 KV																				
TEAMS # 13588							Need Date 6/1/2015							BONAIRE - KATHLEEN 115 KV RECONDUCTOR						GPC Cost [redacted]
							Comment Date 5/8/2012							PI 13588: Reconductor the 5.86 mile, 100C 336 ACSR, Bonaire - Kathleen 115 kV line with 100C 795 ACSR.						
2015																				
804	BONAIRE	115	2263	WATERFORD	115	1	100 336.4 ACSR Linnet 26/7	18	**143**	124	**114.5**	124	1	150 BONAIRE	230	1603 KATHLEEN	230 1		Peak G	Mid Georgia Cogen off
1626	KATHLEEN	115	1627	FRITO LAY +	115	1	100C 336.4 ACSR COND	5	**124**	124	**100.1**	124	1	150 BONAIRE	230	1603 KATHLEEN	230 1		Peak G	Mid Georgia Cogen off
1627	FRITO LAY +	115	2263	WATERFORD	115	1	100°C 336.4 ACSR Linnet 26/7	9	**133**	124	**106.2**	124	1	150 BONAIRE	230	1603 KATHLEEN	230 1		Peak G	Mid Georgia Cogen off
2016																				
804	BONAIRE	115	2263	WATERFORD	115	1	100 336.4 ACSR Linnet 26/7	15	**137**	124	**109.6**	124	1	150 BONAIRE	230	1603 KATHLEEN	230 1		Peak G	Mid Georgia Cogen off
1627	FRITO LAY +	115	2263	WATERFORD	115	1	100°C 336.4 ACSR Linnet 26/7	9	**126**	124	**101.0**	124	1	150 BONAIRE	230	1603 KATHLEEN	230 1		Peak G	Mid Georgia Cogen off
2017																				
804	BONAIRE	115	2263	WATERFORD	115	1	100 336.4 ACSR Linnet 26/7	15	**136**	124	**108.3**	124	1	150 BONAIRE	230	1603 KATHLEEN	230 1		Peak G	Mid Georgia Cogen off
FORREST ROAD - RUMBLE ROAD 115 KV																				
TEAMS # 14569							Need Date 6/1/2015							FORREST RD - RUMBLE RD 115 KV SWITCH REPLACEMENTS						GPC Cost [redacted]
							Comment Date 5/30/2012							2015 PI 14569: Replace 1200A switches 031213 & 031221 @ Smarr Tap and 031749 @ Bolingbroke with 2000A switch. Also replace 1590 AAC jumpers @ Forrest Rd., Rumble Rd. and Bolingbroke with 2-750 AAC. (MAIN BUS AT FORREST ROAD IS 1590 AAC, SAME AS JUMPERS. NEED TO REPLACE BOTH OR NEITHER - JRC)						
2015																				
753	BOLINGBROKE	115	1588	SMARR J	115	1	1200 A sw. @ Smarr Jct	239	**281**	269	**102.0**	301	1	169 THOMASTON	230	173 DORSETT	230 1		Shoulder G	Macon Area Max
1588	SMARR J	115	3010	RUMBLERD	115	1	1200 A sw. @ Smarr Jct	244	**285**	269	**103.6**	301	1	169 THOMASTON	230	173 DORSETT	230 1		Shoulder G	Macon Area Max
2016																				
1588	SMARR J	115	3010	RUMBLERD	115	1	1200 A sw. @ Smarr Jct	240	**279**	269	**101.4**	301	1	169 THOMASTON	230	173 DORSETT	230 1		Shoulder G	Macon Area Max
GORDON - SANDERSVILLE #1 115 KV																				
TEAMS #							Need Date													GPC Cost [redacted]
							Comment Date 4/26/2012							2017 OP: Open PCB 035217 @ Gordon. (Dynamp 19.7 min) Alternate Project TEAMS 10442 Upgrade the 30 mile, 50 C 336.4 ACSR, Gordon - Robin Springs section of the Gordon - Sandersville 115kV line for 100 degree C operation.						
2017																				
153	ROBINS SP	115	828	DEEPSTEP	115	1	50°C 336.4 ACSR Linnet 26/7	38	**65**	63	**102.8**	63	1	13 BONAIRE	500	150 BONAIRE	230 1		Shoulder C	Savannah Area Max

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
DUM JON - GOSHEN 230 KV	TEAMS # 14221 Need Date 6/1/2021 Comment Date 3/1/2012							**GTC: GOSHEN 230-KV NON-CONDUCTOR IMPROVEMENTS** > 2018: 1200 amp line trap at Goshen replaced w/ 2,000 amp line trap. Recommend also replacing 1200 amp switches 037/039 with 2,000 amp switches. (GTC) Waiting on GTC to provide documentation.		GPC Cost [redacted]
2017										
113 PEACH ORCHD 230 114 GOSHEN 230 1	1200A LINE TRAP @ GOSHEN	211	**508**	497	103.1	602	1	1413 THOMSON 230 1490 THOMSON 500 1	Shoulder C	Savannah Area Max
GOSHEN - WAYNESBORO PRIMARY 115 KV	TEAMS # 11612 Need Date 6/1/2030 Comment Date 4/30/2012							**GTC/MEAG: GOSHEN - WAYNESBORO 115-KV RECONDUCTOR** 2013 - 2014: OP -- open line at Waynesboro ('14 Dynamp=18.3 min '15 Dynamp=13.4) 2015: Re-conductor line with 1351 ACSR		GPC Cost [redacted]
2013										
559 GOSHEN 115 1425 CLARK RD 115 1	100°C 336.4 ACSR Linnet 26/7	54	**130**	124	102.3	124	3	115 VOGTLE 230 116 WILSON 230 1	Peak G	Hatch 1 off
2014										
559 GOSHEN 115 1425 CLARK RD 115 1	100°C 336.4 ACSR Linnet 26/7	52	**131**	124	103.6	124	2	115 VOGTLE 230 116 WILSON 230 1	Peak G	Hatch 1 off
2015										
559 GOSHEN 115 1425 CLARK RD 115 1	100°C 336.4 ACSR Linnet 26/7	54	**138**	124	109.5	124	3	115 VOGTLE 230 116 WILSON 230 1	Peak G	Firm AL on, Hatch 1 off
598 GREENSCUT J 115 1425 CLARK RD 115 1	100 1033.5 ACSR Curlew 54/7	45	**129**	124	102.6	124	2	115 VOGTLE 230 116 WILSON 230 1	Peak G	Firm AL on, Hatch 1 off
2016										
559 GOSHEN 115 1425 CLARK RD 115 1	100°C 336.4 ACSR Linnet 26/7	73	**196**	124	155.4	124	3	115 VOGTLE 230 116 WILSON 230 1	Peak G	Firm AL on, Hatch 1 off
562 WAYNESBORO 115 598 GREENSCUT J 115 1	COPPER 4/0 JUMPER @ WAYNES	54	**173**	124	140.5	124	3	115 VOGTLE 230 116 WILSON 230 1	Peak G	Firm AL on, Hatch 1 off
598 GREENSCUT J 115 1425 CLARK RD 115 1	100 1033.5 ACSR Curlew 54/7	64	**185**	124	148.2	124	3	115 VOGTLE 230 116 WILSON 230 1	Peak G	Firm AL on, Hatch 1 off
2017										
559 GOSHEN 115 1425 CLARK RD 115 1	100°C 336.4 ACSR Linnet 26/7	86	**226**	124	180.3	124	4	115 VOGTLE 230 116 WILSON 230 1	Peak G	Hatch 1 off
562 WAYNESBORO 115 598 GREENSCUT J 115 1	COPPER 4/0 JUMPER @ WAYNES	66	**201**	124	164.9	124	4	115 VOGTLE 230 116 WILSON 230 1	Peak G	Hatch 1 off
598 GREENSCUT J 115 1425 CLARK RD 115 1	100 1033.5 ACSR Curlew 54/7	76	**214**	124	172.9	124	4	115 VOGTLE 230 116 WILSON 230 1	Peak G	Hatch 1 off
VOGTLE - WILSON 230 KV	TEAMS # 14663 Need Date 6/1/2016 Comment Date 5/30/2012							**WADLEY 500/230 KV PROJECT** 2016: Wadley 500/230 kV Project		GPC Cost [redacted]
2017										
115 VOGTLE + 230 116 WILSON 230 1	160C 1351 ACSS	622	**884**	807	107.2	807	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Hatch 1 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
WADLEY PRIMARY - WAYNESBORO PRIMARY 230 KV	TEAMS # 14663 Need Date 6/1/2016 Comment Date 5/30/2012							WADLEY 500/230 KV PROJECT 2016: Wadley 500/230 kV Project		GPC Cost [redacted]
2017										
117 WAYNESBORO 230 118 WADLEY PRI 230 1	1000 copper bus @ Wadley Primary	419	**615**	556	**112.1**	866	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Vogtle Area Max
WAYNESBORO 230/115 KV AUTO	TEAMS # 12720 Need Date 6/1/2016 Comment Date 4/30/2012							WAYNESBORO 230/115 KV AUTOBANK ADDITION 2016: Rerate transformer. If rerate is not possible, advance the 2019 project. 2017: Replace with 400-MVA transformer		GPC Cost [redacted]
2016										
117 WAYNESBORO 230 562 WAYNESBORO 115 1	Transformer nameplate rating	196	**310**	280	**110.6**	280	1	117 WAYNESBORO 230 118 WADLEY PRI 230 1	Peak G	Vogtle Area Max
2017										
117 WAYNESBORO 230 562 WAYNESBORO 115 1	Transformer nameplate rating	205	**340**	280	**121.4**	280	1	117 WAYNESBORO 230 118 WADLEY PRI 230 1	Peak G	Vogtle Area Max
WAYNESBORO PRIMARY - WILSON 230 KV	TEAMS # 14663 Need Date 6/1/2016 Comment Date 5/30/2012							WADLEY 500/230 KV PROJECT 2016: Wadley 500/230 kV Project		GPC Cost [redacted]
2017										
116 WILSON 230 117 WAYNESBORO 230 1	2000A LINE TRAP @ WAYNESBO	621	**870**	828	**106.5**	866	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Vogtle Area Max

Overloaded Segment							Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency				Case Type	Generation Scenario
BARNEYVILLE - DOUGLAS 115 KV (Barneyville - Nashville 2)																			
TEAMS # 14278							Need Date 6/1/2015							DOUGLAS - PINE GROVE 230 KV LINE					GPC Cost [redacted]
							Comment Date 5/30/2012							Not a problem. Bad Vogtle 1 off case.					
2016																			
1058	NASHVILLE 2	115	2512	PROPEX J2	115	1	50°C 477.0 ACSR Hawk 26/7	37	**77**	79	100.6	79	2	1051 TIFTON J 115	1052 S TIFTON	115 1		Peak G	Lansing Smith 3 off
2512	PROPEX J2	115	2556	NASHVILLE 1	115	1	50°C 477.0 ACSR Hawk 26/7	38	**77**	79	100.6	79	2	1049 N TIFTON 115	1051 TIFTON J	115 1		Peak G	Farley 1 off
BARNEYVILLE - PINE GROVE PRIMARY 115 KV																			
TEAMS # 14278							Need Date 6/1/2015							DOUGLAS - PINE GROVE 230 KV LINE					GPC Cost [redacted]
							Comment Date 2/27/2012							2015: Douglas - Pine Grove 230 kV Line					
2014																			
1883	ADEL 1J	115	1884	S ADEL J	115	1	100°C 336.4 ACSR Linnet 26/7	73	**124**	124	101.6	124	1	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
2015																			
1055	BARNEYVILLE	115	1883	ADEL 1J	115	1	125° C 336ACSR CONDUCTOR	96	**150**	142	107.4	142	2	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
1061	CECIL	115	1884	S ADEL J	115	1	100°C 336.4 ACSR Linnet 26/7	71	**122**	124	102.4	124	1	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
1883	ADEL 1J	115	1884	S ADEL J	115	1	100°C 336.4 ACSR Linnet 26/7	83	**135**	124	112.5	124	2	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
2016																			
1055	BARNEYVILLE	115	1883	ADEL 1J	115	1	125° C 336ACSR CONDUCTOR	98	**152**	142	108.8	142	2	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
1061	CECIL	115	1884	S ADEL J	115	1	100°C 336.4 ACSR Linnet 26/7	72	**124**	124	103.9	124	1	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
1883	ADEL 1J	115	1884	S ADEL J	115	1	100°C 336.4 ACSR Linnet 26/7	85	**137**	124	114.0	124	2	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
2017																			
1055	BARNEYVILLE	115	1883	ADEL 1J	115	1	125° C 336ACSR CONDUCTOR	90	**143**	142	102.5	142	1	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
1883	ADEL 1J	115	1884	S ADEL J	115	1	100°C 336.4 ACSR Linnet 26/7	77	**129**	124	106.9	124	2	222 N TIFTON 230	1877 OSCEOLA SW	230 1		Peak G	Lansing Smith 3 off
DOUGLAS - KETTLE CREEK PRIMARY 115 KV																			
TEAMS # 14278							Need Date 6/1/2015							DOUGLAS - PINE GROVE 230 KV LINE					GPC Cost [redacted]
							Comment Date 2/27/2012							2015: Douglas - Pine Grove 230 kV Line					
2015																			
1044	DOUGLAS	115	1074	OAK PARK	115	1	75C 336.4 ACSR COND	68	**100**	100	100.8	100	1	223 DOUGLAS 230	1810 WILSONVILL	230 1		Peak G	Hatch 2 off
2016																			
1044	DOUGLAS	115	1074	OAK PARK	115	1	75C 336.4 ACSR COND	67	**100**	100	100.2	100	1	223 DOUGLAS 230	1810 WILSONVILL	230 1		Peak G	Hatch 2 off

Overloaded Segment							Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
JASPER (PEF) - WEST HOMERVILLE 115 KV							**TEAMS #** 14319 **Need Date** 12/31/2014 **JASPER - PINE GROVE PRIMARY 115 KV REBUILD** **GPC Cost** [redacted] **Comment Date** 5/30/2012 2014: Jasper (PEF) - Pine Grove Primary 115 kV Project									
2015																
1081	TARVER	115	1865	W HOMERVL	115	1	60C 4/0 ACSR COND.	44	**63**	59	**107.5**	60	3	220 PINE GROVE 230 1870 ERCO 230 1	Shoulder G	Firm AL on, L Smith 3 off
2016																
1081	TARVER	115	1865	W HOMERVL	115	1	60C 4/0 ACSR COND.	45	**63**	59	**109.8**	60	3	220 PINE GROVE 230 1870 ERCO 230 1	Shoulder G	Lansing Smith 3 off
1081	TARVER	115	403113	JASPER	115	1	60C 4/0 ACSR Penguin 6/1	40	**58**	59	**102.1**		1	220 PINE GROVE 230 1870 ERCO 230 1	Shoulder G	Lansing Smith 3 off
KETTLE CREEK PRIMARY - PINE GROVE PRIMARY 115 KV							**TEAMS #** 14278 **Need Date** 6/1/2015 **DOUGLAS - PINE GROVE 230 KV LINE** **GPC Cost** [redacted] **Comment Date** 2/27/2012 2015: Douglas - Pine Grove 230 kV Line									
2015																
722	PEARSON J	115	1085	KETTLECK PR	115	1	50°C 4/0 ACSR Penguin 6/1	31	**52**	47	**110.3**	47	2	222 N TIFTON 230 1877 OSCEOLA SW 230 1	Peak G	Farley 1 off
2016																
722	PEARSON J	115	1085	KETTLECK PR	115	1	50°C 4/0 ACSR Penguin 6/1	33	**54**	47	**115.1**	47	2	222 N TIFTON 230 1877 OSCEOLA SW 230 1	Peak G	Farley 1 off
722	PEARSON J	115	1872	N LAKELAND	115	1	50°C 4/0 ACSR Penguin 6/1	27	**47**	47	**104.1**	47	1	222 N TIFTON 230 1877 OSCEOLA SW 230 1	Peak G	Farley 1 off
2017																
722	PEARSON J	115	1085	KETTLECK PR	115	1	50°C 4/0 ACSR Penguin 6/1	32	**52**	47	**110.4**	47	2	222 N TIFTON 230 1877 OSCEOLA SW 230 1	Peak G	Farley 1 off
KETTLE CREEK PRIMARY - WEST HOMERVILLE 115 KV							**TEAMS #** 14319 **Need Date** 12/31/2014 **JASPER - PINE GROVE PRIMARY 115 KV REBUILD** **GPC Cost** [redacted] **Comment Date** 5/30/2012 2014: Jasper (PEF) - Pine Grove Primary 115 kV Project									
2014																
1085	KETTLECK PR	115	1863	MANOR	115	1	110°C 4/0 ACSR Penguin 6/1	78	**98**	97	**100.3**	97	1	220 PINE GROVE 230 1870 ERCO 230 1	Peak G	Lansing Smith 3 off
2015																
1082	HOMERVILLE	115	1863	MANOR	115	1	110C 4/0 ACSR COND	79	**98**	97	**102.8**		1	220 PINE GROVE 230 1870 ERCO 230 1	Peak G	Lansing Smith 3 off
1085	KETTLECK PR	115	1863	MANOR	115	1	110°C 4/0 ACSR Penguin 6/1	83	**103**	97	**105.7**	97	3	220 PINE GROVE 230 1870 ERCO 230 1	Peak G	Lansing Smith 3 off
2016																
1082	HOMERVILLE	115	1863	MANOR	115	1	110C 4/0 ACSR COND	81	**100**	97	**104.8**		3	220 PINE GROVE 230 1870 ERCO 230 1	Peak G	Lansing Smith 3 off
1085	KETTLECK PR	115	1863	MANOR	115	1	110°C 4/0 ACSR Penguin 6/1	84	**105**	97	**107.8**	97	3	220 PINE GROVE 230 1870 ERCO 230 1	Peak G	Lansing Smith 3 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
MITCHELL - MOULTRIE 115 KV	TEAMS # 14278 Need Date 6/1/2015 Comment Date 5/31/2012							DOUGLAS - PINE GROVE 230 KV LINE Worst contingency will be resolved by addition of the second North Tifton 500/230 kV auto. For the next worst contingency (loss of 222-1875-1), use OP: Open bkr 030128 at Moultrie (15.6 Dynamp min)		GPC Cost [redacted]
2013										
681 MITCHELL 115 682 LESTER 115 1	100°C 336.4 ACSR Linnet 26/7	85	**127**	124	**100.0**	124	1	24 N TIFTON 500 222 N TIFTON 230 1	Peak G	Albany Area Max
2014										
681 MITCHELL 115 682 LESTER 115 1	100°C 336.4 ACSR Linnet 26/7	86	**132**	124	**106.2**	124	1	24 N TIFTON 500 222 N TIFTON 230 1	Peak G	Albany Area Max
2015										
681 MITCHELL 115 682 LESTER 115 1	100°C 336.4 ACSR Linnet 26/7	89	**134**	124	**108.3**	124	2	24 N TIFTON 500 222 N TIFTON 230 1	Peak G	Albany Area Max
2016										
681 MITCHELL 115 682 LESTER 115 1	100°C 336.4 ACSR Linnet 26/7	80	**127**	124	**101.8**	124	1	24 N TIFTON 500 222 N TIFTON 230 1	Peak G	Albany Area Max
MOULTRIE - NORTH TIFTON 115 KV	TEAMS # 14278 Need Date 6/1/2015 Comment Date 2/27/2012							DOUGLAS - PINE GROVE 230 KV LINE 2015: Douglas - Pine Grove 230 kV Line		GPC Cost [redacted]
2015										
1049 N TIFTON 115 1858 TIFTON J 115 1	500 CU jumpers @ N TIFT	115	**183**	180	**102.8**	180	1	222 N TIFTON 230 1875 E MOULTRIE 230 1	Peak G	Lansing Smith 3 off
2016										
1049 N TIFTON 115 1858 TIFTON J 115 1	500 CU jumpers @ N TIFT	113	**182**	180	**101.4**	180	1	222 N TIFTON 230 1875 E MOULTRIE 230 1	Peak G	Lansing Smith 3 off
2017										
1049 N TIFTON 115 1858 TIFTON J 115 1	500 CU jumpers @ N TIFT	113	**178**	180	**100.3**	180	1	222 N TIFTON 230 1875 E MOULTRIE 230 1	Peak G	Lansing Smith 3 off
NORTH TIFTON - PINE GROVE PRIMARY 230 KV	TEAMS # 14278 Need Date 6/1/2015 Comment Date 2/27/2012							DOUGLAS - PINE GROVE 230 KV LINE 2015: Douglas - Pine Grove 230 kV Line		GPC Cost [redacted]
2015										
222 N TIFTON 230 1877 OSCEOLA SW 230 1	100C 1033.5 ACSR Curlew	434	**519**	509	**104.9**	509	4	1875 E MOULTRIE 230 1888 E BERLIN 230 1	Peak G	Lansing Smith 3 off
2016										
222 N TIFTON 230 1877 OSCEOLA SW 230 1	100C 1033.5 ACSR Curlew	437	**523**	509	**105.7**	509	5	1875 E MOULTRIE 230 1888 E BERLIN 230 1	Peak G	Lansing Smith 3 off
2017										
222 N TIFTON 230 1877 OSCEOLA SW 230 1	100C 1033.5 ACSR Curlew	418	**501**	509	**101.1**	509	2	1875 E MOULTRIE 230 1888 E BERLIN 230 1	Peak G	Lansing Smith 3 off

Overloaded Segment						Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency						Case Type	Generation Scenario
NORTH TIFTON 500/230 KV AUTO							TEAMS # 14178	Need Date 6/1/2014	NORTH TIFTON SECOND 500/230 KV AUTO										GPC Cost [redacted]	
								Comment Date 5/30/2012	2014: North Tifton 500/230 kV Second Auto											
2014																				
24	N TIFTON	500	222	N TIFTON	230 1	Transformer bonus rating	1158	**1581**	1536	102.9	1536	1	2500 RACCOON CK	500	2510 RACCOON CK	230 1			Peak G	Wansley Area Max
2015																				
24	N TIFTON	500	222	N TIFTON	230 1	Transformer bonus rating	1161	**1611**	1536	104.9	1536	1	2500 RACCOON CK	500	2510 RACCOON CK	230 1			Peak G	Firm AL on, L Smith 3 off
2016																				
24	N TIFTON	500	222	N TIFTON	230 1	Transformer bonus rating	1162	**1585**	1536	103.2	1536	1	2500 RACCOON CK	500	2510 RACCOON CK	230 1			Peak G	Mid Georgia Cogen off
2017																				
24	N TIFTON	500	222	N TIFTON	230 1	Transformer bonus rating	1137	**1573**	1536	102.4	1536	1	2500 RACCOON CK	500	2510 RACCOON CK	230 1			Peak G	Firm AL on, L Smith 3 off
OFFERMAN 230/115 KV AUTO #1							TEAMS # 14204	Need Date 6/1/2015	OFFERMAN 230/115 KV AUTOBANK REPLACEMENTS										GPC Cost [redacted]	
								Comment Date 4/26/2012	2015: Offerman 230/115 kV Autobank Replacement											
2016																				
224	OFFERMAN	230	1093	OFFERMAN	115 1	Transformer bonus rating	103	**160**	160	100.2	155	1	224 OFFERMAN	230	1093 OFFERMAN	115 2			Peak G	Brunswick Area Max
OFFERMAN 230/115 KV AUTO #2							TEAMS # 14204	Need Date 6/1/2015	OFFERMAN 230/115 KV AUTOBANK REPLACEMENTS										GPC Cost [redacted]	
								Comment Date 4/26/2012	2015: Offerman 230/115 kV Autobank Replacement											
2015																				
224	OFFERMAN	230	1093	OFFERMAN	115 2	Transformer bonus rating	97	**155**	155	100.0	160	1	224 OFFERMAN	230	1093 OFFERMAN	115 1			Peak G	Brunswick Area Max
2016																				
224	OFFERMAN	230	1093	OFFERMAN	115 2	Transformer bonus rating	99	**158**	155	101.8	160	1	224 OFFERMAN	230	1093 OFFERMAN	115 1			Peak G	Brunswick Area Max

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
PALMYRA - SLAPPEY DRIVE 115 KV	TEAMS # 14278 Need Date 6/1/2015 Comment Date 4/26/2012	DOUGLAS - PINE GROVE 230 KV LINE						2013-2014: Operating Procedure available: Open switch 065819 (Dynamp Time: 25.2 min) 2015: Not a problem (MEAG replaced switches @ Albany 9 already)		GPC Cost [redacted]
2013										
688 SLAPPEY DR 115 1566 ALBANY 2J 115 1	100°C 477.0 ACSR Hawk 26/7	84	**160**	155	102.0	155	2	1519 ALBANY 7J 115 1567 ALBANY 7 115 1	Shoulder C	Albany Area Max
2014										
688 SLAPPEY DR 115 1566 ALBANY 2J 115 1	100°C 477.0 ACSR Hawk 26/7	85	**161**	155	103.4	155	2	678 ALBANY 115 1519 ALBANY 7J 115 1	Shoulder C	Albany Area Max
2015										
671 GILLION J 115 672 ALBANY 9 115 1	600 AMP SWITCH @ ALBANY 9	67	**134**	135	101.0	155	1	2500 RACCOON CK 500 2510 RACCOON CK 230 1	Peak G	Franklin Area Max
PINE GROVE PRIMARY - TWIN LAKES 115 KV	TEAMS # 14319 Need Date 12/31/2014 Comment Date 5/30/2012	JASPER - PINE GROVE PRIMARY 115 KV REBUILD						2014: Jasper (PEF) - Pine Grove Primary 115 kV Project		GPC Cost [redacted]
2014										
1062 HICKORY GRV 115 1065 PINE GROVE 115 1	100 795.0 ACSR Drake 26/7	123	**219**	216	103.5		1	220 PINE GROVE 230 1870 ERCO 230 1	Peak G	Firm AL on, L Smith 3 off
2015										
1062 HICKORY GRV 115 1065 PINE GROVE 115 1	100 795.0 ACSR Drake 26/7	123	**221**	216	104.8		1	220 PINE GROVE 230 1870 ERCO 230 1	Peak G	Lansing Smith 3 off
2016										
1062 HICKORY GRV 115 1065 PINE GROVE 115 1	100 795.0 ACSR Drake 26/7	124	**221**	216	105.1		1	220 PINE GROVE 230 1870 ERCO 230 1	Peak G	Firm AL on, L Smith 3 off
RACCOON CREEK - THOMASVILLE 230 KV	TEAMS # 13626 Need Date 6/1/2015 Comment Date 5/30/2012	RACCOON CREEK - THOMASVILLE 230 KV LINE RECONDUCTOR						2015: Reconductor the Raccoon Creek - Cotton section with 170°C 1033 ACSS 54/7		GPC Cost [redacted]
2015										
1882 N CAMILLA 230 2510 RACCOON CK 230 1	100°C 1033.5 ACSR Curlew 54/7	438	**532**	509	105.4	509	3	218 S BAINBRDG 230 4601 FARLEY 6 230 1	Peak G	Lansing Smith 3 off
2016										
1882 N CAMILLA 230 2510 RACCOON CK 230 1	100°C 1033.5 ACSR Curlew 54/7	449	**546**	509	107.1	509	6	218 S BAINBRDG 230 4601 FARLEY 6 230 1	Peak G	Lansing Smith 3 off
2017										
1882 N CAMILLA 230 2510 RACCOON CK 230 1	100°C 1033.5 ACSR Curlew 54/7	439	**535**	509	105.0	509	3	218 S BAINBRDG 230 4601 FARLEY 6 230 1	Peak G	Lansing Smith 3 off

