Eastern Interconnection Planning Collaborative

# Eastern Interconnection Planning Collaborative

# Steady State Modeling and Load Flow Working Group

# 2020 Roll-Up Integration Case Report

**March 7, 2011**

# Executive Summary

This report details the efforts of the EIPC Steady State Modeling and Load Flow Working Group (SSMLFWG) to produce a 2020 Roll-Up Integration Case of the Eastern Interconnection and provide a summary of the assessments performed. The SSMLFWG includes representatives from each NERC registered Planning Authority ("PA") that is a party to the EIPC Analysis Team Agreement.

The Roll-Up Integration Case represents an important stand-alone aspect of the work of the Planning Authorities as part of the Eastern Interconnection Planning Collaborative. As detailed in the bid submitted to DOE by the Eastern Interconnection Planning Authorities, the Roll-Up Integration Case represents the first of its kind review and analysis of the approved plans of each of the Planning Authorities in the Eastern Interconnection. The purpose of the roll-up is to "provide the platform for the stakeholder driven scenario analysis". The Roll-Up Integration Case, , provides information which may be useful in each Planning Authorities' respective Order 890-approved planning process and will also be of value to stakeholders as they conduct standalone analyses to assess their particular interests. The Roll-Up Integration Case is an integrated model of the expansion plans for the Eastern Interconnection as they existed in 2010, not a single "blueprint" for expanding the system. This case provides solved power flow modeling suitable as a starting point for transmission analysis on an inter-connection-wide basis.

As with all power flow models, the 2020 roll-up integration case is a representation of the power system for a particular "snapshot" in time (2020 Summer Peak hour) based upon actual facilities and planning forecasts as they existed to meet Reliability Standards at the time the model was developed. The SSMLFWG utilized transmission plans that were provided by each PA as the source of data for model development. These existing transmission plans are a product of each participating PA and the FERC approved regional transmission planning processes for each of the participating EIPC members (as applicable) and extend out through the year 2020. It should be noted that loads as well as generation and demand-side resources are inputs into the transmission expansion plans developed by each Planning Authority, and that these inputs are provided by the respective Load Serving Entities (LSEs), market participants, or other applicable entities within each Planning Authority's jurisdiction. Because these inputs are continuously changing, the local and regional transmission plans will necessarily also continuously change resulting in them being more current than can be achieved in wide-area modeling. Nonetheless, wide-area modeling, such as the 2020 roll-up integration case, provides a sound basis for assessing inter-dependencies between and among regions which may not be achievable through local assessments individually. Potential constraints and efficiencies identified through inter-regional analysis are valuable inputs into local and regional processes, where they can be assessed for inclusion into transmission expansion plans.

The planning processes for the EIPC members have many common aspects, but key differences in the processes do exist between Planning Authorities. These differences are expected and, in fact, required given the diversity in the form of regulation, the topography and characteristics of each Planning Authorities' electric transmission system throughout the very large Eastern Interconnection. This report serves to describe in detail the data submitted by each of the EIPC Planning Authorities, explain differences in the Planning Authorities' respective planning processes and assist the Stakeholder Steering Committee ("SSC") in understanding what is contained in the roll-up. In addition, the final report will serve to address EIPC deliverables as related to the DOE Cooperative Agreement (FOA Funding Opportunity Number: DE-FOA0000068). The associated deliverables are listed below:

**Subtask 2.B** Conduct interregional transmission analyses for Roll-up Integration Case and identify potential transmission conflicts/opportunities among regional plans; e.g., gap analysis.
**Subtask 2.C** Develop transmission options to address reliability impacts associated with potential conflicts among regional plans.
**Subtask 2.D** Document and communicate results for consideration in regional planning activities and post the analysis on the EIPC website.
**Subtask 2.E** Develop flowgates.

Eastern Interconnection Planning Collaborative

# Table of Contents

# Section 1 Introduction

On May 21, 2009, the Eastern Interconnection Planning Collaborative was formed by representatives from Planning Authorities ("PAs") in the Eastern Interconnection. This group agreed to initiate the technical work to facilitate coordination of existing transmission plans, conduct reliability analyses of the combined interconnection system, and conduct studies to support state, provincial, regional or federal public policy decision making. The group completed an application for funding from the U.S. Department of Energy (DOE) in response to FOA-0000068. The application was submitted by PJM Interconnection, LLC on behalf of PAs representing the entire Eastern Interconnection. Eight PAs elected to represent the Eastern Interconnection as Principal Investigators (PIs). In addition to the eight principal investigators and Eastern Interconnection Planning Collaborative (EIPC) planning authorities, additional participants to the DOE bid include Charles River Associates (CRA) and the Keystone Center.

Each PI is listed below:

1. Entergy Services, Inc. on behalf of the Entergy Corporation Utility Operating Companies ("Entergy")
2. ISO New England, Inc. ("ISO-NE")
3. Mid-Continent Area Power Pool, by and through its agent, MAPPCOR
4. Midwest Independent Transmission System Operator, Inc. ("Midwest ISO")
5. New York Independent System Operator, Inc. ("NYISO")
6. PJM Interconnection, L.L.C. ("PJM")
7. Southern Company Services Inc. ("Southern"), as agent for
    a. Alabama Power Company
    b. Georgia Power Company
    c. Gulf Power Company
    d. Mississippi Power Company
8. Tennessee Valley Authority ("TVA")

The following Planning Authorities are also participating in the EIPC study:

1. Alcoa Power Generating
2. American Transmission Company ("ATC")
3. Duke Energy Carolinas ("DEC")
4. Electric Energy Inc.
5. LG&E and KU Energy LLC (LG&E/KU)
6. Florida Power & Light ("FPL")
7. Georgia Transmission Corporation ("GTC")
8. IESO (Ontario, Canada)
9. International Transmission Company ("ITC")
10. JEA (Jacksonville, Florida)
11. Municipal Electric Authority of Georgia ("MEAG")
12. New Brunswick System Operator ("NBSO")
13. PowerSouth Energy Cooperative
14. Progress Energy – Carolinas ("PEC")
15. Progress Energy – Florida ("PEF")

16. South Carolina Electric & Gas ("SCE&G")
17. Santee Cooper ("SCPSA")
18. Southwest Power Pool ("SPP")

On Dec. 18, 2009, the EIPC was selected by DOE to receive approximately $16 Million. PJM elected to serve as the Lead PI for the DOE Project.

The EIPC is intended to complement the regional transmission expansion plans developed each year (plans that are well vetted through the respective FERC Order 890 Regional Planning Processes). The EIPC provides a transparent and collaborative venue to interested stakeholders: states, provincial and federal policy makers, consumers, environmental interests, transmission planning authorities and market participants that generate, transmit or consume electricity within the Eastern Interconnection.

The purpose of the Steady State Modeling and Load Flow Working Group (SSMLFWG) is to:

1. Modify/create steady state load-flow models
2. Conduct steady-state load-flow analysis (including transfer capability)
3. Report results as required/necessary

The EIPC Web site contains a detailed description of the work to be performed as part of the DOE funding:

http://eipconline.com/uploads/SOPO_14Jul10_DE-OE0000343.pdf

For an overview of the process, related to the DOE funding, that will be employed by the EIPC SSMLFWG, see the flowchart depicted in Figure 1 below. Dates represented are tentative and for illustration purposes only.

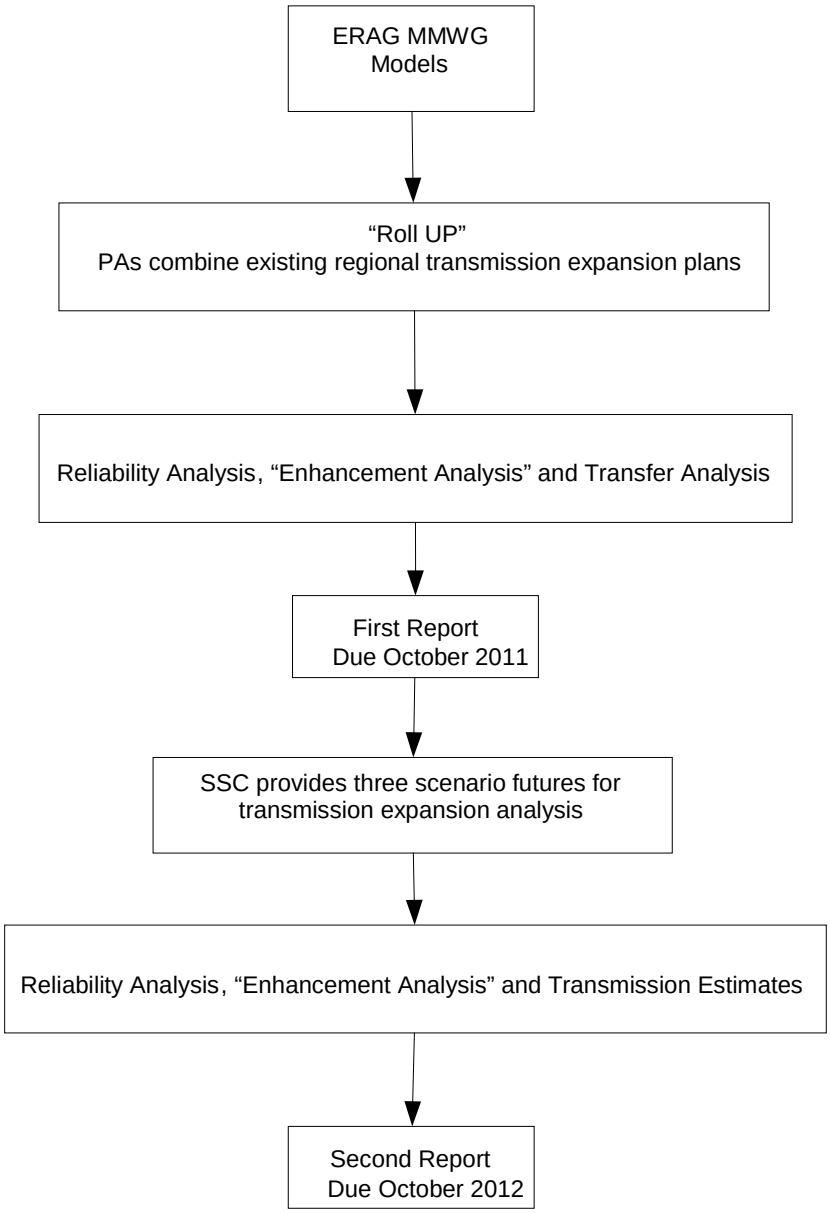



Figure 1 – EIPC Planning Analysis Process

# Section 2 2020 Roll-up Integration Plans

## 2.1 Introduction

This section details assumptions made by each PA in developing the 2020 roll-up integration case. This includes load forecasting, the treatment of demand resources and energy efficiency, interchanges with other systems, future transmission and generation project inclusion, and generation dispatch.

In some cases, one or more PA systems may be incorporated into the model roll-up of another PA, without duplication. For example, Midwest ISO has incorporated into the Midwest ISO roll-up input from the Midwest ISO members American Transmission Company LLC (ATC LLC) and International Transmission Company (ITC) which are also Planning Authorities that are participating in the EIPC study. In the Planning Authority specific subsections below, the Midwest ISO portions includes the integration of the ATC LLC and ITC system information. In addition, Georgia Transmission Company and MEAG have noted where their information for certain sections are included in Southern Company's responses.

In creating the 2020 roll-up integration case, the 2009 Series, 2020 Summer Peak, Eastern Reliability Assessment Group, Multi-Region Modeling Working Group ("ERAG MMWG") case was the starting point. Each PA updated their portion of that model, or submitted new models of their respective systems, which were then assembled into one complete power flow model. The case went through several iterations of review and validation by the working group in order to assure the accuracy of the database before any study work was performed.

## 2.2 Load Forecasts and Growth Rates

The following section describes the load growth rates represented in the roll-up integration case for each EIPC Planning Authority through the year 2020. In addition to the growth rates, the amount of load, and origination of the data are discussed. The annual average growth rates are the rates used by each PA in their regional transmission planning processes. The rates vary from a minimum of -0.63% to a maximum of 3.00% over the ten year period from 2010 to 2020.

The load forecasts provided by each PA were based on the 50/50 load projection where there is a 50% chance the actual load will be higher or lower than the forecast. The load forecasts were not adjusted to provide a coincident peak for the entire eastern interconnection. It is appropriate to apply non-coincident peak load forecasts when planning for transmission needs over large regional areas, and is in fact the obligation of each NERC registered PA to plan for the critical system conditions for the area in which they are responsible. This approach provides for assurance of reliable transmission system performance of each PA, as required by the NERC Reliability Standards.

Because the roll-up integration case is based upon current transmission plans as of 2010, the vintage of the aggregated LSE forecasts is generally late 2009 or early 2010.

**Alcoa Power Generating**
Alcoa Yadkin Division's load growth from 2010 to 2020 is less than 1.0% Alcoa serves its own load. The load forecast is based on a history of usage. There are no loads other than Yadkin's in their area.
Alcoa Tapoco Division's load is included in TVA's load.

**Duke Energy Carolinas**
Duke Energy's load forecasting group developed the load forecast in 2009 utilizing data including the forecasts of individual LSE's in the DEC footprint. Duke Energy Carolinas (DEC) expects an average growth rate of 1.6% through 2020 summer for a control area load of approximately 22,380 MW.

**Electric Energy Inc.**
Electric Energy Inc. has no native load and therefore does not compile a load forecast.

**Entergy Services**
The 10 year load growth provided by the LSEs (non-coincident) within the Entergy control area averaged 1.3% for the period 2010 through 2020 totaling to a projected load of 28,864 MW in 2020. The load forecasts contained in the 2020 Roll-Up were developed in 2009 based upon 2009 actual load values. The most recent peak demand provided by the LSE is used because it reasonably reflects load adjustments (e.g., losses, load growth, load reductions, cogeneration) that would have occurred prior to the peak load period. If there are significant load changes (additions or reductions) that occurred within the System after the summer peak, the load forecast is adjusted to take these changes into consideration. The LSEs are required to provide a load forecast annually to the Transmission Provider. The types of loads represented in these load forecasts include the loads of the following customer types: retail, wholesale (including wholesale load under the Tariff and grandfathered agreements), industrial, nuclear generating facility, and cogenerating facility.

**Florida Power & Light**
The load modeled in the FPL area in the 2020 roll-up integration case reflects an average annual growth rate of 1.97% up to the 2020 period. The load assumptions are based on then official FPL 2009 load forecast as filed with the Florida Public Service commission in the Ten Year Site Plan (TYSP) document.

**Georgia Transmission Company**
A load forecast is prepared annually through input from GTC's member cooperatives. The load forecast included in the roll-up case was prepared in 2009, and the average annual growth rate is 3.0% for the period 2010 to 2020. GTC's forecasted load is included in the Southern Balancing Authority as coincident with other Georgia load.

**Independent Electricity System Operator**
The IESO, in conjunction with the Ontario Power Authority, produces load forecast regularly. As of November 2009, the Ontario normal weather peak demand for Summer 2020 was forecasted to be 22,645 MW, reflecting a net annualized 10 year growth rate of -0.63%. The normal weather scenario is based on historical weather from the past 31 years and represents typical weather on a monthly basis.

The main reasons for the reduction of the Ontario demand are lower economic growth, energy conservation, utilization of embedded generation and changes in electricity consumption patterns due to the introduction of time of use rates at the residential level.

**ISO New England**

ISO New England (ISO-NE) expects an average annual growth rate of 1.20% through 2020 summer for a control area demand (load & losses) of approximately 31,028 MW, based on load forecasts in the ISO-NE 2010-2019 Forecast Report of Capacity, Energy, Loads, and Transmission ("CELT"). For the purposes of this model, this projection was down-rated by 4% to 29,787 MW to eliminate the impact of transmission system losses. With the addition of 2,767 MW of Demand Resource load reduction, the ISO-NE estimates the control area demand (load & losses) to be 27,019 MW.

| State | 2020 CELT Load Forecast (MW) | Down-rated by 4%* |
|---|---|---|
| Maine | 2340.3 | 2246.7 |
| New Hampshire | 2850.4 | 2736.4 |
| Vermont | 1195.1 | 1147.3 |
| Massachusetts | 14461.5 | 13883.0 |
| Rhode Island | 2065.2 | 1982.6 |
| Connecticut | 8115.5 | 7790.9 |
| **Total** | **31,028.0** | **29786.9** |

* Eliminates projection of transmission system losses in 2020 CELT Load Forecast

**JEA**

The total internal demand (firm and non-firm demands) for the summer peak for JEA is forecasted to increase at an average annual growth rate of 2.0% to 3,557 MW for the summer of 2020; as used in the 2020 roll-up integration case. The forecast was done in April 2009 and incorporates the non-coincident peak demand from JEA's wholesale customer located adjacent to JEA's service territory in Northeast Florida.

**LG&E and KU Energy**

All Load Serving Entities (LSE) on the LG&E/KU transmission system provide load forecasts annually of the Network Load levels. The balancing authority forecasted load in the 2020 EIPC roll-up case is 8849 MW.

The LG&E/KU's native LSE load level is based on a 50/50 forecast with all curtail-able loads being served. The native load forecast was developed in the fall of 2009 and based on 2009 summer actual loads. The LG&E/KU native LSE expects an average growth rate of approximately 1.0% from 2010 through 2020.

**MAPPCOR**

Mid-Continent Area Power Pool (MAPP) Transmission Owners provide load forecast data annually through the MAPP and MRO model building process. The 2020 summer peak model was built using non-coincident peak load forecasts for 2020 reported by MAPP Transmission Owners in 2009. MAPP expects an average annual growth rate of 1.5% for the period 2010 through 2020 for a total projected load of 9,352 MW in 2020.

**MEAG Power**

A load forecast is prepared annually through input from MEAG's participants. The load forecast included in the roll-up case was prepared in 2009, and the average annual growth rate is 1.4% for the period 2010

to 2020. MEAG's load forecast is included in the Southern Balancing Authority as coincident with other Georgia load.

**Midwest ISO**
For Midwest ISO members, model load is reflective of Load Serving Entity forecasts as provided by the Transmission Owners through the Midwest ISO Transmission Expansion Plan (MTEP) reliability model building process. For transmission planning purposes, the non-coincident peak loads of the member systems is used in the MTEP models. This approach provides for assurance of reliable transmission system performance at the member system level, as required by the NERC planning standards.

Power flow model peak load projections were provided to the Midwest ISO by member systems in 2009 for the MTEP 2010 vintage model that was the basis of the EIPC roll-up for the Midwest ISO system.

The demand projections included in the roll-up integration case for the Midwest ISO portion of the EIPC roll-up case is consistent with the Midwest ISO 2010 Long Term Resource Assessment report which is available on the Midwest ISO web site at
http://www.midwestmarket.org/publish/Document/6a7e86_12bc0f1b440_-7fc50a48324a?rev=1.