2013-2017 TPE Thermal Problems v1C STRE - IRP Public Disclosure

TP-East / GPC

Zone 216 - South Region

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
SUWANNEE (PEF) - TWIN LAKES 115 KV	TEAMS #	Need Date								GPC Cost [redacted]
		Comment Date 5/3/2012	Florida Issue							
2013										
1833 DASHER 115 403132 SUWANNEE PL 115 1	CT tap settings	65	**149**	120	**125.3**	155	2	220 PINE GROVE 230 1870 ERCO 230 1	Shoulder G	Suwannee off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario

DANIEL SIDING - LITTLE OGEECHEE 115 KV

TEAMS # 11238 Need Date 6/1/2018 Comment Date 5/30/2012

DANIEL SIDING - LITTLE OGEECHEE 115-KV RECONDUCTOR

GPC Cost [redacted]

2013 - 2017: OP --> open Daniel Siding - Riceboro 115-kv line at Riceboro (Dynamp = 30 min)
Later: Daniel Siding - Little Ogeechee 115-kV Reconductor (11238)

2013																		
9052	LT OGEECHEE	115	9144	RICH HL TAP	115	1	100°C 1033.5 ACSR Curlew 54/7	143	**256**	255	**101.0**	255	2	2152 DORCHESTER 230 9051 LT OGEECHE 230 1	Peak G	Savannah Area Max
2014																		
9052	LT OGEECHEE	115	9144	RICH HL TAP	115	1	100°C 1033.5 ACSR Curlew 54/7	146	**259**	255	**102.1**	255	2	2152 DORCHESTER 230 9051 LT OGEECHE 230 1	Peak G	Savannah Area Max
2015																		
9052	LT OGEECHEE	115	9144	RICH HL TAP	115	1	100°C 1033.5 ACSR Curlew 54/7	150	**266**	255	**104.9**	255	2	2152 DORCHESTER 230 9051 LT OGEECHE 230 1	Peak G	Savannah Area Max
2016																		
9052	LT OGEECHEE	115	9144	RICH HL TAP	115	1	100°C 1033.5 ACSR Curlew 54/7	151	**269**	255	**106.0**	255	2	2152 DORCHESTER 230 9051 LT OGEECHE 230 1	Peak G	Savannah Area Max
2017																		
9052	LT OGEECHEE	115	9144	RICH HL TAP	115	1	100°C 1033.5 ACSR Curlew 54/7	157	**277**	255	**109.6**	255	2	2152 DORCHESTER 230 9051 LT OGEECHE 230 1	Peak G	Savannah Area Max

DEAL BRANCH - SYLVANIA 115 KV

TEAMS # 12095 Need Date 6/1/2017 Comment Date 5/30/2012

DEAL BRANCH - SYLVANIA 115-KV UPGRADE

GPC Cost [redacted]

2016: OP - open Deal Branch - Sylvania 115kv @ Deal Branch (Dynamp = 16.9 min)
2017: Deal Branch - Sylvania 115 kV Upgrade

2017																		
571	SYLVANIA	115	581	KING MFG +	115	1	50C 336.4 ACSR COND	34	**71**	63	**114.6**	63	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Vogtle Area Max
580	CLITO	115	1483	DOVER TP	115	1	50 336.4 ACSR Linnet 26/7	27	**63**	63	**101.6**	63	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Vogtle Area Max
581	KING MFG +	115	1483	DOVER TP	115	1	50 336.4 ACSR Linnet 26/7	31	**67**	63	**109.4**	63	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Vogtle Area Max

JESUP - LUDOWICI PRIMARY 115 KV

TEAMS # 11821 Need Date 6/1/2018 Comment Date 4/30/2012

JESUP - LUDOWICI PRIMARY 115-KV RECONDUCTOR

GPC Cost [redacted]

2012-2016: OP: Pre-contingency - bring up McManus generation (160 MW) Post-contingency - Open Jesup - Offerman 115kv at Jesup (Jesup-Screven) -- If needed
2017: Jesup - Ludowici Primary 115kv Line Reconductor (TEAMS #11821)

2017																		
1099	N JESUP	115	1100	RAYONIER +	115	1	100°C 336.4 ACSR Linnet 26/7	44	**129**	124	**105.8**	124	2	15 THALMANN 500 2158 MCCALL RD 500 1	Peak G	Savannah Area Max

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
MCINTOSH - WEST MCINTOSH (BLACK) 230 KV	TEAMS # 13103 Need Date 6/1/2017							**WEST MCINTOSH 230-KV REACTORS**		GPC Cost [redacted]
	Comment Date 4/30/2012							2018 (+): McIntosh CC10 trips with line -- loading @ 95%		
2017										
1424 W MCINTOSH2 230 9001 MCINTOSH 230 1	2-1351 ACSS @ 160° C	967	**1756**	1614	**105.6**	1614	1	1421 W MCINTOSH 230 9001 MCINTOSH 230 1	Peak C	Albany Area Max
MCINTOSH - WEST MCINTOSH (WHITE) 230 KV	TEAMS # 13103 Need Date 6/1/2017							**WEST MCINTOSH 230-KV REACTORS**		GPC Cost [redacted]
	Comment Date 4/30/2012							2018 (+): McIntosh CC11 trips with line -- loading @ 95%		
2017										
1421 W MCINTOSH1 230 9001 MCINTOSH 230 1	2-1351 ACSS @ 160° C	953	**1751**	1614	**105.3**	1614	1	1424 W MCINTOSH 230 9001 MCINTOSH 230 1	Peak C	Albany Area Max
MCINTOSH - YEMASSEE (SCE&G) 115 KV	TEAMS # 13670 Need Date 6/1/2017							**MCINTOSH - YEMASSEE (SCE&G) 115KV TIE-LINE RECONDUCTOR**		GPC Cost [redacted]
	Comment Date 5/30/2012							2017: Reconductor GPC portion with 160C, 1351 ACSS Also need Georgia/South Carolina interface project		
2017										
9021 MCINTOSH 115 370475 3JASPER T 115 1	75 C 1272 ACSR CONDUCTOR	24	**255**	230	**108.7**	230	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Shoulder C	Savannah Area Max
MCINTOSH 230/115 KV AUTO	TEAMS # 11662 Need Date 6/1/2017							**MCINTOSH 230/115-KV TRANSFORMER REPLACEMENT**		GPC Cost [redacted]
	Comment Date 2/20/2012							2017: Replace with 400 MVA auto Note: Need Georgia/South Carolina interface project		
2017										
9001 MCINTOSH 230 9021 MCINTOSH 115 1	Transformer bonus rating (280 MVA	169	**340**	319	**106.7**	319	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Shoulder C	Savannah Area Max

MCMANUS - WEST BRUNSWICK 115 KV

TEAMS # 13514 Need Date 6/1/2014 MCMANUS - WEST BRUNSWICK 115 KV RECONDUCTOR GPC Cost [redacted]

Comment Date 5/8/2012

2013 Operating Procedure: Step 1 (Pre-contingency) : Close N.O. line switch RLB 513771 @ McManus-Darien 115 kV line; Step 2 (Post-contingency) : Open 115 kV Bus tie Breaker 054220 @ McManus
2014 PI 13514: Re-conductor the McManus - West Brunswick 115-kV line, 5.7 miles, with 1351 ACSR conductor. No physical substation work needed other than line jumpers.

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2013										
864 W BRUNSWICK 115 865 MCMANUS 115 1	927 ACAR COND	82	**222**	181	**119.3**	181	1	165 W BRUNSWIC 230 167 MCMANUS 230 1	Shoulder G	Brunswick Area Max
2014										
864 W BRUNSWICK 115 865 MCMANUS 115 1	927 ACAR COND	83	**221**	181	**118.7**	181	1	165 W BRUNSWIC 230 167 MCMANUS 230 1	Shoulder C	Brunswick Area Max
2015										
864 W BRUNSWICK 115 865 MCMANUS 115 1	927 ACAR COND	84	**220**	181	**118.6**	181	1	165 W BRUNSWIC 230 167 MCMANUS 230 1	Shoulder G	Brunswick Area Max
2016										
864 W BRUNSWICK 115 865 MCMANUS 115 1	927 ACAR COND	88	**239**	181	**128.8**	181	1	165 W BRUNSWIC 230 167 MCMANUS 230 1	Shoulder C	Brunswick Area Max
2017										
864 W BRUNSWICK 115 865 MCMANUS 115 1	927 ACAR COND	88	**237**	181	**127.7**	181	1	165 W BRUNSWIC 230 167 MCMANUS 230 1	Shoulder C	Brunswick Area Max

2018-2022 TPE Thermal Problems v2A STRE - IRP Public Disclosure

TP-East / GPC

Zone 201 - Metro West Region

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
JACK MCDONOUGH - WEST MARIETTA (WHITE) 115 KV										
	TEAMS # 12685 **Need Date** 6/1/2022							**JACK MCDONOUGH - WEST MARIETTA 115KV (WHITE) RECONDUCTOR**		**GPC Cost** [redacted]
	Comment Date 7/25/2012							Delay reconductor project from 2018 to 2022		
2022										
216 JACK MCD2 115 231 KING SP RD 115 1	75°C 739 ACAR	46	**156**	156	**101.0**	156	1	998 W MARIETTA 115 999 FAIR OAKS 115 1	Peak C	McDonough 4 off

HOLLY SPRINGS PRIMARY - HOPEWELL 115 KV

TEAMS # 13614 Need Date 6/1/2021 GTC: ARNOLD MILL - HOPEWELL 230 KV AREA PROJECT GPC Cost [redacted]

Comment Date 7/30/2012 2021: Arnold Mill - Hopewell 230kV Area Project

Overloaded Segment							Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2021																
363	HOPEWELL	115	1714	BIRMINGHAM	115	1	100°C 636.0 ACSR Grosbeak 26/7	50	**186**	188	**101.7**	188	1	956 HOLLY SP 115 1722 NEWLIGHT C 115 1	Peak G	Buford Dam off
2022																
363	HOPEWELL	115	1714	BIRMINGHAM	115	1	100°C 636.0 ACSR Grosbeak 26/7	49	**190**	188	**104.9**	188	1	956 HOLLY SP 115 1722 NEWLIGHT C 115 1	Peak C	Buford Dam off

HOPEWELL - SUWANEE 115 KV

TEAMS # 11671 Need Date 6/1/2019 SHARON SPRINGS 230/115-KV SUBSTATION GPC Cost [redacted]

Comment Date 7/30/2012 2019: Sharon Springs 230/115-kV Project

Overloaded Segment							Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2019																
363	HOPEWELL	115	396	BRANDYWINE	115	1	100°C 762.8 ACSR/TW Type 16 20/	126	**208**	207	**101.7**	207	1	1302 SUWANEE 115 1321 OLD ATLANT 115 1	Peak C	Buford Dam off
1302	SUWANEE	115	1321	OLD ATLANTA	115	1	100°C 762.8 ACSR/TW Type 16 20/	82	**207**	207	**102.0**	207	1	363 HOPEWELL 115 396 BRANDYWINE 115 1	Peak G	Buford Dam off
2020																
363	HOPEWELL	115	396	BRANDYWINE	115	1	100°C 762.8 ACSR/TW Type 16 20/	128	**215**	207	**105.1**	207	1	1302 SUWANEE 115 1321 OLD ATLANT 115 1	Peak G	Buford Dam off
1302	SUWANEE	115	1321	OLD ATLANTA	115	1	100°C 762.8 ACSR/TW Type 16 20/	84	**213**	207	**105.7**	207	1	363 HOPEWELL 115 396 BRANDYWINE 115 1	Peak G	Buford Dam off
2021																
363	HOPEWELL	115	396	BRANDYWINE	115	1	100°C 762.8 ACSR/TW Type 16 20/	130	**223**	207	**109.9**	207	1	1302 SUWANEE 115 1321 OLD ATLANT 115 1	Peak G	Buford Dam off
396	BRANDYWINE	115	1781	HWY 141	115	1	100°C 636.0 ACSR Grosbeak 26/7	99	**189**	188	**104.1**	188	1	1302 SUWANEE 115 1321 OLD ATLANT 115 1	Peak G	Buford Dam off
1302	SUWANEE	115	1321	OLD ATLANTA	115	1	100°C 762.8 ACSR/TW Type 16 20/	89	**221**	207	**110.4**	207	1	363 HOPEWELL 115 396 BRANDYWINE 115 1	Peak G	Buford Dam off
2022																
363	HOPEWELL	115	396	BRANDYWINE	115	1	100°C 762.8 ACSR/TW Type 16 20/	134	**231**	207	**114.5**	207	1	1302 SUWANEE 115 1321 OLD ATLANT 115 1	Peak C	Buford Dam off
396	BRANDYWINE	115	1781	HWY 141	115	1	100°C 636.0 ACSR Grosbeak 26/7	102	**194**	188	**108.0**	188	1	1302 SUWANEE 115 1321 OLD ATLANT 115 1	Peak C	Buford Dam off
1302	SUWANEE	115	1321	OLD ATLANTA	115	1	100°C 762.8 ACSR/TW Type 16 20/	93	**229**	207	**115.4**	207	1	363 HOPEWELL 115 396 BRANDYWINE 115 1	Peak C	Buford Dam off

LAWRENCEVILLE - MOON ROAD 115 KV

TEAMS # 13213 Need Date 6/1/2018 MEAG: LAWRENCEVILLE #4 115KV SWITCH REPLACEMENT GPC Cost [redacted]

Comment Date 8/15/2012 2021: MEAG -- Lawrenceville #4 115kV switch replacement. This project allows the Lawrenceville #4 substation to be switched to the North Lawrenceville tap (DYNAMP = 56.4 min. @ 100.4% loading).

Overloaded Segment							Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2022																
434	LAWRENCEVL	115	1363	LAWRNCEVL 3	115	1	100°C 636.0 ACSR Grosbeak 26/7	101	**184**	188	**100.4**	188	1	337 BAY CREEK 230 1937 BAY CREEK 115 1	Peak C	Franklin Area + Firm AL

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
SNELLVILLE PRIMARY 169688 - SNELLVILLE (UG) 115 KV TEAMS # 12399 Need Date 5/1/2030 Comment Date 8/15/2012								**LOOP SERVICE TO WALTON #6 115 KV SUBSTATION** 2018: Could not duplicate problem -- Not a problem		GPC Cost [redacted]
2018										
442 SNELLVIL PR 115 443 WALT EMC 6B 115 1	SOLID DIELECTRIC	39	83	80	101.9	80	1	OPEN 2071-2072, CLOSE 443-2072	Peak G	No Unit off

AUSTIN DRIVE - MORROW 115 KV

TEAMS # 10899 Need Date 5/1/2020 AUSTIN DRIVE - MORROW 115-KV REBUILD PROJECT/PHASE-2 GPC Cost [redacted]

Comment Date 8/15/2012 2018 - 2019: OpSol - For loss of Morrow - Ellenwood section, close RLB #122931 @Fairview. (DYNAMP = 16.7 min. @ 106.4%)
2020: Austin Drive - Morrow 115 KV Rebuild Project/Phase-2 (Morrow to Ellenwood & Austin Drive to River Road)

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2018										
360 AUSTIN DR 115 366 RAINBOW DR 115 1	100°C 336.4 ACSR Linnet 26/7	34	**127**	124	**103.1**	124	1	297 MORROW 115 368 ELLENWOOD 115 1	Peak C	Firm AL on, Bowen 4 off
2019										
360 AUSTIN DR 115 366 RAINBOW DR 115 1	100°C 336.4 ACSR Linnet 26/7	32	**128**	124	**104.8**	124	1	297 MORROW 115 368 ELLENWOOD 115 1	Peak C	Firm AL on
2020										
360 AUSTIN DR 115 366 RAINBOW DR 115 1	100°C 336.4 ACSR Linnet 26/7	31	**130**	124	**106.4**	124	1	297 MORROW 115 368 ELLENWOOD 115 1	Peak C	Sinclair Area Max
2021										
360 AUSTIN DR 115 366 RAINBOW DR 115 1	100°C 336.4 ACSR Linnet 26/7	30	**133**	124	**109.0**	124	1	297 MORROW 115 368 ELLENWOOD 115 1	Peak C	Sinclair Area Max
2022										
360 AUSTIN DR 115 366 RAINBOW DR 115 1	100°C 336.4 ACSR Linnet 26/7	32	**135**	124	**111.8**	124	1	297 MORROW 115 368 ELLENWOOD 115 1	Peak C	Firm AL on, Bowen 4 off
366 RAINBOW DR 115 367 RIVER RD 115 1	100°C 336.4 ACSR Linnet 26/7	78	**122**	124	**100.7**	124	1	70 AUSTIN DR 230 360 AUSTIN DR 115 1	Peak C	Franklin Area + Firm AL

AUSTIN DRIVE - MORROW 115 KV (Open/close problem)

TEAMS # 10899 Need Date 5/1/2020 AUSTIN DRIVE - MORROW 115-KV REBUILD PROJECT/PHASE-2 GPC Cost [redacted]

Comment Date 7/30/2012 2018-2020: OpSol - When switching Fairview and Transco to this line, open between Rainbow Drive and River Road beforehand. (DYNAMP = 18.5 min. @109.4% loading)
2021: Austin Drive - Morrow 115kV Line Rebuild Project/Phase-2 (Morrow to Ellenwood & Austin Drive to River Road).

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2018										
297 MORROW 115 368 ELLENWOOD 115 1	100°C 795.0 ACSR Drake 26/7	149	**229**	216	**105.6**	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off
2019										
297 MORROW 115 368 ELLENWOOD 115 1	100°C 795.0 ACSR Drake 26/7	153	**233**	216	**107.9**	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off
2020										
297 MORROW 115 368 ELLENWOOD 115 1	100°C 795.0 ACSR Drake 26/7	154	**236**	216	**109.4**	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off
2021										
297 MORROW 115 368 ELLENWOOD 115 1	100°C 795.0 ACSR Drake 26/7	155	**239**	216	**110.8**	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off
2022										
297 MORROW 115 368 ELLENWOOD 115 1	100°C 795.0 ACSR Drake 26/7	157	**243**	216	**112.6**	216	1	OPEN 742-1910, CLOSE 368-369 (Sw. Fairview)	Peak G	No Unit off

DECATUR - MORELAND AVENUE 115 KV

TEAMS # 11235 Need Date 6/1/2021 DECATUR - MORELAND AVE 115-KV UPGRADE GPC Cost [redacted]
Comment Date 7/30/2012 2018 - 2020: OP -Open Decatur - Scottdale 115kV line @ Decatur (PCB #080728). (DYNAMP = 17.3 min. @ 112.4% loading)
2021: Upgrade between Decatur and Kirkwood (1.1 miles of 50°C-sagged 636 ACSR) for 100°C operation.

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2018										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	30	**103**	96	**108.5**	96	2	379 MORELAND A 115 1215 R_GRADY 115 1	Peak C	Firm AL on, Bowen 4 off
2019										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	30	**105**	96	**110.7**	96	2	286 GRADY 1&2 115 1215 R_GRADY 115 1	Peak C	Firm AL on, Bowen 4 off
2020										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	30	**107**	96	**112.4**	96	2	379 MORELAND A 115 1215 R_GRADY 115 1	Peak C	Franklin Area + Firm AL
2021										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	31	**109**	96	**115.3**	96	2	379 MORELAND A 115 1215 R_GRADY 115 1	Peak C	Firm AL on, Bowen 4 off
2022										
346 DECATUR 115 1915 KIRKWOOD 115 1	50°C 636.0 ACSR Grosbeak 26/7	31	**112**	96	**118.6**	96	2	379 MORELAND A 115 1215 R_GRADY 115 1	Peak C	Firm AL on, Bowen 4 off

JACK MCDONOUGH - PEACHTREE 230 KV

TEAMS # Need Date GPC Cost [redacted]
Comment Date 7/30/2012 Under Study: Possible OP - close Jack McDonough 230/115kV Auto

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2018										
36 JACK MCD 230 41 PEACHTREE 230 1	2-1590 AAC Jumper @ McDonough	1050	**1228**	1192	**101.7**	1204	4	36 JACK MCD 230 2265 CUMBERLAND 230 1	Shoulder C	Franklin Area Max
2019										
36 JACK MCD 230 41 PEACHTREE 230 1	2-1590 AAC Jumper @ McDonough	1056	**1234**	1192	**102.3**	1204	4	36 JACK MCD 230 2265 CUMBERLAND 230 1	Shoulder C	Franklin Area + Firm AL
2020										
36 JACK MCD 230 41 PEACHTREE 230 1	2-1590 AAC Jumper @ McDonough	1058	**1236**	1192	**102.4**	1204	4	36 JACK MCD 230 2265 CUMBERLAND 230 1	Shoulder C	Franklin Area + Firm AL
2021										
36 JACK MCD 230 41 PEACHTREE 230 1	2-1590 AAC Jumper @ McDonough	1051	**1232**	1192	**102.2**	1204	4	36 JACK MCD 230 2265 CUMBERLAND 230 1	Shoulder C	Franklin Area + Firm AL
2022										
36 JACK MCD 230 41 PEACHTREE 230 1	2-1590 AAC Jumper @ McDonough	1052	**1238**	1192	**102.6**	1204	4	36 JACK MCD 230 2265 CUMBERLAND 230 1	Shoulder C	Franklin Area + Firm AL

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
NORTHWEST 230/115 KV AUTO #1	TEAMS # 14212 Need Date 5/1/2018 Comment Date 8/15/2012							NORTHWEST 230/115KV TRANSFORMER CONTINGENCY RATING 2019: Request rerate.		GPC Cost [redacted]
2019										
37 NORTHWEST 1 230 275 NORTHWEST 115 1	Transformer nameplate rating	178	**280**	280	100.1	280	1	36 JACK MCD 230 41 PEACHTREE 230 1	Peak C	Rome Area Max + Sewell
2020										
37 NORTHWEST 1 230 275 NORTHWEST 115 1	Transformer nameplate rating	179	**282**	280	100.6	280	1	36 JACK MCD 230 41 PEACHTREE 230 1	Peak C	Franklin Area + Firm AL
2021										
37 NORTHWEST 1 230 275 NORTHWEST 115 1	Transformer nameplate rating	182	**284**	280	101.4	280	1	36 JACK MCD 230 41 PEACHTREE 230 1	Peak C	Franklin Area + Firm AL
2022										
37 NORTHWEST 1 230 275 NORTHWEST 115 1	Transformer nameplate rating	184	**286**	280	102.2	280	1	36 JACK MCD 230 41 PEACHTREE 230 1	Peak C	Franklin Area + Firm AL

DYER ROAD 230/115 KV AUTO

TEAMS # 12581 Need Date 6/1/2018 CORN CRIB 230/115 KV SUBSTATION GPC Cost [redacted]
Comment Date 7/25/2012 2018: Corn Crib 230/115-kV Substation Addition

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2018										
2730 DYER ROAD 230 2731 DYER ROAD 115 1	Transformer nameplate rating	356	**409**	400	**102.4**	400	2	623 LAGRANGE 3 115 624 RAGLAND ST 115 1	Peak G	Hammond Common Scrubber
2019										
2730 DYER ROAD 230 2731 DYER ROAD 115 1	Transformer nameplate rating	367	**420**	400	**105.0**	400	11	624 RAGLAND ST 115 625 LAGRANGE P 115 1	Peak G	Hammond Common Scrubber
2020										
2730 DYER ROAD 230 2731 DYER ROAD 115 1	Transformer nameplate rating	371	**425**	400	**106.2**	400	18	623 LAGRANGE 3 115 624 RAGLAND ST 115 1	Peak G	Hammond Common Scrubber
2021										
2730 DYER ROAD 230 2731 DYER ROAD 115 1	Transformer nameplate rating	383	**437**	400	**109.2**	400	39	623 LAGRANGE 3 115 624 RAGLAND ST 115 1	Peak G	Hammond Common Scrubber
2022										
2730 DYER ROAD 230 2731 DYER ROAD 115 1	Transformer nameplate rating	389	**446**	400	**111.5**	400	58	623 LAGRANGE 3 115 624 RAGLAND ST 115 1	Peak C	Hammond Common Scrubber

EAST POINT - WILLINGHAM DRIVE 115 KV

TEAMS # 13740 Need Date 6/1/2018 MEAG: EAST POINT - WILLINGHAM DR 115-KV RECONDUCTOR GPC Cost [redacted]
Comment Date 7/25/2012 2018: Project to reconductor E.Pt. - Willingham Dr., (MEAG).