**New Brunswick System Operator**
The NBSO load forecast is reflective of the forecast provided by NB Power Distribution and Customer Service, the Load Serving Entity that supplies over 99% of New Brunswick customers. The 10-year load forecast is updated by January 31 of each year for the next 10-year fiscal period beginning on April 1. The most recent forecast is for the period 2010/11 to 2019/20.

Forecast average annual growth rate in New Brunswick between 2010/11 to 2019/20 is 0.6% for both annual energy and peak hourly demand. Peak demand is forecast as the coincident regional load.

**New York ISO**
The NYISO is forecasting a base 2020 summer peak load for the New York Control Area (NYCA) of approximately 35,300 MW which represents an average annual growth rate of 0.68% through 2020, as documented in the NYISO 2010 Load & Capacity Data report:
http://www.nyiso.com/public/webdocs/services/planning/planning_data_reference_documents/2010_GoldBook_Public_Final_033110.pdf

**PJM Interconnection**
PJM annually prepares a detailed, independent load forecast for PJM and each of its zones and sub-regions. The January 2010 forecast is the basis for the PJM system contained in the EIPC roll up system. The complete underlying assumptions and process for the development of this forecast are found at http://www.pjm.com/planning/resource-adequacy-planning/load-forecast-dev-process.aspx. Summer peak load growth for the PJM RTO (including the integration of the ATSI system that is scheduled for 2011) is projected to average 1.7% per year over the next 10 years, and 1.4% over the next 15 years. These growth rates are calculated assuming the ATSI system is in PJM in both the start and end years. (ATSI integration into PJM is scheduled for June 1, 2011.) The PJM RTO summer coincident peak is forecasted to be 174,724 MW in 2020, a 10-year increase of 26,933 MW, and reaches 182,665 MW in 2025, a 15-year increase of 34,874 MW. Annualized 10-year growth rates for individual PJM zones range from 1.0% to 2.5%. The roll up case is based on the PJM coincident peak forecast. The area by area coincident peak forecasts are presented in the table below. The annual PJM forecasts prepared by PJM, however, also

include non-coincident peak forecasts that are used in the series of annual planning analyses. In addition, the annual series of planning analyses examine ranges of load levels.

| PJM Zone | 2010 Coincident Peak Load (MW) | 2020 Coincident Peak Load (MW) | Average Annual Growth Rate |
|---|---|---|---|
| AE | 2,628 | 3,308 | 2.3% |
| BGE | 7,173 | 8,571 | 1.8% |
| DPL | 3,873 | 4,421 | 1.3% |
| JCPL | 6,203 | 7,312 | 1.7% |
| METED | 2,803 | 3,309 | 1.7% |
| PECO | 8,212 | 9,432 | 1.4% |
| PENLC | 2,710 | 3,275 | 1.9% |
| PEPCO | 6,787 | 7,601 | 1.1% |
| PL | 6,883 | 7,893 | 1.4% |
| PSEG | 10,523 | 11,943 | 1.3% |
| RECO | 417 | 474 | 1.3% |
| UGI | 182 | 201 | 1.0% |
| AEP | 22,358 | 25,469 | 1.3% |
| APS | 8,328 | 9,506 | 1.3% |
| ATSI | N/A | 14,084 | N/A |
| COMED | 21,652 | 26,723 | 2.1% |
| DAY | 3,207 | 3,638 | 1.3% |
| DLCO | 2,757 | 3,176 | 1.4% |
| DOM | 19,056 | 24,389 | 2.5% |

**PowerSouth Energy Cooperative**

PowerSouth (a G&T Cooperative) receives load data from each of its member owner distribution cooperatives. This data is then manipulated into a coincident peak number for PowerSouth's area. The load forecasts contained in the 2020 Roll-Up were developed in 2010 based upon 2010 data. PowerSouth's calculated annual growth rate for the period 2010 through 2020 is 1.6%.

**Progress Energy Carolinas**

Progress Energy Carolinas (PEC) updates its power flow models on an annual basis. Loads plus losses at the transmission level will be scaled to match the system forecast for each load level. Progress Energy Carolinas (PEC) expects an average growth rate of 1.8% of its area through 2020 summer for a balancing area load of approximately 15,476 MW. The load forecast contained in the roll-up integration case was developed in early 2009 and is based on coincident peaks provided by the LSEs.

**Progress Energy Florida**

Progress Energy Florida (PEF) updates its power flow models on an annual basis. Loads plus losses at the transmission level are scaled to match the system forecast for peak load level. Progress Energy Florida (PEF) expects an average growth rate of 1.2% of its area through 2020 summer for a balancing area load of approximately 14,160 MW. The load forecast contained in the roll-up integration case was developed in early 2010 and is based on non-coincident peaks provided by the LSEs.

**Santee Cooper**
The load forecast used in the EIPC roll up model was prepared by Santee Cooper in conjunction with Central Electric Power Cooperative, Inc. staff and a consulting firm. The load forecast incorporates updates of the end-use/econometric models developed by consulting firm and is based on normal weather assumptions. The forecast utilizes historical data and a current economic outlook for Santee Cooper's service areas. The forecast for industrial customers reflects any additions and changes to existing contracts. The load forecast includes estimated demand and energy savings from future energy efficiency programs to be implemented by Santee Cooper and Central. The load forecast used in the roll up case has approximately 333 MW of Energy Efficiency and Demand Side Management reduced from the gross load forecast to produce a net peak load for the 2020 summer peak load of approximately 6,558 MW which represents an average annual growth rate of 2.6% through 2020.

**South Carolina Electric and Gas**
The average annual load growth provided by the LSEs within the SCE&G planning area is 1.74% for the 2010 through 2020 period. This load growth results in a projected peak load of 5,824 MW in 2020 including load and transmission losses. The load forecasts contained in the 2020 roll-up case were developed in 2009 and are based on 2009 assumptions, data and information. The LSEs within the SCE&G planning area use historical normal weather patterns and various econometric models in determining peak demand forecast. Each individual LSE develops a forecast that accounts for the individual peak demand forecast. The individual peak demand forecasts are then aggregated by summing these forecasts to develop the SCE&G non-coincident forecast.

**Southern Company**
The 10 year load growth provided by the LSEs (non-coincident) within the Southern Balancing Authority averaged 2.13% for the period 2010 through 2020 totaling to a projected load of 57,385 MW in 2020. The load forecasts contained in the 2020 Roll-Up were developed in 2009 based upon 2009 actual load values.

**Southwest Power Pool**
Southwest Power Pool (SPP) expects a regional compound load growth rate of 1.4% per year through 2020. This forecast was produced by SPP in 2010 and approved by its members. The regional coincident forecasted peak load for 2020 is roughly 59,000MW.

**Tennessee Valley Authority**
The load forecast used in roll-up integration case used TVA's official February 2010 delivery point load forecast provided by TVA's Forecasting & Competitive Intelligence (F&CI) group. This forecast is a coincident system summer peak forecast assuming normal weather patterns and a medium economic outlook. This load forecast is a 50/50 load projection; where there is a 50% chance the actual load will be higher or lower than the forecast.

TVA's load forecast for summer peak 2010 is 30,738 MW. TVA's load forecast for summer peak 2020, which was used in the roll-up integration case, is 37,213 MW. This reflects a 2.1% load growth over the next 10 years.

## 2.3 Treatment of Energy Efficiency and Demand-Side Resources

This section details the modeling of energy efficiency programs and demand-side resources in the EIPC roll-up integration case. Because of differences in programs among jurisdictions, the amount and treatment in the power flow model of energy efficiency or demand resources varies within each Planning Authority. For some Planning Authorities, these programs' effects are considered when developing the load forecast discussed in section 2.2 and for others, market mechanisms are used to treat these as energy resources. While treatment of these demand side programs varies across PAs, it is important to realize that many PAs do not net these demand impacts from the gross demand forecasts that are used in transmission planning models. The reason for this is that while demand side impacts are an essential part of resource requirement planning, the transmission system may be required to meet the gross demand if the demand side resources are not utilized. For example, it may be more economical not to utilize any or all of the demand resources on a given day, or the contractual provisions associated with the demand resource may not require their use when there are alternative resources. As such, the load forecasts in the transmission planning model may be expected to differ from those developed for resource requirement planning.

For clarity, if the individual PA descriptions below contain the terms "included"," incorporated", "reflected", or "accounted for" to describe forecasts or modeled load, it means that the forecast in the case already has been reduced for these effects.

**Duke Energy Carolinas**
Energy efficiency efforts as required to meet state requirements have been incorporated into the load in the case. For 2020 summer, efficiency efforts constitute an approximate reduction of 450 MW of load modeled. Impact of the application of DSM was not included in modeled load.

**Electric Energy Inc.**
Since Electric Energy Inc. has no native load, a load forecast is not compiled. EE and DSM are not applicable.

**Entergy Services**
Entergy's load forecast projection included in the 2020 roll-up integration case takes into consideration energy efficiency impacts by utilizing EIA efficiency indices in the development of retail sales forecasts. Existing utility sponsored DSM programs are also accounted for in the peak load forecast. Incremental Utility-Sponsored DSM are new programs pending regulatory approval which have not been incorporated into the peak load forecast. It is estimated that successful implementation of these new programs could potentially result in a peak demand reduction of 825 MW for Entergy by 2020. The modeled loads do not reflect a reduction associated with interruptible contracts signed with large industrial customers in the area.

**Florida Power & Light**
The impact of higher energy efficiency based on the new 2005 and 2007 federal standards for lighting and appliance is factored into the load forecast. It is estimated the summer peak demand in 2020 will be approximately 2095 MW lower than it would have otherwise been absent energy efficiency. The impact of the application of DSM is not included in the modeled load.

**Georgia Transmission Company**
All demand-side management and energy efficiency programs are under the direction of GTC's individual member cooperatives. GTC does not administer any demand-side management or energy efficiency programs. The load forecast is based on actual measured load, and historical usage of load management and dispersed generation are added back into the annual results to represent total customer load. The load forecast incorporates the impacts of any energy efficiency programs used by GTC's member cooperatives.

**Independent Electricity System Operator**
The Ontario Power Authority is overseeing the Conservation and Demand Management programs in Ontario and provides projections of long-term peak-demand reduction due to those programs. The aggregation of energy efficiency and demand side programs included in the load forecast consists of 4,491 MW. These include: energy conservation, fuel substitution and changes in electricity consumption patterns due to the introduction of time of use rates at the residential level.

**ISO New England**
Energy efficiency measures that have cleared in the most recent Forward Capacity Auction (2010 FCA-4 for the Commitment Period June 1, 2013 to May 31, 2014) have been incorporated into the load in the model. For the summer of 2020, a total of 1,298 MW of Passive Demand Resources / Energy Efficiency (On-Peak and Seasonal-Peak) and 1,363 MW of Active Demand Resources / Demand Side Management (Real Time Demand Resource) were included for a total of 2,661 MW. This number was then adjusted up by 4% to 2,767 MW to account for transmission and distribution system losses; this is the actual amount reflected in ISO-NE's portion of the roll-up model.

**JEA**
No planned incremental energy efficiency programs are represented in JEA's demand forecast represented in the roll-up integration case. However, JEA's demand forecast does include a historical trend of applied energy efficiency improvements that have naturally occurred in the market place. Concerning load management and interruptible rate subscribers, JEA does not currently reduce the peak demand in developing the load flow models. Today, JEA's forecasted peak demand reductions from energy efficiency programs, load management programs, and interruptible rate subscribers have not reached a level warranting consideration in transmission capacity avoidance benefits

**LG&E and KU Energy**
The LG&E/KU native LSE load forecast in the EIPC 2020 summer model reflects a reduction in load of 500 MW as a result of energy efficiency programs and demand side management resources.

**MAPPCOR**
Energy efficiency efforts as required to meet state requirements are incorporated into the reported load in the model through the MAPP and MRO model building process. The impact of the application of DSM was not included in the modeled load. MAPP Transmission Owners load forecast for 2020 included an energy efficiency of 234MW.

**MEAG Power**
All demand-side management and energy efficiency programs are under the direction of MEAG's individual member participants. MEAG does not administer any demand-side management or energy efficiency programs. The load forecast is based on actual measured load, and historical usage of load

management and dispersed generation are added back into the annual results to represent total customer load. The load forecast incorporates the impacts of any energy efficiency programs used by MEAG's member participants.

**Midwest ISO**

For Midwest ISO members, load projections for planning horizon power flow models are provided by the member systems that perform their own load forecasting. Energy efficiency and demand-side adjustments are included in those load projections consistent with the local transmission planning practices of each member system. The demand projections in the 2020 power flow case for the Midwest ISO portion of the roll-up integration case is consistent with the Midwest ISO 2010 Long Term Resource Assessment report which is available on the Midwest ISO web site at http://www.midwestmarket.org/publish/Document/6a7e86_12bc0f1b440_-7fc50a48324a?rev=1. That report indicates the following projections for the plan year 2019, and the 2020 projections have been estimated based on information from that report:

| | **2019** | **2020** |
|---|---|---|
| Unrestricted Non-Coincident | 124,723 | 126,095 |
| Estimated Diversity | 5,613 | 5,674 |
| Total Internal | 119,110 | 120,421 |
| Direct Control Load Management | 467 | 467 |
| Interruptible Load | 2,874 | 2,874 |
| ***Net Internal Demand*** | ***115,769*** | ***117,080*** |

Note that the projections for Direct Control Load Management and Interruptible Load are not increased from values reported by LSEs for 2010. The underlying long term growth rate for the period 2010 through 2020 is 1.1%.

Also note that the above figures for Non-Coincident load include projections for ATSI system load based on our published 2010 Long Term Resource Assessment report. Because ATSI is intending to move to PJM in 2011, PJM has also provided a PJM system load forecast figure for 2020 that includes 14,048 for ATSI. The combined Midwest ISO and PJM peak load projections can be reconciled by taking into consideration the 14,048 MW PJM has included for ATSI. This treatment does not indicate any double counting of load with respect to the roll-up model however, as Midwest ISO and PJM have coordinated on the roll-up power flow case such that there is no double counting of load for the ATSI system in the case.

**New Brunswick System Operator**

Energy efficiency in New Brunswick for 2020 is forecast to be 90 MW. The forecast for DSM is zero. The energy efficiency forecast is provided by Efficiency New Brunswick, and it is incorporated into the base load forecast. Efficiency New Brunswick estimates are related to the following programs:

- Existing Homes Energy Upgrades Program
- Energy Efficient New Homes Program
- Upgrades Program for Multi-Unit Residential Buildings
- Retrofit Program for low-income households

**New York ISO**
Energy efficiency efforts as required to meet state requirements have not been fully incorporated into the load forecast as the programs are just beginning and a level of conservatism in the base case was desired. For 2020 summer, if the full targets of statewide required efficiency efforts were assumed to be fully met (15% by 2015), an additional reduction in the forecast peak of approximately 2,500 MW would occur. Impacts of demand side programs such as Emergency Demand Response Program (EDRP) are not included in the forecasted load. Interruptible load, and distributed generation resources of approximately 2,250 MW (referred to as Special Case Resources in New York) are not included.

**PJM Interconnection**
Load Management and energy efficiency (LM and EE) resources have been incorporated into the load forecast report based on amounts cleared in PJM markets through 2012. The 2012 values are used as assumptions throughout the forecast horizon. Projections for changes to LM and EE past 2012 are not currently factored into the forecasts although changes to this procedure are under consideration. PJM planning power flow models appropriately modify the loads and/or generation models for LM and EE resources depending on the type of planning analysis being performed. The loads in the 2020 rollup power flow case are based on unrestricted peaks which means that they are not adjusted for LM and EE. For 2020 summer, DR and EE constitute an approximate equivalent reduction of 549 MW of EE and 6823 MW of LM for a total of 7372 MW. Based on actual operations experience, LM called upon by PJM is fully available but limited in the number times it may be used. More detail regarding PJM's LM and EE can be found in the references of section 2.2.

**PowerSouth Energy Cooperative**
The PowerSouth load forecast for 2020 reflects a reduction in load of 15 MW as a result of energy demand side management resources (water heater program). This 15 MW reduction is reflected in PowerSouth's net peak load.

**Progress Energy Carolinas**
PEC has developed Energy Efficiency and DSM programs, estimated to total 1,427 MW for the year 2020, as required to meet state requirements. For the 2020 summer, Energy Efficiency constitutes an approximate reduction of 396 MW of load modeled in the power flow case. DSM constitutes an approximate potential reduction of 1,031 MW but is not modeled in the case.

**Progress Energy Florida**
PEF has developed Energy Efficiency and DSM programs, estimated to total 3,285 MW for the year 2020, as required to meet state requirements. For the 2020 summer, Energy Efficiency constitutes an approximate reduction of 1,525 MW of load modeled in the power flow case. DSM constitutes an approximate potential reduction of 1,732 MW but is not modeled in the case.

**Santee Cooper**
The load forecast used in the roll-up integration case was prepared by Santee Cooper in conjunction with Central Electric Power Cooperative, Inc. staff and a consulting firm. The load forecast incorporates updates of the end-use/econometric models developed by consulting firm and is based on normal weather assumptions. The forecast utilizes historical data and a current economic outlook for Santee Cooper's service areas. The forecast for industrial customers reflects any additions and changes to existing contracts. The load forecast includes estimated demand and energy savings from future energy efficiency programs to be implemented by Santee Cooper and Central. The load forecast used in the roll up case has

approximately 333 MW of Energy Efficiency and Demand Side Management reduced from the gross load forecast to produce a net peak load for the 2020 summer peak load of approximately 6,558 MW which represents an average annual growth rate of 2.6% through 2020.

**South Carolina Electric & Gas**
SCE&G is projecting 325 MW of energy efficiency programs in 2020. All of this was reduced from gross load forecast to produce the net peak load used for the SCE&G system in the EIPC roll-up integration case. SCE&G is projecting 210 MW of demand side management programs in 2020. None of this was reduced from the gross load forecast to produce the net peak load used for the SCE&G system in the roll-up integration.

**Southern Company**
The Southern Company load forecast for 2020 reflects a reduction in load of 996 MW as a result of energy efficiency programs and non-dispatchable (passive) demand side management resources. The modeling does not include dispatchable (active) demand side resources or real-time pricing resources which increase generation reserve margins but may not be relied upon to reduce particular transmission loadings.

**Southwest Power Pool**
There are no state requirements for energy efficient projects; however, individual SPP members do include energy efficient projects as well as DSM in the modeled loads. The expected DSM load in the 2020 roll-up integration case is 492 MW. Energy Efficiency projects total 248 MW for 2020.

**Tennessee Valley Authority**
TVA has an aggressive energy efficiency and demand-side management initiative, projecting over 2,400 MW under the program by 2020. TVA's demand-side management program primarily focuses in the areas of pricing products and direct load control of large industrial customers, HVAC equipment, and water heaters. TVA's energy efficiency programs are reflected in the load forecasts used in determining TVA's transmission expansion plan. However, TVA does not include the effects of demand-side management in these forecasts due to the difficulty in predicting which specific delivery points will be affected by these programs.