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2018										
251 E POINT B2 115 264 E POINT 4 115 1	100°C 636.0 ACSR Grosbeak 26/7	149	**190**	188	**101.2**	188	2	240 E POINT B1 115 303 COL PK #3 115 1	Peak C	Rome Area Max + Sewell
2019										
251 E POINT B2 115 264 E POINT 4 115 1	100°C 636.0 ACSR Grosbeak 26/7	150	**192**	188	**102.2**	188	2	240 E POINT B1 115 303 COL PK #3 115 1	Peak C	Rome Area Max + Sewell
2020										
251 E POINT B2 115 264 E POINT 4 115 1	100°C 636.0 ACSR Grosbeak 26/7	151	**191**	188	**102.0**	188	2	240 E POINT B1 115 303 COL PK #3 115 1	Peak C	Rome Area Max + Sewell
2021										
251 E POINT B2 115 264 E POINT 4 115 1	100°C 636.0 ACSR Grosbeak 26/7	152	**193**	188	**103.2**	188	2	240 E POINT B1 115 303 COL PK #3 115 1	Peak C	Rome Area Max + Sewell
2022										
251 E POINT B2 115 264 E POINT 4 115 1	100°C 636.0 ACSR Grosbeak 26/7	153	**195**	188	**104.3**	188	3	240 E POINT B1 115 303 COL PK #3 115 1	Peak C	Rome Area Max + Sewell

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
MCDONOUGH - STOCKBRIDGE 115 KV	**TEAMS #** 09347 **Need Date** 6/1/2021 **Comment Date** 8/15/2012							**S. METRO ATLANTA PHASE-3 PROJECT, (OHARA-MCDONOUGH 230-KV)** S.Metro Atlanta Phase-3 Project in 2021		**GPC Cost** [redacted]
2022										
742 STOCKBRIDGE 115 1643 FLIPPEN 115 1	1200A switch at Flippen Jct	176	**266**	269	**100.6**	301	1	73 KLONDIKE 230 1972 S KLONDIKE 230 1	Peak C	Franklin Area + Firm AL
OLA - PORTERDALE PRIMARY 115 KV	**TEAMS #** 09347 **Need Date** 6/1/2021 **Comment Date** 8/15/2012							**S. METRO ATLANTA PHASE-3 PROJECT, (OHARA-MCDONOUGH 230-KV)** S.Metro Atlanta Phase-3 Project in 2021		**GPC Cost** [redacted]
2021										
445 SALEM RD 115 462 PORTERDALE 115 1	100°C 636.0 ACSR Grosbeak 26/7	38	**186**	188	**100.4**	188	1	73 KLONDIKE 230 1972 S KLONDIKE 230 1	Peak G	Wansley 1 off
2022										
445 SALEM RD 115 462 PORTERDALE 115 1	100°C 636.0 ACSR Grosbeak 26/7	41	**195**	188	**105.9**	188	1	73 KLONDIKE 230 1972 S KLONDIKE 230 1	Peak G	McDonough 4 off
SOUTH COWETA - SOUTH GRIFFIN 115 KV	**TEAMS #** 09347 **Need Date** 6/1/2021 **Comment Date** 8/15/2012							**S. METRO ATLANTA PHASE-3 PROJECT, (OHARA-MCDONOUGH 230-KV)** 2018-2020: OP - Open overloaded line at South Griffin, (in base cases, open 746-747). 2020: South Metro Atlanta Phase-3 Project		**GPC Cost** [redacted]
2018										
719 S COWETA 115 876 BROOKS 115 1	100°C 477.0 ACSR Hawk 26/7	108	**161**	155	**102.3**	155	1	171 OHARA 230 1629 WOOLSEY 230 1	Peak G	Franklin Area + Firm AL
2019										
719 S COWETA 115 876 BROOKS 115 1	100°C 477.0 ACSR Hawk 26/7	107	**161**	155	**102.1**	155	1	171 OHARA 230 1629 WOOLSEY 230 1	Peak G	Franklin Area + Firm AL
2020										
719 S COWETA 115 876 BROOKS 115 1	100°C 477.0 ACSR Hawk 26/7	109	**163**	155	**104.0**	155	3	171 OHARA 230 1629 WOOLSEY 230 1	Peak G	Franklin Area + Firm AL
2021										
719 S COWETA 115 876 BROOKS 115 1	100°C 477.0 ACSR Hawk 26/7	110	**165**	155	**106.3**	155	3	171 OHARA 230 1629 WOOLSEY 230 1	Peak C	Franklin Area + Firm AL
2022										
719 S COWETA 115 876 BROOKS 115 1	100°C 477.0 ACSR Hawk 26/7	112	**170**	155	**108.6**	155	3	171 OHARA 230 1629 WOOLSEY 230 1	Peak C	Franklin Area + Firm AL

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
SOUTH COWETA - YATES 115 KV		**TEAMS #** 12581	**Need Date** 6/1/2018	**CORN CRIB 230/115 KV SUBSTATION**						**GPC Cost** [redacted]
		Comment Date 7/25/2012	Corn Crib 230/115-kV Substation Addition in 2018							
2020										
719 S COWETA 115 1934 SHARPSBG TP 115 1	100°C 477.0 ACSR Hawk 26/7	72	**153**	155	**100.4**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak G	Hammond Common Scrubber
2021										
719 S COWETA 115 1934 SHARPSBG TP 115 1	100°C 477.0 ACSR Hawk 26/7	74	**158**	155	**104.6**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak G	Hammond Common Scrubber
2022										
719 S COWETA 115 1934 SHARPSBG TP 115 1	100°C 477.0 ACSR Hawk 26/7	76	**162**	155	**107.0**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak G	Hammond Common Scrubber
SOUTH COWETA 230/115 KV AUTO		**TEAMS #** 11242	**Need Date** 6/1/2022	**GTC: HIGHWAY-54 230/115-KV TFM. ADDITION**						**GPC Cost** [redacted]
		Comment Date 7/25/2012	Delay Hwy-54 230/115-kV Autobank Project from 2019 to 2022 Note: Rerate Pending, (GTC Auto)							
2022										
129 S COWETA 230 719 S COWETA 115 1	Transformer nameplate rating	341	**409**	400	**102.1**	400	1	16 OHARA 500 171 OHARA 230 1	Peak C	Franklin Area + Firm AL
THOMASTON - YATES 115 KV		**TEAMS #** 12581	**Need Date** 6/1/2018	**CORN CRIB 230/115 KV SUBSTATION**						**GPC Cost** [redacted]
		Comment Date 7/25/2012	2018: new Corn Crib 230/115kV substation eliminates the O/C condition							
2018										
620 MTN CREEK 115 2731 DYER ROAD 115 1	100°C 477.0 ACSR Hawk 26/7	75	**168**	155	**109.1**	155	1	OPEN 621-2207, CLOSE 661-654	Peak G	No Unit off
2019										
620 MTN CREEK 115 2731 DYER ROAD 115 1	100°C 477.0 ACSR Hawk 26/7	73	**167**	155	**108.7**	155	1	OPEN 621-2207, CLOSE 661-654	Peak G	No Unit off
2020										
620 MTN CREEK 115 2731 DYER ROAD 115 1	100°C 477.0 ACSR Hawk 26/7	73	**168**	155	**109.5**	155	1	OPEN 621-2207, CLOSE 661-654	Peak G	No Unit off
2021										
620 MTN CREEK 115 2731 DYER ROAD 115 1	100°C 477.0 ACSR Hawk 26/7	75	**173**	155	**113.7**	155	1	OPEN 621-2207, CLOSE 661-654	Peak G	No Unit off
2022										
620 MTN CREEK 115 2731 DYER ROAD 115 1	100°C 477.0 ACSR Hawk 26/7	77	**177**	155	**116.3**	155	1	OPEN 621-2207, CLOSE 661-654	Peak G	No Unit off

BOWEN - CARTERSVILLE 115 KV

TEAMS # 12101 | Need Date 6/1/2030 | BOWEN-CARTERSVILLE 115KV LINE REBUILD | GPC Cost [redacted]

Comment Date 7/25/2012 | 2018 - 2022: OP - Open Cartersville-South Acworth 115kV line between Cart #4 and Cart#1 Jct. RLB 064661. (ALT Project TEAMS 12101 Rebuild appx. 8.55 miles 477ACSR with 1033.) Dynamp: 18.1 mins

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2018										
933 BOWEN 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	109	**165**	155	**105.6**	155	2	184 BREMEN 230 3027 SEWELL CRK 230 1	Peak G	Rome Area Max + Sewell
934 BURNT HIC J 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	106	**161**	155	**103.2**	155	2	184 BREMEN 230 3027 SEWELL CRK 230 1	Peak G	Rome Area Max + Sewell
2019										
933 BOWEN 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	109	**162**	155	**104.5**	155	2	196 CARTERVL B 230 935 CARTERSVL 115 2	Peak C	Rome Area Max + Sewell
934 BURNT HIC J 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	105	**158**	155	**102.0**	155	2	196 CARTERVL B 230 935 CARTERSVL 115 2	Peak C	Rome Area Max + Sewell
2020										
933 BOWEN 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	108	**162**	155	**104.8**	155	2	196 CARTERVL B 230 935 CARTERSVL 115 2	Peak C	Rome Area Max + Sewell
934 BURNT HIC J 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	104	**158**	155	**102.2**	155	2	196 CARTERVL B 230 935 CARTERSVL 115 2	Peak C	Rome Area Max + Sewell
2021										
933 BOWEN 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	106	**162**	155	**104.5**	155	2	196 CARTERVL B 230 935 CARTERSVL 115 2	Peak C	Rome Area Max + Sewell
934 BURNT HIC J 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	102	**158**	155	**101.9**	155	1	196 CARTERVL B 230 935 CARTERSVL 115 2	Peak C	Rome Area Max + Sewell
2022										
933 BOWEN 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	104	**161**	155	**104.1**	155	2	196 CARTERVL B 230 935 CARTERSVL 115 2	Peak C	Rome Area Max + Sewell
934 BURNT HIC J 115 1787 BROWN FARMJ 115 1	100°C 477.0 ACSR Hawk 26/7	100	**157**	155	**101.5**	155	1	196 CARTERVL B 230 935 CARTERSVL 115 2	Peak C	Rome Area Max + Sewell

BREMEN - HICKORY LEVEL 115 KV (BLACK)

TEAMS # 12581 | Need Date 6/1/2018 | CORN CRIB 230/115 KV SUBSTATION | GPC Cost [redacted]

Comment Date 7/25/2012 | Fixed by Corn Crib

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2022										
1729 W V RICA 115 2486 HICKORY LVL 115 1	100°C 336.4 ACSR Linnet 26/7	47	**123**	124	**100.4**	124	1	184 BREMEN 230 1134 BREMEN B2 115 1	Peak G	Franklin 3 off

EAST DALTON - TUNNEL HILL 115 KV

TEAMS # 11655 | Need Date 6/1/2030 | DU: EAST DALTON - TUNNEL HILL 115KV LINE THERMAL UPGRADE | GPC Cost [redacted]

Comment Date 7/25/2012 | 2022: OP Shift Dalton #8 to the Dalton - Tunnel Hill 115kV line Dynamp: 26.3mins

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2022										
899 VARNELL 115 1773 RINGTENNJCT 115 1	50°C 336.4 ACSR Linnet 26/7	12	**61**	63	**101.8**	63	1	901 DALTON 8 J 115 1792 E DALTON 1 115 1	Peak C	Loopers Farm off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
NELSON 230/115 KV AUTO #2	**TEAMS #** 10811 **Need Date** 6/1/2019 **DU: NELSON 230/115KV AUTOBANK REPLACEMENT** **GPC Cost** [redacted]									
	Comment Date 7/25/2012 Replace both banks with single 400MVA bank									
2019										
208 NELSON 230 954 NELSON 115 2	Transformer bonus rating	122	**176**	176	100.1	180	1	208 NELSON 230 954 NELSON 115 1	Peak C	Firm AL on, McD 6 off
2020										
208 NELSON 230 954 NELSON 115 2	Transformer bonus rating	126	**181**	176	102.9	180	1	208 NELSON 230 954 NELSON 115 1	Peak C	Franklin Area + Firm AL
2021										
208 NELSON 230 954 NELSON 115 2	Transformer bonus rating	127	**183**	176	103.7	180	1	208 NELSON 230 954 NELSON 115 1	Peak C	Rome Area Max + Sewell
2022										
208 NELSON 230 954 NELSON 115 2	Transformer bonus rating	128	**184**	176	104.7	180	1	208 NELSON 230 954 NELSON 115 1	Peak C	Franklin Area + Firm AL

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
ANTHONY SHOALS 227228 - WASHINGTON 115 KV	TEAMS # 10193 Need Date 6/1/2018 Comment Date 7/30/2012							ANTHONY SHOALS - WASHINGTON 115 KV REBUILD PROJECT		GPC Cost [redacted]
								2019: Rebuild the Anthony Shoals - Buckhead Point - Double Branches Tap 115kv line section, 15.1 miles of 50C, 4/0 copper, with 795 ACSR. Replace the line switch, 040823, at Delhi Tap with a 2,000 amp switch.		
2019										
466 ANTHONY SHL 115 1420 DELHITAP 115 1	50°C 4/0 Cu	47	**59**	57	**102.1**	57	1	OPEN 511-339153, CLOSE 496-511	Peak G	No Unit off
2020										
466 ANTHONY SHL 115 1420 DELHITAP 115 1	50°C 4/0 Cu	48	**61**	57	**104.7**	57	1	OPEN 511-339153, CLOSE 496-511	Peak G	No Unit off
2021										
466 ANTHONY SHL 115 1420 DELHITAP 115 1	50°C 4/0 Cu	50	**63**	57	**108.8**	57	2	OPEN 511-339153, CLOSE 496-511	Peak G	No Unit off
2022										
466 ANTHONY SHL 115 1420 DELHITAP 115 1	50°C 4/0 Cu	52	**66**	57	**113.0**	57	2	OPEN 511-339153, CLOSE 496-511	Peak G	No Unit off
CLERMONT JUNCTION - GAINESVILLE #1 115 KV	TEAMS # Need Date Comment Date 8/27/2012							2022 OP: Open PCB 127648 at Clermont Junction (Dynamp 17.3 minutes) Alternate project: TEAMS 12728 GPC: Reconductor 2.6 miles of the Clermont Junction -Gainesville #1 115kV line with 1033 ACSR conductor (between Gainesville #1 and sw 126111, structure 324)		GPC Cost [redacted]
2022										
387 GAINESVL #1 115 413 GV1-GV2J 115 1	2 - 75°C 4/0 Cu	74	**183**	182	**100.7**	182	1	411 CLERMONT J 115 1309 CLERMONT J 230 1	Shoulder C	Franklin Area + Firm AL
DAHLONEGA - DAWSON CROSSING 115 KV	TEAMS # Need Date Comment Date 8/8/2012							2022 OP: Close RLB 020573 & open RLB 020559. This moves the Mohawk & Gold Mine load from the Dahlonega Primary – South Cleveland to the Dawson Crossing – Nelson (Black) 115 kV line (Dynamp 32.5 minutes)		GPC Cost [redacted]
2022										
384 DAW FOREST 115 2043 BURNT STAND 115 1	100°C 336.4 ACSR Linnet 26/7	91	**124**	124	**100.5**	124	1	411 CLERMONT J 115 412 CLERMONT 115 1	Shoulder C	Franklin Area + Firm AL

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
AMERICUS - NORTH AMERICUS (BLACK) 115 KV	TEAMS # n/a Need Date									GPC Cost
	Comment Date 8/13/2012	2022: OpSol - switch E. Americus load over to the N. Americus -Crisp#2 115kV line (alt: line can also be switched out)								
2022										
701 N AMERICUS 115 705 AMERICUS 115 2	100°C 477.0 ACSR Hawk 26/7	64	**158**	155	**101.3**	155	1	701 N AMERICUS 115 705 AMERICUS 115 1	Peak G	Farley 2 off
BULL CREEK - FIRST AVENUE 115 KV	TEAMS # 14813 Need Date 6/1/2021	BULL CREEK - FIRST AVENUE 115KV LINE RECONDUCTOR								GPC Cost
	Comment Date 8/22/2012	2022: Reconductor (BJ-GTC)								
2022										
612 FIRST AVE + 115 1561 RIVERFRONTJ 115 1	130°C 795.0 ACSS Drake 26/7	195	**259**	251	**101.6**	257	1	612 FIRST AVE 115 616 BLNCHARD I 115 1	Peak G	Firm AL on, Hatch 1 off
614 BROOKHAVEN 115 653 BULLCRK 115 1	100°C 795.0 ACSR Drake 26/7 @Bu	158	**221**	216	**101.4**	216	1	612 FIRST AVE 115 616 BLNCHARD I 115 1	Peak G	Firm AL on, Hatch 1 off
614 BROOKHAVEN 115 1561 RIVERFRONTJ 115 1	130°C 795.0 ACSS Drake 26/7	194	**257**	251	**101.6**	257	1	612 FIRST AVE 115 616 BLNCHARD I 115 1	Peak G	Firm AL on, Hatch 1 off
FIRST AVENUE - NORTH COLUMBUS 115 KV	TEAMS # 13166 Need Date 6/1/2018	FIRST AVENUE - NORTH COLUMBUS 115KV LINE RECONDUCTOR								GPC Cost
	Comment Date 7/25/2012	2018: Reconductor 0.9 mi of 75C 657ACAR w/795ACSR (alt: OpSol - open line at North Columbus)								
2018										
611 N COLUMBUS 115 612 FIRST AVE + 115 1	75°C 657 ACAR COND	90	**157**	149	**103.1**	149	1	130 GOAT ROCK 230 609 GOAT ROCK 115 1	Shoulder C	Franklin Area + Firm AL
2019										
611 N COLUMBUS 115 612 FIRST AVE + 115 1	75°C 657 ACAR COND	89	**156**	149	**102.3**	149	1	130 GOAT ROCK 230 609 GOAT ROCK 115 1	Shoulder C	Franklin Area + Firm AL
2020										
611 N COLUMBUS 115 612 FIRST AVE + 115 1	75°C 657 ACAR COND	95	**157**	149	**103.1**	149	1	130 GOAT ROCK 230 609 GOAT ROCK 115 1	Shoulder C	Franklin Area + Firm AL
2021										
611 N COLUMBUS 115 612 FIRST AVE + 115 1	75°C 657 ACAR COND	96	**160**	149	**105.0**	149	2	130 GOAT ROCK 230 609 GOAT ROCK 115 1	Shoulder C	Franklin Area + Firm AL
2022										
611 N COLUMBUS 115 612 FIRST AVE + 115 1	75°C 657 ACAR COND	96	**159**	149	**105.0**	149	4	130 GOAT ROCK 230 609 GOAT ROCK 115 1	Shoulder C	Franklin Area + Firm AL

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
FIRST AVENUE 230/115 KV AUTO #2	**TEAMS #** 14814 **Need Date** 6/1/2022 **Comment Date** 8/22/2012							**FIRST AVENUE 230/115KV AUTOBANK #6 REPLACEMENT** 2022: install 400MVA bank (BJ-GTC)		**GPC Cost** [redacted]
2022										
132 FIRST AVE B 230 612 FIRST AVE + 115 1	transformer bonus rating	259	**330**	330	**100.0**	330	2	131 FIRST AVE 230 612 FIRST AVE 115 1	Shoulder G	Franklin Area + Firm AL
LAGRANGE - YATES 115 KV	**TEAMS #** 12581 **Need Date** 6/1/2018 **Comment Date** 7/25/2012							**CORN CRIB 230/115 KV SUBSTATION** 2018: new Corn Crib 230/115kV substation		**GPC Cost** [redacted]
2018										
623 LAGRANGE 3 115 624 RAGLAND ST 115 1	100°C 477.0 ACSR Hawk 26/7	105	**159**	155	**101.4**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak G	Franklin Area + Firm AL
624 RAGLAND ST 115 625 LAGRANGE PR 115 1	100°C 477.0 ACSR Hawk 26/7	106	**159**	155	**101.4**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area + Firm AL
2019										
623 LAGRANGE 3 115 624 RAGLAND ST 115 1	100°C 477.0 ACSR Hawk 26/7	106	**161**	155	**102.4**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area + Firm AL
624 RAGLAND ST 115 625 LAGRANGE PR 115 1	100°C 477.0 ACSR Hawk 26/7	106	**159**	155	**101.3**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area + Firm AL
2020										
623 LAGRANGE 3 115 624 RAGLAND ST 115 1	100°C 477.0 ACSR Hawk 26/7	106	**162**	155	**103.6**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area + Firm AL
624 RAGLAND ST 115 625 LAGRANGE PR 115 1	100°C 477.0 ACSR Hawk 26/7	106	**161**	155	**102.5**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area + Firm AL
2021										
623 LAGRANGE 3 115 624 RAGLAND ST 115 1	100°C 477.0 ACSR Hawk 26/7	105	**165**	155	**105.2**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area Max
624 RAGLAND ST 115 625 LAGRANGE PR 115 1	100°C 477.0 ACSR Hawk 26/7	109	**166**	155	**104.9**	155	1	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area + Firm AL
2022										
623 LAGRANGE 3 115 624 RAGLAND ST 115 1	100°C 477.0 ACSR Hawk 26/7	111	**170**	155	**108.0**	155	2	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area + Firm AL
624 RAGLAND ST 115 625 LAGRANGE PR 115 1	100°C 477.0 ACSR Hawk 26/7	113	**170**	155	**107.6**	155	2	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Franklin Area + Firm AL
THOMASTON - YATES 115 KV	**TEAMS #** 12581 **Need Date** 6/1/2018 **Comment Date** 7/25/2012							**CORN CRIB 230/115 KV SUBSTATION** 2018: new Corn Crib 230/115kV substation eliminates the O/C condition		**GPC Cost** [redacted]
2022										
620 MTN CREEK 115 660 NEWNAN 2 115 1	100°C 477.0 ACSR Hawk 26/7	49	**151**	155	**100.0**	255	1	OPEN 621-2207, CLOSE 661-654	Peak G	No Unit off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario

ACHORD ROAD - DUBLIN 115 KV TEAMS # Need Date GPC Cost

Comment Date 7/30/2012 2022: OP - Open PCB 905838 at Achord Rd. (Dynamp 16.5 minutes)

	Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2022											
	835 DUBLIN 115 836 SW DUBLIN 115 1	100°C 336.4 ACSR Linnet 26/7	16	**132**	124	**106.8**	124	1	156 N DUBLIN 230 1635 W DUBLIN 230 1	Peak G	Hatch 1 off

AULTMAN ROAD - BONAIRE PRIMARY 115 KV TEAMS # 13787 Need Date 6/1/2021 MEAG: AULTMAN ROAD - BONAIRE PRIMARY 115 KV RECONDUCTOR II GPC Cost

Comment Date 7/30/2012 2020: OP - Open PCB 908938 @ Aultman Rd - Dorsett 115 kV line at Aultman Rd. (Dynamp 23.1 minutes)
2021: PI 13787. Reconductor the 1.99 mile, Sleepy Hollow - Peach Blossom 115 kV line section (presently 100°C 336 ACSR) of the Aultman Road - Bonaire 115kV line, with 100°C 795 ACSR.

	Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2020											
	1676 SLEEPY HOL 115 2319 PCH BLOSSOM 115 1	100°C 336.4 ACSR Linnet 26/7	92	**127**	124	**101.4**	124	1	804 BONAIRE 115 806 96 HWY 115 1	Peak C	Mid Georgia Cogen off
2021											
	1676 SLEEPY HOL 115 2319 PCH BLOSSOM 115 1	100°C 336.4 ACSR Linnet 26/7	96	**131**	124	**105.5**	124	3	804 BONAIRE 115 806 96 HWY 115 1	Peak C	Mid Georgia Cogen off
2022											
	1676 SLEEPY HOL 115 2319 PCH BLOSSOM 115 1	100°C 336.4 ACSR Linnet 26/7	98	**135**	124	**109.1**	124	4	804 BONAIRE 115 806 96 HWY 115 1	Peak G	Mid Georgia Cogen off

BAXLEY - SOUTH HAZLEHURST 115 KV TEAMS # 13864 Need Date 6/1/2019 GTC: BAXLEY - SOUTH HAZLEHURST 115KV LINE IMPROVEMENT GPC Cost

Comment Date 7/30/2012 2019: Replace the 115kV bus, line switch (076113), and line jumpers at Pine Grove Substation (GTC).

	Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2019											
	848 PINEGROVE 115 1464 HAZLE J 115 1	350 AAC jumpers at Pine Grove	56	**118**	114	**100.7**	124	2	843 VIDALIA 115 1476 W LYONS J2 115 1	Peak G	Jasper SC off
2021											
	848 PINEGROVE 115 1464 HAZLE J 115 1	350 AAC jumpers at Pine Grove	64	**121**	114	**104.2**	124	2	843 VIDALIA 115 1476 W LYONS J2 115 1	Peak C	Jasper SC off
2022											
	848 PINEGROVE 115 1464 HAZLE J 115 1	350 AAC jumpers at Pine Grove	62	**123**	114	**105.9**	124	2	844 E VIDALIA 115 1476 W LYONS J2 115 1	Peak C	Jasper SC off

BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV TEAMS # 14758 Need Date 6/1/2022 BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV UPGRADE GPC Cost

Comment Date 8/8/2012 Upgrade the Cochran - Cochran Junction segment associated with the the Bonaire Primary - Eastman Primary 115 kV line to 100C operation (approx. 1.5 miles).

	Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2022											
	810 COCHRAN J 115 811 COCHRAN 115 1	50°C 336.4 ACSR Linnet 26/7	28	**64**	63	**102.5**	63	1	OPEN 1626-2339, CLOSE 812-811	Peak G	No Unit off

Overloaded Segment							Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency					Case Type	Generation Scenario
BONAIRE PRIMARY 230/115 KV AUTO #1							**TEAMS #**		**Need Date**										**GPC Cost**	[redacted]
							Comment Date 7/30/2012	2022: Request transformer re-rate.												
2022																				
150	BONAIRE	230	804	BONAIRE	115	1	Transformer nameplate rating	267	**411**	400	**102.6**	400	1	150 BONAIRE	230	804 BONAIRE	115	2	Peak C	Franklin Area + Firm AL
BONAIRE PRIMARY 230/115 KV AUTO #2							**TEAMS #**		**Need Date**										**GPC Cost**	[redacted]
							Comment Date 7/30/2012	2022: Request transformer re-rate.												
2022																				
150	BONAIRE	230	804	BONAIRE	115	2	Transformer nameplate rating	267	**411**	400	**102.6**	400	1	150 BONAIRE	230	804 BONAIRE	115	1	Peak C	Franklin Area + Firm AL
EATONTON PRIMARY - LAKE OCONEE 115 KV							**TEAMS #** 12579		**Need Date** 6/1/2021					**GTC: EATONTON - LAKE OCONEE 115 KV RECONDUCTOR**					**GPC Cost**	[redacted]
							Comment Date 8/8/2012	Reconductor approx. 7.34 miles from structure # 238D to Lick Creek On the Eatonton Primary - Lake Oconee 115 kV line from 100C 4/0 ACSR to 100C 795 ACSR conductor.												
2021																				
2048	EATONTON	115	2329	HARMONY J	115	1	100°C 336.4 ACSR Linnet 26/7	73	**90**	91	**101.9**	124	1	OPEN 1374-2068, CLOSE 2046-2049					Peak G	No Unit off
2022																				
2048	EATONTON	115	2329	HARMONY J	115	1	100°C 336.4 ACSR Linnet 26/7	77	**94**	91	**107.4**	124	1	OPEN 1374-2068, CLOSE 2046-2049					Peak G	No Unit off
HATCH - OFFERMAN 230 KV							**TEAMS #** 13210		**Need Date** 6/1/2022					**HATCH - OFFERMAN 230 KV LINE RECONDUCTOR**					**GPC Cost**	[redacted]
							Comment Date 8/15/2012	2022 PI 13210: Reconductor 38.45 miles of 100C 1033 ACSR with 1351 ACSR conductor on the Hatch - Offerman 230 kV line.												
2022																				
160	HATCH +	230	164	UNION SCHL	230	1	100°C 1033.5 ACSR Curlew 54/7	329	**518**	509	**102.4**	509	2	15 THALMANN	500	2380 THAL LS1	230	1	Peak G	Suwannee off
164	UNION SCHL	230	224	OFFERMAN	230	1	100°C 1033.5 ACSR Curlew 54/7	318	**507**	509	**100.2**	509	1	15 THALMANN	500	2380 THAL LS1	230	1	Peak G	Suwannee off

HATCH - VIDALIA 230 KV

TEAMS # 13606 Need Date 6/1/2019 HATCH - VIDALIA 230KV RECONDUCTOR GPC Cost [redacted]

Comment Date 8/27/2012 2019: Reconductor 23 miles of 100C 1033 ACSR with 170C 1033 ACSS conductor on the Hatch - Vidalia 230 kV line.

Vidalia end of the Hatch - Vidalia 230 kV line:
Replace 800Cu jumpers with 2X1590 AAC jumpers. Replace 1200 amp switches 069679 and 069677 with 2000 amp. switches.
Replace main 1590 AAC bus with 3" AL Tube bus.

Hatch end of the Hatch - Vidalia 230 kV line:
Replace 1590 AAC jumpers with 2X1590 AAC jumpers.

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2019										
160 HATCH + 230 2102 HATCH SS 2 230 1	100°C 1033.5 ACSR Curlew 54/7	248	**519**	509	**100.3**	509	2	9 W MCINTOSH 500 2158 MCCALL RD 500 1	Peak G	Hatch 1 off
161 VIDALIA 230 2102 HATCH SS 2 230 1	800 CU jumpers at Vidalia	252	**517**	486	**106.4**	509	2	9 W MCINTOSH 500 2158 MCCALL RD 500 1	Peak G	Hatch 1 off
2020										
160 HATCH + 230 2102 HATCH SS 2 230 1	100°C 1033.5 ACSR Curlew 54/7	260	**538**	509	**104.1**	509	2	9 W MCINTOSH 500 2158 MCCALL RD 500 1	Peak G	Hatch 1 off
161 VIDALIA 230 2102 HATCH SS 2 230 1	800 CU jumpers at Vidalia	264	**535**	486	**110.3**	509	2	9 W MCINTOSH 500 2158 MCCALL RD 500 1	Peak G	Hatch 1 off
2021										
160 HATCH + 230 2102 HATCH SS 2 230 1	100°C 1033.5 ACSR Curlew 54/7	275	**548**	509	**106.6**	509	2	9 W MCINTOSH 500 2158 MCCALL RD 500 1	Peak G	Hatch 1 off
161 VIDALIA 230 2102 HATCH SS 2 230 1	800 CU jumpers at Vidalia	278	**544**	486	**112.9**	509	2	9 W MCINTOSH 500 2158 MCCALL RD 500 1	Peak G	Hatch 1 off
2022										
160 HATCH + 230 2102 HATCH SS 2 230 1	100°C 1033.5 ACSR Curlew 54/7	298	**585**	509	**113.6**	509	2	15 THALMANN 500 2158 MCCALL RD 500 1	Peak G	Hatch 1 off
161 VIDALIA 230 2102 HATCH SS 2 230 1	800 CU jumpers at Vidalia	304	**586**	486	**120.2**	509	2	15 THALMANN 500 2158 MCCALL RD 500 1	Peak G	Hatch 1 off

KATHLEEN - PERRY 115 KV

TEAMS # 14760 Need Date 6/1/2022 CAGLES 115 KV JUMPER REPLACEMENT GPC Cost [redacted]

Comment Date 8/8/2012 2022: Replace 350 AAC jumpers at Cagles with 1590 AAC.

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2022										
809 CAGLES + 115 1626 KATHLEEN 115 1	350 AAC jumpers at Cagles	71	**115**	114	**100.3**	124	1	804 BONAIRE 115 806 96 HWY 115 1	Peak C	Franklin Area + Firm AL

VIDALIA 230/115 KV AUTO #2

TEAMS # Need Date GPC Cost [redacted]

Comment Date 7/30/2012 2022: Request transformer re-rate.

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
2022										
161 VIDALIA 230 843 VIDALIA 115 2	Transformer nameplate rating	166	**285**	280	**101.6**	280	1	161 VIDALIA 230 843 VIDALIA 115 1	Peak G	Jasper SC off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
ANTHONY SHOALS 227228 - WASHINGTON 115 KV	TEAMS # 10193 Need Date 6/1/2018 Comment Date 7/30/2012							**ANTHONY SHOALS - WASHINGTON 115 KV REBUILD PROJECT** 2019: Rebuild the Anthony Shoals - Buckhead Point - Double Branches Tap 115kv line section, 15.1 miles of 50C, 4/0 copper, with 795 ACSR. Replace the line switch, 040823, at Delhi Tap with a 2,000 amp switch.		GPC Cost [redacted]
2022										
496 DBL BRNCH J 115 1488 BUCKHEAD PT 115 1	50C 4/0 Copper conductor	45	**58**	57	**102.4**	57	1	OPEN 511-339153, CLOSE 496-511	Peak G	No Unit off
1420 DELHITAP 115 1488 BUCKHEAD PT 115 1	50C 4/0 Copper conductor	46	**59**	57	**102.8**	57	1	OPEN 511-339153, CLOSE 496-511	Peak G	No Unit off
DUM JON - GOSHEN 230 KV	TEAMS # 14221 Need Date 6/1/2022 Comment Date 3/1/2012							**GTC: GOSHEN 230-KV NON-CONDUCTOR IMPROVEMENTS** > 2018: 1200 amp line trap at Goshen replaced w/ 2,000 amp line trap. Recommend also replacing 1200 amp switches 037/039 with 2,000 amp switches. (GTC) Waiting on GTC to provide documentation.		GPC Cost [redacted]
2019										
113 PEACH ORCHD 230 114 GOSHEN 230 1	1200A trap at Goshen	255	**495**	497	**100.5**	602	1	1413 THOMSON 230 1490 THOMSON 500 1	Shoulder C	Savannah Area Max
2020										
113 PEACH ORCHD 230 114 GOSHEN 230 1	1200A trap at Goshen	275	**511**	497	**104.0**	602	1	1413 THOMSON 230 1490 THOMSON 500 1	Shoulder C	Vogtle Area Max
2021										
113 PEACH ORCHD 230 114 GOSHEN 230 1	1200A trap at Goshen	241	**529**	497	**107.6**	602	1	1413 THOMSON 230 1490 THOMSON 500 1	Shoulder C	Savannah Area Max
2022										
113 PEACH ORCHD 230 114 GOSHEN 230 1	1200A trap at Goshen	230	**558**	497	**114.3**	602	1	1413 THOMSON 230 1490 THOMSON 500 1	Shoulder C	Savannah Area Max
EVANS PRIMARY - THOMSON PRIMARY 115 KV	TEAMS # 14222 Need Date 6/1/2022 Comment Date 7/31/2012							**THOMSON PRIMARY 230/115-KV #2 TRANSFORMER** 2022: Install a 2nd 300 MVA, 230/115-kv transformer at Thomson Primary.		GPC Cost [redacted]
2022										
520 EVANS 115 1460 PATRIOTS PK 115 1	100°C 336.4 ACSR Linnet 26/7	30	**124**	124	**102.1**	124	1	515 THOMSON 115 1413 THOMSON 230 1	Peak C	Savannah Area Max
SAVANNAH RIVER (SCE&G) - VOGTLE 230 KV	TEAMS # Need Date Comment Date 11/17/2011							Interface project under development existing --> GPC 2-1590 jumpers (1140/1192) 2-1351 ACSR cond (1160/1204) existing --> SCEG 2-1272 ACSR cond (949/1019)		GPC Cost [redacted]
2022										
115 VOGTLE + 230 370308 SRS 230 1	2-1272 ACSR conductor (SCE&G)	751	**1049**	1020	**103.5**	1020	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Shoulder G	Vogtle Area Max

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario

THOMSON 230/115 KV AUTO TEAMS # 14222 Need Date 6/1/2022 **THOMSON PRIMARY 230/115-KV #2 TRANSFORMER** GPC Cost [redacted]

Comment Date 7/31/2012 2022: Install a 2nd 300 MVA, 230/115-kv transformer at Thomson Primary.

2022

515	THOMSON	115	1413	THOMSON	230	1	Transformer nameplate rating	219	**321**	300	**107.0**	300	1	107 WARRENTON	230	1413 THOMSON	230 1	Shoulder C	Savannah Area Max

VIDALIA - WADLEY PRIMARY (BLACK) 230 KV TEAMS # 14731 Need Date 6/1/2022 **VIDALIA - WADLEY PRIMARY 230KV NON-CONDUCTOR** GPC Cost [redacted]

Comment Date 7/31/2012 2022: upgrade 800 cu jumpers & 1,200 amp line traps at Vidalia with 2,000 amp rated equipment. Assuming Wadley Primary end done with the Wadley 500/230-kv auto install

2022

118	WADLEY PRI	230	161	VIDALIA	230	2	100°C 1033.5 ACSR Curlew 54/7	351	**503**	486	**102.0**	509	1	8 VOGTLE	500	9 W MCINTOSH	500 1	Peak G	Hatch 1 off

VIDALIA - WADLEY PRIMARY (WHITE) 230 KV TEAMS # 14731 Need Date 6/1/2022 **VIDALIA - WADLEY PRIMARY 230KV NON-CONDUCTOR** GPC Cost [redacted]

Comment Date 7/31/2012 2022: upgrade 800 cu jumpers & 1,200 amp line traps at Vidalia with 2,000 amp rated equipment. Assuming Wadley Primary end done with the Wadley 500/230-kv auto install

2022

118	WADLEY PRI	230	161	VIDALIA	230	1	100°C 1033.5 ACSR Curlew 54/7	350	**502**	486	**101.7**	509	1	8 VOGTLE	500	9 W MCINTOSH	500 1	Peak G	Hatch 1 off

WADLEY 230/115 KV AUTO TEAMS # 14732 Need Date 6/1/2021 **WADLEY PRIMARY 230/115-KV TRANSFORMER REPLACEMENT** GPC Cost [redacted]

Comment Date 7/31/2012 2021: Replace 125 MVA nameplate 230/115-kv auto with 300 MVA auto.

2021

118	WADLEY PRI	230	564	WADLEY PRI	115	1	Transformer bonus rating	118	**150**	147	**101.9**	147	1	8 VOGTLE	500	9 W MCINTOSH	500 1	Peak G	McIntosh CC10 off

2022

118	WADLEY PRI	230	564	WADLEY PRI	115	1	Transformer bonus rating	125	**158**	147	**107.4**	147	3	8 VOGTLE	500	9 W MCINTOSH	500 1	Peak G	McIntosh CC10 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
ALBANY - PALMYRA 115 KV	TEAMS # 14521 Need Date 6/1/2022 Comment Date 7/31/2012							**ALBANY - PALMYRA 115 KV LINE** 2022: OP: Normally Open point change (Post Contingency) GPC: Add motor operator & Scada to NO switch 065903		GPC Cost [redacted]
2022										
1519 ALBANY 7J 115 1567 ALBANY 7 115 1	750 AAC jumpers	137	**190**	187	101.0	188	1	688 SLAPPEY DR 115 1566 ALBANY 2J 115 1	Shoulder C	Franklin 3 off
KETTLE CREEK PRIMARY - OFFERMAN (WHITE) 115 KV	TEAMS # 13029 Need Date 6/1/2020 Comment Date 7/31/2012							**KETTLE CREEK - OFFERMAN (WHITE) 115 KV REBUILD (PHASE I)** Delayed from 2019. Rebuild the Offerman - Blackshear J segment of the Kettle Creek Primary - Offerman (White) 115 kV		GPC Cost [redacted]
2020										
1093 OFFERMAN 115 1106 BLKSHEAR J 115 1	100°C 336.4 ACSR Linnet 26/7	94	**126**	124	100.1	124	1	1093 OFFERMAN 115 1827 WALTER J 115 1	Peak G	Brunswick Area Max
2021										
1093 OFFERMAN 115 1106 BLKSHEAR J 115 1	100°C 336.4 ACSR Linnet 26/7	94	**126**	124	100.3	124	1	1093 OFFERMAN 115 1827 WALTER J 115 1	Peak G	Farley 1 off
2022										
1093 OFFERMAN 115 1106 BLKSHEAR J 115 1	100°C 336.4 ACSR Linnet 26/7	98	**132**	124	105.1	124	3	1093 OFFERMAN 115 1827 WALTER J 115 1	Peak G	Farley 1 off
KETTLE CREEK PRIMARY - OFFERMAN (WHITE) 115 KV (OP	TEAMS # 10378 Need Date 6/1/2021 Comment Date 7/31/2012							**KETTLE CREEK - OFFERMAN (WHITE) 115 KV UPGRADE (PHASE II)** Open-Close Contingency. Upgrade the Jamestown - NE Waycross segment of the Kettle Creek - Offerman (White) 115 kV		GPC Cost [redacted]
2021										
1077 JAMESTOWN 115 1078 NE WAYCROSS 115 1	50°C 336.4 ACSR Linnet 26/7	19	**62**	63	100.2	63	1	OPEN 212-1085, CLOSE 1078-1088	Peak G	No Unit off
2022										
1077 JAMESTOWN 115 1078 NE WAYCROSS 115 1	50°C 336.4 ACSR Linnet 26/7	20	**64**	63	103.1	63	1	OPEN 212-1085, CLOSE 1078-1088	Peak G	No Unit off
MOULTRIE - NORTH TIFTON 115 KV	TEAMS # Need Date Comment Date 7/31/2012							Not a problem. Jumpers to be replaced in 2014. The case reflects the old Limiting element. Conductor is now the limiting element		GPC Cost [redacted]
2021										
1049 N TIFTON 115 1858 TIFTON J 115 1	100°C 636.0 ACSR Grosbeak 26/7	122	**185**	180	102.1	188	1	222 N TIFTON 230 1875 E MOULTRIE 230 1	Peak G	Firm AL on, L Smith 3 off
2022										
1049 N TIFTON 115 1858 TIFTON J 115 1	100°C 636.0 ACSR Grosbeak 26/7	125	**189**	180	104.4	188	1	222 N TIFTON 230 1875 E MOULTRIE 230 1	Peak G	Lansing Smith 3 off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
NORTH TIFTON 230/115 KV AUTO #1	TEAMS # 14788 Need Date 6/1/2022 **NORTH TIFTON 230/115 KV TRANSFORMER REPLACEMENTS** GPC Cost [redacted]									
	Comment Date 9/4/2012 2022: Replace North Tifton 230/115 kV Autos									
2022										
222 N TIFTON 230 1049 N TIFTON 115 1	Transformer bonus rating	211	**333**	332	**100.4**	332	1	222 N TIFTON 230 1049 N TIFTON 115 2	Peak G	Firm AL on, Hatch 1 off
NORTH TIFTON 230/115 KV AUTO #2	TEAMS # 14788 Need Date 6/1/2022 **NORTH TIFTON 230/115 KV TRANSFORMER REPLACEMENTS** GPC Cost [redacted]									
	Comment Date 9/4/2012 2022: Replace North Tifton 230/115 kV Autos									
2022										
222 N TIFTON 230 1049 N TIFTON 115 2	Transformer bonus rating	210	**332**	332	**100.0**	332	1	222 N TIFTON 230 1049 N TIFTON 115 1	Peak G	Firm AL on, Hatch 1 off
PALMYRA - SLAPPEY DRIVE 115 KV	TEAMS # 11051 Need Date 6/1/2021 **MEAG: PALMYRA - SLAPPEY DRIVE 115 KV LINE RECONDUCTOR** GPC Cost [redacted]									
	Comment Date 7/31/2012 2021: MEAG: Reconductor 2.5 miles of 100°C 477 ACSR from Slappey Drive to the Albany #2 Jct, with 795 ACSR									
2021										
688 SLAPPEY DR 115 1566 ALBANY 2J 115 1	100°C 477.0 ACSR Hawk 26/7	54	**156**	155	**102.3**	155	2	669 PALMYRA 115 1564 ALBANY 14J 115 1	Peak C	Franklin Area + Firm AL
2022										
688 SLAPPEY DR 115 1566 ALBANY 2J 115 1	100°C 477.0 ACSR Hawk 26/7	86	**166**	155	**107.3**	155	3	678 ALBANY 115 1519 ALBANY 7J 115 1	Shoulder C	Franklin 2 off
PINE GROVE PRIMARY - WEST VALDOSTA 115 KV	TEAMS # 10487 Need Date 6/1/2021 **PINE GROVE PRIMARY - WEST VALDOSTA 115 KV RECONDUCTOR** GPC Cost [redacted]									
	Comment Date 7/31/2012 2021:Reconductor 3.7 miles of 100°C 4/0 ACSR conductor with 100°C 795 ACSR Grosbeak 26/7 on the Bemis - Pine Grove Primary section of the Pine Grove Primary - West Valdosta 115kV line.									
2021										
1010 BEMISS 115 1065 PINE GROVE 115 1	100°C 4/0 ACSR Penguin 6/1	32	**88**	91	**100.6**	91	1	1885 W VALDOSTA 230 1886 W VALDOSTA 115 1	Peak G	Suwannee off
2022										
1010 BEMISS 115 1065 PINE GROVE 115 1	100°C 4/0 ACSR Penguin 6/1	34	**91**	91	**104.8**	91	2	1885 W VALDOSTA 230 1886 W VALDOSTA 115 1	Peak G	Suwannee off
PINE GROVE PRIMARY 230/115 KV AUTO #1	TEAMS # Need Date GPC Cost [redacted]									
	Comment Date 9/4/2012 2019: Rerate Pine Grove 230/115 kV Auto #1									
2022										
220 PINE GROVE 230 1065 PINE GROVE 115 1	Transformer nameplate rating	191	**301**	300	**100.2**	300	1	220 PINE GROVE 230 1065 PINE GROVE 115 2	Peak G	Suwannee off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
PINE GROVE PRIMARY 230/115 KV AUTO #2	TEAMS #	Need Date							GPC Cost [redacted]	
	Comment Date 7/31/2012	2019: Rerate Pine Grove 230/115 kV Auto #2								
2020										
220 PINE GROVE 230 1065 PINE GROVE 115 2	Transformer nameplate rating	179	**285**	280	**101.6**	280	1	220 PINE GROVE 230 1065 PINE GROVE 115 1	Peak G	Suwannee off
2021										
220 PINE GROVE 230 1065 PINE GROVE 115 2	Transformer nameplate rating	183	**291**	280	**104.0**	280	1	220 PINE GROVE 230 1065 PINE GROVE 115 1	Peak G	Suwannee off
2022										
220 PINE GROVE 230 1065 PINE GROVE 115 2	Transformer nameplate rating	187	**298**	280	**106.3**	280	1	220 PINE GROVE 230 1065 PINE GROVE 115 1	Peak G	Suwannee off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
CLAXTON - STATESBORO PRIMARY 115 KV	**TEAMS #** 13096 **Need Date** 6/1/2016 **Comment Date** 7/31/2012	**CLAXTON - STATESBORO PRIMARY 115 KV RECONDUCTOR**							**GPC Cost** [redacted]	
		2016: Claxton - Statesboro Primary 115-kv reconductor -- add Langston - Jimps tap section to project (2017).								
2018										
508 LANGSTON 115 1451 JIMPS JCT 115 1	50°C 336.4 ACSR Linnet 26/7	81	**133**	124	**107.7**	124	2	843 VIDALIA 115 1625 LOOP RD 115 1	Peak G	Jasper SC off
2019										
508 LANGSTON 115 1451 JIMPS JCT 115 1	50°C 336.4 ACSR Linnet 26/7	82	**131**	124	**105.2**	124	2	843 VIDALIA 115 1625 LOOP RD 115 1	Peak G	Jasper SC off
2020										
508 LANGSTON 115 1451 JIMPS JCT 115 1	50°C 336.4 ACSR Linnet 26/7	81	**129**	124	**103.7**	124	1	843 VIDALIA 115 1625 LOOP RD 115 1	Peak G	Jasper SC off
2021										
508 LANGSTON 115 1451 JIMPS JCT 115 1	50°C 336.4 ACSR Linnet 26/7	86	**138**	124	**112.0**	124	3	843 VIDALIA 115 1625 LOOP RD 115 1	Peak G	Jasper SC off
2022										
508 LANGSTON 115 1451 JIMPS JCT 115 1	50°C 336.4 ACSR Linnet 26/7	86	**141**	124	**116.0**	124	3	843 VIDALIA 115 1625 LOOP RD 115 1	Peak C	Jasper SC off
STATESBORO PRIMARY - WADLEY PRIMARY 115 KV	**TEAMS #** 13024 **Need Date** 6/1/2017 **Comment Date** 7/31/2012	**STATESBORO - WADLEY 115KV UPGRADE (PHASE II)**							**GPC Cost** [redacted]	
		2018: U/G 600 AMP switch At Wadley Primsry. Upgrade Nunez tap - Stillmore - Metter sections to 100C (9 + 8 = 17 miles).								
2018										
564 WADLEY PRI 115 1485 WADLEY 115 1	600A switch at Wadley	104	**145**	135	**106.5**	155	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Jasper SC off
1445 STILLMORE 115 1448 METTER 115 1	50°C 477.0 ACSR Hawk 26/7	42	**81**	79	**105.0**	79	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Jasper SC off
2021										
564 WADLEY PRI 115 1485 WADLEY 115 1	600A switch at Wadley	103	**143**	135	**105.6**	155	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	McIntosh CC10 off
1445 STILLMORE 115 1448 METTER 115 1	50°C 477.0 ACSR Hawk 26/7	41	**79**	79	**102.9**	79	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	McIntosh CC10 off
2022										
564 WADLEY PRI 115 1485 WADLEY 115 1	600A switch at Wadley	107	**148**	135	**109.9**	155	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Jasper SC off
1445 STILLMORE 115 1448 METTER 115 1	50°C 477.0 ACSR Hawk 26/7	45	**83**	79	**109.1**	79	1	8 VOGTLE 500 9 W MCINTOSH 500 1	Peak G	Jasper SC off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
GOSHEN - MCINTOSH 115 KV	TEAMS # 14730 Need Date 6/1/2021 Comment Date 7/31/2012	GOSHEN - MCINTOSH 115KV RECONDUCTOR						2021: Re-conductor McIntosh - GP Rincon - Goshen 115-kv line with 1351 ACSR (1.6 + 6.7 = 8.3 miles)		GPC Cost [redacted]
2021										
9021 MCINTOSH 115 9121 GP RINCON 115 1	75° 927.1 ACAR -- 18/19	151	**188**	181	104.2	181	2	9001 MCINTOSH 230 9176 CEMTRY HIL 230 1	Peak G	Jasper SC off
2022										
9021 MCINTOSH 115 9121 GP RINCON 115 1	75° 927.1 ACAR -- 18/19	157	**196**	181	108.9	181	4	9001 MCINTOSH 230 9176 CEMTRY HIL 230 1	Peak G	Vogtle Area Max
9022 GOSHEN 115 9121 GP RINCON 115 1	75° 927.1 ACAR -- 18/19	140	**176**	181	101.8	181	2	9001 MCINTOSH 230 9176 CEMTRY HIL 230 1	Peak C	Vogtle Area Max
KRAFT 230/115 KV AUTO #1	TEAMS # Need Date Comment Date 7/31/2012							2021: Re-rate transformer (280 MVA NP). Upgrade 230-kv pipe-type cable as needed.		GPC Cost [redacted]
2022										
9003 KRAFT 230 9004 KRAFT 115 1	Transformer bonus rating	188	**287**	280	102.4	339	1	9003 KRAFT 230 9004 KRAFT 115 2	Peak G	Franklin 3 off
KRAFT 230/115 KV AUTO #2	TEAMS # Need Date Comment Date 7/31/2012							2021: Re-rate transformer (300 MVA NP). Upgrade 230-kv pipe-type cable as needed.		GPC Cost [redacted]
2022										
9003 KRAFT 230 9004 KRAFT 115 2	Transformer bonus rating	185	**284**	280	101.4	390	1	9003 KRAFT 230 9004 KRAFT 115 1	Peak G	Yates 7 off
MCINTOSH - WEST MCINTOSH (BLACK) 230 KV	TEAMS # Need Date Comment Date 8/20/2012							022: OK CC trips with line (LL=98%) McIntosh - Purrysburg 230-kv tie-line project pending (2015 - 2016).		GPC Cost [redacted]
2022										
1424 W MCINTOSH2 230 2182 R_WMCINTSH2 230 1	4000A series reactors	1032	**1718**	1656	104.9	1656	2	1421 W MCINTOSH 230 2181 R_WMCINTSH 230 1	Peak C	Jasper SC off
2182 R_WMCINTSH2 230 9001 MCINTOSH 230 1	160°C 2-1351.5 ACSS Martin 54/19	1014	**1658**	1614	107.7	1614	2	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off

Overloaded Segment	Limiting Element	Pre Cont MVA	Post Cont MVA	Ckt Limit Rating	% Load	Cond/ Tfm Rate	# Cont	Worst Contingency	Case Type	Generation Scenario
MCINTOSH - WEST MCINTOSH (WHITE) 230 KV	TEAMS #	Need Date						GPC Cost [redacted]		
	Comment Date 8/20/2012	2022: OK CC trips with line (LL=98%) McIntosh - Purrysburg 230-kv tie-line project pending (2015 - 2016).								
2022										
1421 W MCINTOSH1 230 2181 R_WMCINTSH1 230 1	4000A series reactors	1023	**1713**	1656	**104.6**	1656	2	2182 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
2181 R_WMCINTSH1 230 9001 MCINTOSH 230 1	160°C 2-1351.5 ACSS Martin 54/19	1005	**1653**	1614	**107.3**	1614	2	1424 W MCINTOSH 230 2182 R_WMCINTSH 230 1	Peak C	Jasper SC off
MCINTOSH - YEMASSEE (SCE&G) 115 KV	TEAMS # 13670	Need Date 6/1/2015	**MCINTOSH - YEMASSEE (SCE&G) 115KV TIE-LINE RECONDUCTOR**					GPC Cost [redacted]		
	Comment Date 8/20/2012	Re-conductor GPC portion w/ 160C, 1351 ACSS. McIntosh - Purrysburg 230-kv tie-line project pending (2015 - 2016).								
2018										
9021 MCINTOSH 115 370475 3JASPER T 115 1	75°C 1272 ACSR CONDUCTOR	21	**262**	254	**104.4**	230	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Peak C	Jasper SC off
2021										
9021 MCINTOSH 115 370475 3JASPER T 115 1	75°C 1272 ACSR CONDUCTOR	24	**289**	254	**114.5**	230	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Shoulder C	Jasper SC off
2022										
9021 MCINTOSH 115 370475 3JASPER T 115 1	75°C 1272 ACSR CONDUCTOR	29	**259**	254	**102.8**	230	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Peak G	Jasper SC off
MCINTOSH 230/115 KV AUTO	TEAMS # 11662	Need Date 6/1/2015	**MCINTOSH 230/115-KV TRANSFORMER REPLACEMENT**					GPC Cost [redacted]		
	Comment Date 8/20/2012	2015: Replace 280 MVA transformer w/ 400 MVA transfomer. 2018 - 2022: re-rate transformer or add 2nd 400 MVA transformer. McIntosh - Purrysburg 230-kv tie-line project pending (2015 - 2016).								
2019										
9001 MCINTOSH 230 9021 MCINTOSH 115 1	Transformer nameplate rating	219	**417**	400	**104.3**	400	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Peak C	Jasper SC off
2020										
9001 MCINTOSH 230 9021 MCINTOSH 115 1	Transformer nameplate rating	226	**416**	400	**104.0**	400	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Peak C	Jasper SC off
2021										
9001 MCINTOSH 230 9021 MCINTOSH 115 1	Transformer nameplate rating	236	**460**	400	**115.0**	400	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Peak C	Jasper SC off
2022										
9001 MCINTOSH 230 9021 MCINTOSH 115 1	Transformer nameplate rating	242	**455**	400	**113.8**	400	1	9001 MCINTOSH 230 312721 6PURRYSB 230 1	Peak G	Jasper SC off