## 2.4 Interchange or Firm Transmission Service Modeled

The following section includes a description of the typical interchange or inter-area energy transfers modeled by each Planning Authority. Interchange data in the form of tables is included in Appendix E. For transactions between areas (import/export), full path transactions are included in the roll-up integration case, (where both the importing and exporting PAs recognize common commitments). Partial path transactions (where arrangements for transmission service have only been made with one party) are not included in the roll-up model.

**Alcoa Power Generating**
The 2020 roll-up integration case has no interchange for Alcoa's Yadkin division.

**Duke Energy Carolinas**
Duke has a net export to CPLE of 995 MW from IPP's at Rowan and Broad River Energy Center serving Progress Energy load, while NCEMC resources in CPLE and Duke are shared between the areas.

NCEMC also has an export 50 MW of its resources to serve its load in DVP (a part of PJM). Duke imports 268 MW from SEPA's generation on the Savannah River and 31 MW from SOCO to serve the city of Seneca, SC. The resultant net interchange is an export of 746 MW.

**Electric Energy Inc.**
The output of Electric Energy, Inc. generation is modeled as an export to AMIL.

**Entergy Services**
Entergy Electric System area interchange assumptions in the 2020 roll-up integration case include 1,139 MW of imports and 1,967 MW of exports, resulting in a net interchange of 828 MW. Values represented in Appendix E reflect long-term (one year or more) firm transmission service obligations.

**Florida Power & Light**
The scheduled net interchange modeled for the FPL area reflects the forecasted firm interchange transactions as coordinated with the other utilities within the FRCC Region. There are approximately 886 MW of imports into FPL's BA from inside the FRCC that are associated with unit ownership or PPAs. There are approximately 1590 MW of imports into FPL's BA from outside the FRCC that are associated with unit ownership or PPAs.

**Georgia Transmission Company**
GTC's information is included in the response from Southern Company.

**Independent Electricity System Operator**
Transmission service is not sold in Ontario; transactions at the interties are scheduled based on economic merit through the energy market. If a transaction is successfully scheduled, it will be provided with access to the transmission system. Therefore, IESO 2020 model has a zero net interchange.

**ISO New England**
ISO New England's area interchange assumptions in the 2020 roll-up integration case include 2,381 MW of imports and 330 MW of exports resulting in a net import of 2051 MW. The majority of this interchange comes from 1500 MW imported from Quebec on HVDC lines to northern Vermont and eastern Massachusetts.

**JEA**
In addition to JEA's obligation to serve JEA's native retail territorial load, JEA also has contractual obligations to provide transmission service for the transmission-level customer and for delivery of contractual power from jointly owned and independent power producer plants. The transactions included in JEA's load flow model include all the firm long-term generation and transmission service capacities through the year 2020. In addition to JEA's territorial system ties supporting import and export capabilities, JEA also has allocation rights in the Florida/Georgia 500 kV tie import and export capacity. The power interchange used for this study includes 406 MW import from Georgia (Southern Company) to JEA and 259 MW export from JEA to the FRCC region; with a resultant 147 MW net power interchange (import) in the 2020 roll-up integration case.

**LG&E and KU Energy**
LG&E/KU's area interchange assumptions in the 2020 roll-up integration case include 1142 MW of imports and 441 MW of exports, resulting in a net interchange of -701 MW. Values represented in Appendix E reflect long-term (one year or more) firm transmission service obligations.

**MAPPCOR**
The 2020 MAPP model includes an area interchange value of 703 MW MAPP imports and 3,192 MW MAPP exports for a net interchange value of 2,489 MW.

**MEAG Power**
MEAG's information is included in the response from Southern Company.

**Midwest ISO**
For Midwest ISO members, internal interchange is based on the market dispatch. Inter-regional interchange is determined based on currently known net firm drive-in and drive-out transactions between Midwest ISO member control areas and external control areas. The amount of net interchange between the Midwest ISO and its neighboring Planning Authorities is unchanged from the corresponding ERAG case. Please refer to Appendix E for detailed interchange information. Import and export transactions have been agreed to and are consistent with those of external PA regions. Midwest ISO 2020 model includes 8,986 MW of imports, and 4,076 MW of exports, for a net interchange of 4,911 MW.

**New Brunswick System Operator**
The NBSO area interchange assumption is 600 MW export from New Brunswick to New England even though the interface has a 1000 MW of capability. This 600 MW number is reflected in the New England section of Appendix E: Area Interchange Table.

**New York ISO**
The NYISO coordinates its interchange schedule with its neighbors and represents firm transactions and the expected continuance of current external ICAP providers as listed in the NYISO 2010 Load & Capacity Data Report.

**PJM Interconnection**
PJM interchange with external systems included in the roll-up integration case model represents long-term firm interchange transactions and non-firm transactions chosen by individual Transmission Owners. This representation is a snapshot of what may be considered "typical" transactions. It is the agreed upon basis for assembly of interregional reference cases according to the Eastern Reliability Assessment Group, Multi-regional Modeling Working Group process. Since individual Planning Authorities must assemble interregional reference cases that interchange with many neighbors, this interchange is necessarily only a starting point value to be appropriately adjusted depending on the nature of the planning analysis being performed. The series of annual PJM RTEP transmission studies plan for firm interchange values between PJM and neighbors. PJM net firm interchange from neighbors in the 2020 roll up model is 433 MW and non-firm net interchange to neighbors is 899 MW for a total net export of 466 MW. Interchange among the areas internal to PJM are the free flowing result of PJM's single area market dispatch and do not result from transaction schedules like the interchanges between PJM and external areas. PJM's planning analyses examine thousands of dispatch scenarios. The internal PJM starting point interchanges, therefore, are not a focus of planning analyses.

**PowerSouth Energy Cooperative**

PowerSouth's area interchange assumptions in the 2020 roll-up integration case include 541 MW of imports and 1242 MW of exports, resulting in a net interchange of 701 MW. Values represented in Appendix E reflect long-term (one year or more) firm transmission service obligations as it relates to the transmission service provider.

**Progress Energy Carolinas**

PEC includes confirmed annual firm transmission service requests that are in accordance with resource projections provided by LSE's and executed contracts for the sale of firm energy. PEC has two balancing areas named CPLE and CPLW. The CPLE area model includes 1650 MW of imports and 449 MW of exports, resulting in a net interchange import of 1201 MW. The CPLW area model includes 1 MW of imports and 150 MW of exports, resulting in a net interchange export of 149 MW.

**Progress Energy Florida**

PEF includes confirmed annual firm transmission service requests that are in accordance with resource projections provided by LSE's and executed contracts for the sale of firm energy. PEF has one balancing area named FPC. FPC area model includes a net interchange import of 3888 MW.

**Santee Cooper**

The area interchange schedule consists of both imports and exports with a net interchange import of 1595 MW. Santee Cooper's scheduled imports for 2020 summer consist of Santee Cooper's share of Summer Units #1-#3 for a total of 1370 MW with additional imports scheduled under grandfathered contracts with Southeastern Power Administration for 275 MW. Santee Cooper's scheduled exports are for grandfathered exports to Woodland Hills for 16 MW, and to Charleston Navy for 15 MW and New Horizons (to SCE&G) for 19 MW. There are no firm transmission service requests modeled in the 2020 roll-up integration case.

**South Carolina Electric & Gas**

SCE&G's area interchange assumptions in the 2020 roll-up integration case include 72 MW of imports and 1,370 MW of exports, resulting in a net interchange of 1,298 MW exporting. Values represented in Appendix E reflect long-term (one year or more) firm transmission service obligations.

**Southern Company**

Southern Company's area interchange assumptions in the 2020 roll-up integration case include 2,200 MW of imports and 3,286 MW of exports, resulting in a net interchange of 1,086 MW. Values represented in Appendix E reflect long-term (one year or more) firm transmission service obligations.

**Southwest Power Pool**

SPP includes long term firm transmission service requests in models, as well as related projects with an approved FERC filed NTC ("Notification to Construct").

**Tennessee Valley Authority**

TVA's area interchange assumptions in the 2020 roll-up integration case include 139 MW of imports and 789 MW of exports, resulting in a net interchange of 650 MW. Values represented in Appendix E reflect long-term (one year or more) firm transmission service obligations.

## 2.5 Process for Future Transmission Project Inclusion

Each Planning Authority's planning process for inclusion of new transmission projects is described in this section. Since inclusion varies based on each PA process, the PAs have agreed to the following terms in order to describe the status of future transmission projects, which are used in Appendix B:

- State/Budget Approval: The project has obtained some level of contractual obligation, regulatory approval, or is included in approved capital budgets.
- Planned: The project has completed the respective Planning Authority's planning process, including any applicable regional planning process approvals (for example, ISO or RTO approvals), but specific contractual obligations have not been committed to, or regulatory approvals obtained.
- Proposed: The project has been proposed but has not yet completed the respective Planning Authority's planning process nor received applicable regional planning process approvals. In this case, the year in which completion of the process and applicable regional approval is expected is listed in Appendix B.

**Alcoa Power Generating**
Alcoa's Yadkin division has no plans for future generation or transmission expansions.

**Duke Energy Carolinas**
Transmission planning performed by DEC is a continuous process. This continuous transmission planning process consists of (1) internal screening and analysis, (2) coordinated studies with neighboring systems, and (3) development of a collaborative transmission plan with Progress Energy Carolinas under the North Carolina Transmission Planning Collaborative. The result of these efforts is identification of projects to upgrade existing facilities or addition of new facilities that are needed to meet DEC's transmission planning criteria and NERC reliability standards.

Transmission facilities that are approved and budgeted or where construction has begun have been included in the 2020 roll-up integration case. Other projects the planners believe have a high certainty of being in service in the year being modeled are also included. Engineering judgment has been applied such that a new or upgraded facility that is marginally necessary may not have been included in the base model so that the timing of the need for the facility can be accurately determined.

**Electric Energy Inc.**
Electric Energy, Inc. (through the services of consulting companies) performs an annual analysis and evaluation of the Electric Energy, Inc. transmission system response to generation and transmission system expansion plans, and expected power purchased by Electric Energy, Inc. and others through short-term and long-range transmission planning studies. The transmission system analysis is carried out through active participation in NERC and SERC committee work, as well as internal Electric Energy, Inc. transmission planning studies. The objective of Electric Energy, Inc. is to provide adequate electrical capacity and transfer capability to serve Electric Energy, Inc. customers with acceptable reliability, commensurate with cost, and to accommodate power transfers by others without excessively burdening the Electric Energy, Inc. system. Electric Energy, Inc. subscribes to all NERC and SERC planning standards, which are available from those organizations. The study models used for Electric Energy, Inc. planning are based on the ERAG Multi-region Modeling Working Group (MMWG) models and the

related SERC seasonal assessment models. Electric Energy, Inc. participates annually in building the MMWG models and in the preparation of seasonal assessment models for near term and long term summer and winter assessments as requested by SERC. Electric Energy, Inc. has no native load within its service territory. As a result, the net system import requirements are essentially zero. Historically, the Paducah Gaseous Diffusion Plant (PGDP) is the major customer for Electric Energy, Inc.. The general transmission planning philosophy is to provide adequate and sufficiently reliable generating plant outlet transmission capability to assure that the needs of the PGDP are satisfied, and during periods of light PGDP load, Electric Energy, Inc. has sufficient transmission transfer capability to export the full generation capacity.

**Entergy Services**
On an annual basis, Entergy develops its 10 year transmission plan which includes projects identified to support Load Serving Entities ("LSEs") and other long-term firm transmission customers under the Open Access Transmission Tariff (OATT) in delivering energy on a firm basis. Transmission projects in Entergy's transmission plan may include:

- Projects identified to meet long term reliability needs.
- Projects identified to meet long-term firm service commitments of LSEs and Point to Point transmission customers.
- Projects to interconnect new generation customers who have signed interconnection agreements.
- Projects associated with network reservations provided by LSEs for generation capacity necessary to meet their respective load obligations.

Entergy included in the 2020 roll-up integration case transmission projects identified in Entergy's 2010 – 2012 Final Construction Plan Update 4 posted on OASIS. The projects identified in Entergy's 2010 – 2012 Final Construction Plan Update 4 have been reclassified in order to conform with the agreed upon EIPC status categories of State/Budget Approval, Planned, or Proposed.

As transmission projects are identified or move forward towards implementation, all required laws and regulations are followed according to the specific jurisdiction to obtain necessary approvals. If the need for the transmission project is due to the planned addition of a supply-side resource, then approval for that project is generally sought in the certification proceeding for that resource. Furthermore, the states also vary with regard to which transmission projects have to receive specific state certification approvals.

**Florida Power & Light**
Future projects that have undergone FPL's internal budget review process as well as those projects that are representative of the Ten Year Site Plan (TYSP) filing with the Florida Public Service Commission are included in the roll-up integration case.

**Georgia Transmission Company**
GTC performs transmission planning studies on a continuous basis to identify needed transmission improvements. These studies identify transmission improvement projects required to support the load-serving needs of GTC's member cooperatives and GTC's long-term firm transmission tariff customers. GTC also identifies projects to interconnect new generation, as applicable. In order to jointly plan for future transmission expansion, study recommendations are reviewed and coordinated with other transmission owners in Georgia. GTC also reviews study work performed by other transmission owners

in Georgia and coordinates with utilities in surrounding regions. Transmission improvement projects included in GTC's expansion plans were included in the roll-up integration case.

**Independent Electricity System Operator**
Planning in Ontario is conducted on two fronts - assessing future system conditions with known and expected facilities in place, and developing future plans on resources and transmission to meet the needs of the system. Both processes use applicable NERC reliability standards and NPCC regional reliability standards to evaluate the reliability performance of the proposed projects.

On the assessment front, the IESO, as the Planning Coordinator, conducts transmission and resource adequacy assessments as follows:

- An Ontario Reliability Outlook with a five-year horizon, that is issued annually;
- An 18-Month Outlook Update that is conducted semi-annually;
- A Review of Resource Adequacy with a 5-year horizon, submitted annually to NPCC, and
- A Review of Transmission Adequacy with a 5-year horizon, submitted annually to NPCC

These assessments provide an evaluation of the future conditions such as system constraints and resource adequacy based on planned system conditions; they do not propose resource or transmission plans to meet adequacy needs or to alleviate system constraints. Market participants use the information provided in the reports to make decisions on investments in the power system assets.

In 2005, the Ontario Government established the Ontario Power Authority (OPA) to address the long-term system planning. Part of the OPA's mandate is to develop an Integrated Power System Plan (IPSP) to provide an independent and integrated plan for conservation, generation and transmission over a 20 year period.

Through OPA's planning activities, the OPA identifies resource and transmission requirements, procures resources and promote conservation as required to ensure supply adequacy and respond to other system and policy needs. Transmission Owners develop options to meet the transmission facility proposals, which include route selections, line types, associated facilities, etc. These options are evaluated by the IESO through the System Impact Assessment (SIA) process, to evaluate system performance under forecast system conditions and when subjected to various contingencies.

The applicable seasonal peak power flow models developed annually by IESO for MMWG available in the most recent NERC ERAG Model series are updated to include all future transmission and generation projects in Ontario that passed the IESO Connection Assessment and Approval (CAA) process, along with any upgrades required to maintain the reliability of the IESO system including the future transmission and generation.

**ISO New England**
ISO New England's portion of the 2020 roll-up integration case includes all future projects that have been approved under Section I.3.9 of the ISO New England Tariff. Pursuant to Section I.3.9, the ISO reviews proposals for new generation and transmission facilities rated at or above 69 kV. If it is determined that a project would not have a significant adverse impact on the stability, reliability or operating characteristics of existing electrical infrastructure, the ISO would approve the project for interconnection to the grid. Projects that have reached this stage are assumed to be in service for the 2020 roll-up case.

In the case of transmission projects, projects submitted for review pursuant to Section I.3.9 are those which are being developed and generally supported as part of the New England regional transmission planning process.

**JEA**

JEA does not include any "Proposed" transmission projects in its load flow models. All projects sponsored by JEA in the roll-up integration case have the status of "State/Budget Approval". JEA's policy and practice is to only include "State/Budget Approval" projects (facility additions, modifications, retirements, or system topology changes) to the load flow transmission model if the inclusion of those projects represents the most probable future scenario. To JEA, this means that the projects have, as a minimum, undergone JEA's internal budget review process and have been approved for real estate activities associated with securing rights-of-ways or has been accepted in the capital budget process for legally appropriated funding in the upcoming fiscal year. However, JEA may decide not to add a project to the load flow models until real estate has been properly secured or has achieved a substantial chance of reaching successful acquisition.

**LG&E and KU Energy**

The primary purpose of LG&E/KU's transmission system is to reliably transmit electric energy from Network Resources to Network Loads. LG&E/KU has established Transmission Planning Guidelines to gauge the adequacy of the transmission system to supply projected Network Customer demand and contracted Long-Term Firm Point-to-Point Transmission Services. The Process is an annual cycle designed to incorporate external Network changes and to provide information for regional evaluation and coordination through the NERC ERAG model building process.

Seasonal peak power flow models are developed annually (first quarter) by LG&E/KU using each model year available in the most recent NERC ERAG Model series. The topology of the LG&E/KU transmission system is expanded to provide a more detailed representation of the 69 kV facilities and updated to reflect the current Transmission Expansion Plan. Network Resources and Network Loads are updated to reflect the most recent information from the Network Customers. Seasonal peak cases may also be developed without certain generator and/or major transmission additions to provide better models for interpolation between model years.

The Transmission Expansion Plan is evaluated and updated through screening, verification, area studies, facility studies, signed agreements, and other periodic studies. Generator and transmission contingency simulations are routinely performed to evaluate the adequacy of the transmission system against the no "Loss of Demand or Curtailment of Firm Transfer" requirements of the Transmission Planning Guidelines.

- Screening – Generator and transmission contingencies are simulated on the Base Cases to identify overloads and low voltages not resolved by the Transmission Expansion Plan.
- Verification – Projects in the Transmission Expansion Plan and issues identified in the screening are evaluated to determine the required completion date, to determine the upgrade or construction required and to identify the reason for the change. The required completion date is determined by interpolating flows between model years.
- Area Studies – Area studies are performed prior to major construction to develop multiple long-term options that provide adequate transmission through the planning period. The least-

cost option is recommended for approval and the associated projects are incorporated into the Transmission Expansion Plan.

- Facility Studies – Facility studies are performed following a request made by customers through the ITO by a Network Integrated Transmission Service (NITS), Designated Network Resource (DNR), or Point-To-Point (PTP) request. Multiple options with an associated cost and time frame to complete construction to provide the requested service is provided back to the customers through the ITO.
- Signed Agreements – Construction and upgrades associated with Generator Interconnections, Transmission to Transmission Interconnections, and Network Service requests executed by the requestor, which have been submitted to and evaluated by the ITO and LG&E/KU in the previous year, are incorporated into the Transmission Expansion Plan.

Periodically, studies are performed to evaluate the adequacy of the LG&E/KU transmission system against the allowable "Loss of Demand or Curtailment of Firm Transfer" requirements and "System Stability". Necessary construction and upgrades identified by these studies are incorporated into the Transmission Expansion Plan.