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
201 - Metro West					
	2013	13635	**DOUGLASVILLE - POST RD 115KV REBUILD - PHASE 1 (ANNEEWAKEE)**	A	GPC: [redacted]
			Project Description: Reconductor the 2.1 mile section of 75 degree C 397 ACSR conductor from the Annewakee Jct. to Annewakee with 1033 ACSR. (**NOTE: the entire line SEGMENT is 3.8 miles long and has a 1.7 mile section that already consists of 1033 ACSR conductor).		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Overloaded Element(s):		
			- DOUGLASVILLE - POST ROAD 115 KV (ANNEEWAKEE TAP) 2013		
	2016	12063	**DOUGLASVILLE - POST RD 115 KV RECONDUCTOR - PHASE 2**	W	GPC: [redacted]
			Project Description: Reconductor the Douglasville - Anneewakee Jct section to RLB switch #026209 of the Douglasville - Post Road 115 kV line (6.0 miles of 336 ACSR and 397 ACSR) using 1033 ACSR.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- DOUGLASVILLE - POST ROAD 115 KV 2014		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
202 - Metro North					
	2018	13213	**MEAG: LAWRENCEVILLE #4 115KV SWITCH REPLACEMENT**	W	GPC: [redacted]
			Project Description: Replace BLD switch #216773 at Lawrenceville #4 with an RLB switch.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- LAWRENCEVILLE - MOON ROAD 115 KV 2017		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
206 - Metro East					
	2015	**08839**	**CONYERS - CORNISH MOUNTAIN 115 KV LINE RECONDUCTOR**	**W**	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Reconductor the Conyers - Salem Gate Jct. section of the Conyers - Cornish Mtn. 115 kV line (3.9 miles of 636.0 ACSR) with1351 ACSR. Replace 750 AAC jumpers at North Conyers with 1590 AAC jumpers.		
			Overloaded Element(s):		
			- CONYERS - CORNISH MOUNTAIN 115 KV 2015		
	2020	**10899**	**AUSTIN DRIVE - MORROW 115-KV REBUILD PROJECT/PHASE-2**	**W**	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Reconductor the Austin Drive - River Road (7.1 miles of 336 ACSR with 795 ACSR conductor rated for 100 C operation) and the Morrow - Ellenwood (2.0 miles of 795 ACSR with 1351 SSAC conductor rated for 170 C operation) 115kV line sections of the Austin Dri		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- AUSTIN DRIVE - MORROW 115 KV (Open/close problem) 2014		
			- AUSTIN DRIVE - MORROW 115 KV 2016		
	2021	**11235**	**DECATUR - MORELAND AVE 115-KV UPGRADE**	**W**	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Upgrade approximately 1.6 miles of 50C sagged 636 ACSR conductor from Decatur to Kirkwood for 100C operation.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- DECATUR - MORELAND AVENUE 115 KV 2014		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
208 - Metro South					
	2013	**10488**	**LLOYD SHOALS - PORTERDALE 115 KV LINE REBUILD (PHASE-1)**	**A**	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Rebuild 3.5 miles of the Lloyd Shoals - Porterdale 115-kV line from Porterdale to the S. Covington Junction. Replace the existing 50 degree C, 397 ACSR conductor with 795 ACSR sagged for 100 C operation.		
			Overloaded Element(s):		
			- LLOYD SHOALS - PORTERDALE PRIMARY 115 KV 2013		
	2014	**14505**	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**	**A**	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Construct a new 230/115kV substation with a 400 MVA autotransformer on Plant Yates property. Loop in the Thomaston - Yates 230kV line creating the Dyer Road - Yates 230kV line and the Dyer Road -Thomaston 230kV line. Loop in the Thomaston - Yates 115kV		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- SOUTH COWETA - YATES 115 KV 2013		
			- LINE CREEK - SOUTH COWETA 115 KV 2015		
			- SOUTH COWETA 230/115 KV AUTO 2016		
			- O'HARA - SOUTH COWETA 115 KV 2017		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2017	12461	**EAST POINT - CAMP CREEK 115-KV LINE RECONDUCTOR -- PHASE 2**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: Reconductor, using 230-kV specs, approximately one span of the existing 397 ACSR conductor with 1351 ACSR, on the East Point - Camp Creek 115-kV line, starting at the East Point substation. This will make the conductor in the entire 115-kV line segment, f		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- EAST POINT 120648 - CAMP CREEK 115 KV 2016		
	2017	12912	**HAMPTON-MCDON.115-KV REBUILD & DAILEY MILL-FLIPPEN LN ADD'N**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: Rebuild approximately 2.1 miles of the existing Hampton - McDonough 115-kV tap line, from McDonough to the Dailey Mill Tap. Use double circuit construction and 1351 ACSR conductor at 230-kV specs. to accommodate the addition of a future 230-kV circuit		
			Overloaded Element(s):		
			- O'HARA - SOUTH GRIFFIN 115 KV 2017		
	2018	13740	**MEAG: EAST POINT - WILLINGHAM DR 115-KV RECONDUCTOR**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: MEAG: Reconductor the existing 636 ACSR, 2.7 mile East Point - Willingham Drive circuit with 1033 ACSR conductor sagged for 100 C operation.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- EAST POINT - WILLINGHAM DRIVE 115 KV 2014		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2021	09347	**S. METRO ATLANTA PHASE-3 PROJECT, (OHARA-MCDONOUGH 230-KV)**	W	GPC:	[redacted]
			Project Description: Rebuild the existing O'Hara - Bonanza - Hampton 115-kV line sections, (approximately 12 miles), with double circuit, 1351 ACSR conductor at 230-kV specs and rebuild from Hampton to the Dailey Mill Tap at 230-kV, (approximately 5.5 miles), to create a new		GTC:	[redacted]
					MEAG:	
					Dalton:	[redacted]
			Operating Procedure is being utilized			
			Overloaded Element(s):			
			- SOUTH COWETA - SOUTH GRIFFIN 115 KV 2014			

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
211 - Northwest					
	2013	12856	**CELANESE - METAL CONTAINER 115KV LINE UPGRADE**	A	GPC: [redacted]
			Project Description: On the Celanese - Metal Container 115kV line, upgrade 3.53 miles of 50C 477 ACSR on the Celanese - Calhoun Rd. segment to operate at 100C.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Overloaded Element(s):		
			- CELANESE - METAL CONTAINER 115 KV 2013		
	2014	14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**	A	GPC: [redacted]
			Project Description: Construct a new 230/115kV substation with a 400 MVA autotransformer on Plant Yates property. Loop in the Thomaston - Yates 230kV line creating the Dyer Road - Yates 230kV line and the Dyer Road -Thomaston 230kV line. Loop in the Thomaston - Yates 115kV		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- BREMEN - POSSUM BRANCH 115 KV 2013		
			- POSSUM BRANCH - YATES 115 KV 2015		
			- HICKORY LEVEL - POSSUM BRANCH 115 KV 2015		
			- BREMEN 230/115 KV AUTO #1 2016		
			- BREMEN - HICKORY LEVEL 115 KV (BLACK) 2017		
			- HICKORY LEVEL 230/115 KV AUTO 2017		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2014	14535	**JUDY MOUNTAIN 230/115KV - ROME AREA IMPROVEMENTS**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: GTC: Construct a new 230/115KV substation near the existing Coosa substation. The Bowen - Rocky Mtn 230kV, Hammond - Rocky Mtn 230kV, Hammond - Lafayette 115kV and Hammond - Rome 115kV lines all pass through this Georgia Power owned property. Install a 2		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- METAL CONTAINER - PINSON 115 KV 2016		
			- PINSON - ROME 115 KV 2016		
	2030	12101	**BOWEN-CARTERSVILLE 115KV LINE REBUILD**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: GPC: Rebuild 8.54 miles total length on the existing Bowen - Cartersville 115kV line, from 477 ACSR to 1033 ACSR. Replace jumpers at Bowen. MEAG: Replace jumpers at Cartersville.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- BOWEN - CARTERSVILLE 115 KV 2015		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
213 - West					
	2013	13673	**SOUTH COLUMBUS 115 KV JUMPER/SWITCH REPLACEMENTS**	A	GPC: [redacted]
			Project Description: On the Dawson Primary 115 kV line termination, replace 600 A switches 006857 and 006859 with 1200 A switches, and replace the existing 4/0 Cu jumpers with 1590 AAC jumpers.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Overloaded Element(s):		
			- DAWSON PRIMARY - SOUTH COLUMBUS 115 KV 2013		
	2014	11692	**BULL CREEK - VICTORY DRIVE 115 KV LINE RECONDUCTOR**	W	GPC: [redacted]
			Project Description: Reconductor 2.5 miles of 115 kV line with 795 ACSR from Victory Drive to St. Marys Jct. on the Bull Creek - Victory Drive 115 kV line.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- BULL CREEK - VICTORY DRIVE 115 KV 2017		
	2014	14178	**NORTH TIFTON SECOND 500/230 KV AUTO**	A	GPC: [redacted]
			Project Description: Install a new 2016 MVA 500/230 kV auto in addition to the existing 1344-MVA auto.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- NORTH AMERICUS - NORTH TIFTON 230 KV 2015		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2014	**14505**	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)** Project Description: Construct a new 230/115kV substation with a 400 MVA autotransformer on Plant Yates property. Loop in the Thomaston - Yates 230kV line creating the Dyer Road - Yates 230kV line and the Dyer Road -Thomaston 230kV line. Loop in the Thomaston - Yates 115kV Operating Procedure is being utilized **Overloaded Element(s):** - LAGRANGE - YATES 115 KV 2015	A	GPC: [redacted] GTC: MEAG: Dalton:
	2015	**12719**	**FIRST AVENUE 230/115 KV AUTO #2 LS JUMPER REPLACEMENT** Project Description: Replace the 1590 AAC jumpers on the lowside of Auto #2 with 2000 AAC jumpers or better. **Overloaded Element(s):** - FIRST AVENUE 230/115 KV AUTO #2 2015	W	GPC: [redacted] GTC: MEAG: Dalton:
	2015	**14201**	**FIRST AVENUE - VICTORY DRIVE 115 KV LINE RECONDUCTOR** Project Description: Reconductor the entire line (6.4 miles of 75C 1033 AAC) with 100C 1033 ACSR. **Overloaded Element(s):** - FIRST AVENUE - VICTORY DR 115 KV 2015	W	GPC: [redacted] GTC: MEAG: Dalton:

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2015	14625	**GTC: NORTH AMERICUS-TALBOT CO #2 230KV SERIES REACTORS**	W	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: GTC: At North Americus, relocate the 2% series reactors on the North Americus - North Tifton 230kV line to the North Americus - Talbot County #2 230kV line. The North Americus - Talbot County #2 230kV line will have two 2% series reactors installed for

Overloaded Element(s):

- NORTH AMERICUS - TALBOT COUNTY #2 230 KV 2015
- FORTSON - TALBOT COUNTY #2 230 KV 2015

Zone	Need Year	Project ID	Project Name	Status	Cost
	2030	10838	**GTC: NORTH AMERICUS - PALMYRA 230 KV LINE UPGRADE (GTC)**	W	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: GTC - Upgrade the North Americus-Palmyra 230 kV line (33.3 miles of 50°C-sagged 1033.5 ACSR on WHF structures) for at least 75°C operation.

Operating Procedure is being utilized

Overloaded Element(s):

- NORTH AMERICUS - PALMYRA 230 KV 2015

Zone	Need Year	Project ID	Project Name	Status	Cost
	2030	14202	**GTC: FORTSON - TALBOT #1 230 KV SERIES REACTORS**	W	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: GTC: Install 2%, 1600A series reactors at Fortson on the Talbot County #1 230 kV line.□□Due to space constraints at Fortson, the reactors may be installed at Talbot #1 pending further investigation.

Operating Procedure is being utilized

Overloaded Element(s):

- FORTSON - TALBOT COUNTY #1 230 KV 2014

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
214 - Central					
	2015	13588	**BONAIRE - KATHLEEN 115 KV RECONDUCTOR** Project Description: Reconductor the entire line, 5.86 miles of 100C 336 ACSR, using 100C 795 ACSR.	W	GPC: [redacted] GTC: MEAG: Dalton:
			Overloaded Element(s): - BONAIRE PRIMARY - KATHLEEN 115 KV 2015		
	2015	14567	**GTC: BONAIRE PRIMARY 115 KV SWITCH REPLACEMENTS** Project Description: GTC: Replace 600A switches 096439 & 096437 and 500 CU jumpers @ Bonaire with 1200A switch and 1590 jumpers.	W	GPC: [redacted] GTC: MEAG: Dalton:
			Overloaded Element(s): - BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV 2015		
	2015	14569	**FORREST RD - RUMBLE RD 115 KV SWITCH REPLACEMENTS** Project Description: GTC: Replace 1200A switches 031213 & 031221 @ Smarr Tap and 031749 @ Bolingbroke with 2000A switches. Replace 1590 AAC jumpers @ Rumble Rd. and Bolingbroke with 2-750 AAC jumpers.□□GPC:Replace 1590 AAC jumpers @ Forrest Rd with 2-750 AAC jumpers.	W	GPC: [redacted] GTC: MEAG: Dalton:
			Overloaded Element(s): - FORREST ROAD - RUMBLE ROAD 115 KV 2015		

PUBLIC DISCLOSURE

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2016	12576	**MEAG: AULTMAN ROAD - BONAIRE PRIMARY 115 KV RECONDUCTOR**	W	GPC:	[redacted]
			Project Description: Reconductor the 3.65 mile, Bonaire - Peach Blossom 115 kV line section (100°C 336 ACSR) of the Aultman Road - Bonaire 115 kV line, with 100°C 795 ACSR.		GTC:	[redacted]
					MEAG:	
					Dalton:	[redacted]
			Operating Procedure is being utilized			
			Overloaded Element(s):			
			- AULTMAN ROAD - BONAIRE PRIMARY 115 KV 2014			

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
215 - East					
	2016	12720	**WAYNESBORO 230/115 KV AUTOBANK ADDITION** Project Description: Replace the 280 MVA, 230/115 kV transformer with a 400 MVA transformer.	W	GPC: [redacted] GTC: MEAG: Dalton:
			Overloaded Element(s): - WAYNESBORO 230/115 KV AUTO 2016		
	2017	14663	**WADLEY 500/230 KV PROJECT** Project Description: MEAG: Construct a 500 kV ring bus. Install a 2016 MVA 500/230 kV transformer with two LSB breakers, one to each 230 kV bus. Rebuild the 230 kV main buses with 2-1590 AAC or better. Replace 125-MVA Bank "A" with a 300 MVA autobank.□□GPC: Loop in the V	W	GPC: [redacted] GTC: MEAG: Dalton:
			Overloaded Element(s): - VOGTLE - WILSON 230 KV 2017 - WADLEY PRIMARY - WAYNESBORO PRIMARY 230 KV 2017 - WAYNESBORO PRIMARY - WILSON 230 KV 2017		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2022	14221	**GTC: GOSHEN 230-KV NON-CONDUCTOR IMPROVEMENTS**	W	GPC:	[redacted]
			Project Description: GTC: Replace 1200 amp switches 037/039 with 2,000 amp switches.□□Note: GTC needs to confirm line trap is rated for 2,000 amps ---Replace 1200 amp line trap at Goshen w/ 2,000 amp line trap on the Dum Jon 230-kv line.		GTC:	[redacted]
					MEAG:	[redacted]
					Dalton:	[redacted]
			Operating Procedure is being utilized			
			Overloaded Element(s):			
			- DUM JON - GOSHEN 230 KV 2017			
	2030	11612	**GTC/MEAG: GOSHEN - WAYNESBORO 115-KV RECONDUCTOR**	W	GPC:	[redacted]
			Project Description: MEAG: Rebuild the Goshen - Waynesboro 115-kV line, 16.45 miles, with 1033 ACSR.□□GTC: Replace switches, jumpers, transfer bus at Goshen.		GTC:	[redacted]
					MEAG:	[redacted]
					Dalton:	[redacted]
			Operating Procedure is being utilized			
			Overloaded Element(s):			
			- GOSHEN - WAYNESBORO PRIMARY 115 KV 2013			

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
216 - South					
	2014	14178	**NORTH TIFTON SECOND 500/230 KV AUTO**	A	GPC: [redacted]
			Project Description: Install a new 2016 MVA 500/230 kV auto in addition to the existing 1344-MVA auto.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Overloaded Element(s):		
			- NORTH TIFTON 500/230 KV AUTO 2014		
	2014	14319	**JASPER - PINE GROVE PRIMARY 115 KV REBUILD**	A	GPC: [redacted]
			Project Description: Tear down and rebuild the GPC portion of the line using 230 kV constructed, single-pole 100°C-sagged 1351 ACSR on the existing 100' ROW, a distance of 21.6 miles. Replace 600A switches and jumpers at Pine Grove with 2000A switches.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Overloaded Element(s):		
			- PINE GROVE PRIMARY - TWIN LAKES 115 KV 2014		
			- KETTLE CREEK PRIMARY - WEST HOMERVILLE 115 KV 2014		
			- JASPER (PEF) - WEST HOMERVILLE 115 KV 2015		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2015	13626	**RACCOON CREEK - THOMASVILLE 230 KV LINE RECONDUCTOR**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: MEAG: Reconductor the Raccoon Creek - North Camilla 230 kV section (8.8 miles 100°C 1033.5 ACSR) of the Raccoon Creek - Thomasville 230 kV line with 170°C 1033 ACSS 54/7.□□GPC: Replace 1600 amp switches 109167 & 109159 and 1590 AAC jumper at Cotton Primar		
			Overloaded Element(s):		
			- RACCOON CREEK - THOMASVILLE 230 KV 2015		
	2015	14204	**OFFERMAN 230/115 KV AUTOBANK REPLACEMENTS**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Replace the existing 140 MVA 230/115 kV auto transformers with two 280-300 MVA 230/115 kV auto transformers.		
			Overloaded Element(s):		
			- OFFERMAN 230/115 KV AUTO #2 2015		
			- OFFERMAN 230/115 KV AUTO #1 2016		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2015	14278	**DOUGLAS - PINE GROVE 230 KV LINE**	W	GPC:	[redacted]
					GTC:	[redacted]
					MEAG:	[redacted]
					Dalton:	[redacted]

Project Description: Acquire new right of way and build a new 53 miles (100°C 1351 ACSR 54/19) 230 kV line from Douglas substation to Pine Grove substation.□□GPC: Build 15 miles (100°C 1351 ACSR 54/19) 230 kV line from Lakeland to Pine Grove substation.

Operating Procedure is being utilized

Overloaded Element(s):

- PALMYRA - SLAPPEY DRIVE 115 KV	2013
- MITCHELL - MOULTRIE 115 KV	2013
- BARNEYVILLE - PINE GROVE PRIMARY 115 KV	2014
- NORTH TIFTON - PINE GROVE PRIMARY 230 KV	2015
- MOULTRIE - NORTH TIFTON 115 KV	2015
- KETTLE CREEK PRIMARY - PINE GROVE PRIMARY 115 KV	2015
- DOUGLAS - KETTLE CREEK PRIMARY 115 KV	2015
- BARNEYVILLE - DOUGLAS 115 KV (Barneyville - Nashville 2)	2016

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
218 - Coastal					
	2014	13514	**MCMANUS - WEST BRUNSWICK 115 KV REBUILD**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: Rebuild the McManus - West Brunswick 115kV line (5.7 miles) with a concrete H-frame configuration and 1351 ACSR conductor at 100C sag. Re-use existing OPGW fiber on the McManus - W. Brunswick 115 kV.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- MCMANUS - WEST BRUNSWICK 115 KV 2013		
	2015	11662	**MCINTOSH 230/115-KV TRANSFORMER REPLACEMENT**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: Replace the existing 280 MVA, 230/115 kV transformer with 400 MVA, 230/115 kV transformer.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- MCINTOSH 230/115 KV AUTO 2017		
	2015	13103	**WEST MCINTOSH 230-KV REACTORS**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: Install 1% - 4,000 amp reactors at West McIntosh on the McIntosh - West McIntosh 230-kV Black and White lines.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- MCINTOSH - WEST MCINTOSH (BLACK) 230 KV 2017		
			- MCINTOSH - WEST MCINTOSH (WHITE) 230 KV 2017		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2015	13670	**MCINTOSH - YEMASSEE (SCE&G) 115KV TIE-LINE RECONDUCTOR**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Reconductor the GPC portion (1.43 mi) of the McIntosh - Jasper section (4.43 miles) of the McIntosh - Yemassee (SCE&G) 115kV tie line with 160C, 1351 ACSS.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- MCINTOSH - YEMASSEE (SCE&G) 115 KV 2017		
	2016	12095	**DEAL BRANCH - SYLVANIA 115-KV UPGRADE**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Upgrade the Deal Branch - Sylvania 115kV line, 23.1 miles, to 100 C. Replace 2/0 copper jumpers at King Mfg.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- DEAL BRANCH - SYLVANIA 115 KV 2017		
	2030	11238	**DANIEL SIDING - LITTLE OGEECHEE 115-KV RECONDUCTOR**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Reconductor the Daniel Siding - Little Ogeechee section, approximately 9.6 miles, of the Hinesville Primary - Little Ogeechee 115 kV line with 2-336 ACSS conductor (non-ITS).		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- DANIEL SIDING - LITTLE OGEECHEE 115 KV 2013		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2030	11821	**JESUP - LUDOWICI PRIMARY 115-KV RECONDUCTOR**	W	GPC:	[redacted]
			Project Description: Reconductor the Rayonier - North Jesup - Jesup section (7.5 miles of 336 ACSR) of the Jesup - Ludowici Primary 115 kV line with 795 ACSR conductor.		GTC:	[redacted]
					MEAG:	
					Dalton:	[redacted]
			Operating Procedure is being utilized			
			Overloaded Element(s):			
			- JESUP - LUDOWICI PRIMARY 115 KV 2017			

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
201 - Metro West					
	2022	12685	**JACK MCDONOUGH - WEST MARIETTA 115KV (WHITE) RECONDUCTOR**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]

Project Description: Rebuild approximately 4 miles of 115 kV line from the Plant Jack McDonough 115 kV substation to King Springs Road (3.18mi 739ACAR, 0.88mi 636) with 1033 ACSR. Replace the 750 AAC jumpers with 1590 AAC at King Springs Road. Transfer existing distributio

Overloaded Element(s):

- JACK MCDONOUGH - WEST MARIETTA (WHITE) 115 KV 2022

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
202 - Metro North					
	2018	13213	**MEAG: LAWRENCEVILLE #4 115KV SWITCH REPLACEMENT** Project Description: Replace BLD switch #216773 at Lawrenceville #4 with an RLB switch. Operating Procedure is being utilized **Overloaded Element(s):** - LAWRENCEVILLE - MOON ROAD 115 KV 2022	W	GPC: [redacted] GTC: MEAG: Dalton:
	2019	11671	**SHARON SPRINGS 230/115-KV SUBSTATION** Project Description: GTC - Construct a 230kV line from Cumming to Sharon Springs. Install in the Sharon Springs distribution substation a 230/115kV, 300 MVA transformer with two (2) 115kV line breakers. Terminate 115kV lines from Hopewell and Suwanee. □□GTC - Re-rate the Ho **Overloaded Element(s):** - HOPEWELL - SUWANEE 115 KV 2019	W	GPC: [redacted] GTC: MEAG: Dalton:
	2021	13614	**GTC: ARNOLD MILL - HOPEWELL 230 KV AREA PROJECT** Project Description: UNA: Acquire ROW for a new 230kV line from Arnold Mill substation to the Batesville Road substation and additional ROW as necessary adjacent to the Holly Springs - Hopewell 115kV line from the Batesville Road junction to the Hopewell substation.□□UNA: Con **Overloaded Element(s):** - HOLLY SPRINGS PRIMARY - HOPEWELL 115 KV 2021	W	GPC: [redacted] GTC: MEAG: Dalton:

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2030	12399	**LOOP SERVICE TO WALTON #6 115 KV SUBSTATION**	W	GPC:	[redacted]
			Project Description: Make necessary modifications to loop the Ponce De Leon - Snellville 115 KV line through the Walton EMC #6 (Snellville) substation.		GTC:	[redacted]
					MEAG:	[redacted]
					Dalton:	[redacted]
			Operating Procedure is being utilized			
			Overloaded Element(s):			
			- SNELLVILLE PRIMARY 169688 - SNELLVILLE (UG) 115 KV 2018			

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
206 - Metro East					
	2018	14212	**NORTHWEST 230/115KV TRANSFORMER CONTINGENCY RATING**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Re-rate both Northwest 230/115 kV auto banks.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- NORTHWEST 230/115 KV AUTO #1 2019		
	2020	10899	**AUSTIN DRIVE - MORROW 115-KV REBUILD PROJECT/PHASE-2**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Reconductor the Austin Drive - River Road (7.1 miles of 336 ACSR with 795 ACSR conductor rated for 100 C operation) and the Morrow - Ellenwood (2.0 miles of 795 ACSR with 1351 SSAC conductor rated for 170 C operation) 115kV line sections of the Austin Dri		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- AUSTIN DRIVE - MORROW 115 KV 2018		
			- AUSTIN DRIVE - MORROW 115 KV (Open/close problem) 2018		
	2021	11235	**DECATUR - MORELAND AVE 115-KV UPGRADE**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Upgrade approximately 1.6 miles of 50C sagged 636 ACSR conductor from Decatur to Kirkwood for 100C operation.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- DECATUR - MORELAND AVENUE 115 KV 2018		

PUBLIC DISCLOSURE

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
208 - Metro South					
	2018	12581	**CORN CRIB 230/115 KV SUBSTATION**	W	GPC: [redacted]
			Project Description: UNA: Construct a new 230/115 kV substation with a 300 MVA autotransformer. The substation will have a three terminal 230 kV ring bus and a four terminal 115 kV ring bus. GPC: Loop in the Dyer Road - Thomaston 230 kV line into Corn Crib and create the		GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Overloaded Element(s):		
			- DYER ROAD 230/115 KV AUTO 2018		
			- THOMASTON - YATES 115 KV 2018		
			- SOUTH COWETA - YATES 115 KV 2020		
	2018	13740	**MEAG: EAST POINT - WILLINGHAM DR 115-KV RECONDUCTOR**	W	GPC: [redacted]
			Project Description: MEAG: Reconductor the existing 636 ACSR, 2.7 mile East Point - Willingham Drive circuit with 1033 ACSR conductor sagged for 100 C operation.		GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Overloaded Element(s):		
			- EAST POINT - WILLINGHAM DRIVE 115 KV 2018		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2021	09347	**S. METRO ATLANTA PHASE-3 PROJECT, (OHARA-MCDONOUGH 230-KV)**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]

Project Description: Rebuild the existing O'Hara - Bonanza - Hampton 115-kV line sections, (approximately 12 miles), with double circuit, 1351 ACSR conductor at 230-kV specs and rebuild from Hampton to the Dailey Mill Tap at 230-kV, (approximately 5.5 miles), to create a new

Operating Procedure is being utilized

Overloaded Element(s):

- SOUTH COWETA - SOUTH GRIFFIN 115 KV	2018
- OLA - PORTERDALE PRIMARY 115 KV	2021
- MCDONOUGH - STOCKBRIDGE 115 KV	2022

Zone	Need Year	Project ID	Project Name	Status	Cost
	2022	11242	**GTC: HIGHWAY-54 230/115-KV TFM. ADDITION**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]

Project Description: GTC: Install a 230/115kV transformer at the Highway 54 substation. Also, at Hwy-54, install 115-kV circuit breakers and terminate two new 115kV lines from Tyrone and Bernhard Rd., a distance of approximately 4.0 and 4.5 miles respectively. Add approxi

Overloaded Element(s):

- SOUTH COWETA 230/115 KV AUTO	2022

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
211 - Northwest					
	2018	12581	**CORN CRIB 230/115 KV SUBSTATION**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: UNA: Construct a new 230/115 kV substation with a 300 MVA autotransformer. The substation will have a three terminal 230 kV ring bus and a four terminal 115 kV ring bus. □□GPC: Loop in the Dyer Road - Thomaston 230 kV line into Corn Crib and create the		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- BREMEN - HICKORY LEVEL 115 KV (BLACK) 2022		
	2019	10811	**DU: NELSON 230/115KV AUTOBANK REPLACEMENT**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Replace both existing 230/115kV autotransformers with a new 400MVA 230/115kV autotransformer.		
			Overloaded Element(s):		
			- NELSON 230/115 KV AUTO #2 2019		
	2030	11655	**DU: EAST DALTON - TUNNEL HILL 115KV LINE THERMAL UPGRADE**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Upgrade the 50 Deg.C, 336acsr conductor on the E.Dalton - Tunnel Hill 115-kV line between Ringgold and NGEMC/Whitfield for 100 Deg.C operation. (a distance of approximately 10 miles).		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- EAST DALTON - TUNNEL HILL 115 KV 2022		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2030	12101	**BOWEN-CARTERSVILLE 115KV LINE REBUILD**	W	GPC:	[redacted]
			Project Description: GPC: Rebuild 8.54 miles total length on the existing Bowen - Cartersville 115kV line, from 477 ACSR to 1033 ACSR. Replace jumpers at Bowen. □□MEAG: Replace jumpers at Cartersville.		GTC:	[redacted]
					MEAG:	
					Dalton:	[redacted]
			Operating Procedure is being utilized			
			Overloaded Element(s):			
			- BOWEN - CARTERSVILLE 115 KV 2018			

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
212 - Northeast					
	2018	10193	**ANTHONY SHOALS - WASHINGTON 115 KV REBUILD PROJECT**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]

Project Description: Rebuild the Anthony Shoals - Buckhead Point - Double Branches Tap 115kv line section, 15.1 miles of 50C, 4/0 copper, with 795 ACSR. Replace the line switch, 040823, at Delhi Tap with a 2,000 amp switch.

Operating Procedure is being utilized

Overloaded Element(s):

- ANTHONY SHOALS 227228 - WASHINGTON 115 KV 2019

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
213 - West					
	2018	12581	**CORN CRIB 230/115 KV SUBSTATION** Project Description: UNA: Construct a new 230/115 kV substation with a 300 MVA autotransformer. The substation will have a three terminal 230 kV ring bus and a four terminal 115 kV ring bus. GPC: Loop in the Dyer Road - Thomaston 230 kV line into Corn Crib and create the **Overloaded Element(s):** - LAGRANGE - YATES 115 KV 2018 - THOMASTON - YATES 115 KV 2022	W	GPC: [redacted] GTC: MEAG: Dalton:
	2018	13166	**FIRST AVENUE - NORTH COLUMBUS 115KV LINE RECONDUCTOR** Project Description: Reconductor the 0.9 Mile North Columbus - First Avenue 115kV line replacing the 75C 657 ACAR conductor with 100C 795 ACSR conductor. **Overloaded Element(s):** - FIRST AVENUE - NORTH COLUMBUS 115 KV 2018	W	GPC: [redacted] GTC: MEAG: Dalton:
	2021	14813	**BULL CREEK - FIRST AVENUE 115KV LINE RECONDUCTOR** Project Description: Reconductor 4.7 mi from Bull Creek to First Avenue with 160C SSAC wire. Operating Procedure is being utilized **Overloaded Element(s):** - BULL CREEK - FIRST AVENUE 115 KV 2022	W	GPC: [redacted] GTC: MEAG: Dalton:

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2022	14814	**FIRST AVENUE 230/115KV AUTOBANK #6 REPLACEMENT**	W	GPC:	[redacted]
			Project Description: Replace First Avenue 300MVA 230/115kV autobank Bank #6 with a 400MVA bank.		GTC:	[redacted]
					MEAG:	[redacted]
					Dalton:	[redacted]

Overloaded Element(s):

- FIRST AVENUE 230/115 KV AUTO #2	2022

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
214 - Central					
	2019	13606	**HATCH - VIDALIA 230KV RECONDUCTOR** Project Description: Reconductor 23 miles of 100C 1033 ACSR with 170C 1033 ACSS conductor on the Hatch - Vidalia 230 kV line.□□Vidalia end of the Hatch - Vidalia 230 kV line: □Replace 800Cu jumpers with 2X1590 AAC jumpers. Replace 1200 amp switches 069679 and 069677 with 2000 **Overloaded Element(s):** - HATCH - VIDALIA 230 KV 2019	W	GPC: [redacted] GTC: MEAG: Dalton:
	2019	13864	**GTC: BAXLEY - SOUTH HAZLEHURST 115KV LINE IMPROVEMENT** Project Description: GTC: Replace the 115kV bus, line switch (076113), and line jumpers at Pine Grove Substation. **Overloaded Element(s):** - BAXLEY - SOUTH HAZLEHURST 115 KV 2019	W	GPC: [redacted] GTC: MEAG: Dalton:
	2021	12579	**GTC: EATONTON - LAKE OCONEE 115 KV RECONDUCTOR** Project Description: Reconductor approx. 7.34 miles from structure # 238D to Lick Creek On the Eatonton Primary - Lake Oconee 115 kV line from 100C 4/0 ACSR to 100C 795 ACSR conductor. **Overloaded Element(s):** - EATONTON PRIMARY - LAKE OCONEE 115 KV 2021	W	GPC: [redacted] GTC: MEAG: Dalton:

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2021	13787	**MEAG: AULTMAN ROAD - BONAIRE PRIMARY 115 KV RECONDUCTOR II**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Reconductor the 1.99 mile, Sleepy Hollow - Peach Blossom 115 kV line section (presently 100°C 336 ACSR) of the Aultman Road - Bonaire 115kV line, with 100°C 795 ACSR.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- AULTMAN ROAD - BONAIRE PRIMARY 115 KV 2020		
	2022	13210	**HATCH - OFFERMAN 230 KV LINE RECONDUCTOR**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Reconductor 38.45 miles of 100C 1033 ACSR with 1351 ACSR conductor on the Hatch - Offerman 230 kV line.		
			Overloaded Element(s):		
			- HATCH - OFFERMAN 230 KV 2022		
	2022	14758	**BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV UPGRADE**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Upgrade the Cochran - Cochran Junction segment associated with the the Bonaire Primary - Eastman Primary 115 kV line to 100C operation (approx. 1.5 miles).		
			Overloaded Element(s):		
			- BONAIRE PRIMARY - EASTMAN PRIMARY 115 KV 2022		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2022	14760	**CAGLES 115 KV JUMPER REPLACEMENT** Project Description: Replace 350 AAC jumpers at Cagles 115 kV Substation with 1590 AAC jumpers.	W	GPC: GTC: MEAG: Dalton:	[redacted]

Overloaded Element(s):

- KATHLEEN - PERRY 115 KV 2022

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
215 - East					
	2018	10193	**ANTHONY SHOALS - WASHINGTON 115 KV REBUILD PROJECT**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Rebuild the Anthony Shoals - Buckhead Point - Double Branches Tap 115kv line section, 15.1 miles of 50C, 4/0 copper, with 795 ACSR. Replace the line switch, 040823, at Delhi Tap with a 2,000 amp switch.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- ANTHONY SHOALS 227228 - WASHINGTON 115 KV 2022		
	2021	14732	**WADLEY PRIMARY 230/115-KV TRANSFORMER REPLACEMENT**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Replace the Wadley Primary 125 MVA, 230/115-kV transformer with a 300 MVA transformer.		
			Overloaded Element(s):		
			- WADLEY 230/115 KV AUTO 2021		
	2022	14221	**GTC: GOSHEN 230-KV NON-CONDUCTOR IMPROVEMENTS**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: GTC: Replace 1200 amp switches 037/039 with 2,000 amp switches.□□Note: GTC needs to confirm line trap is rated for 2,000 amps ---Replace 1200 amp line trap at Goshen w/ 2,000 amp line trap on the Dum Jon 230-kv line.		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- DUM JON - GOSHEN 230 KV 2019		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2022	14222	**THOMSON PRIMARY 230/115-KV #2 TRANSFORMER** Project Description: Install a 2nd 300 MVA, 230/115-kV transformer.	W	GPC: GTC: MEAG: Dalton:	[redacted]

Overloaded Element(s):

- EVANS PRIMARY - THOMSON PRIMARY 115 KV	2022
- THOMSON 230/115 KV AUTO	2022

Zone	Need Year	Project ID	Project Name	Status	Cost	
	2022	14731	**VIDALIA - WADLEY PRIMARY 230KV NON-CONDUCTOR** Project Description: Wadley Primary: Replace 800 copper jumpers and 1,200 amp line traps on the Vidalia 230-kv B/W lines.□Vidalia: Replace 800 copper jumpers and 1,200 amp line traps on the Wadley Primary 230-kv B/W lines.	W	GPC: GTC: MEAG: Dalton:	[redacted]

Overloaded Element(s):

- VIDALIA - WADLEY PRIMARY (WHITE) 230 KV	2022
- VIDALIA - WADLEY PRIMARY (BLACK) 230 KV	2022

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
216 - South					
	2020	13029	**KETTLE CREEK - OFFERMAN (WHITE) 115 KV REBUILD (PHASE I)**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Rebuild the Offerman - Blackshear Junction section (9.4 miles of 100°C 336 ACSR Linnet 26/7) with 100°C 795.0 ACSR Drake. Perform survey and ROW services as required.		
			Overloaded Element(s):		
			- KETTLE CREEK PRIMARY - OFFERMAN (WHITE) 115 KV 2020		
	2021	10378	**KETTLE CREEK - OFFERMAN (WHITE) 115 KV UPGRADE (PHASE II)**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Upgrade the Jamestown - Northeast Waycross section (3.7 miles of 50°C 336 ACSR SWP and WHF, part of the NE Waycross tap line) for 100°C operation.		
			Overloaded Element(s):		
			- KETTLE CREEK PRIMARY - OFFERMAN (WHITE) 115 KV (OPEN CLOSE) 2021		
	2021	10487	**PINE GROVE PRIMARY - WEST VALDOSTA 115 KV RECONDUCTOR**	W	GPC: [redacted] GTC: [redacted] MEAG: [redacted] Dalton: [redacted]
			Project Description: Reconductor 3.7 miles of 100°C 4/0 ACSR conductor with 100°C 795 ACSR Grosbeak 26/7 on the Bemis - Pine Grove Primary section of the Pine Grove Primary - West Valdosta 115kV line.		
			Overloaded Element(s):		
			- PINE GROVE PRIMARY - WEST VALDOSTA 115 KV 2021		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2021	11051	**MEAG: PALMYRA - SLAPPEY DRIVE 115 KV LINE RECONDUCTOR**	W	GPC: [redacted]
			Project Description: Reconductor 2.5 miles of 100°C-sagged 477 ACSR, from Slappey Drive to the Albany #2 Jct, with 795 ACSR.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Overloaded Element(s):		
			- PALMYRA - SLAPPEY DRIVE 115 KV 2021		
	2022	14521	**ALBANY - PALMYRA 115 KV LINE**	W	GPC: [redacted]
			Project Description: Install motor operator & SCADA to 115 kV NO switch #065903		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Overloaded Element(s):		
			- ALBANY - PALMYRA 115 KV 2022		
	2022	14788	**NORTH TIFTON 230/115 KV TRANSFORMER REPLACEMENTS**	W	GPC: [redacted]
			Project Description: Replace the two(2) 230/115-kV, 300-MVA transformers with two(2) 400-MVA transformers.		GTC: [redacted]
					MEAG: [redacted]
					Dalton: [redacted]
			Overloaded Element(s):		
			- NORTH TIFTON 230/115 KV AUTO #1 2022		
			- NORTH TIFTON 230/115 KV AUTO #2 2022		

Thermal Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
218 - Coastal					
	2016	13096	**CLAXTON - STATESBORO PRIMARY 115 KV RECONDUCTOR**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: GPC: Reconductor the Claxton - Statesboro Primary 115kV line with 100°C 795 ACSR conductor (17.8 miles). Replace 600 amp switches (053617 & 053619) at Statesboro Primary with 2,000 amp switches. □□GTC: Replace 600 amp switches (111961 & 111963) at the Lan		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- CLAXTON - STATESBORO PRIMARY 115 KV 2018		
	2017	13024	**STATESBORO - WADLEY 115KV UPGRADE (PHASE II)**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: GPC: Upgrade the Nunez tap - Stillmore - Metter section of the Statesboro - Wadley 115kV line, 17.0 miles of 50°C, 477 ACSR conductor, to 100°C. Replace 600 amp line switches 042651 & 042653 at the Nunez Tap with 2,000 amp switches. □□MEAG: Replace 600 am		
			Operating Procedure is being utilized		
			Overloaded Element(s):		
			- STATESBORO PRIMARY - WADLEY PRIMARY 115 KV 2018		

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VOLTAGE PROBLEMS

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SOLUTIONS

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
1536	**BIG POPLAR** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Post Cont V	96%	89%	-6.3%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2016	2	Post Cont V	95%	89%	-5.9%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2017	2	Post Cont V	94%	88%	-6.5%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Firm AL on, McD 6 off
309	**FIFE** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	2	Delta V	98%	88%	-10.1%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Franklin Area + Firm AL
2016	2	Delta V	98%	87%	-11.0%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Franklin Area + Firm AL
2017	2	Delta V	98%	87%	-11.2%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Hammond Common Scrubber
652	**MADRAS** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Delta V	98%	88%	-10.0%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2016	1	Delta V	98%	88%	-10.1%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak C	Allatoona Dam off
2017	1	Delta V	97%	87%	-10.5%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Firm AL on, McD 6 off
662	**MORELAND** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2016	2	Delta V	99%	91%	-8.2%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2017	3	Delta V	99%	89%	-9.3%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Athens Area Max
1266	**N COWETA** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2016	2	Delta V	97%	89%	-8.3%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Franklin Area + Firm AL
2017	2	Delta V	97%	89%	-8.5%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Hammond Common Scrubber
1558	**NEWNAN 4** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2015	1	Post Cont V	96%	90%	-6.3%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2016	1	Post Cont V	95%	89%	-5.9%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2017	2	Post Cont V	95%	88%	-6.5%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Firm AL on, McD 6 off
661	**NEWNAN PR** (Regulated)	**115 kV**			**TEAMS #** 14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
					Need Date 6/1/2014	2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Post Cont V	96%	89%	-6.3%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2016	2	Post Cont V	95%	89%	-5.9%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2017	2	Post Cont V	94%	88%	-6.5%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Firm AL on, McD 6 off
316	**OWENS 1 +** (Non-regulated)	**115 kV**			**TEAMS #** 14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
					Need Date 6/1/2014	2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Delta V	101%	96%	-5.8%	OPEN 314-315 (Ono Tap-Owens #1), CLOSE 313-316	Peak G	No Unit off
2016	1	Delta V	101%	95%	-6.2%	OPEN 314-315 (Ono Tap-Owens #1), CLOSE 313-316	Peak G	No Unit off
2017	1	Delta V	101%	95%	-6.4%	OPEN 314-315 (Ono Tap-Owens #1), CLOSE 313-316	Peak G	No Unit off
313	**OWENS 2 +** (Non-regulated)	**115 kV**			**TEAMS #** 14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
					Need Date 6/1/2014	2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2014	2	Delta V	100%	94%	-5.4%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Yates 3 off
2015	2	Delta V	98%	89%	-8.8%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Franklin Area + Firm AL
2016	2	Delta V	97%	88%	-9.6%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Franklin Area + Firm AL
2017	2	Delta V	97%	88%	-9.7%	307 RIVERDALE 115 309 FIFE 115 1	Peak G	Hammond Common Scrubber
1577	**SHARPSBURG** (Regulated)	**115 kV**			**TEAMS #** 14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
					Need Date 6/1/2014	2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Delta V	99%	85%	-13.6%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2016	1	Delta V	98%	85%	-13.8%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2017	1	Delta V	98%	84%	-14.4%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Firm AL on, McD 6 off
659	**SHENANDOAH** (Regulated)	**115 kV**			**TEAMS #** 14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
					Need Date 6/1/2014	2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2016	1	Post Cont V	96%	90%	-5.9%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2017	1	Post Cont V	95%	89%	-6.5%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Firm AL on, McD 6 off
1930	**SUMMER GRV** (Regulated)		**115 kV**			**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Delta V	98%	86%	-12.3%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2016	1	Delta V	98%	86%	-12.4%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak C	Allatoona Dam off
2017	2	Delta V	97%	85%	-13.0%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Firm AL on, McD 6 off
1537	**YAMAHA** (Regulated)		**115 kV**			**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Delta V	98%	87%	-11.1%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2016	1	Delta V	98%	87%	-11.2%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak C	Allatoona Dam off
2017	1	Delta V	97%	86%	-11.7%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Firm AL on, McD 6 off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
1765	**AIRGASCAR +** (Non-regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2015: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	2	Delta V	99%	90%	-8.6%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Franklin Area + Firm AL
2016	3	Delta V	99%	90%	-9.0%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Vogtle 1 off
2017	3	Delta V	98%	89%	-9.0%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Rome Area Max + Sewell
972	**CARROLTON 2** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2015: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Delta V	99%	90%	-9.1%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Franklin Area + Firm AL
2016	1	Delta V	99%	89%	-9.5%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Vogtle 1 off
2017	1	Delta V	99%	89%	-9.4%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Rome Area Max + Sewell
2466	**CARTERVL20+** (Non-regulated)	**115 kV**				**TEAMS #**		
						Need Date OP: 2013-2017 Turn on Coosawattee capacitor bank Alt project 12861(At Pettit Creek, Upgrade to 60MVAR bank)		
2013	1	Delta V	102%	96%	-5.7%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder G	Loopers Farm off
2014	1	Delta V	102%	96%	-5.6%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder G	Loopers Farm off
2015	1	Delta V	102%	97%	-5.3%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder G	Loopers Farm off
2016	1	Delta V	102%	96%	-5.7%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder G	Loopers Farm off
2017	1	Delta V	102%	96%	-5.7%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder C	Loopers Farm off
925	**INLANDROME+** (Non-regulated)	**115 kV**				**TEAMS #** 13758 **HORSELEG CREEK CAPACITOR BANK**		
						Need Date 6/1/2017 Install 15MVAR capacitor bank at Horseleg Creek		
2017	1	Delta V	102%	97%	-5.2%	907 HAMMOND 115 924 INLAND JCT 115 1	Peak G	Loopers Farm off
1702	**OAK MTN** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Delta V	99%	90%	-8.6%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Franklin Area + Firm AL
2016	1	Delta V	99%	90%	-9.0%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Vogtle 1 off
2017	1	Delta V	98%	90%	-8.9%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Rome Area Max + Sewell

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
973	**SOUTHWIRE +** (Non-regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2014: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	2	Delta V	99%	90%	-8.9%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Franklin Area + Firm AL
2016	3	Delta V	99%	90%	-9.3%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Vogtle 1 off
2017	3	Delta V	99%	89%	-9.3%	970 CAROLLTON 115 1772 CAROLTON 2 115 1	Peak G	Rome Area Max + Sewell
1004	**WANS PUMP +** (Non-regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2015: Dyer Rd.,(Yates), 230/115-kV Substation Project		
2015	1	Delta V	99%	93%	-5.8%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Franklin Area + Firm AL
2016	1	Delta V	99%	93%	-5.9%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak C	Allatoona Dam off
2017	1	Delta V	98%	92%	-6.0%	719 S COWETA 115 1934 SHARPSBG T 115 1	Peak G	Hammond Common Scrubber

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2801	**ATWATER** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2015: Dyer Road 230/115kV		
2015	3	Delta V	102%	90%	-12.3%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2016	3	Delta V	101%	88%	-13.1%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Firm AL on, McD 6 off
2017	3	Delta V	102%	87%	-14.6%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Athens Area Max
1532	**CRISP 4** (Regulated)	**115 kV**				**TEAMS #** 11286 **MEAG: CRISP COUNTY AREA IMPROVEMENTS - PHASE II**		
						Need Date 6/1/2014 2014: MEAG's Crisp Co.#8 project - adds Crisp#2 to #8, 115-kV line section creating the Crisp#2 to Pitts network line.		
2016	1	Delta V	99%	91%	-8.0%	704 PITTS 115 2507 CRISP 7J 115 1	Shoulder C	Vogtle 1 off
1559	**CRISP 6 +** (Non-regulated)	**115 kV**				**TEAMS #** 11286 **MEAG: CRISP COUNTY AREA IMPROVEMENTS - PHASE II**		
						Need Date 6/1/2014 2014: MEAG's Crisp Co.#8 project - adds Crisp#2 to #8, 115-kV line section creating the Crisp#2 to Pitts network line.		
2014	3	Delta V	100%	92%	-7.3%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Peak G	Savannah Area Max
2015	3	Delta V	99%	91%	-8.0%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Peak G	Firm AL on, Hatch 1 off
2016	3	Delta V	99%	91%	-8.0%	704 PITTS 115 2507 CRISP 7J 115 1	Shoulder C	Vogtle 1 off
2017	3	Delta V	99%	91%	-7.9%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Shoulder G	Firm AL on, Wans 9 off
2214	**CRISP 8 +** (Non-regulated)	**115 kV**				**TEAMS #** 11286 **MEAG: CRISP COUNTY AREA IMPROVEMENTS - PHASE II**		
						Need Date 6/1/2014 2014: MEAG's Crisp Co.#8 project - adds Crisp#2 to #8, 115-kV line section creating the Crisp#2 to Pitts network line.		
2014	3	Delta V	100%	92%	-7.4%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Peak G	Savannah Area Max
2015	3	Delta V	99%	91%	-8.0%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Peak G	Firm AL on, Hatch 1 off
2016	3	Delta V	99%	91%	-8.0%	704 PITTS 115 2507 CRISP 7J 115 1	Shoulder C	Vogtle 1 off
2017	3	Delta V	99%	91%	-7.9%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Shoulder G	Yates 7 off
663	**GAY** (Regulated)	**115 kV**				**TEAMS #** 14505 **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
						Need Date 6/1/2014 2015: Dyer Road 230/115kV		
2015	2	Delta V	100%	91%	-9.2%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2016	3	Delta V	100%	91%	-9.7%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2017	3	Delta V	100%	89%	-10.9%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Vogtle Area Max
2514	**GP VIENNA +** (Non-regulated)	**115 kV**			**TEAMS #** 11286	**MEAG: CRISP COUNTY AREA IMPROVEMENTS - PHASE II**		
					Need Date 6/1/2014	2014: MEAG's Crisp Co.#8 project - adds Crisp#2 to #8, 115-kV line section creating the Crisp#2 to Pitts network line.		
2014	3	Delta V	100%	94%	-5.9%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Peak G	Savannah Area Max
2015	3	Delta V	99%	92%	-6.4%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Peak G	Firm AL on, Hatch 1 off
2016	3	Delta V	99%	93%	-6.4%	704 PITTS 115 2507 CRISP 7J 115 1	Shoulder C	Vogtle 1 off
2017	3	Delta V	99%	92%	-6.4%	1532 CRISP 4 115 1534 CRISP 4J 115 1	Shoulder G	Yates 7 off
1597	**GRIFFIN 9** (Regulated)	**115 kV**			**TEAMS #** 14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
					Need Date 6/1/2014	2015: Dyer Road 230/115kV		
2015	3	Delta V	101%	91%	-10.4%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2016	3	Delta V	101%	90%	-11.0%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2017	4	Delta V	101%	88%	-12.4%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Vogtle Area Max
776	**MOLENA PR** (Regulated)	**115 kV**			**TEAMS #** 14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
					Need Date 6/1/2014	2015: Dyer Road 230/115kV		
2015	3	Delta V	102%	91%	-10.8%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2016	3	Delta V	102%	90%	-11.4%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2017	3	Delta V	101%	88%	-12.9%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Vogtle Area Max
777	**N THOMASTON** (Regulated)	**115 kV**			**TEAMS #** 14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**		
					Need Date 6/1/2014	2015: Dyer Road 230/115kV		
2015	3	Delta V	102%	89%	-13.0%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2016	3	Delta V	102%	88%	-14.1%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Firm AL on, McD 6 off
2017	3	Delta V	102%	87%	-15.5%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	MEAG Wansley off
2226	**OSELIGEE CK** (Regulated)	**115 kV**			**TEAMS #** 13238	**GTC: OSELIGEE 115 KV CAPACITOR BANK**		
					Need Date 6/1/2015	2016: Oseligee Creek, 2 x 10 MVAR capacitor bank addition.		
2016	1	Delta V	100%	91%	-8.4%	605 PITTMAN RD 115 2226 OSELIGEE C 115 1	Shoulder G	Firm AL on, L Smith 3 off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2017	1	Delta V	101%	91%	-9.8%	605 PITTMAN RD 115 2226 OSELIGEE C 115 1	Peak G	West Point Dam off
2332	**ROCKY MOUNT** (Regulated)	**115 kV**			**TEAMS #**	**14505**	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**	
					Need Date	**6/1/2014**	2015: Dyer Road 230/115kV	
2015	2	Delta V	100%	91%	-8.3%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2016	2	Delta V	100%	91%	-8.7%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2017	3	Delta V	99%	89%	-9.8%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Vogtle Area Max
2229	**THOMASTON 3** (Regulated)	**115 kV**			**TEAMS #**	**14505**	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**	
					Need Date	**6/1/2014**	2014: Dyer Road 230/115kV	
2015	2	Delta V	102%	89%	-13.1%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Allatoona Dam off
2016	2	Delta V	102%	88%	-14.3%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Firm AL on, McD 6 off
2017	2	Delta V	102%	87%	-15.6%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	MEAG Wansley off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
1489	**E THOMSON** (Regulated)	**115 kV**			**TEAMS #**			
					Need Date	OP 2016-2017: Turn second 30 MVAR stage ON at Warrenton 115 kV.		
2016	1	Delta V	102%	94%	-8.1%	515 THOMSON 115 1489 E THOMSON 115 1	Peak C	Sinclair Area Max
2017	1	Delta V	102%	94%	-8.4%	515 THOMSON 115 1489 E THOMSON 115 1	Peak G	Franklin Area + Firm AL
1438	**KINGSMILL +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	OP 2013-2017: Turn second 30 MVAR stage ON at Warrenton 115 kV.		
2013	2	Delta V	102%	95%	-6.8%	515 THOMSON 115 1489 E THOMSON 115 1	Peak C	Allatoona Dam off
2014	2	Delta V	101%	94%	-6.9%	515 THOMSON 115 1489 E THOMSON 115 1	Peak C	Hammond Common Scrubber
2015	2	Delta V	101%	95%	-6.8%	515 THOMSON 115 1489 E THOMSON 115 1	Peak G	Savannah Area Max
2016	2	Delta V	101%	94%	-7.0%	515 THOMSON 115 1489 E THOMSON 115 1	Peak C	Sinclair Area Max
2017	2	Delta V	101%	94%	-7.3%	515 THOMSON 115 1489 E THOMSON 115 1	Peak G	Franklin Area + Firm AL
1439	**SHAW IND +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	OP 2014-2016 & 2017: Turn second 30 MVAR stage ON at Warrenton 115 kV.		
2014	1	Delta V	101%	96%	-5.0%	515 THOMSON 115 1489 E THOMSON 115 1	Peak C	Allatoona Dam off
2016	1	Delta V	101%	96%	-5.1%	515 THOMSON 115 1489 E THOMSON 115 1	Peak C	Sinclair Area Max
2017	1	Delta V	101%	96%	-5.3%	515 THOMSON 115 1489 E THOMSON 115 1	Peak G	Franklin Area + Firm AL