Annually, the LG&E/KU Transmission Expansion Plan is submitted to the ITO and RC for independent review, evaluation and comment regarding any outstanding issues that should be addressed. The final plan developed by the Transmission Owner must be approved by the ITO.

**MAPPCOR**

MAPP's expansion planning process is an annual process for the 10-year planning horizon. For this 10-year planning horizon needed enhancements to the existing transmission system are identified for the next 10 years. The expansion of the transmission system is based on MAPP's updated models with the ERAG MMWG models representing the external system. The transmission and resource assumptions included are the latest transmission expansion additions reported through the open process of the MAPP sub regional planning groups (SPGs) activity and sub regional plans submitted by the MAPP SPGs and approved through the MAPP Transmission Planning Subcommittee (TPSC). The transmission owner determines the future transmission projects that are included during the model building process.

**MEAG Power**

MEAG performs transmission planning studies on a continuous basis to identify needed transmission improvements. These studies identify transmission improvement projects required to support the load-serving needs of MEAG's participants and MEAG's long-term firm transmission tariff customers. MEAG also identifies projects to interconnect new generation, as applicable. In order to jointly plan for future transmission expansion, study recommendations are reviewed and coordinated with other transmission owners in Georgia. MEAG also reviews study work performed by other transmission owners in Georgia and coordinates with utilities in surrounding regions. Transmission improvement projects included in MEAG's expansion plans were included in the roll-up integration case.

**Midwest ISO**

The Midwest ISO produces a Midwest ISO Transmission Expansion Plan (MTEP) annually. This regional plan is produced in collaboration with transmission owning members and using a stakeholder process that is FERC Order 890 compliant. The regional plan, once approved by the Midwest ISO Board of Directors represents the recommended plan for the region, and the member transmission owners are bound by forming agreement to use a good faith effort to obtain all necessary state and local approvals and to construct the projects so approved for regional implementation.

The criteria applied by the Midwest ISO for including projects in the roll-up integration case was to include all transmission projects in the agreed upon EIPC status categories of State/Budget Approval, Planned, or Proposed. Midwest ISO included proposed projects that are pending approval in the current planning cycle MTEP 11 that began September 2010 and will conclude with Board approval December 2011, and other projects that are proposed to meet NERC reliability standards in the 2010-2020 ten year horizon, but that are targeted for regional approval after 2011.

**New Brunswick System Operator**

The transmission plan is produced each year by NBSO within the annual update of the NBSO 10-Year Outlook report. The transmission plan represents an analysis of the existing high voltage transmission network, and the development required to meet the forecast load in compliance with the established transmission planning criteria.

NBSO is responsible for ensuring that the integrated electricity system, at all times, has adequate capacity to satisfy all applicable reliability criterion. NBSO is also responsible for addressing congestion issues that impact the efficient operation of the Electricity Market.

NBSO, upon identifying a system adequacy issue or a congestion issue, will consult with Transmitters and Market Participants to develop technically feasible options for addressing the issue. These options will then be published on the NBSO website, along with a notice of intent by NBSO to request proposals to resolve the issue. Transmitters and Market Participants may then participate in a formal Request for Proposals process leading to the final selection by NBSO of the preferred project.

**New York ISO**

The NYISO Comprehensive Reliability Planning Process (CRPP) encompasses a ten-year planning horizon and evaluates the future reliability of the New York bulk power system. In order to preserve and maintain system reliability, the NYISO, in conjunction with Market Participants, identifies the reliability needs over the planning period and issues its findings in the Reliability Needs Assessment (RNA). A request for solutions to identified reliability needs is issued with the expectation that Market-Based Solutions will come forward to meet the identified needs. All resources (generation, transmission and demand response) are eligible for consideration as potential solutions. In the event that Market-Based Solutions are not sufficient, to meet the reliability needs in a timely manner, the process provides for the identification of Regulated Backstop Solutions proposed by designated transmission owners, and Alternative Regulated Solutions proposed by any market participant. The NYISO then evaluates all proposed solutions to determine whether they will meet the identified reliability needs. Thus, the Comprehensive Reliability Plan (CRP) is developed in conjunction with NYISO stakeholders and approved by the NYISO Board, which sets forth the resources, plans and schedules that are expected to be implemented to meet the Reliability Needs, if any, that were identified in the RNA. In the event that there are insufficient market-based solutions to meet an identified Reliability Need, the NYISO directs the Responsible Transmission Owner to proceed with developing its Regulated Backstop Solution. When the TO applies for necessary siting approvals at the state level, other developers may choose to propose an Alternative Regulated Solution for consideration. As provided in the NYISO Tariff, the NYS Public Service Commission will make the final determination as to which solution will proceed.

**PJM Interconnection**

PJM's annual Regional Transmission Expansion Plan (RTEP) process comprehensively examines the transmission system requirements to ensure the reliability, economy, competitiveness and comparability of service under the PJM Tariffs and Agreements. This process first identifies transmission system upgrades and enhancements to preserve grid reliability, the foundation of competitive wholesale power markets. The annual series of RTEP analysis also includes planning for Market Efficiency that: (1) advances planned reliability projects when there is sufficient economic benefit, (2) provides new projects that have sufficient Market Efficiency benefits to justify their expense, and (3) combines reliability and market efficiency projects when benefits are sufficient to justify added expenditures. A third facet of PJM planning annually reviews system operational performance, evaluates any issues and plans system upgrades as may be beneficial. In addition, PJM tariffs and agreements also provide for interregional upgrades resulting from periodic interregional reviews. This annual series of analyses produces the PJM baseline RTEP system. This system forms the foundation for the incremental assessment of queued requests for interconnection to the transmission system. PJM planning conducts a quarterly queue process that sequentially evaluates interconnection requests to determine incremental transmission upgrades necessary for their reliable interconnection and operation with the system.

This series of RTEP analysis is based on maintaining reliability, market efficiency and operational performance for committed uses of the system and reasonably anticipated load growth and new interconnections. The system is planned for new generation with signed Interconnection Service Agreements or signed Facility Study Agreements.

The recommended transmission upgrades resulting from this series of analyses are subject to ongoing review and input with PJM's stakeholders through the PJM committee process. The resulting RTEP projects are presented to the PJM independent Board of Managers periodically throughout the year for approval. RTEP approved projects are cost allocated, assigned for construction and proceed from planning into the project tracking and construction phase. At this point, entities that are assigned construction responsibility engage necessary design, siting and regulatory approval processes. PJM supports the need justification for projects as necessary throughout regulatory approvals.

The PJM RTEP process is ongoing. PJM's reference transmission case changes continuously as new needed RTEP upgrades are identified. At any point in time the PJM reference RTEP power flow includes predominately existing and planned, Board approved facilities. PJM planning only tracks and reports state regulatory approval status of the major "backbone" projects. The PJM reference power flow typically has some very recent necessary upgrades that are scheduled for approval at the next regularly scheduled Board meeting. These most often address recently identified RTEP baseline or queue project issues that surface in the continuous stream of analysis. The projects pending Board approval are represented as "proposed" in the PJM list of upgrades. Such projects typically become Board approved within months, therefore, for PJM, the "proposed" project label does not represent a material difference from "planned" facilities in regard to the "certainty" of the transmission projects going forward. All the listed PJM projects are required for system reliability by the specified dates and are very likely to proceed. The "certainty" of projects coupled with new interconnection requests, naturally, are linked to the business plans of the interconnection customer. All projects' progress toward completion is tracked and alternate plans or temporary mitigation actions are developed when issues may delay a project's completion.
PJM's RTEP process includes both five year and 15-year dimensions assessment to meet all applicable reliability planning criteria. The applicable reliability planning criteria include:

- NERC Planning Standards
  ( http://www.nerc.com/~filez/standards/Reliability_Standards.html )
- RFC Reliability Principles and Standards
  (http://www.rfirst.org/Standards/ApprovedStandards.aspx)
- PJM Reliability Planning Criteria as contained in Manual M14B Attachment G (http://www.pjm.com/documents/manuals.aspx)
- Transmission Owner Reliability Planning Criteria as filed in their respective FERC 715 filing.

Five-year-out planning enables PJM to assess and recommend transmission upgrades to meet forecasted load growth and to ensure the safe and reliable interconnection of new generation and merchant transmission projects seeking interconnection within PJM. PJM's 15-year planning horizon permits consideration of many long-lead-time transmission options. These options often comprise larger magnitude transmission facilities that more efficiently and globally address reliability issues. Typically, these are higher voltage upgrades that simultaneously address multiple NERC reliability criteria violations at all voltage levels. A 15-year horizon also allows PJM to consider the aggregate effects of many system trends including long-term load growth, impacts of generation deactivation and broader generation development patterns across PJM.

**PowerSouth Energy Cooperative**

PowerSouth's transmission planning is a yearly, continuous process and is based on a rolling 10-year cycle, in which needed enhancements to the existing transmission system are identified. PowerSouth coordinates with Southern Company and South Mississippi Electric Power Association (SMEPA) to accurately model shared ownership resources, as well as area interchange values. PowerSouth also submits data to and participates in SERC's Long Term Study Group (LTSG) which is used to create the MMWG models. Projects in that area included in the model can be member-driven (i.e. new delivery point), reliability-driven (new bulk transmission) and/or as related to the NERC standards. PowerSouth, as a G&T Cooperative, is not under any state regulation authority. New transmission and/or generation projects are vetted through a board approval process.

**Progress Energy Carolinas**

PEC's transmission expansion plan is the compilation of transmission facility improvements and upgrades which are necessary for the transmission system to support the proposed resource assumptions, load forecasts, and firm transmission service requirements for the next 10 years in the most reliable and economic manner consistent with NERC Reliability standards. The expansion plan is based on information obtained through PEC's internal planning efforts as well as through the SERC Long Term Study Group, North Carolina Transmission Planning Collaborative, Southeastern Inter-Regional Participation Process, and joint studies with interconnected neighbors. Transmission facilities that are approved, committed & budgeted or where construction has begun are included in the models. Other projects the planners believe have a high certainty of being in service in the year being modeled are also included. Engineering judgment is applied such that a new or upgraded facility that is marginally needed may not be included in the base model so that the timing of the need for the facility can be accurately determined. Projects are included to meet N-1 contingency criteria. Furthermore, projects could potentially be included that have not been through the state certification process but that is not the case for the 2020 roll-up integration case used in this process.

**Progress Energy Florida**

PEF's transmission expansion plan is the compilation of transmission facility improvements and upgrades which are necessary for the transmission system to support the proposed resource assumptions, load forecasts, and firm transmission service requirements for the next 10 years in the most reliable and economic manner consistent with NERC Reliability standards. The expansion plan is based on information obtained through PEF's internal planning efforts, FERC Order 890 Attachment K process, as well as through the FRCC Long Range Study assessments, and other joint studies with interconnected neighbors. Transmission facilities that are approved, committed & budgeted or where construction has begun are included in the case. Other projects the planners believe have a high certainty of being in service in the year being modeled are also included. Most transmission projects are included to meet N-1 contingency criteria; however, some projects are included to meet credible N-2 criteria where there is no operating solution or acceptable Special Protection System to resolve.

**Santee Cooper**

Santee Cooper produces a 10 year Transmission Plan on an annual basis. The criteria for including projects in the roll up model are to include future projects that are budgeted and approved by executive management for implementation. Planned and uncommitted construction project are also included in the model, but only if the project is judged to be well-defined and it is very likely to be fully implemented. Results of assessments are used to determine if the current construction schedule of planned transmission facilities should be altered to reflect future system requirements. Proposed additions identified and verified throughout the assessment will be incorporated with a recommended schedule, as needed.

**South Carolina Electric & Gas**

SCE&G includes in its transmission models all transmission projects that are budgeted and approved to be included in the transmission expansion plan. Not all projects have a commitment to build as they are reviewed for need and modifications on an ongoing basis through the annual and iterative transmission planning process. These reviews occur in the form of assessments of the transmission system with and without these transmission improvements and are reflective of changes in assumptions and objectives of the transmission system based on LSE needs, transmission service commitments and resource interconnections. Transmission projects in SCE&G's transmission expansion plan and in the EIPC roll-up case include 1) projects required to meet NERC Reliability Standards and SCE&G Transmission Planning Criteria, 2) projects required for the provision of firm transmission service (Network and Point-to-Point), per the SCE&G OATT and 3) system upgrades associated with generator interconnections, per the SCE&G OATT.

**Southern Company**

On a continuous, iterative basis, ten-year transmission expansion plans are developed to support Load Serving Entities ("LSEs") and other long-term firm transmission customers under the Open Access Transmission Tariff (OATT) in delivering energy on a firm basis. Transmission projects in Southern's expansion plans and in the roll-up include:

- Projects to meet long-term firm service commitments of LSEs and Point to Point transmission customers.
- Projects to interconnect new generation customers who have signed interconnection agreements.
- For periods later in the ten-year planning horizon, projects associated with network reservations provided by LSEs for generation capacity necessary to meet their respective load obligations.

As transmission projects are identified, the requirements of state law are followed to obtain any requisite approvals to move forward with those projects. The level of formality varies within each of the different jurisdictions. If the need for the transmission project is due to the planned addition of a supply-side resource, then approval for that project is generally sought in the certification proceeding for that resource. Furthermore, the states also vary with regard to which transmission projects have to receive specific state certification approvals.

**Southwest Power Pool**

The Integrated Transmission Plan (ITP) is SPP's approach to planning transmission needed to maintain reliability, provide economic benefits and achieve public policy goals to the SPP region in both the near and long-term. The ITP enables SPP and its stakeholders to facilitate the development of a robust transmission grid that provides regional customers improved access to the SPP region's diverse resources. Development of the ITP was driven by the need to develop a transmission backbone large enough in both scale and geography to provide flexibility to meet SPP's future needs.

The ITP is an iterative three-year process that includes 20-Year, 10-Year, and Near-Term Assessments and targets a reasonable balance between long-term transmission investment and customer congestion costs (as well as many other benefits).

The ITP creates synergies by integrating existing SPP activities: the Extra High Voltage (EHV) Overlay, the Balanced Portfolio, and the SPP Transmission Expansion Plan (STEP) Reliability Assessment. Consequently, and reaching the balance above, efficiencies are expected to be realized in the Generation Interconnection and Aggregate Transmission Service Request study processes. The ITP works in concert with SPP's existing sub-regional planning stakeholder process, and parallels the NERC TPL Reliability Standards compliance process.

**Tennessee Valley Authority**

TVA develops a ten-year transmission expansion plan on an annual basis to support the projected load forecasts within the TVA Balancing Authority (BA) area, as well as, other long-term firm transmission service customers under the Open Access Transmission Tariff (OATT) in delivering energy on a firm basis.

Transmission projects in TVA's expansion plans and in the roll-up include:

- Projects associated with network reservations for generation capacity necessary to meet system load obligations.
- Projects to meet long-term firm Point to Point transmission service commitments of transmission customers.
- Projects to interconnect new generation customers.

As a federal entity, TVA follows the requirements of the National Environmental Policy Act (NEPA) to move forward with identified transmission projects. If the need for the transmission project is due to the planned addition of a supply-side resource, then approval for that project is obtained through the approval for that resource. Planned system modifications are included in TVA's transmission expansion plan as the transmission projects obtain TVA officer approval during the planning process. Projects that do not have TVA officer approval are omitted from the transmission expansion plan to verify the continued need for the planned corrective action.

## 2.6 Major New and Upgraded Facilities

The following section includes a description of the major new and upgraded transmission facilities included in each Planning Authority's portion of the 2020 roll-up integration case. Major facilities are facilities of 230 kV or above. In addition to this section, a complete listing of major new and upgraded projects are tabulated in Appendix B of this report and categorized as defined in Section 2.5. Some projects may have multiple facilities listed that are a part of the same project. For example a long line project may have several line segments and substations between its end points.

**Alcoa Power Generating**
Alcoa's Yadkin division has no new or upgraded facilities planned.

**Duke Energy Carolinas**
DEC has included three new > 200 kV transmission projects in the 2020 roll-up integration case. DEC has a project to upgrade the conductor on its 230 kV line from Pisgah Tie to Shiloh Switching Station by 2013 in order to accommodate additional transmission service into CPLW. A new 230 kV tie line to CPLE will be completed by 2011 between DEC's Pleasant Garden Tie and CPLE's Asheboro Station to enhance reliability in the western area of CPLE. The Cliffside 6 generation project requires addition of a 500 kV tap station between Jocassee Tie and McGuire Nuclear Station by 2011. No other > 200kV projects are expected to be in service by 2020.

**Electric Energy Inc.**
There are no new Electric Energy, Inc. transmission facilities in the 2020 roll-up integration case.

**Entergy Services**
Entergy included in the 2020 roll-up integration case projects that have been identified to meet the reliability needs of the transmission system over the ten year planning horizon. These projects include constructing new 230 kV and 161 kV transmission lines, conversion of lower voltage lines to 230 kV operation, various upgrades of existing transmission lines, and the installation of additional 500 kV, 345 kV, and 230 kV autotransformers. Some of the projects included are also associated with transmission service request. A complete listing of all projects included in the roll-up integration case can be found in Entergy's 2010 – 2012 Final Construction Plan Update 4 posted on OASIS.

**Florida Power & Light**
The projects included in the FPL portion of the roll-up integration case are needed to meet FPL's regulatory requirements for the 10 year planning horizon. FPL has included twelve new transmission line projects in the 2020 model that will amount to an estimated total of 200 miles of new 230 kV and 86 miles of 500 kV transmission lines.

**Georgia Transmission Company**
GTC's information is included in the response from Southern Company. Please note that in Appendix B, transmission facilities listed under the PA "SOCO" also include GTC transmission projects.

**Independent Electricity System Operator**

Ontario is proposing to develop or enhance network transmission facilities to accommodate renewable resources. These transmission enhancements are planned to be in service by 2017. Additional

transmission development may be identified in the future when there are further developments on the resource options.

The 2020 roll-up integration case includes transmission system reinforcements in various parts of the province such as a new double circuit 500 kV line between Bruce and Milton, and the reinforcement of the Windsor area transmission. In addition, to accommodate new renewable energy generating facilities under the Ontario Feed-in-tariff (FIT) program and Ontario's agreement with the Korean Consortium several new transmission projects have been proposed at 230 and 500 kV. These plans are currently under review.

**ISO New England**

ISO-NE has included 45 new transmission projects at 230 kV and above in the 2020 roll-up integration case. Most of these projects are components of either the Maine Power Reliability Project ("MPRP") or the New England East-West Solution ("NEEWS"), two major 345-kV plans anticipated to be in service by 2020 in New England. Other projects include the Vermont Southern Loop 345-kV project, Long-Term Lower Southeastern Massachusetts (SEMA) project, a new 345-kV substation in Rhode Island, and several additional bulk autotransformers located in all six New England States.