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2527	**FLOYDTOWN** (Regulated)	**115 kV**			**TEAMS #**	**10891** **DONALSONVILLE 115 KV CAPACITOR BANK**		
					Need Date	**6/1/2017** Add Cap Bank @ Donalsonville (2 stage, 25 MVAR)		
2017	1	Delta V	99%	91%	-8.1%	1109 SPRING CRK 115 2527 FLOYDTOWN 115 1	Peak G	East Bainbridge 1 off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
1423	**GP ELLABEL+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	N/A -- customer out of business		
2013	1	Delta V	101%	95%	-5.4%	594 RIVER 115 9029 MELDRIM 115 1	Shoulder C	Hatch 1 off
2014	1	Delta V	101%	95%	-5.5%	594 RIVER 115 9029 MELDRIM 115 1	Shoulder C	Farley 1 off
2015	1	Delta V	100%	95%	-5.3%	594 RIVER 115 9029 MELDRIM 115 1	Shoulder C	Bowen 4 off
2016	1	Delta V	100%	95%	-5.5%	594 RIVER 115 9029 MELDRIM 115 1	Shoulder G	Hatch 2 off
2017	2	Delta V	101%	95%	-6.0%	594 RIVER 115 9029 MELDRIM 115 1	Shoulder C	Miller 2 off
1100	**RAYONIER +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Pre-contingency -- use only step 1 of Ludowici 115-kv caps to lower N-0 voltage to 100%		
2013	1	Delta V	101%	96%	-5.2%	588 LUDOWICI 115 1100 RAYONIER 115 1	Shoulder G	Savannah Area Max
2014	1	Delta V	101%	96%	-5.1%	588 LUDOWICI 115 1100 RAYONIER 115 1	Shoulder G	Savannah Area Max
2016	1	Delta V	101%	95%	-5.3%	588 LUDOWICI 115 1100 RAYONIER 115 1	Shoulder C	Savannah Area Max
2017	1	Delta V	101%	95%	-5.4%	588 LUDOWICI 115 1100 RAYONIER 115 1	Shoulder G	Savannah Area Max

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
660	**NEWNAN 2** (Regulated)	**115 kV**			**TEAMS #**	**12581** **CORN CRIB 230/115 KV SUBSTATION**		
					Need Date	**6/1/2018** 2018: Corn Crib 230/115-kV Substation Project		
2018	1	Delta V	100%	92%	-8.4%	620 MTN CREEK 115 660 NEWNAN 2 115 1	Peak C	Savannah Area Max

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2466	**CARTERVL20+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	voltage >95% Alt project 12861(At Pettit Creek, Upgrade to 60MVAR bank)		
2018	1	Delta V	102%	96%	-6.0%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder C	Loopers Farm off
2019	1	Delta V	102%	96%	-5.6%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder C	Franklin Area + Firm AL
2020	1	Delta V	102%	96%	-5.8%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder G	Franklin Area + Firm AL
2021	1	Delta V	102%	96%	-5.8%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder G	Bowen 4 off
2022	1	Delta V	101%	95%	-6.0%	935 CARTERSVL 115 2466 CARTERVL20 115 1	Shoulder G	Conasauga 1 off
1004	**WANS PUMP +** (Non-regulated)	**115 kV**			**TEAMS #**	**12581** **CORN CRIB 230/115 KV SUBSTATION**		
					Need Date	**6/1/2018** Fixed by Corn Crib		
2021	1	Delta V	102%	96%	-5.5%	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Firm AL on, McD 6 off
2022	1	Delta V	102%	96%	-5.8%	2730 DYER ROAD 230 2731 DYER ROAD 115 1	Peak C	Hammond Common Scrubber

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2069	**GUM HILL** (Regulated)	**115 kV**			**TEAMS #**	**12579**	**GTC: EATONTON - LAKE OCONEE 115 KV RECONDUCTOR**	
					Need Date	**6/1/2021**	PI 12579 improves voltage profile and solves this issue. Reconductor approx. 7.34 miles from structure # 238D to Lick Creek On the Eatonton Primary - Lake Oconee 115 kV line from 100C 4/0 ACSR to 100C 795 ACSR conductor. PI 13087 (2X15 MVAR capacitors at Lick Creek) would help if installed. Size of capacitor stages may need to be evaluated to ensure appropriate stage switching delta V. Alternative would be to install 30 MVAR capacitor on Eatonton Primary 115 kV bus.	
2022	1	Delta V	101%	92%	-8.6%	OPEN 1374-2068, CLOSE 2046-2049	Peak G	No Unit off
431	**JOHNS MANV+** (Non-regulated)	**115 kV**			**TEAMS #**	**08916**	**DACULA 115-KV CAPACITOR BANK**	
					Need Date	**6/1/2019**	PI 08916 solves the issue. Install a 115kV, 30 MVAR capacitor Bank at the Dacula substation.	
2021	1	Delta V	100%	95%	-5.0%	430 WINDER P 115 431 JOHNS MANV 115 1	Shoulder G	Franklin Area + Firm AL
2049	**WALKERS CH** (Regulated)	**115 kV**			**TEAMS #**	**12579**	**GTC: EATONTON - LAKE OCONEE 115 KV RECONDUCTOR**	
					Need Date	**6/1/2021**	PI 12579 improves voltage profile and solves this issue. Reconductor approx. 7.34 miles from structure # 238D to Lick Creek On the Eatonton Primary - Lake Oconee 115 kV line from 100C 4/0 ACSR to 100C 795 ACSR conductor. PI 13087 (2X15 MVAR capacitors at Lick Creek) would help if installed. Size of capacitor stages may need to be evaluated to ensure appropriate stage switching delta V. Alternative would be to install 30 MVAR capacitor on Eatonton Primary 115 kV bus.	
2022	1	Delta V	101%	93%	-8.5%	OPEN 1374-2068, CLOSE 2046-2049	Peak G	No Unit off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2801	**ATWATER** (Regulated)	**115 kV**				**TEAMS #** 12581 **CORN CRIB 230/115 KV SUBSTATION**		
						Need Date 6/1/2018 2018: new Corn Crib 230/115kV substation		
2021	2	Delta V	102%	94%	-8.5%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Yates 7 off
2022	2	Delta V	102%	93%	-8.9%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Yates 7 off
2206	**CUSSETA** (Regulated)	**115 kV**				**TEAMS #** 14318 **FORT BENNING #2 (AL) CAPACITOR BANK**		
						Need Date 6/1/2014 2014: Add new 15MVAR capacitor bank at Ft. Benning #2		
2020	2	Delta V	100%	92%	-8.2%	1102 FT MITCH J 115 1114 FT BENN #2 115 1	Shoulder C	Franklin 1 off
1114	**FT BENN #2** (Regulated)	**115 kV**				**TEAMS #** 14318 **FORT BENNING #2 (AL) CAPACITOR BANK**		
						Need Date 6/1/2014 2014: Add new 15MVAR capacitor bank at Ft. Benning #2		
2018	2	Delta V	102%	92%	-9.8%	1102 FT MITCH J 115 1114 FT BENN #2 115 1	Shoulder C	Hatch 2 off
2019	2	Delta V	101%	91%	-10.4%	1102 FT MITCH J 115 1114 FT BENN #2 115 1	Shoulder G	Franklin 2 off
2020	2	Delta V	101%	91%	-10.7%	1102 FT MITCH J 115 1114 FT BENN #2 115 1	Shoulder C	Franklin 1 off
2021	2	Delta V	101%	91%	-9.9%	1102 FT MITCH J 115 1114 FT BENN #2 115 1	Shoulder C	Firm AL on, L Smith 3 off
2022	2	Delta V	101%	91%	-10.0%	1102 FT MITCH J 115 1114 FT BENN #2 115 1	Peak G	Hatch 2 off
1550	**GRIFFIN 4** (Regulated)	**115 kV**				**TEAMS #** 13078 **GTC: UPPER PIKE CAPACITOR BANK**		
						Need Date 6/1/2018 2018: Add new 15MVAR capacitor bank at GTC Upper Pike		
2022	1	Delta V	100%	92%	-8.0%	746 S GRIFFIN 115 1542 GRIFFIN 8 115 1	Peak G	Mid Georgia Cogen off
1542	**GRIFFIN 8** (Regulated)	**115 kV**				**TEAMS #** 13078 **GTC: UPPER PIKE CAPACITOR BANK**		
						Need Date 6/1/2018 2018: Add new 15MVAR capacitor bank at GTC Upper Pike		
2018	1	Delta V	102%	93%	-8.2%	746 S GRIFFIN 115 1542 GRIFFIN 8 115 1	Peak C	Brunswick Area Max
2022	1	Delta V	101%	92%	-8.3%	746 S GRIFFIN 115 1542 GRIFFIN 8 115 1	Peak G	Mid Georgia Cogen off
664	**LOUVALE** (Regulated)	**115 kV**				**TEAMS #** 14318 **FORT BENNING #2 (AL) CAPACITOR BANK**		
						Need Date 6/1/2014 2014: Add new 15MVAR capacitor bank at Ft. Benning #2		
2020	2	Delta V	100%	92%	-8.2%	1102 FT MITCH J 115 1114 FT BENN #2 115 1	Shoulder C	Franklin 1 off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
777	**N THOMASTON** (Regulated)	**115 kV**			**TEAMS #**	**12581** **CORN CRIB 230/115 KV SUBSTATION**		
					Need Date	**6/1/2018** 2018: new Corn Crib 230/115kV substation		
2021	2	Delta V	102%	93%	-9.0%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Yates 7 off
2022	2	Delta V	102%	93%	-9.5%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Yates 7 off
2229	**THOMASTON 3** (Regulated)	**115 kV**			**TEAMS #**	**12581** **CORN CRIB 230/115 KV SUBSTATION**		
					Need Date	**6/1/2018** 2018: new Corn Crib 230/115kV substation		
2021	2	Delta V	102%	93%	-9.1%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak C	Yates 7 off
2022	2	Delta V	102%	93%	-9.6%	778 MARTHA J 115 2228 THOMASTON3 115 1	Peak G	Yates 7 off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
803	**ANCHORGL A+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	3	Delta V	100%	93%	-6.4%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
775	**ANCHORGL B+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	100%	94%	-6.4%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
790	**ARMSTRONG +** (Non-regulated)	**115 kV**			**TEAMS #**	13958 **BROADWAY CAPACITOR BANK ADDITION**		
					Need Date	6/1/2030 Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	99%	94%	-5.6%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
809	**CAGLES +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	99%	93%	-6.0%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
1627	**FRITO LAY +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	100%	94%	-6.1%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
791	**GRAPHICPKG+** (Non-regulated)	**115 kV**			**TEAMS #**	13958 **BROADWAY CAPACITOR BANK ADDITION**		
					Need Date	6/1/2030 Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	99%	94%	-5.5%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
814	**JMHUBER RE+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2022	1	Delta V	100%	94%	-5.6%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
1625	**LOOP RD** (Regulated)	**115 kV**			**TEAMS #**			
					Need Date	Increase static reactive capacity at Reidsville by 15 MVAR. Manage stages appropriately to avoid excesive delta V.		
2022	1	Delta V	101%	93%	-8.4%	843 VIDALIA 115 1625 LOOP RD 115 1	Peak G	Brunswick Area Max
808	**MEDUSA #1 +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	99%	93%	-5.9%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
583	**OHOOPEE RV+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Increase static reactive capacity at Reidsville by 15 MVAR. Manage stages appropriately to avoid excesive delta V.		
2021	1	Delta V	100%	94%	-5.6%	843 VIDALIA 115 1625 LOOP RD 115 1	Peak C	Brunswick Area Max
2022	1	Delta V	100%	94%	-6.7%	843 VIDALIA 115 1625 LOOP RD 115 1	Peak G	Brunswick Area Max
1668	**PPG IND +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	99%	93%	-6.3%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
801	**ROBNS AFB1+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	100%	93%	-6.4%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off
802	**ROBNS AFB2+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	99%	93%	-6.4%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
1474	**W LYONS** (Regulated)	**115 kV**			**TEAMS #**			
					Need Date	Increase static reactive capacity at Reidsville by 15 MVAR. Manage stages appropriately to avoid excesive delta V.		
2022	1	Delta V	101%	92%	-8.3%	843 VIDALIA 115 1625 LOOP RD 115 1	Peak G	Brunswick Area Max
2303	**WESLEYANDR+** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	Install 120 MVAR static reactive capacity to be distributed between Broadway, Bonaire and Kathleen 115 kV busses.		
2022	1	Delta V	99%	94%	-5.0%	13 BONAIRE 500 150 BONAIRE 230 1	Peak C	Mid Georgia Cogen off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
1489	**E THOMSON** (Regulated)	**115 kV**			**TEAMS #**			
					Need Date	OP 2018-2022: Turn second 30 MVAR stage ON at Warrenton 115 kV.		
2018	1	Delta V	102%	94%	-8.1%	515 THOMSON 115 1489 E THOMSON 115 1	Peak C	Firm AL on, McD 6 off
2019	1	Delta V	102%	94%	-8.1%	515 THOMSON 115 1489 E THOMSON 115 1	Shoulder C	Vogtle 1 off
2021	1	Delta V	101%	93%	-8.1%	515 THOMSON 115 1489 E THOMSON 115 1	Peak G	Firm AL on, McD 6 off
2022	1	Delta V	101%	93%	-8.2%	515 THOMSON 115 1489 E THOMSON 115 1	Peak G	Firm AL on, Bowen 4 off
1438	**KINGSMILL +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	OP 2018 - 2022: Turn second 30 MVAR stage ON at Warrenton 115 kV.		
2018	2	Delta V	101%	94%	-7.0%	515 THOMSON 115 1489 E THOMSON 115 1	Shoulder C	Athens Area Max
2019	2	Delta V	101%	94%	-7.1%	515 THOMSON 115 1489 E THOMSON 115 1	Shoulder C	Vogtle 1 off
2020	2	Delta V	101%	94%	-6.9%	515 THOMSON 115 1489 E THOMSON 115 1	Shoulder G	Firm AL on, Wans 9 off
2021	2	Delta V	101%	93%	-7.1%	515 THOMSON 115 1489 E THOMSON 115 1	Peak G	Firm AL on, Bowen 4 off
2022	2	Delta V	100%	93%	-7.1%	515 THOMSON 115 1489 E THOMSON 115 1	Peak G	Firm AL on, Bowen 4 off
1439	**SHAW IND +** (Non-regulated)	**115 kV**			**TEAMS #**			
					Need Date	OP 2017 - 2018: Turn second 30 MVAR stage ON at Warrenton 115 kV.		
2018	1	Delta V	101%	96%	-5.1%	515 THOMSON 115 1489 E THOMSON 115 1	Shoulder C	Athens Area Max
2019	1	Delta V	101%	96%	-5.1%	515 THOMSON 115 1489 E THOMSON 115 1	Shoulder C	Vogtle 1 off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
1014	**TIFTON PRI** (Regulated)		**115 kV**		**TEAMS #**			
					Need Date	2022: OP: Close 029439 & Open 029406		
2022	1	Delta V	101%	92%	-8.1%	1049 N TIFTON 115 1858 TIFTON J 115 1	Peak G	Suwannee off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
1431	**BURNT CH** (Regulated)	**115 kV**				**TEAMS #** 12071 **LITTLE OGEECHEE 230-KV CAPACITOR**		
						Need Date 6/1/2019 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	5	Post Cont V	96%	89%	-7.0%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
1428	**COLLNS CHP+** (Non-regulated)	**115 kV**				**TEAMS #** 14791 **REIDSVILLE JUNCTION (GTC) 115-KV CAPACITOR INCREASE**		
						Need Date 6/1/2022 2022: Increase Reidsville Junction (GTC) 115-kv capacitor to 2x22 MVAR.		
2021	1	Delta V	100%	95%	-5.5%	843 VIDALIA 115 1625 LOOP RD 115 1	Peak C	Brunswick Area Max
2022	1	Delta V	101%	94%	-6.7%	843 VIDALIA 115 1625 LOOP RD 115 1	Peak G	Brunswick Area Max
592	**DANIEL SD** (Regulated)	**115 kV**				**TEAMS #** 12071 **LITTLE OGEECHEE 230-KV CAPACITOR**		
						Need Date 6/1/2019 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	5	Post Cont V	96%	89%	-7.0%	1421 W MCINTOSH 230 2181 R_WMCINTSH 230 1	Peak C	Jasper SC off
2161	**FLEMING** (Regulated)	**115 kV**				**TEAMS #** 12071 **LITTLE OGEECHEE 230-KV CAPACITOR**		
						Need Date 6/1/2019 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	5	Post Cont V	96%	89%	-7.0%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
590	**FT STEWART** (Regulated)	**115 kV**				**TEAMS #** 12071 **LITTLE OGEECHEE 230-KV CAPACITOR**		
						Need Date 6/1/2019 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	5	Post Cont V	96%	89%	-7.0%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
591	**HINESVILLE** (Regulated)	**115 kV**				**TEAMS #** 12071 **LITTLE OGEECHEE 230-KV CAPACITOR**		
						Need Date 6/1/2019 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	4	Post Cont V	97%	90%	-6.9%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
1417	**HORSE CRK** (Regulated)	**115 kV**				**TEAMS #** 12071 **LITTLE OGEECHEE 230-KV CAPACITOR**		
						Need Date 6/1/2019 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	4	Post Cont V	97%	90%	-6.7%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
599	**INST PAP +** (Non-regulated)	**115 kV**			**TEAMS #** 12071	**LITTLE OGEECHEE 230-KV CAPACITOR**		
					Need Date 6/1/2019	22019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	99%	91%	-7.4%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	97%	90%	-6.9%	1421 W MCINTOSH 230 2181 R_WMCINTSH 230 1	Peak C	Jasper SC off
1444	**KELLER** (Regulated)	**115 kV**			**TEAMS #** 12071	**LITTLE OGEECHEE 230-KV CAPACITOR**		
					Need Date 6/1/2019	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	98%	90%	-7.8%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	96%	89%	-7.0%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
1467	**MAG BLUFF** (Regulated)	**115 kV**			**TEAMS #** 14779	**DEAN FOREST 230-KV CAPACITOR**		
					Need Date 6/1/2020	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	5	Post Cont V	96%	89%	-7.0%	2182 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
1100	**RAYONIER +** (Non-regulated)	**115 kV**			**TEAMS #** 12071	**LITTLE OGEECHEE 230-KV CAPACITOR**		
					Need Date 6/1/2019	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	5	Delta V	98%	93%	-5.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2177	**S NEWPORT** (Regulated)	**115 kV**			**TEAMS #** 12071	**LITTLE OGEECHEE 230-KV CAPACITOR**		
					Need Date 6/1/2019	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	5	Post Cont V	96%	89%	-6.9%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
1461	**SAPELO RIV** (Regulated)	**115 kV**			**TEAMS #** 12071	**LITTLE OGEECHEE 230-KV CAPACITOR**		
					Need Date 6/1/2019	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	5	Post Cont V	96%	89%	-7.0%	2182 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
2150	**STERLING CK** (Regulated)	**115 kV**			**TEAMS #** 12071	**LITTLE OGEECHEE 230-KV CAPACITOR**		
					Need Date 6/1/2019	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	98%	90%	-7.8%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	96%	89%	-7.0%	1421 W MCINTOSH 230 2181 R_WMCINTSH 230 1	Peak C	Jasper SC off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2160	**TRDPRTIP** (Regulated)	**115 kV**			**TEAMS #**	**12071**	**LITTLE OGEECHEE 230-KV CAPACITOR**	
					Need Date	**6/1/2019**	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).	
2022	5	Post Cont V	97%	90%	-6.9%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off
866	**TROUP CK** (Regulated)	**115 kV**			**TEAMS #**	**12102**	**MCMANUS - WEST BRUNSWICK (BLACK) 115 KV LINE**	
					Need Date	**6/1/2022**	2022: open/close scenario: 12102 - McManus - West Brunswick (Black) 115-kv Line	
2022	1	Delta V	100%	92%	-8.4%	OPEN 865-866, CLOSE 1467-1468	Peak G	No Unit off
1430	**WALTHOURVL** (Regulated)	**115 kV**			**TEAMS #**	**12071**	**LITTLE OGEECHEE 230-KV CAPACITOR**	
					Need Date	**6/1/2019**	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).	
2022	5	Post Cont V	96%	89%	-7.0%	2181 R_WMCINTSH 230 9001 MCINTOSH 230 1	Peak C	Jasper SC off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
9065	**52ND ST** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	98%	89%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Delta V	98%	89%	-9.0%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9110	**BOLTON** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	98%	89%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	97%	88%	-9.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9142	**CHAT IND** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	98%	90%	-8.2%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	98%	89%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9112	**COLEMAN** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	98%	90%	-8.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	97%	89%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9147	**DEAN FOREST** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	99%	91%	-8.2%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	98%	90%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9104	**ELBA ISLD +** (Non-regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2019	1	Delta V	99%	94%	-5.5%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2021	1	Post Cont V	98%	89%	-8.7%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	97%	88%	-9.2%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
9141	**GEORGTWN** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	99%	90%	-8.4%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	98%	89%	-8.9%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9138	**GODLEY** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	97%	89%	-8.2%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	96%	88%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9022	**GOSHEN** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	1	Delta V	98%	90%	-8.2%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9121	**GP RINCON** (Regulated)	**115 kV**				**TEAMS #** 14789 **GEORGIA TECH SS (SAV)**		
						Need Date 6/1/2022 2022: Install a 115-kv, 45 MVAR capacitor bank in the new Georgia Tech Switching Station. Assumes Dean Forest and Little Ogeechee 230-kv capacitors are in-service.		
2022	1	Delta V	99%	91%	-8.6%	9021 MCINTOSH 115 9121 GP RINCON 115 1	Peak C	Jasper SC off
9054	**GROVEPT** (Regulated)	**115 kV**				**TEAMS #** 12071 **LITTLE OGEECHEE 230-KV CAPACITOR**		
						Need Date 6/1/2019 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	99%	90%	-8.3%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Delta V	98%	89%	-8.8%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9057	**HUTCH ISL** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR**		
						Need Date 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	98%	89%	-8.5%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Delta V	97%	88%	-8.9%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
9019	**INTPAP SAV+** (Non-regulated)	**115 kV**				**TEAMS #** **Need Date** 1) re-tap Millhaven 115/46-kv transformer 2) Millhaven 46-kv capacitor 3) Dean Forest - Millhaven Annex 115-kv line		
2018	1	Delta V	98%	91%	-6.5%	9004 KRAFT 115 9019 INTPAP SAV 115 1	Peak C	Sinclair Area Max
2019	2	Delta V	97%	91%	-6.5%	9004 KRAFT 115 9019 INTPAP SAV 115 1	Peak C	Jasper SC off
2020	1	Delta V	98%	91%	-6.8%	9004 KRAFT 115 9019 INTPAP SAV 115 1	Peak C	Jasper SC off
2021	2	Delta V	96%	88%	-8.5%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	6	Delta V	96%	87%	-8.9%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9093	**MAGNOLIA** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR** **Need Date** 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	98%	90%	-8.7%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Delta V	98%	89%	-9.2%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9029	**MELDRIM** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR** **Need Date** 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	1	Delta V	99%	91%	-8.0%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9171	**NEW HAMPSTD** (Regulated)	**230 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR** **Need Date** 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2022	1	Delta V	99%	91%	-8.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9055	**NEWDUTCH** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR** **Need Date** 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	98%	89%	-8.5%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Delta V	97%	88%	-9.0%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9061	**NEWOAKHU** (Regulated)	**115 kV**				**TEAMS #** 14779 **DEAN FOREST 230-KV CAPACITOR** **Need Date** 6/1/2020 2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	98%	89%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
2022	5	Delta V	97%	88%	-9.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9063	**NEWOGLMA** (Regulated)	**115 kV**			**TEAMS #**	**14779**	**DEAN FOREST 230-KV CAPACITOR**	
					Need Date	**6/1/2020**	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).	
2021	1	Delta V	98%	89%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Delta V	97%	88%	-9.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9150	**QUACCO** (Regulated)	**115 kV**			**TEAMS #**	**14779**	**DEAN FOREST 230-KV CAPACITOR**	
					Need Date	**6/1/2020**	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).	
2021	1	Post Cont V	97%	89%	-8.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	97%	88%	-8.5%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9170	**RICEHOPE** (Regulated)	**115 kV**			**TEAMS #**	**14779**	**DEAN FOREST 230-KV CAPACITOR**	
					Need Date	**6/1/2020**	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).	
2022	5	Post Cont V	98%	89%	-8.3%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9053	**RICHHILL** (Regulated)	**115 kV**			**TEAMS #**	**12071**	**LITTLE OGEECHEE 230-KV CAPACITOR**	
					Need Date	**6/1/2019**	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).	
2021	1	Delta V	98%	90%	-8.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Delta V	98%	89%	-8.5%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9109	**SKIDWISL** (Regulated)	**115 kV**			**TEAMS #**	**14779**	**DEAN FOREST 230-KV CAPACITOR**	
					Need Date	**6/1/2020**	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).	
2021	1	Post Cont V	98%	89%	-8.7%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	98%	88%	-9.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9148	**SOUTHEFF** (Regulated)	**115 kV**			**TEAMS #**	**14779**	**DEAN FOREST 230-KV CAPACITOR**	
					Need Date	**6/1/2020**	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).	
2022	1	Delta V	99%	90%	-8.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off

Year	# Cont	Violation Type	Pre Cont V	Post Cont V	Delta V	Worst Contingency	Case Type	Generation Scenario
9102	**TRONOX +** (Non-regulated)	**115 kV**			**TEAMS #** 14779	**DEAN FOREST 230-KV CAPACITOR**		
					Need Date 6/1/2020	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2019	1	Delta V	99%	94%	-5.5%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2021	1	Post Cont V	98%	89%	-8.7%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	97%	88%	-9.2%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9160	**TRUMNPKY** (Regulated)	**115 kV**			**TEAMS #** 14779	**DEAN FOREST 230-KV CAPACITOR**		
					Need Date 6/1/2020	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	98%	90%	-8.7%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	98%	89%	-9.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9140	**WHITEMARSH** (Regulated)	**115 kV**			**TEAMS #** 14779	**DEAN FOREST 230-KV CAPACITOR**		
					Need Date 6/1/2020	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Post Cont V	97%	88%	-8.8%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	96%	87%	-9.3%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9084	**WHTBLUFF** (Regulated)	**115 kV**			**TEAMS #** 14779	**DEAN FOREST 230-KV CAPACITOR**		
					Need Date 6/1/2020	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	99%	90%	-8.6%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Delta V	98%	89%	-9.1%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
9106	**WILMNGTN** (Regulated)	**115 kV**			**TEAMS #** 14779	**DEAN FOREST 230-KV CAPACITOR**		
					Need Date 6/1/2020	2019 - 2020: 120 MVAR, 230-kv capacitor at Dean Forest (SAV) (#14779) and Little Ogeechee (SAV) (#12071).		
2021	1	Delta V	96%	87%	-8.9%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off
2022	5	Post Cont V	95%	86%	-9.4%	9000 MCINT-CT 230 9001 MCINTOSH 230 1	Peak G	Jasper SC off

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
208 - Metro South					
	2014	14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**	A	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: Construct a new 230/115kV substation with a 400 MVA autotransformer on Plant Yates property. The substation will have a three terminal 230kV ring bus and a seven terminal 115kV ring bus. The 230kV station layout will provide space for a second 230kV line and second 230/115kV autotransformer. The 115kV station layout will provide space for two additional 115kV lines. Loop in the Thomaston - Yates 230kV line creating the Dyer Road - Yates 230kV line and the Dyer Road -Thomaston 230kV line. Loop in the Thomaston - Yates 115kV line creating the Dyer Road - Yates (White) 115kV line and Dyer Road - Thomaston 115kV line. Loop in the East Roanoke (APC) - Yates 115kV line creating the Dyer Road - East Roanoke (APC) 115kV and Dyer Road - Yates (Black) 115kV lines. Terminate the Lagrange Primary - Yates 115kV line at Dyer Road creating the Dyer Road - Lagrange Primary 115kV line and retire the portion of 115kV line between Dyer Road and Yates.

Bus(es) with Voltage Violation(s):

- OWENS 2 +	115 kV	2014
- BIG POPLAR	115 kV	2015
- FIFE	115 kV	2015
- MADRAS	115 kV	2015
- NEWNAN 4	115 kV	2015
- NEWNAN PR	115 kV	2015
- OWENS 1 +	115 kV	2015
- SHARPSBURG	115 kV	2015
- SUMMER GRV	115 kV	2015
- YAMAHA	115 kV	2015
- MORELAND	115 kV	2016
- N COWETA	115 kV	2016
- SHENANDOAH	115 kV	2016

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
211 - Northwest					
	2014	14505	**DYER ROAD 230/115KV SUBSTATION (YATES AUTO)**	A	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: Construct a new 230/115kV substation with a 400 MVA autotransformer on Plant Yates property. The substation will have a three terminal 230kV ring bus and a seven terminal 115kV ring bus. The 230kV station layout will provide space for a second 230kV line and second 230/115kV autotransformer. The 115kV station layout will provide space for two additional 115kV lines. Loop in the Thomaston - Yates 230kV line creating the Dyer Road - Yates 230kV line and the Dyer Road -Thomaston 230kV line. Loop in the Thomaston - Yates 115kV line creating the Dyer Road - Yates (White) 115kV line and Dyer Road - Thomaston 115kV line. Loop in the East Roanoke (APC) - Yates 115kV line creating the Dyer Road - East Roanoke (APC) 115kV and Dyer Road - Yates (Black) 115kV lines. Terminate the Lagrange Primary - Yates 115kV line at Dyer Road creating the Dyer Road - Lagrange Primary 115kV line and retire the portion of 115kV line between Dyer Road and Yates.

Bus(es) with Voltage Violation(s):

-	AIRGASCAR +	115 kV	2015
-	CARROLTON 2	115 kV	2015
-	OAK MTN	115 kV	2015
-	SOUTHWIRE +	115 kV	2015
-	WANS PUMP +	115 kV	2015

	2030	13758	**HORSELEG CREEK CAPACITOR BANK**	W	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: Install 15 MVAR capacitor bank.

Bus(es) with Voltage Violation(s):

-	INLANDROME+	115 kV	2017

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost

213 - West

2014 **14505** **DYER ROAD 230/115KV SUBSTATION (YATES AUTO)** — **A**

GPC: [redacted]
GTC:
MEAG:
Dalton:

Project Description: Construct a new 230/115kV substation with a 400 MVA autotransformer on Plant Yates property. The substation will have a three terminal 230kV ring bus and a seven terminal 115kV ring bus. The 230kV station layout will provide space for a second 230kV line and second 230/115kV autotransformer. The 115kV station layout will provide space for two additional 115kV lines. Loop in the Thomaston - Yates 230kV line creating the Dyer Road - Yates 230kV line and the Dyer Road -Thomaston 230kV line. Loop in the Thomaston - Yates 115kV line creating the Dyer Road - Yates (White) 115kV line and Dyer Road - Thomaston 115kV line. Loop in the East Roanoke (APC) - Yates 115kV line creating the Dyer Road - East Roanoke (APC) 115kV and Dyer Road - Yates (Black) 115kV lines. Terminate the Lagrange Primary - Yates 115kV line at Dyer Road creating the Dyer Road - Lagrange Primary 115kV line and retire the portion of 115kV line between Dyer Road and Yates.

Bus(es) with Voltage Violation(s):

- ATWATER	115 kV	2015
- GAY	115 kV	2015
- GRIFFIN 9	115 kV	2015
- MOLENA PR	115 kV	2015
- N THOMASTON	115 kV	2015
- ROCKY MOUNT	115 kV	2015
- THOMASTON 3	115 kV	2015

2014 **11286** **MEAG: CRISP COUNTY AREA IMPROVEMENTS - PHASE II** — **W**

GPC: [redacted]
GTC:
MEAG:
Dalton:

Project Description: Construct a 12-mile, 115 kV line using 636 ACSR from MEAG's Crisp #2 (Warwick) substation to their new, Crisp #8 substation, and add 3 - 115 kV breakers at Warwick to create the N. Americus - Crisp #2 and N. Tifton - Crisp #2, 115 kV circuits. Also, construct a 2.1 mile, 636 ACSR line section between MEAG's new Crisp Co. #8 substation and MEAG's Crisp Co. #6 substation to create the Crisp #2 - Pitts, 115 kV circuit.

Bus(es) with Voltage Violation(s):

- CRISP 6 +	115 kV	2014

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name				Status	Cost
			- CRISP 8 +	115 kV	2014			
			- GP VIENNA +	115 kV	2014			
			- CRISP 4	115 kV	2016			
	2016	13238	**GTC: OSELIGEE 115 KV CAPACITOR BANK**				W	GPC: GTC: MEAG: Dalton: [redacted]
			Project Description: GTC: Install a two stage, 20 MVAR 115 kV capacitor bank at Oseligee.					
			Bus(es) with Voltage Violation(s):					
			- OSELIGEE CK	115 kV	2016			

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
216 - South					
	2017	10891	**DONALSONVILLE 115 KV CAPACITOR BANK**	W	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: Install a 2-stage, 25 MVAr 115 kV capacitor bank.□Replace the AOM/AGS with AIM 2010 circuit switcher□Convert 3 distribution circuits to UG.		
			Bus(es) with Voltage Violation(s):		
			- FLOYDTOWN 115 kV 2017		

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
208 - Metro South					
	2018	12581	**CORN CRIB 230/115 KV SUBSTATION**	W	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: UNA: Construct a new 230/115 kV substation with a 300 MVA autotransformer. The substation will have a three terminal 230 kV ring bus and a four terminal 115 kV ring bus.

GPC: Loop in the Thomaston - Yates 230 kV line into Corn Crib and create the Corn Crib - Yates 230 kV line and the Corn Crib - Thomaston 230 kV line. Loop in the Thomaston - Yates 115 kV line into Corn Crib and create the Corn Crib - Yates (Black) 115 kV line and Corn Crib - Thomaston 115 kV line. Terminate the Yates - Newnan #3 Junction line creating the Corn Crib - Yates (White) 115 kV line. MEAG: Install three 115kV breakers at Newnan Primary.

Bus(es) with Voltage Violation(s):

- NEWNAN 2 115 kV 2018

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
211 - Northwest					
	2018	12581	**CORN CRIB 230/115 KV SUBSTATION** Project Description: UNA: Construct a new 230/115 kV substation with a 300 MVA autotransformer. The substation will have a three terminal 230 kV ring bus and a four terminal 115 kV ring bus. GPC: Loop in the Thomaston - Yates 230 kV line into Corn Crib and create the Corn Crib - Yates 230 kV line and the Corn Crib - Thomaston 230 kV line. Loop in the Thomaston - Yates 115 kV line into Corn Crib and create the Corn Crib - Yates (Black) 115 kV line and Corn Crib - Thomaston 115 kV line. Terminate the Yates - Newnan #3 Junction line creating the Corn Crib - Yates (White) 115 kV line. MEAG: Install three 115kV breakers at Newnan Primary. **Bus(es) with Voltage Violation(s):** - WANS PUMP + 115 kV 2021	W	GPC: GTC: MEAG: Dalton: [redacted]

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
212 - Northeast					
	2019	**08916**	**DACULA 115-KV CAPACITOR BANK** Project Description: Install a 115kV, 30 MVAR capacitor Bank at the Dacula Substation. **Bus(es) with Voltage Violation(s):** - JOHNS MANV+ 115 kV 2021	**W**	GPC: GTC: MEAG: Dalton: [redacted]
	2021	**12579**	**GTC: EATONTON - LAKE OCONEE 115 KV RECONDUCTOR** Project Description: Reconductor approx. 7.34 miles from structure # 238D to Lick Creek On the Eatonton Primary - Lake Oconee 115 kV line from 100C 4/0 ACSR to 100C 795 ACSR conductor. **Bus(es) with Voltage Violation(s):** - GUM HILL 115 kV 2022 - WALKERS CH 115 kV 2022	**W**	GPC: GTC: MEAG: Dalton: [redacted]

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost

213 - West

2014 — 14318 — FORT BENNING #2 (AL) CAPACITOR BANK — Status: W — GPC: GTC: MEAG: Dalton: [redacted]

Project Description: At the new Fort Benning 2 (AL) substation, install a single stage 15 MVAR capacitor bank.

Bus(es) with Voltage Violation(s):

- FT BENN #2 115 kV 2018
- CUSSETA 115 kV 2020
- LOUVALE 115 kV 2020

2018 — 12581 — CORN CRIB 230/115 KV SUBSTATION — Status: W — GPC: GTC: MEAG: Dalton: [redacted]

Project Description: UNA: Construct a new 230/115 kV substation with a 300 MVA autotransformer. The substation will have a three terminal 230 kV ring bus and a four terminal 115 kV ring bus.

GPC: Loop in the Thomaston - Yates 230 kV line into Corn Crib and create the Corn Crib - Yates 230 kV line and the Corn Crib - Thomaston 230 kV line. Loop in the Thomaston - Yates 115 kV line into Corn Crib and create the Corn Crib - Yates (Black) 115 kV line and Corn Crib - Thomaston 115 kV line. Terminate the Yates - Newnan #3 Junction line creating the Corn Crib - Yates (White) 115 kV line. MEAG: Install three 115kV breakers at Newnan Primary.

Bus(es) with Voltage Violation(s):

- ATWATER 115 kV 2021
- N THOMASTON 115 kV 2021
- THOMASTON 3 115 kV 2021

2018 — 13078 — GTC: UPPER PIKE CAPACITOR BANK — Status: W — GPC: GTC: MEAG: Dalton: [redacted]

Project Description: GTC: Install a two stage, 15 MVAR per stage, 115 kV capacitor bank at Upper Pike.

Bus(es) with Voltage Violation(s):

- GRIFFIN 8 115 kV 2018

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name				Status	Cost
			- GRIFFIN 4	115 kV	2022			

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
214 - Central					
	2018	13958	**BROADWAY CAPACITOR BANK ADDITION** Project Description: Install a second stage 115 kV, 30 MVAR capacitor bank and associated equipment at Broadway Substation.	W	GPC: [redacted] GTC: MEAG: Dalton:

Bus(es) with Voltage Violation(s):

- ARMSTRONG + 115 kV 2022
- GRAPHICPKG+ 115 kV 2022

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
218 - Coastal					
	2019	**12071**	**LITTLE OGEECHEE 230-KV CAPACITOR**	**W**	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: Install a 120 MVAR, 230-kV capacitor bank in the Little Ogeechee (SAV) 230/115-kV substation.

Bus(es) with Voltage Violation(s):

-	INST PAP +	115 kV	2021
-	KELLER	115 kV	2021
-	STERLING CK	115 kV	2021
-	BURNT CH	115 kV	2022
-	DANIEL SD	115 kV	2022
-	FLEMING	115 kV	2022
-	FT STEWART	115 kV	2022
-	HINESVILLE	115 kV	2022
-	HORSE CRK	115 kV	2022
-	RAYONIER +	115 kV	2022
-	S NEWPORT	115 kV	2022
-	SAPELO RIV	115 kV	2022
-	TRDPRTIP	115 kV	2022
-	WALTHOURVL	115 kV	2022

	2020	**14779**	**DEAN FOREST 230-KV CAPACITOR**	**W**	GPC: [redacted] GTC: MEAG: Dalton:

Project Description: Install a 120 MVAR, 230-kV capacitor bank in the Dean Forest (SAV) 230/115-kV substation.

Bus(es) with Voltage Violation(s):

-	MAG BLUFF	115 kV	2022

Voltage Problem Solution

Zone	Need Year	Project ID	Project Name	Status	Cost
	2022	**12102**	**MCMANUS - WEST BRUNSWICK (BLACK) 115 KV LINE**	**W**	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: Construct 8 miles of 795 ACSR CSP 115 kV line from West Brunswick to point 2.4 miles north of Altamaha Boulevard on the McManus - Darien 115-kv line. Terminate the line at West Brunswick with a 115-kV breaker on 115-kV bus #1. Terminate the other end of the line on the Altamaha Boulevard – Darien 115-kV line section with a motor operated, BLD switch. Continue serving Darien from this new network line from Altamaha Boulevard.		
			Bus(es) with Voltage Violation(s): - TROUP CK 115 kV 2022		
	2022	**14791**	**REIDSVILLE JUNCTION (GTC) 115-KV CAPACITOR INCREASE**	**W**	GPC: [redacted] GTC: MEAG: Dalton:
			Project Description: GTC: Increase the two 15.26 MVAR. 115-kv capacitor banks to 22 MVAR each.		
			Bus(es) with Voltage Violation(s): - COLLNS CHP+ 115 kV 2021		

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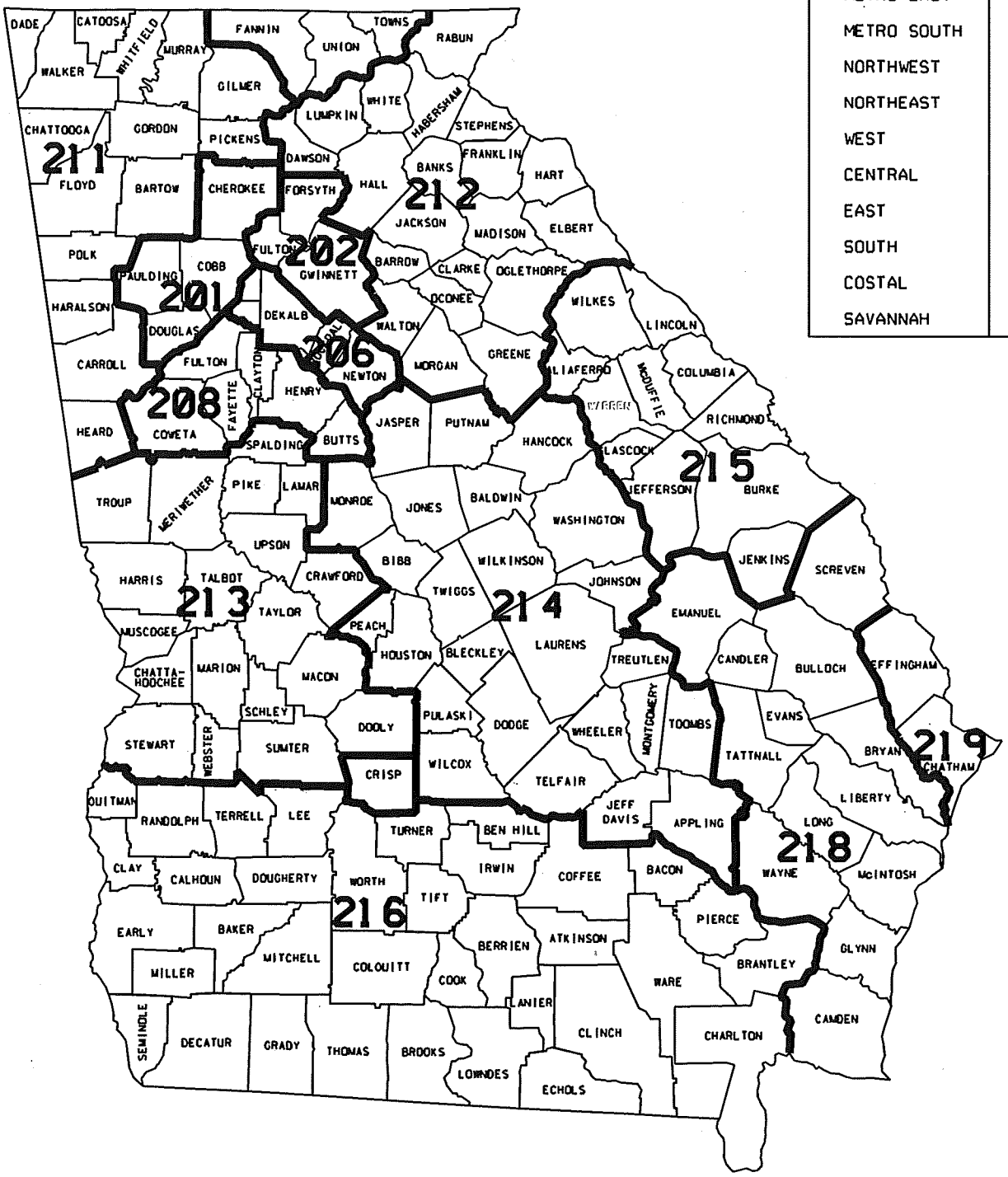
PUBLIC DISCLOSURE

[C8D]

ITS MAPS

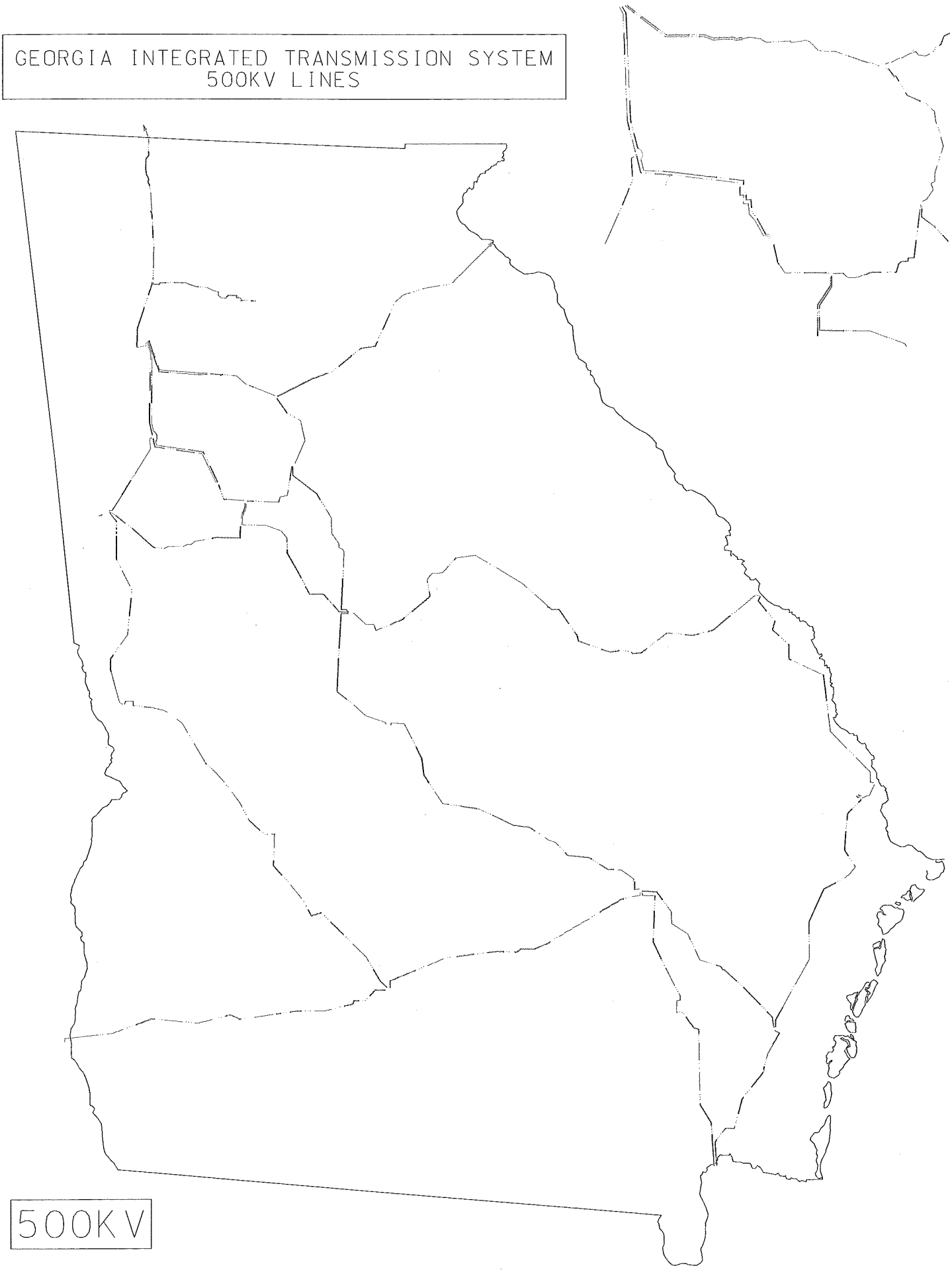
GEORGIA POWER REGION BOUNDARIES

REGION	ZONE #
METRO WEST	201
METRO NORTH	202
METRO EAST	206
METRO SOUTH	208
NORTHWEST	211
NORTHEAST	212
WEST	213
CENTRAL	214
EAST	215
SOUTH	216
COSTAL	218
SAVANNAH	219



11/2012

GEORGIA INTEGRATED TRANSMISSION SYSTEM
500KV LINES



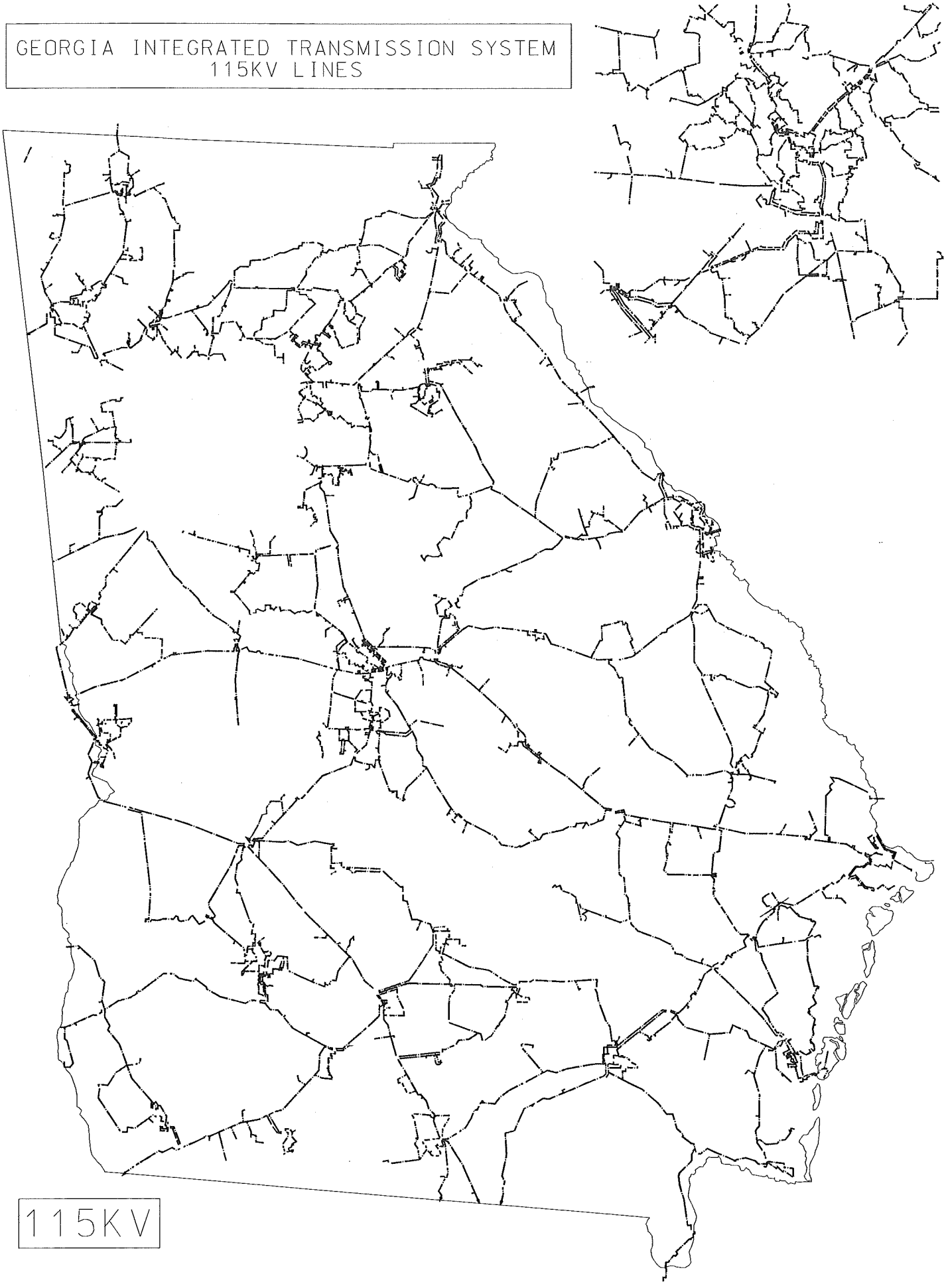
500KV

GEORGIA INTEGRATED TRANSMISSION SYSTEM
230KV LINES



230KV

GEORGIA INTEGRATED TRANSMISSION SYSTEM
115KV LINES



115KV