**JEA**

The major "State/Budget Approval" projects included in the roll-up integration case are required to meet the generation and transmission performance requirements of JEA electric system as forecasted in the 10 year planning horizon. JEA currently is adding more generator capacity within its service territory and has power purchase agreements with other utilities to meet its future load demand. It also has plans to construct new transmission circuits at 230 kV and additional auto-transformation capacity from the 230 kV level to serve the 138 kV and 69 kV connected loads.

**LG&E and KU Energy**

LG&E/KU does not have any new or upgraded facilities 230kV and above in the 2020 roll-up integration case.

**MAPPCOR**

Below are the major new and upgraded transmission facilities included in the 2020 roll-up integration case for MAPPCOR.

**Manitoba Hydro additions/upgrades:**

- St Joseph Wind 1 and 2 to Letellier Substations with 4.8 mile connection 230kV lines planned to be built in 2010.
- Herblet Lake to Ralls Island 103 mile 230 kV line planned to be built in 2011.
- Herblet Lake to Wuskwatim 85.2 mile long double circuit 230 kV line planned to be built in 2011.
- St Vital to Letellier 77.7 mile 230 kV line planned to be built in 2012.
- LaVerendrye to St Vital 21.1 mile 230 kV line planned to be built in 2014.
- Dorsey to Portage South 43.5 mile 230 kV line owned by Manitoba Hydro is proposed to be converted to double circuit line by 2014.
- New Conawapa to Riel converter stations and 805 mile 500 kV bipole DC transmission line between Conawapa and Riel converter stations proposed to be built by 2017.
- Conawapa to Henday 19miles, 230kV quadruple circuit line proposed to be built by 2017.

- Conawapa to Long Spruce 34 miles, 230kV double circuit line proposed to be built by 2017.
- Dorsey to Riel 31 mile 500kV line proposed to be built by 2018.

**South Dakota WAPA/BEPC facility additions/upgrades:**
- Lower Brule 230kV substation is planned to be built.
- Big Bend to Lower Brule to Fort Thompson 11.4 mile 230kV line planned to be built.
- Witten substation is proposed to be upgraded from 115kV to 230/115 substation in 2012.
- Reliance 230kV substation is proposed to be built in 2012.
- Witten to Reliance to Big Bend 43 mile, 230kV line proposed to be built in 2012.

**North Dakota WAPA/BEPC facility additions/upgrades:**
- Watford City substation is planned to be upgraded from 115 kV to 230/115 substation in 2011.
- Wolf Point substation in Montana and Williston substation proposed 230kV line that will be operated at 115kV to be built by2012.
- Williston to Watford City 42mile 115kV line planned to be uprated to 230kv line in 2010, Williston to Tioga 45 mile 230 kV line planned to be built in 2010, and a Watford City to Charlie Creek 34 mile 115 kV line planned to be uprated to 230kV in 2011.

**Minnesota facility additions/upgrades:**
- Appledorn 230kV substation is planned to be built in 2011.
- Cass Lake 230/115 kV substation is planned to be built in 2011.
- Boswell (Bemidji) to Wilton (clay Boswell) 230kV, 72mile line is proposed to be built by 2012 and will pass through the new Cass Lake 230/115 kV substation.

**MEAG Power**
MEAG's information is included in the response from Southern Company. Please note that in Appendix B, transmission facilities listed under the PA "SOCO" also include MEAG transmission projects.

**Midwest ISO**
Major 345 kV line additions (20 miles or longer) that are either Planned, or have State/Budget approvals and that are included in EIPC 2020 Roll-Up case are:

- Gibson to AB Brown to Reid 345 kV line (64 miles)
- Hazelton to Salem 345 kV line (81 miles)
- Cardinal to Rockdale 345 kV line (32 miles)
- Maple River- Alexandria - Waite Park - Monticello 345 kV line (225 miles)
- Brookings County to Lyon County to Cedar Mountain to Helena to Lake Marion to Hampton Corner 345 kV line (206 miles)
- Hampton Corners to North Rochester to North La Crosse 345 kV line (118 miles)
- Rapson to Sandusky to Greenwood to Fitz 345 kV double circuit line (81 miles)
- Fargo to Maple Ridge 345 kV line (20 miles)

The following transmission projects are included in the model as Proposed projects, and are currently being evaluated for recommendation in 2011 to the Midwest ISO Board of Directors for approval. These projects are listed as "MVP" projects which in this case means that they or equivalent are intended to address the aggregate RPS requirements of Midwest ISO states by 2020.

| Proposed Project Description | Location | Mileage | Expected In-Service Date | Expected Regional Approval Date |
|---|---|---|---|---|
| MVP1: 345 kV Line Brookings to Big Stone | SD | 35 | 2017 | 2011 |
| MVP3: 345 kV Line Lakefield to Mitchell County | IA/MN | 86 | 2015 | 2011 |
| MVP4: 345 kV Line Sheldon to Webster to Blackhawk to Hazelton 345 kV line | IA | 250 | 2015-2018 | 2011 |
| MVP5: 345 kV Line Dubuque to Spring Green to Cardinal and La Crosse to North Madison to Cardinal | IA/WI/MN | 260 | 2015-2020 | 2011 |
| MVP6: 345 kV Line Ellendale to Big Stone | ND | 114 | 2019 | 2011 |
| MVP7: 345 kV Line Thomas Hill to Adair to Ottumwa | IA/MO | 206 | 2014 | 2011 |
| MVP8: 345 kV Line Adair to Palmyra | MO | 64 | 2018 | 2011 |
| MVP9: 345 kV Line Palmyra to SE Quincy to Meredosia to Ipava, and Ipava to Meredosia to Pawnee | IL/MO | 158 | 2015-2018 | 2011 |
| MVP10: 345 kV Line Pawnee to Pana | IL | 22 | 2019 | 2011 |
| MVP11: 345 kV Line Pana to Mt. Zion to Kansas to Sugar Creek | IL | 117 | 2019 | 2011 |
| MVP12: 345 kV Line Reynolds to E. Winamac to Burr Oak to Hiple | IN | 97 | 2013 | 2011 |
| MVP13: 345 kV Line Beaver to Davis Besse | OH | 19 | 2013 | 2011 |
| MVP14: 345 kV Line Sidney to Rising | IL | 27 | 2017 | 2011 |
| MVP15: 765 kV Line Sullivan to Meadow Lk to Greentown | IN | 192 | 2018 | 2011 |
| MVP18: 345 kV Line Fargo to Oak Grove | IL | 102 | 2016 | 2011 |
| 345kV Line Pleasant Prairie to Zion | WI/IL | 6 | 2014 | 2011 |

In addition, the following proposed projects are included in the roll-up integration case as identified solutions to reliability issues that are expected to occur in the 10 year planning horizon. The approval of these projects or equivalent by the Midwest ISO Board of Directors is expected after 2011.

| Proposed Project Description | Location | Mileage | Expected In-Service Date | Expected Regional Approval Date |
|---|---|---|---|---|
| 345 kV Line Petersburg to Francis: Increase line rating | IN | 111 | 2013 | >2011 |
| New 345/138 kV Fulton substation and transformer | OH | 0 | 2014 | >2011 |
| 345 kV Line Guion to Whitestown: Increase line rating | IN | 11 | 2015 | >2011 |
| New 345/138 kV Tr. Sub 39 3-5 | IL | 0 | 2014 | >2011 |
| 345 kV Line Sub 39 to MEC Cordova | IL | 16 | 2014 | >2011 |
| 345 kV Line Raun to Sioux City | IA | 23 | 2016 | >2011 |
| 345 kV Line Barnhart to Branch River | WI | 36 | 2018 | >2011 |
| 345 kV Line Branch River to Forrest Jct | WI | 13 | 2018 | >2011 |

**New Brunswick System Operator**
Major transmission projects proposed within the next 10 years that impact the NBSO bulk transmission system include:

- Refurbishment of the Eel River HVDC station between New Brunswick and Québec is under review.
- Planning studies are ongoing to propose transmission solutions that will reliably supply the forecast loads in Southeastern NB and meet the current and future needs of the interconnections with PEI and Nova Scotia.
- Proposed expansions of the interconnections between New Brunswick and neighboring jurisdictions include:
  - A new 345 kV line between NB and Nova Scotia by 2015.
  - A new 138 kV cable between NB and PEI by 2013.
  - Expansion of ties between Québec and NB, as well as NB and ISO New England, in order to accommodate Transmission Service Requests by Nalcor Energy for 2015.

**New York ISO**
NYISO has included in the roll-up integration case a new 345 kV controllable AC transmission project into New York City known as M29, various upgrades to existing 345 kV circuits within New York City, and a new 230/115 kV station in western New York.

**PJM Interconnection**
A complete list of all approved RTEP upgrades, as well as a brief description of the facility, upgrade driver and current status can be found on PJM's Web site via the following URL link: http://www.pjm.com/planning/rtep-upgrades-status/construct-status.aspx

The 230 kV and above line upgrades are provided in an appendix to this report. To keep the list manageable, it excludes many high voltage projects that strictly involve breaker replacement or bus work that does not affect lines, or upgrades to transformers to lower voltages. A subset of the upgrades reported in the appendix involves major "backbone" upgrades at 500 kV and above. The backbone

projects are best tracked on the planning pages of the PJM.com website. They can be identified by the descriptions that follow:

| Project | Date Required for Reliability | Length | Status |
|---|---|---|---|
| Carson-Suffolk 500 kV | June 1, 2011 | 60 miles in VA | State Approved and Under Construction |
| TRAIL 500 kV | June 1, 2011 | 215 miles In PA, WV and VA | State Approved and Under Construction |
| Susquehanna-Roseland 500 kV | June 1, 2012 | 146 miles in PA and NJ | State Approved, Extensive Land Acquisition Engineering Design, and Procurement complete and remainder under way. |
| PATH 765 kV | June 1, 2015 | 275 miles WV, MD and VA | State Approval pending, Land Acquisition, Engineering Design, and Procurement are in progress |
| MAPP 500 kV and direct current | June 1, 2014 | 80 miles of 500 kV and 90 miles of DC in MD and DE | Approval, Land Acquisition, Engineering Design, and Procurement are in progress |
| 345 kV Line Pleasant Prairie to Zion | WI/IL | 6 | This is a MISO project proposed for 2014 that ties to PJM. The project is under joint review. This project may be proposed as a 2011 Supplemental RTEP Upgrade. Line will be "open" in the base roll up case. |
| 765 kV Line Sullivan to Meadow Lake to Greentown | IN | 192 | This is a MISO project proposed for 2018 that ties to PJM. The project is under joint review. Line will be "open" in the base roll up case. |

**PowerSouth Energy Cooperative**
PowerSouth has no major (200 kV and above) projects planned at this time.

**Progress Energy Carolinas**
PEC has included six new 230 kV transmission projects in the 2020 roll-up integration case. The first is a new 230 kV line from Richmond to Fort Bragg Woodruff Street Substation to accommodate new generation at Richmond in June 2011. A new 230 kV tie line to DEC will be completed by June 2011 between DEC's Pleasant Garden Tie and CPLE's Asheboro Substation to enhance reliability in the CPLE

area. A new 230 kV line will be constructed from Rockingham to West End Substation also by June 2011. By December 2011, a new 230 kV line from Clinton to Lee Substation will be completed. By June 2014, a new 230 kV line will be placed in service from Harris to RTP Switching Station. Finally, a new 230 kV line is planned from Greenville to Kinston by June 2017.

PEC has also included two new 230 kV substation projects in the 2020 roll-up integration case. The first is the conversion of the existing Enka 115 kV Switching Station to 230 kV by December of 2010. The second substation project is the construction of Folkstone 230 kV Substation which is a new networked 230/115 kV Switching Station scheduled for completion by June of 2013.

**Progress Energy Florida**

PEF has included four new 500 kV and six 230 kV transmission projects in the 2020 roll-up integration case. First these include two new 500 kV lines from Levy to Citrus, a new 500 kV line from Levy to Crystal River Plant, a new 500 kV line from Levy to Central Florida South, a new 230 kV line from Lake Tarpon to Kathleen, and a new 230 kV line from Crystal River Plant to Brookridge all to accommodate new generation at Levy in June 2021. Second a new 230 kV line from Loughman/Intercession City to Gifford by June 2013 to mitigate a credible double contingency and provide local area support for PEF load. Finally a new 230 kV line from Disston to Fortieth Street by June 2014 to increase reliability in PEF Suncoast load area, and a new 230 kV Line from Hines to West Lake Wales by June 2011.

**Santee Cooper**

Santee Cooper's major transmission projects for the period 2020 include continued development of a 230 kV transmission system necessary to deliver generator output to the load and maintain reliability of the transmission system. Santee Cooper has approximately $830 million of planned and proposed additions and upgrades expected to be in service through the year 2020 for all classes. There are approximately 363 miles of new transmission projected to be added to the system for all voltage classes (69 -230 kV) through 2020.

**South Carolina Electric & Gas**

The major transmission improvements to the SCE&G transmission system that are included in the 2020 roll-up integration case include:

| Project | Scheduled Completion Year |
|---|---|
| Pepperhill – Canadys 230kV | 2013 |
| Pepperhill – Church Creek 230kV | 2013 |
| VC Summer #1 – Killian 230kV | 2015 |
| VC Summer #2 – Lake Murray 230kV #2 | 2015 |
| VC Summer #2 – St George 230kV #1 | 2018 |
| VC Summer #2 – St George 230kV #2 | 2018 |
| St George – Summerville 230kV | 2018 |

**Southern Company**

The major upgrades within the Southern Balancing Authority that are included in the 2020 roll-up integration case include:

- a new 500/230 kV transformer at Autagaville substation in 2013
- the construction of a new 500/230 kV substation at East Walton in 2015

- the construction of a new 500 kV Switching Station (at Rockville) along the Scherer to Warthen 500 kV line in 2015
- the construction of a new 46.6 mi 500 kV line from Rockville to E. Walton in 2015
- the construction of a new 50 mi 500 kV line from Vogtle to Thomson in 2016
- the construction of a new 35 mi 500 kV line from South Hall to E. Walton in 2020

**Southwest Power Pool**

SPP includes reliability projects, as well as other projects deemed necessary due to either customer request or those for economic reasons. These projects typically have an NTC (Notification to construct). The SPP Transmission Plan includes a group of high priority projects noted as "Priority Projects". In April 2010 the SPP Board of Directors and Members Committee approved construction of these priority high voltage (345 kV) electric transmission projects estimated to bring benefits of at least $3.7 billion to the SPP region over 40 years. The projects will improve the regional electric grid by reducing transmission congestion, better integrating SPP's east and west regions, improving SPP member's ability to deliver power to customers, and facilitating the addition of new renewable and non-renewable generation to the electric grid.

The approved Priority Projects are:

- Double-circuit 345 kV line from Spearville, KS, to Comanche County, KS, to Medicine Lodge, KS to Wichita, KS*
- Double-circuit 345 kV line from Comanche County, KS to Woodward, OK*
- Double-circuit 345 kV line from Woodward, OK to Hitchland, TX*
- Single-circuit 345 kV line from Nebraska City, NE, to Maryville, MO, to Sibley, MO
- Single-circuit 345 kV line from Valliant, OK to Texarkana, TX
- New reactor in Tulsa County, OK

* These double-circuit 345 kV lines are being reviewed as part of the ITP20 to see if existing NTCs need to be modified with higher voltage solutions which will be presented to the SPP BOD for action in January 2011.

The Balanced Portfolio was an initiative to develop a group of economic transmission upgrades that benefit the entire SPP region, and to allocate those project costs regionally. The benefits of this group of 345 kV transmission upgrades have been demonstrated by model analysis to outweigh the costs, and the regional cost sharing creates balance across the SPP region. The Balanced Portfolio contains a diverse group of 345kV transmission projects addressing many of SPP's top flowgates:

- The 250 mile "Woodward-Tuco" line between Hale County, Texas (north of Abernathy) and Woodward, Oklahoma.
- The 215 mile "Spearville-Knoll-Axtell" line between Spearville, Kansas (east of Dodge City); Hays County, Kansas; and Axtell, Nebraska.
- The 100 mile "Seminole-Muskogee" line between Seminole County and Muskogee, Oklahoma.
- The 36 mile "Sooner-Cleveland" line between Sooner Lake in Noble County, Oklahoma and Cleveland, Oklahoma.
- The 30 mile "Iatan-Nashua" line between Iatan and Nashua, Missouri (north of Kansas City).
- The Anadarko Autotransformer in Anadarko, Oklahoma.
- The Swissvale-Stilwell Tap near Gardner, Kansas.

**Tennessee Valley Authority**
The major upgrades to the TVA transmission system that are included in the 2020 roll-up integration case include:

- By summer 2011, the Gallatin FP - Lafayette line overloads for loss of the Gallatin Primary - Portland line. The voltage at the East Gallatin 161-kV stations will drop below TVA planning criteria to 94.3% for the same outage. A new 161-kV line from Gallatin FP along with a new Angeltown 161-kV Switching Station will be built with a projected in-service date of June 2011.
- Load growth in the West Point, MS area is accelerating the need for additional 500-161-kV transformer capacity in the area. Current area forecasted load growth will exceed the capacity of the Lowndes and West Point 500/161-kV transformers. By summer 2011, Clay 500-kV Substation will add the additional 500/161-kV transformer capacity required to serve the area.
- New generation expansion at the Lagoon Creek site, will overload the existing Jackson 500/161-kV transformer for the loss of the Weakley 500/161-kV transformer bank. In addition to the Jackson bank overloading, there are five 161-kV line sections in the Jackson area that will overload if the Jackson 500/161-kV bank is lost. A project is in place to install a 2nd 500/161-kV transformer at the Jackson 500-kV Substation with a projected in-service date of 2011.
- By the summer of 2013, the 161-kV system cannot maintain adequate voltage in the Clarksville area for the loss of the Montgomery 500/161-kV transformer. Also projected load growth in the area, will overload the existing 500/161-kV transformer. A second 500/161-kV transformer will be needed at Montgomery 500-kV Sub to support the area.
- New generation capacity expansion in the Bellefonte, AL area will create the need to construct a new Bellefonte 500-kV Substation. This substation will terminate the existing Widows Creek - Madison and the Widows Creek - East Point 500-kV lines creating 4 new 500-kV line names. The projected in-service date of this project is June 2018.

## 2.7 Generation Assumptions (Additions and Retirements)

The following section describes assumptions related to modeling of new and retiring generation facilities. As with transmission facilities, a process for inclusion of new generation varies between different Planning Authorities.

A complete detailed listing of all new and upgraded generation projects included in the 2020 roll-up integration case is provided in Appendix C. Planning Authorities have agreed to the following terms to describe the status of future generation projects:

- Committed: The resource has completed the interconnection request process, or has obtained applicable transmission service.
- Proposed: The resource has been proposed and included in the planning process, but does not have applicable transmission service.

**Alcoa Power Generating**
Alcoa's Yadkin division has no generation changes planned for the future.

**Duke Energy Carolinas**
DEC generation facilities that are approved & budgeted and where construction has begun are included in the roll-up integration case. Non-DEC generation facilities that have a signed interconnection agreement are also included. DEC has included several new generation projects in the roll-up integration case. These are projects that Duke Energy is committed to building and has state approval for, or IPP's with a signed IA. The Duke units are Dan River combined cycle (620 MW), Buck combined cycle (620 MW) and Cliffside 6 fossil (825 MW). An IPP combustion turbine site has been included at Cleveland County (716 MW). All these facilities are presently under construction. Duke plans to retire all unscrubbed fossil units at Cliffside, Riverbend, Buck and Dan River by 2015, which total approximately 1300 MW. The 2020 roll-up integration case assumes the retirement of a number of small older Duke oil-fired combustion turbine facilities totaling about 250 MW by 2012.

**Electric Energy Inc.**
Electric Energy, Inc. has no generation additions or retirements in the 2020 roll-up integration case.

**Entergy Services**
Entergy generation modeled in the case includes all in-service units and any planned units that have firm transmission service scheduled from them after their completion. The resource plan assumed in the 2020 roll-up integration case is driven by the need to satisfy reserve margin obligations and to meet energy demand during system peak load conditions. Resources without long-term firm transmission service may be included in the model, but at zero output.

**Florida Power & Light**
Future projects that have undergone FPL's internal budget review process as well as those projects that are representative of the (TYSP) filing with the Florida Public Service Commission are included in the roll-up integration case. Approximately 4900 MW of additional generation (as compared with 2010) are included in the FPL 2020 case. All of these projects have gone through the FPL System Impact Study process and are part of FPL's official resource plan. FPL's TYSP filing serves as an input for the generation and load assumptions for modeling purposes. FPL is required to maintain a reserve margin of 20%.

**Georgia Transmission Company**
Generation resource assumptions are provided to GTC by its member cooperatives. Please note that in Appendix C, generation resources listed under the PA "SOCO" also include generation resources identified by GTC's member cooperatives.

**Independent Electricity System Operator**
Ontario is planning to phase out coal-fired generation by the end of 2014. Through this initiative, approximately 6500 MW of generation will be removed from service. In response to the phase out, Ontario has procured over 6000 MW of gas-fired generation with approximately 1100 MW of the procured resources are still yet to come online in the next few years. In addition, together with the proposed transmission developments, over 7000 MW of renewable generation resources, including wind, solar, biomass, and hydro, are planned to come online and connect to the Ontario grid, These resources include sources in the Feed-in-Tariff (FIT) program, Ontario's agreement with the Korean Consortium,

and other procurements by the Ontario Power Authority. These resource additions are anticipated to be online by the end of 2017, with further development still under planning assessments.

| Unit | System | Announced Retirement Date |
|---|---|---|
| Lambton G1 | Ontario | 2010/10/01 |
| Lambton G2 | Ontario | 2010/10/01 |
| Lambton G3 | Ontario | 2014 |
| Lambton G4 | Ontario | 2014 |
| Nanticoke G1 | Ontario | 2014 |
| Nanticoke G2 | Ontario | 2014 |
| Nanticoke G3 | Ontario | 2010/10/01 |
| Nanticoke G4 | Ontario | 2010/10/01 |
| Nanticoke G5 | Ontario | 2014 |
| Nanticoke G6 | Ontario | 2014 |
| Nanticoke G7 | Ontario | 2014 |
| Nanticoke G8 | Ontario | 2014 |
| Atikokan G1 | Ontario | 2012 converts to biomass |
| Thunder Bay G1 | Ontario | 2014 |
| Thunder Bay GS2 | Ontario | 2014 |
| Thunder Bay GS3 | Ontario | 2014 |

**ISO New England**

ISO-NE has included several new generation projects in the roll-up integration case. These are projects that have been approved under Section I.3.9 of the ISO New England Tariff. Projects over 100 MW include uprates to a number of hydroelectric and steam turbine plants, as well as one new wind farm, three natural gas combined cycle plants, and four different gas combustion turbine projects. ISO-NE generally does not assume generation retirements unless a generator has taken formal action to withdraw from the Forward Capacity Market by submitting either a Non-Price Retirement Bid or a De-List Bid.

**JEA**

JEA is jurisdictional in the State of Florida and subject to Florida's "Electrical Power Plant Siting Act" and "Transmission Line Siting Act". The Department of Environmental Protection administers these Acts and under the statutes of these Acts, the Governor and Cabinet sit as the Siting Board and review applications for power plant and transmission line certification that reach certain minimum levels of impact. Not all power plants and transmission line constructions require Cabinet approval. The statutes for these Acts require the Florida Public Service Commission to review and grant the "Certificate of Public Convenience and Necessity" applications.

JEA annually produces a Ten Year Site Plan (TYSP) filing to the Florida Public Service Commission, which contains the 10-year forecast of demand and the associated resources required to meet JEA's 15% planning reserve target. The TYSP serves as the official source for the generation resources provided for in the FRCC load flow model. JEA is currently constructing a generation project within its service territory, consisting of two 150 MW natural gas-fired simple cycle combustion turbines, with a commercial operation date of summer 2011. JEA also has included in the roll-up integration case a "Proposed" project to convert these units to combined-cycle operation with the addition of heat recovery steam generators. JEA has obtained from the Florida Public Service Commission a Certificate of Public Convenience and Necessity; however, a final approval for the

conversion project is still pending Florida Cabinet approval. JEA currently does not have any plans to retire any existing generators in the ten year planning horizon.

**LG&E and KU Energy**
Resource assumptions contained within the 2020 roll-up integration case for the LG&E/KU were provided by the respective LSEs (and market participants through securing Point to Point transmission service). Resources without long-term firm transmission service may be included in the model, but at zero output. "Committed" resources include designated network resources and other resources which have secured long-term firm transmission service. "Proposed" resources are those provided by LSEs to meet their forecasted load service requirements in future years, but which have not been designated as a network resource pursuant to the OATT.

LG&E/KU currently has one "Committed" resource to interconnect a 120 MW generator being built by a 3rd Party IPP at West Irvine by 2013. This unit is not dispatched in the 2020 EIPC roll-up integration case.

**MAPPCOR**
MAPP area transmission owners determine which proposed or committed generation facilities are added in a model during the model building process.

**MEAG Power**
Generation resource assumptions are provided to MEAG by its member participants. Please note that in Appendix C, generation resources listed under the PA "SOCO" also include generation resources identified by MEAG.

**Midwest ISO**
Within the Midwest ISO, future generation resources modeled come from the Midwest ISO generation interconnection process and resource forecasts based on public policy requirements. Future generators with signed interconnection agreements are included in models. Future Proposed generators associated with public policies which are law (e.g. Renewable Portfolio Standards) are included at locations and in amounts consistent with the renewable energy zones agreed to by the Midwest ISO states via discussions with the Upper Midwest Transmission Development Initiative and the Midwest Governors Association. For the year 2020 roll-up peak load case, the amount of such "Proposed" generators dispatched in the case is 389 MW. These resources are listed as Proposed in Appendix C.

There are no publically announced retirements of generating units modeled in the Midwest ISO roll-up.

**New Brunswick System Operator**
In New Brunswick, generation retirements publicly announced in 2010 to 2020 period include:

- 5 MW at Musquash (January 2010)
- 57 MW at Grand Lake (March 2010)
- 100 MW at Dalhousie (May 2011)
- 200 MW at Dalhousie (May 2012)

**New York ISO**
The NYISO has included several new generation projects in its 2020 roll-up integration case. These are projects that have passed certain milestones to be included in the NYISO planning databases utilized in its Comprehensive Reliability Planning Process. Additionally, the model will represent the New York State

Renewable Portfolio Standard of 30% by 2015, which will require approximately 4,250 MW of installed nameplate wind turbine capability. Presently, there is approximately 1,300 MW of wind turbine power installed in New York. To meet the RPS goal, the case includes approximately 3,000 MW of proposed wind projects from the NYISO Interconnection Queue.

**PJM Interconnection**

Additional information on the PJM planning process is described in section 2.5. PJM is the independent planner and operator of the transmission system and power markets. The transmission system is planned for the forecasted load growth and interconnection requests that have reached a specified degree of commitment. This process is according to PJM's tariff, agreements, and business rules approved in the regulatory and stakeholder processes. In this capacity, PJM's business is only involved with generation when they initiate a request for interconnection to the transmission system.

In addition to existing in-service generation, the 2020 roll-up integration case incorporates generation with signed Interconnection Service Agreement (ISAs), generation with signed Facility Study Agreements (FSA), and announced generation deactivations (e.g., retirement). Since State Renewable Portfolio Standards (RPS) are the responsibility of the Load Serving Entities (LSE), PJM plans for the resources of the LSE's as they enter the generation queue and fulfill their interconnection commitments.

- Mid-Atlantic PJM included 500 MW of new generation with a signed ISA and 3,500 MW of projects with a signed facility study agreement.
- Western PJM included 1,000 MW of new generation with a signed ISA and 900 MW of projects with a signed facility study agreement. In addition, Catoctin generation was not modeled.
- Southern PJM included 500 MW of new generation with a signed ISA and 650 MW of projects with a signed facility study agreement.

PJM's power flow case transmission model includes the network upgrades necessary to accommodate the interconnection and operation of new generation for which an ISA has been signed and generation with a signed FSA.

A listing of all generation and merchant transmission interconnection requests in PJM's queues can be obtained from the following links:
Generation: http://www.pjm.com/planning/generation-interconnection.aspx
Merchant Transmission: http://www.pjm.com/planning/merchant-transmission.aspx . The appendix to this report provides a convenient list of these projects at the time this report is assembled.
Announced unit retirements that have been accepted by PJM are deactivated in the roll up power flow. A list of these units and scheduled deactivation dates can be found at http://www.pjm.com/planning/generation-retirements.aspx .

**PowerSouth Energy Cooperative**

Resource assumptions contained within the 2020 roll-up integration case for PowerSouth were determined through power supply studies and our annual capacity planning process. PowerSouth has no "Committed" resources between 2010 and 2020. There is one "Proposed" resource needed to meet our forecasted load growth before 2020. Resource additions in PowerSouth's generation expansion plan are not subject to approval by state regulatory agencies, but do require approval by RUS. PowerSouth and its members are not currently impacted by any state or federal Renewable Portfolio Standards. There are no planned generation retirements between 2010 and 2020.

**Progress Energy Carolinas**
PEC has included one new PEC generation project in the roll-up integration case at Richmond County Plant. In general new generation is included that PEC is committed to building and has state approval or IPP's with a signed interconnection agreement and firm transmission. PEC has recently announced plans to retire existing coal units at its Lee, Sutton, Weatherspoon, and Cape Fear coal plants. Retired generation will be replaced with combined cycle gas plants at Lee and Sutton Plants. These retirements are not reflected in the 2020 model.

**Progress Energy Florida**
PEF has included one new PEF generation project in the roll-up integration case at a new Levy County Plant site. In general new generation connected to the PEF is included in the model if the project is committed to by PEF or PEF customer. PEF has announced no plans to retire existing units prior to 2020, however, it has been announced that PEF will retire its Crystal River Coal Units 1 and 2 after the second unit at the Levy County site completes its first fuel cycle.

**Santee Cooper**
For the 2020 roll-up integration case, the generation assumptions include both existing generation and future generation as specified in Santee Cooper's current Generation Expansion Plan. The current Generation Expansion Plan, updated yearly, has Santee Cooper as a partial ownership with SCE&G in two nuclear units budgeted and scheduled for commercial operation in 2016 and 2019. The existing generation expansion plan includes all existing generating units in Santee Cooper system and assumes that there are no retirements of any type of generating units within Santee Cooper.

**South Carolina Electric & Gas**
Resource additions included in the 2020 roll-up integration case for SCE&G include committed generation projects that are under construction. These projects have been approved by the Public Service Commission of South Carolina.

LSEs within the SCE&G planning area have announced planned retirements in specific years within the next 10 years; however, specific generating units have not been identified to date. A potential generator retirement option is modeled in the roll-up integration case where the outputs of these potential retirement units are set at zero MW.

**Southern Company**
Resource assumptions contained within the 2020 roll-up integration case for the Southern Companies were provided by the respective LSEs (and market participants through securing Point to Point transmission service). Resources without long-term firm transmission service may be included in the case, but at zero output. "Committed" resources include designated network resources and other resources which have secured long-term firm transmission service. "Proposed" resources are those provided by LSEs to meet their forecasted load service requirements in future years, but which have not been designated as a network resource pursuant to the OATT.

**Southwest Power Pool**
SPP includes generation interconnection request projects that have a FERC filed IA (Interconnection Agreement). GI projects without an IA are not added to the models until the IA is executed. Generation projects without an IA are added as needed to address generation deficiencies.

**Tennessee Valley Authority**
Resource assumptions contained within the 2020 roll-up integration case for TVA are included in TVA's official capacity expansion plan and provided by TVA's System Planning group (and market participants through securing Point to Point transmission service). "Committed" resources include designated network resources and other resources which have secured long-term firm transmission service. "Proposed" resources are those included in TVA's official capacity expansion plan to meet forecasted load service requirements in future years, but which have not been designated as a network resource pursuant to the OATT. Evident in TVA's official capacity expansion plan is TVA's commitment for cleaner energy resources, filling base load requirements with Nuclear and peak load requirements with Gas expansion.

- In order to meet customer demand, TVA will complete construction on the 540 MW Lagoon Creek 2x1 Combined Cycle plant by October 2010. This project is currently Committed and under construction.

- By June 2012, TVA will complete construction on the 878 MW John Sevier 3x1 Combined Cycle plant. This project is currently Committed and under construction.

- By June 2013, TVA will complete construction on the 1204 MW Watts Bar Nuclear Unit 2. This project is currently Committed and under construction.

- By June 2018, TVA will complete construction on the 1192 MW Bellefonte Nuclear Unit. This project is currently Proposed and in TVA's capacity expansion plan.

## 2.8 Generation Dispatch Description

This section explains the methods used by each Planning Authority to dispatch the available generation in the 2020 roll-up integration case. All PAs apply methods of dispatching their systems that are representative of actual system dispatch that is expected to occur based on economic and physical considerations. The precise base case dispatch is not critical to determining transmission expansion plans as these plans are developed based on testing the systems against a variety of system configurations including variations from the base dispatch, to ensure reliable system performance consistent with applicable system performance standards.

**Alcoa Power Generating**
Alcoa's Yadkin division load is served from the Badin generator.

**Duke Energy Carolinas**
The DEC system generation dispatch is modeled according to economic dispatch in accordance with the priorities identified in the resource projections provided by LSE's and according to executed contracts for the sale of firm energy. Large base load fossil and nuclear units are dispatched with remaining load served by a mix of hydro, combined cycle and gas turbine generation.

**Electric Energy Inc.**
Electric Energy, Inc. resources are fully dispatched in the 2020 roll-up integration case.

**Entergy Services**
To meet the area requirements firm generation is dispatched in the model, followed by non-firm network resources, generation owned by the LSEs and then non-firm energy only resources. Entergy dispatches generation representing firm energy contracts and economically dispatches firm network resources for load. Additional generation is dispatched on a pro-rata basis in the following order: non-firm network resources, LSE-owned non-firm energy-only generation, then non-firm, energy-only resources within the BA that are owned by others.

**Florida Power & Light**
FPL's generation resources are dispatched on an economic basis in order to meet FPL's forecasted load and firm contractual requirements.

**Georgia Transmission Company**
The dispatch of the generation resources contained within the 2020 roll-up integration case is based upon the dispatch merit order identified in the resource projections provided by the Load Serving Entities (including GTC's member cooperatives). In addition, generating units associated with long term firm transmission commitments to external areas are dispatched "On" at an output level consistent with the interchange values discussed in Section 2.4.

**Independent Electricity System Operator**
The IESO system generation dispatch is modeled based on economic dispatch in accordance with the demand to be served and the resource projections for the scenario under study.

**ISO New England**
In real-time operations, ISO-NE dispatches generation through a competitive wholesale market that results in the lowest priced resources being dispatched to meet system demand for electricity. However, because of uncertainties in future costs and bids from existing and new generators, the generation dispatch in the 2020 roll-up case reflects a typical generation dispatch under summer peak conditions. Units that are typically among the least expensive (for example, nuclear, coal, and natural gas combined cycle) are dispatched, and units that typically have higher costs and bids (for example, oil combustion turbines and fast-start units) are left offline. The output of wind and hydroelectric generation will be modeled consistent with historical generation data for these units at summer peak load conditions.

**JEA**
All of JEA generators in the roll-up integration case are dispatched first on minimum contractual requirements and then on an economic basis.

**LG&E and KU Energy**
The LG&E/KU system generation dispatch is modeled according to economic dispatch in accordance with the priorities identified in the resource projections provided by each LSE.

**MAPPCOR**
MAPP Transmission owning members do their own generation dispatch and provide the value to our regional model building entity (MRO) and to the MAPP Transmission Reliability Assessment Working Group (TRAWG).

**MEAG Power**
The dispatch of the generation resources contained within the 2020 roll-up integration case to serve MEAG participant load is based upon the dispatch merit order identified in the resource projections

**Midwest ISO**
Midwest ISO members' generation is dispatched on a market-wide basis using security constrained economic dispatch (SCED) methodology. Renewable generation is set to desired level before applying the security constrained economic dispatch and renewable resources are not adjusted in the SCED process. Wind plants are dispatched at 5% of nameplate during summer peak condition.

**New Brunswick System Operator**
Generation in the New Brunswick Electricity Market is dispatched using security constrained economic dispatch (SCED) methodology. Wind resources are dispatched according to hour-ahead forecasts.

**New York ISO**
The NYCA system generation dispatch includes only the impact of firm external transactions. Generation dispatch is consistent with typical dispatch observed during peak load.

**PJM Interconnection**
Internal to PJM, the roll up model dispatch is based on a representative market based dispatch prepared by the planning department. Similar to the load representation in this model, the dispatch represents only a single snapshot of a representative dispatch as a starting point reference model. The annual series of PJM planning analyses examines thousands of alternative dispatch scenarios. Because of this and because PJM operates and is planned as a single system, these snapshot PJM dispatch values change moment to moment based on a single area market. The starting representative market dispatch therefore is not a focus for PJM planning analyses.

**PowerSouth Energy Cooperative**
The generation dispatch of the resources contained within the 2020 roll-up integration case is economically dispatched according to current fuel cost assumptions and availability.

**Progress Energy Carolinas**
The PEC system generation dispatch is modeled according to economic dispatch in agreement with the priorities identified in the resource projections provided by LSE's and according to executed contracts for the sale of firm energy.

**Progress Energy Florida**
The PEF system generation dispatch is modeled according to economic dispatch in agreement with the priorities identified in the resource projections provided by LSE's and according to executed contracts for the sale of firm energy.

**Santee Cooper**
The Santee Cooper generation dispatch used in the 2020 roll-up integration case is a strictly economic dispatch model. Nuclear units and large coal base load units are all dispatched first and then all other generating units are economically dispatched according to cost. There are no units dispatched out of merit to alleviate system loading constraints.

**South Carolina Electric & Gas**
The dispatch of generation resources within the SCE&G planning area is based on the economic dispatch merit order of the generating units and is set to meet the requirements of LSEs and executed contracts for the sale of firm energy with firm transmission service.

**Southern Company**
The generation dispatch of the resources contained within the 2020 roll-up integration case is based upon the dispatch merit order identified in the resource projections provided by the Load Serving Entities.

In addition, long term firm transmission commitments to external areas are dispatched "On" at an output level consistent with the interchange values discussed in Section 2.4.

**Southwest Power Pool**
Each SPP member dispatches its generation in the model to cover its own projected load obligations including any approved long term firm service transactions.

**Tennessee Valley Authority**
Market participants within TVA's Balancing Authority are dispatched at the level of their confirmed long-term firm transmission service. Production cost dictates the order in which TVA's generation fleet is dispatched in the 2020 roll-up integration case. TVA does not apply a security constrained dispatch to alleviate system constraints. The order of dispatch from most economic to least economic by generator technology is typically:

- Hydro
- Nuclear
- Fossil
- Pumped storage
- Combined Cycle Gas
- Combustion Turbine Gas

In addition, long term firm transmission commitments to external areas are dispatched "On" at an output level consistent with the interchange values discussed in Section 2.4.

# Section 3 Interregional Transmission (Gap) Analysis

## 3.1 Introduction

Power flow analysis is often focused on forecasted summer peak conditions which represent the lowest thermal ratings of facilities and typically (but not always) their highest loadings. To perform power flow analysis on an interconnection-wide basis, in addition to the modeling developed by each Planning Authority, an underlying exchange of energy or Interchange among Balancing Areas must be established. It is common for Transmission Providers to have long-term firm transmission service commitments with market participants involving deliveries to other Balancing Areas, but for which the market participants have not made "matching" transmission service commitments with the associated Transmission Providers in the receiving Balancing Areas. Because market participants can and do purchase long-term firm transmission service on a so-called "partial-path" basis, determining the energy exchange or Interchange among Balancing Areas requires coordination.

The Interregional Transmission Analysis performed by the EIPC for the 2020 planning year is a power flow analysis based upon the 2020 roll-up model, which represents power system facilities and loads for the summer peak conditions forecast for 2020, as developed by each Planning Authority during their then-current planning cycle. The Interchange utilized for this analysis was developed though a coordinated effort of the EIPC Planning Authorities and is based upon a subset of transmission service commitments representing full path transactions from source to sink.

A detailed description of the analysis is provided in Section V of the "Steady State Modeling Load-Flow Working Group Procedure Manual". As described in Section V.E., each Planning Authority performed analysis within its boundaries of responsibility, consistent with NERC, regional (including applicable transmission owner criteria and RTO criteria) and local transmission planning criteria as applicable. In addition to the individual analysis performed by each Planning Authority, contingency analysis was performed in a collective manner as described in Sections V.C. and V.D.

The objective of this analysis is to identify potential power flow interactions from an interconnection-wide perspective that may result from the effects of plans of one Planning Authority on another. Because this particular set of power flows and energy exchange (Interchange) may differ from those assessed during local and regional planning activities, it is possible that additional constraints may be identified, particularly where interchange or generation dispatch patterns in other regions may differ from local commitments and assessments. To the extent additional constraints or "Gaps" are identified during the interregional analysis, these constraints and the accompanying power flow conditions will be referred to the respective regional planning processes of the PAs.

This task is a screening analysis and its results (potential gaps) will be referred to the regional planning processes of the Planning Authorities for detailed assessments. Detailed analysis may or may not indicate a need for system upgrades in future planning cycles. Items identified in the "gap" analysis should not be construed as necessitating modification of the baseline topology of the 2020 roll-up modeling to be applied in the scenario analyses of the SSC.

## 3.2 Interregional Analysis Criteria

### 3.2.1 Thermal and Voltage Criteria

System performance was assessed in a manner consistent with the NERC TPL reliability standards as described in Section V.D. of the "Steady State Modeling Load-Flow Working Group Procedure Manual". Bulk Electric System elements above 100 kV were monitored. Thermal and voltage criteria applicable to each facility were applied.

### 3.2.2 Contingency Selection

As described in the "Steady State Modeling Load-Flow Working Group Procedure Manual", Section V.C., contingencies representing outages of all transmission elements 230 kV and above and all transformers with a low-side voltage rating of 110 kV or above were performed. Planning Authorities were also given discretion to simulate contingencies of transmission elements below 230 kV depending upon the composition and characteristics of each PA's bulk electric system. (e.g. TVA simulated all 161 kV transmission element contingencies due to their extensive 161 kV network). Contingencies that were considered were provided by each individual Planning Authority.

## 3.3 Interregional Analysis Results

In this section, each Planning Authority has provided a list of the constraining facilities that were identified as a result of the collective or individual Planning Authority analysis. It is assumed that the constraints identified are the result of neighboring system interactions that have yet to be assessed in detail. In some cases, a potential reliability issue may be difficult to pinpoint as to its cause with respect to system interactions. Issues identified will be utilized to inform the regional planning processes of the Planning Authorities in future planning cycles (See Section 4, Enhancements).

### 3.3.1 Summary of Thermal Results

**Alcoa Power Generating**
Nothing to report.

**Duke Energy Carolinas**
Nothing to report.

**Electric Energy Inc.**
No information was provided by this Planning Authority.

**Entergy Services**
Nothing to report.

**Florida Power & Light**
Nothing to report.

**Georgia Transmission Company**
Nothing to report.

**Independent Electricity System Operator**
Nothing to report.

**ISO New England**
Nothing to report.

**JEA**
Nothing to report.

**LG&E and KU Energy**
Nothing to report.

**MAPPCOR**
Nothing to report.

**MEAG Power**
Nothing to report.

**Midwest ISO**
A thermal analysis of the Midwest ISO system in the 2020 Roll-Up case was performed. About a dozen thermal facility issues were identified which meet the reporting requirements of Section 3.1. If a branch was overloaded for multiple contingencies, the highest overload was listed. Most overloads are close to 100% of rating indicated. There were other issues identified, however, a majority of the events have previously identified mitigations plans which were not modeled in 2020 Roll-Up case. Many of the mitigation plans for multiple contingencies are operator actions. The items listed below are either planning coordination issues with neighboring Planning Authorities or internal Midwest ISO issues which are new to the 2020 Summer Peak Roll-Up model.

| Facility Issue | Contingency |
|---|---|
| Lyons to Allen Junction 138 kV ckt 1 loads to 101.1% of 144 MVA rating | Base Case Overload |
| Benton Harbor 345/138 kV Transformer (AEP) ckt 2 loads to 102.6% of 540 MVA | 345kV Twin Branch to Argenta Line Outage |
| Livingston to Livingston Peaker 138 kV ckt 1 loads to 101.6% of 136 MVA | 345kV Gallagher Junction to Livingston Line Outage |
| Adams to Spokane 120 kV ckt 1 loads to 104.5% of 139 MVA | 230kV Jewel to Spokane Line Outage |
| Kincaid (CE) to Pawnee West 345 kV ckt 1 loads to 109.9% of 717 MVA | 345kV Pana North to Pawnee Line Outage |
| Troy(AECI) to Dardenne 161 kV ckt 1 to 100.9% of 218 MVA | 345kV Montgomery to O' Fallon Double Circuit Tower Outage |
| Huster to McClay 138 kV ckt 1 loads to 102.4% of 255 MVA | 138kV Fairfield Bus Outage |
| Joachim to Bailey Tap 138 kV ckt 1 loads to 129.5% of 287 MVA | 345kV Gray Summit to Labadie Line Outage |

| Facility Issue | Contingency |
|---|---|
| Turkey Hill 345/138 kV Transformer ckt 1 loads to 113.5% of 672 MVA | 345-138kV Baldwin Breaker and Transformer Outage |

**New Brunswick System Operator**
No information was provided by this Planning Authority.

**New York ISO**
Nothing to report.

**PJM Interconnection**

| Facility Issue | Contingency |
|---|---|
| Lockport 'Red' – Lisle 'Red' 345 kV line loaded to 109.12% of 1528 MVA | Loss of Lockport 'Blue' – Lisle 'Blue' 345 kV line |
| Goodings Grove 81 – Goodings Grove 'Red' 138 kV loaded to 104.29% of 480 MVA | Loss of Goodings Grove 'Red 2' – Goodings Grove 'Red 1' 345 kV |
| Goodings Grove 'Red' – Goodings Grove 81 345/138 kV line loaded to 104.29% of 480 MVA | Loss of Goodings Grove 'Red 2' – Goodings Grove 'Red 1' 345 kV |
| McCook Midpoint 84 – McCook 'Blue' 138 kV line loaded to 100.73% of 465 MVA | Loss of Lockport 'Blue' – Lisle 'Blue' 345 kV line |
| McCook 'Blue' – McCook Midpoint 84 345/138 kV line loaded to 100.35% of 465 MVA | Loss of Lockport 'Blue' – Lisle 'Blue' 345 kV line |
| Benton Harbor 345/138 kV line loaded to 123.86% of 540 MVA | Loss of Benton Harbor – Cook 345 kV line |
| Benton Harbor – Crystal 138 kV line loaded to 102.87% of 167 MVA | Loss of multiple 138 kV lines |
| Tristate – Darrah 138 kV line loaded to 102.7% of 245 MVA | Loss of Baker 765/345 kV line |
| Peach Bottom – Cooper 230 kV line loaded to 172.02% of 485 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Cooper – Graceton 230 kV line loaded to 169.29% of 485 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Glasgow – Cecil 138 kV line loaded to 160.16% of 234 MVA | Loss of Chichester '1' – Chichester '2' 230 kV line |
| Safe Harbor – Graceton 230 kV loaded to 143.5% of 485 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Otter Creek – Conastone 230 kV loaded to 143.36% of 531 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Peachbottom – Conastone 500 kV loaded to 136.25% of 2338 MVA | Base Case |
| Nottingham – Nottingham Reactor 230 kV line loaded to 133.12% of 627 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Nottingham Reactor – Peachbottom 230 kV line loaded to 133.06% of 627 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Brunner Island – Yorkana 230 kV line loaded to | Loss of Conastone – Peach Bottom 500 kV line |

| | |
|---|---|
| 128.82% of 617 MVA | |
| Steele – Oil City 138 kV line loaded to 124.63% of 159 MVA | Loss of Keeney – Steele 230 kV line |
| Three Mile Island 500/230 kV line loaded to 120.59% of 1072 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Linwood – Chichester 230 kV line loaded to 119.67% of 983 MVA | Loss of Chichester – Linwood 230 kV line and Phillips Island units |
| Oil City – Church 138 kV line loaded to 117.16% of 159 MVA | Loss of Keeney – Steele 230 kV line |
| Croydon – Burlington 230 kV line loaded to 108.36% of 514 MVA | Base Case |
| Delco Tap – Mickelton 230 kV line loaded to 107.72% of 725 MVA | Loss of Chichester '1' – Chichester '2' 230 kV line |
| Tunnel – Parrish 230 kV line loaded to 104.68% of 905 MVA | Loss of Concorde – Lenape 230 kV, Concorde 230/35 kV and Lenape 230/35 kV lines |
| Manor – Safe Harbor 230 kV line loaded to 104.27% of 579 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Essex – Hudson 230 kV line loaded to 102.96% of 815 MVA | Loss of Athenia – Cook Road 230 kV, Cook Road – Kingland 230 kV and Kingland – New Jersey Transit Meadows 230 kV lines |
| Yorkana – Otter Creek 230 kV line loaded to 102.19% of 793 MVA | Loss of Conastone – Peach Bottom 500 kV line |
| Edge Moor – Claymont 230 kV line loaded to 102.18% of 805 MVA | Loss of Linwood – Edge Moor 230 kV line |
| Emilie – Neshaminy 138 kV line loaded to 101.51% of 550 MVA | Base Case |
| Edge Moor – Linwood 230 kV line loaded to 101.4% of 805 MVA | Loss of Claymont – Edge Moor 230 kV line |
| Lewistown – Reeds Gap Tap 115 kV line loaded to 100.61% of 175 MVA | Base Case |
| Grays Ferry – Tunnel 230 kV line loaded to 100.09% of 983 MVA | Loss of Concorde – Lenape 230 kV, Concorde 230/35 kV and Lenape 230/35 kV lines |

**PowerSouth Energy Cooperative**
Nothing to report.

**Progress Energy Carolinas**
Nothing to report.

**Progress Energy Florida**
Nothing to report.

**Santee Cooper**
Nothing to report.

**South Carolina Electric & Gas**
Nothing to report.

**Southern Company**
Nothing to report.

**Southwest Power Pool**
Nothing to report.

**Tennessee Valley Authority**
Nothing to report.

### 3.3.2 Summary of Voltage Results

**Alcoa Power Generating**
Nothing to report.

**Duke Energy Carolinas**
Nothing to report.

**Electric Energy Inc.**
No information was provided by this Planning Authority.

**Entergy Services**
Nothing to report.

**Florida Power & Light**
Nothing to report.

**Georgia Transmission Company**
Nothing to report.

**Independent Electricity System Operator**
Nothing to report.

**ISO New England**
Nothing to report.

**JEA**
Nothing to report.

**LG&E and KU Energy**
Nothing to report.

**MAPPCOR**
Nothing to report.

**MEAG Power**
Nothing to report.

**Midwest ISO**
Nothing to report.

**New Brunswick System Operator**
No information was provided by this Planning Authority.

**New York ISO**
Nothing to report.

**PJM Interconnection**

| Facility Issue | Contingency |
|---|---|
| 138 kV bus at Fayette low voltage of 91.11% of nominal | Loss of Allen Junction 345/138 kV, Allen Junction 'J' Bus – Allen Junction 138 kV and Allen Junction 'K' Bus – Allen Junction 138 kV lines |
| 138 kV bus at Fayette low voltage of 91.95% of nominal | Loss of Allen Junction – Lulu Site 345 kV, Lulu Site – Milan 345 kV and Lulu Site – Monroe Power Plant (Units 3 and 4) 345 kV lines |
| 138 kV bus at Fayette low voltage of 91.96% of nominal | Loss of Allen Junction – Lulu Site 345 kV |
| 138 kV bus at Wattsville low voltage of 94.14% of nominal | Loss of Piney Grove 230 kV bus |
| 138 kV bus at Oak Hill low voltage of 94.0% of nominal | Loss of Piney Grove 230 kV bus |
| 138 kV bus at New Church low voltage of 94.05% of nominal | Loss of Piney Grove 230 kV bus |
| 138 kV bus at Pocomoke low voltage of 94.07% of nominal | Loss of Piney Grove 230 kV bus |

**PowerSouth Energy Cooperative**
Nothing to report.

**Progress Energy Carolinas**
Nothing to report.

**Progress Energy Florida**
Nothing to report.

**Santee Cooper**
Nothing to report.

**South Carolina Electric & Gas**
Nothing to report.

**Southern Company**
Nothing to report.

**Southwest Power Pool**
Nothing to report.

**Tennessee Valley Authority**
Nothing to report.

# Section 4 Enhancements

## 4.1 Introduction

After Planning Authorities performed analysis on the 2020 roll-up to determine potential "gaps", conceptual upgrades were identified such that the respective regional planning processes could be informed for future planning cycles. This section lists the issues identified by each PA in Section 3, together with high-level conceptual upgrades and the entities with which the PA will be coordinating on solutions in future planning cycles.

## 4.2 Issues List, Conceptual Upgrades, and Coordinating Entities

| PA | Facility Issue | Contingency | Conceptual Upgrades | Coordinating Entities |
|---|---|---|---|---|
| MISO | Lyons to Allen Junction 138 kV ckt 1 to 101.1% | Base Case Overload | Upgrade facility capacity | n/a |
| MISO | Benton Harbor 345/138 kV to Transformer (AEP) ckt 2 to 102.6% | 345kV Twin Branch to Argenta Line Outage | Upgrade facility capacity | PJM |
| MISO | Livingston to Livingston Peaker 138 kV ckt 1 to 101.6% | 345kV Gallagher Junction to Livingston Line Outage | Upgrade facility capacity | n/a |
| MISO | Adams to Spokane 120 kV ckt 1 to 104.5% | 230kV Jewel to Spokane Line Outage | Upgrade facility capacity | n/a |
| MISO | Kincaid (CE) to Pawnee West 345 kV ckt 1 to 109.9% | 345kV Pana North to Pawnee Line Outage | Upgrade facility capacity | PJM |
| MISO | Troy (AECI) to Dardenne 161 kV ckt 1 to 100.9% | 345kV Montgomery to O' Fallon Double Cirucuit Tower Outage | Upgrade facility capacity | SPP |
| MISO | Huster to McClay 138 kV ckt 1 to 102.4% | 138kV Fairfield Bus Outage | Upgrade facility capacity | n/a |
| MISO | Joachim to Bailey Tap 138 kV ckt 1 to 129.5% | 345kV Gray Summit to Labadie Line Outage | Upgrade facility capacity | n/a |
| MISO | Turkey Hill 345/138 kV to Transformer ckt 1 to 113.5% | 345-138kV Baldwin Breaker and Transformer Outage | Upgrade facility capacity | n/a |

**PJM Interconnection**
PJM assessment of the issues listed in the gap analysis attributes their cause primarily to increased load levels compared to the most recent RTEP analysis utilizing these same testing procedures. Since all of these issues will be addressed to the extent they materialize in the course of RTEP analysis, they are not expected to impact interregional reliability and do not represent "gaps" in the interregional plans.

For the thermal analysis, a generator deliverability study was conducted on the EIPC roll up case to determine the ability of an electrical area to export capacity resources to the remainder of the PJM system. It ensures that capacity resources will be able to deliver to the PJM system to meet peak load demand under single and certain multiple contingency conditions. An N-1 study was conducted for voltage analysis of the system. The PJM system in the EIPC roll up case is a representation of the RTEP baseline system that is stressed by load and generation additions necessary to reflect the 2020 reference year with a 2015 topology. This causes the PJM system to become sensitive to export from and import into PJM under the RTEP analysis conditions because of a stressed baseline network.

The generator deliverability analysis typically concludes local drivers for issues identified, and in this particular scenario the thermal issues are a result of load growth on a stressed system and not because of interregional drivers. The voltage issues are also driven by load growth and a stressed system. Such thermal and voltage issues would be identified in the RTEP cycle of analysis by the Transmission Planning Department and will be addressed during the appropriate RTEP cycle.

## 4.3 Map of Future Transmission Projects (Projects Near PA Boundaries)

One of the tools utilized to facilitate inter-area coordination was a map of all proposed major transmission projects in the Eastern Interconnection (generally facilities greater than 230 kV) that were near the boundaries of each PA. This map was built on a base map of existing transmission above 200 kV; the Ventyx Velocity Suite was then used, with input from each PA, to add projects to the map. This enabled each PA to examine projects proposed by its neighbors, and quickly determine which projects might affect their own system. This map of proposed transmission can be found in Appendix A.

In addition to assisting with the assessment of plans from neighboring Planning Authorities, this map of future transmission projects also served as a tool for potential project optimization. Although no project optimization was currently identified, Planning Authorities may utilize this tool in future cycles to further monitor current transmission plans and potentially explore joint projects that may mutually benefit multiple regions/areas.

# Section 5 Linear Transfer Analysis

## 5.1 Introduction

There is growing interest in how much power can be reliably moved between regions. Because of the many interconnected paths and the need to remain reliable under contingencies, the capability of the power system to transfer power from one area to another is not a fixed value such as the capacity of a pipe, but rather a range of values based upon the usage of parallel paths. One tool available that can assist in assessing transfer capability between areas is linear transfer power flow analysis. As utilized by the EIPC Planning Authorities, the intent of this analysis is not to identify constraints such that projects could be identified and transfer capability increased, but rather to illustrate transfer capabilities of the transmission grid as currently planned (based on the 2020 roll-up) under a number of transfer patterns. The linear analysis performed only involves thermal analysis, which is used to evaluate the capability of the transmission facilities to withstand the thermal impact created by the increased electrical current flowing through the facilities. The thermal analysis did not examine system voltage, reactive supply, or stability issues. If conditions other than thermal limits dictate the Total Transfer Capability ("TTC"), these conditions are noted as such in Section 5.4 "Linear Transfer Analysis Results".

## 5.2 Linear Transfer Analysis Inputs

Linear transfer power flow analysis input files (monitored elements, subsystems, contingency files) were supplied by each PA. Transfer subsystems were defined for exports and imports (see Section IV.B.3 of the "Steady State Modeling Load-Flow Working Group Procedure Manual") at a transfer test level of 5,000 MW for each transfer, with transfer amounts allocated amongst the importing areas on a load ratio share. The analysis was performed on a non-simultaneous basis meaning that each transfer was assessed one at a time. However, because the transfers grouped multiple areas together as the source and as the sink, the analysis reflects simultaneous flows for the particular areas included in the transfer (see Table 1 and Table 2).

All facilities greater than 100 kV in the base case model were monitored. Generally, single contingency events for all facilities 161 kV and above in the base case model, including generators as appropriate, were assessed. Known, approved, and applicable operating procedures were included in the contingency files.

## 5.3 Linear Transfer Analysis Process

The linear analysis was performed using PTI's PSS/MUST software. As previously mentioned, this is thermal only analysis and does not examine system voltage, reactive supply, or stability issues.

Only those facilities with appreciable flows related to the transfer (Transfer Distribution Factor ("TDF") of 3.0% or greater) were reported as limits. The TDF value indicates the percentage of the transfer being studied that actually is flowing on the identified transmission facility under the specific contingency condition. The 3.0% TDF cutoff for reporting is the value traditionally used in transmission planning analysis to indicate that the transfer has a significant impact on the facility. A TDF less than 3% indicates that a facility, if reported, is already heavily loaded without the transfer in place.

If no constraint was identified up to the transfer test level of 5000 MW, "no limit" was reported and further transfer capability was not evaluated. When the incremental transfer capabilities (expressed in MW) were equal to or exceeded 1,000 MW, they were rounded down to the nearest 100 MW. When they were less than 1,000 MW, they were rounded down to the nearest 50 MW.

## 5.4 Linear Transfer Analysis Results

As previously mentioned, the specific linear power transfers performed and the details associated are identified in Section IV.B.3 of the "Steady State Modeling Load-Flow Working Group Procedure Manual". An overview of the transfers performed is also listed below. Table 1 describes the PA's that were grouped together for transfers as an area while Table 2 describes the combinations of areas [exporting (source) or importing (sink)] for which transfers were performed. For example, Group A includes FPL, JEA, and Progress Energy Florida in associated transfers performed. Note that participation in an area is only based upon PAs that are parties to the EIPC.

**Table 1: Groupings of Planning Areas for Transfers**

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| FPL | MAPPCOR | New York ISO | PJM | Duke Energy Carolinas | SPP |
| JEA | MISO | ISO New England | | Entergy | |
| PEF | ATC | Ontario IESO | | LG&E/KU | |
| | ITC | NBSO | | GTC | |
| | | | | Power South | |
| | | | | PEC | |
| | | | | SCEG | |
| | | | | SC | |
| | | | | Southern Company | |
| | | | | MEAG | |
| | | | | Alcoa Power Generating | |
| | | | | TVA | |
| | | | | Electric Energy, Inc. | |

**Table 2: Transfers Performed**

| | Sink | | | | | |
|---|---|---|---|---|---|---|
| **Source** | **A** | **B** | **C** | **D** | **E** | **F** |
| **A** | | | | | Y | |
| **B** | | | Y | Y | Y | Y |
| **C** | | Y | | Y | | |
| **D** | | Y | Y | | Y | |
| **E** | Y | Y | | Y | | Y |
| **F** | | Y | | | Y | |

Table 3 summarizes the results of the results of the linear transfer analysis. For each transfer, only the information for the lowest FCITC (First Contingency Incremental Transfer Capability) is listed, along with branch information for the limiting element and associated contingency. The FCITC provides the amount of transfer capability incremental to the base case interchange between the given subsystems. More detailed results for each subsystem's linear transfer analysis can be found in Appendix D.

**Table 3: Linear Transfer Analysis Results Summary**

| Source | Sink | FCITC (MW) | Limiting Element | Lim. PA | Contingency / Outaged Facility | Con. PA |
|---|---|---|---|---|---|---|
| A | E | 650 | 403551 Central Florida 500kV<br>403562 Citrus 500kV | PEF | 403559 Levy Plant 500kV<br>403551Cent. FL South 500kV | PEF |
| B | C | 2800 | 160064 LAMBTON_T7T8 220kV<br>160069 LAMBTON_P2K2 220kV | IESO | 264656 19STCPP 345kV<br>264830 19STCPP 220kV | ITC |
| B | D | 4400 | 160064 LAMBTON_T278 220kV<br>160069 LAMBTON_P2K2 220kV | IESO | 160065 LAMBTON_L51D 220kV<br>160059 LAMBTON_P1K1 220kV | IESO |
| B | E | 5000 | 242620 Danville 138kV<br>242631 East Danville 138kV | AEP | 242514 Jacksons Ferry 500kV<br>242520 Jacksons Ferry 500kV | AEP |
| B | F | No limit | N/A<br>N/A | N/A | N/A | N/A |
| C | B | 700 | 270864 QUAD3-11 345kV<br>631141 ROCK CK3 345kV | PJM / MISO | 636400 HILLS 3 345kV<br>636420 TIFFIN 3 345kV | MISO |
| C | D | 2100 | 130807 Westover 115kV<br>200680 Laurel Lake 115kV | NYISO / PJM | 130763 Hillside 230kV<br>200675 East Towanda 230 kV | NYISO / PJM |
| D | B | 650 | 270864 QUAD 3-11 345kV<br>631141 ROCK CK3 345kV | PJM / MISO | 636400 HILLS 3 345kV<br>636420 TIFFIN 3 345kV | MISO |
| D | C | 2900 | 200678 LENOX 115kV<br>200679 TIFFANY 115kV | PJM | C:Relay:ETHS E. Towanda-Hillside x-trip 956 | NY / PJM |
| D | E | 600 | 200004 Conastone 500kV<br>200013 Peach Bottom 500kV | PJM | 200004 Conastone 500kV<br>200026 Hunterstown 500kV | PJM |
| E | A | 1200 | | | Loss of Turkey Pt. #6 generator | |
| E | B | 900 | 270864 QUAD3-11 345kV<br>631141 ROCK CK3 345kV | PJM / MISO | 636400 HILLS 3 345kV<br>636420 TIFFIN 3 345kV | MISO |
| E | D | 2200 | 314906 Clover 500 kV<br>314686 Clover 230 kV | PJM | 304998 DBGen 500 kV<br>314902 Carson 500 kV | PJM |
| E | F | 1900 | 505508 DARDANE5 161kV<br>505514 CLARKSV5 161kV | SPP | 337909 8ANO 50 500kV<br>515305 FTSMITH8 500kV | EES / SPP |
| F | B | 3200 | 360065 3WID CRK FP 500kV<br>360081 8SEQUOYAH NP 500kV | TVA | 360050 8MAURY TN 500kV<br>360052 8BR FERRY NP 500kV | TVA |
| F | E | 3800 | 338875 Patmos West SS 115kV<br>503912 Fulton 115kV | EES / AEPW | 337376 Sarepta 345kV<br>508809 Longwood 345kV | EES / AEPW |

Further details and explanation for several reported limits are provided below:

**Transfer B to C**
The normal criteria thermal transfer analysis was performed with all lines in - service which identified certain 115 kV lines as limitations for the B-C transfer. The 115kV interconnections between PJM and New York (Warren - Falconer, North Waverly - East Sayre) may be opened in accordance with NYISO and PJM Operating Procedures provided this does not cause unacceptable impact on local reliability in either system. Over - current protection is installed on the Warren - Falconer and the North Waverly - East Sayre 115kV circuits; either of these circuits would trip by relay action for an actual overload condition. Therefore, at an incremental transfer of 2817 MW, the limiting element is the Lambton PAR in Ontario for loss of a 345/220 kV transformer in Michigan.

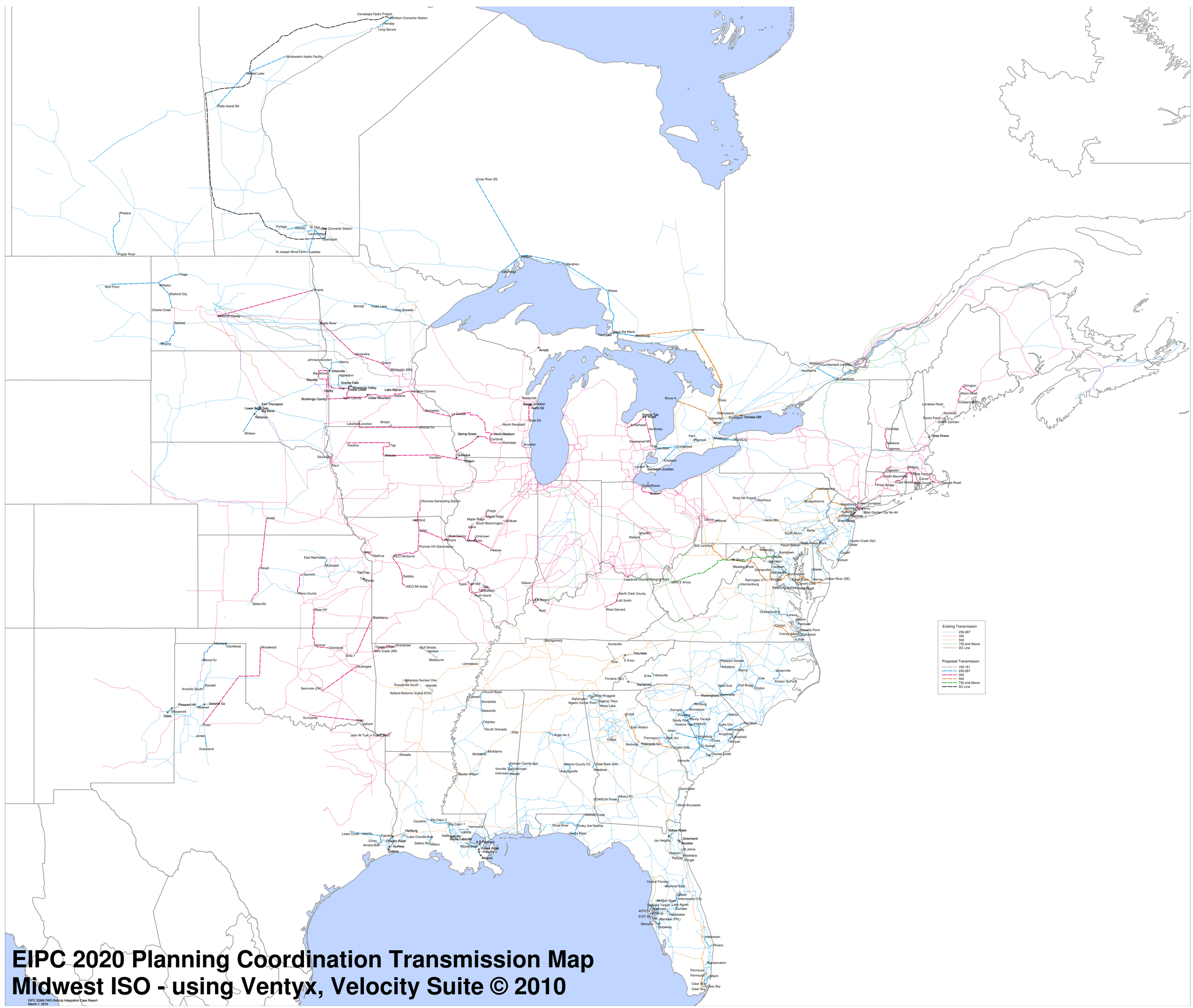
**Transfer C to D**
The normal criteria thermal transfer analysis was performed with all lines in - service which identified certain 115 kV lines as limitations for the D-C transfer. The 115kV interconnections between PJM and New York (Warren - Falconer, North Waverly - East Sayre) may be opened in accordance with NYISO and PJM Operating Procedures provided this does not cause unacceptable impact on local reliability in either system. Over - current protection is installed on the Warren - Falconer and the North Waverly - East Sayre 115kV circuits; either of these circuits would trip by relay action for an actual overload condition. The next limiting element is the Sithe JV42H – Sithe VT3RS 220 kV line in IESO, which is not a valid limit. This element shows up as a limiting element due to a split bus configuration in the base case and IESO has updated operational procedures to operate this bus solid. Therefore, at an incremental transfer of 2100 MW, the limiting element is the Westover – Laurel Lake 115 kV line between New York and PJM.

**Transfer D to C**
The normal criteria thermal transfer analysis was performed with all lines in - service which identified certain 115 kV lines as limitations for the D-C transfer. The 115kV interconnections between PJM and New York (Warren - Falconer, North Waverly - East Sayre) may be opened in accordance with NYISO and PJM Operating Procedures provided this does not cause unacceptable impact on local reliability in either system. Over - current protection is installed on the Warren - Falconer and the North Waverly - East Sayre 115kV circuits; either of these circuits would trip by relay action for an actual overload condition. Therefore, at an incremental transfer of 2902 MW, the limiting element is the Lenox - Tiffany 115 kV line in PJM for operation of an over-current relay which trips the East Towanda - Hillside 230 kV and East Sayre – North Waverly 115 kV tie-lines between New York and PJM.

**Transfer E to D**
The Woodleaf – Pleasant Garden 500 kV line was identified as a limiting element for the E to D transfer. Duke has a simple ancillary equipment upgrade to raise the rating of this line to 2219 MVA and the incremental transfer value to greater than 8,000 MW. Duke will perform this upgrade at the appropriate time in the future, but would not allow the line to be a limiting element in the transfer capability between the systems. Therefore, at an incremental transfer of 2200 MW, the limiting element is the Clover 500/230 kV transformer in PJM with the loss of th DB Gen – Carson 500 kV line, which represents the outage of the Wake – Carson 500 kV line.

# Appendix A: Future Project Map

# EIPC 2020 Planning Coordination Transmission Map
# Midwest ISO - using Ventyx, Velocity Suite © 2010



# Appendix B: New/Upgraded Transmission Projects

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Duke Carolinas | NC | 306151 | 6PISGAH 230.0 | 306159 | 6SHILOH 230.0 | 1 | 230 | 22 | 2013 | State/Budget Approval | Reliability | Conductor upgrade - under construction |
| Duke Carolinas | NC | 306151 | 6PISGAH 230.0 | 306159 | 6SHILOH 230.0 | 2 | 230 | 22 | 2013 | State/Budget Approval | Reliability | Conductor upgrade - under construction |
| Duke Carolinas | NC | 306152 | 6PL GRDN 230.0 | 304332 | 6ASHEB 230.0 | 1 | 230 | 20 | 2011 | State/Budget Approval | Reliability | New tie line to CPLE - under construction |
| Duke Carolinas | NC | 306461 | CLFSDTAP 500.0 | | | | 500 | N/A | 2011 | State/Budget Approval | Reliability | New station for Cliffside 6 generator - under construction |
| Entergy | TX | 334442 | Gulfway 230kV | 334434 | Sabine 230kV | 1 | 230 | 5.5 | 2010 | State/Budget Approval | Reliability | Construct new 230 kV line |
| Entergy | LA | 335536 | Addis 230kV | 303000 | Cajun 230kV | 1 | 230 | 0.1 | 2010 | State/Budget Approval | Reliability | Upgrade 230 kV line |
| Entergy | AR | 337905 | East Russelville 161kV | 337904 | South Russelville 161kV | 1 | 161 | 4.1 | 2010 | State/Budget Approval | Reliability | Upgrade 161 kV line |
| Entergy | AR | 337912 | Arkansas Nuclear One 161kV | 337906 | North Russelville 161kV | 1 | 161 | 8.79 | 2010 | State/Budget Approval | Reliability | Upgrade 161 kV line |
| Entergy | AR | 338033 | Parkin 161kV | 338041 | Twist 161kV | 1 | 161 | 8.05 | 2010 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | AR | 338131 | Melbourne 161kV | 338132 | Sage 161kV | 1 | 161 | 4.77 | 2010 | State/Budget Approval | Reliability | Upgrade 161 kV line |
| Entergy | TX | 334069 | Lewis Creek 230kV | 334072 | Lewis Creek 138kV | 1 | 230/138 | N/A | 2011 | State/Budget Approval | Reliability | Convert line to 230 kV operation and add auto at Lewis Creek |
| Entergy | TX | 334069 | Lewis Creek 230kV | 334085 | Peach Creek 230kV | 1 | 230 | 12.39 | 2011 | State/Budget Approval | Reliability | Convert line to 230 kV operation and add auto at Lewis Creek |
| Entergy | TX | 334085 | Peach Creek 230kV | 334206 | Jacinto 230kV | 1 | 230 | 16.49 | 2011 | State/Budget Approval | Reliability | Convert line to 230 kV operation and add auto at Lewis Creek |
| Entergy | TX | 334362 | Inland Orange 230kV | 334361 | McLewis 230kV | 1 | 230 | 6.55 | 2011 | Planned | Reliability | Upgrade 230 kV line |
| Entergy | TX | 334363 | Hartburg 230kV | 334362 | Inland Orange 230kV | 1 | 230 | 3.98 | 2011 | Planned | Reliability | Upgrade 230 kV line |
| Entergy | LA | 335381 | Meaux 230 kV | 335380 | Meaux 138 kV | 1 | 230/138 | N/A | 2011 | State/Budget Approval | Reliability | Acadiana Load Pocket Project Construct new 230 kV line and add auto at Meaux |
| Entergy | LA | 336010 | Bayou Laboutte 500 kV | 336011 | Bayou Laboutte 230 kV | 1 | 500/230 | N/A | 2011 | Planned | Reliability | Construct new 500-230 kV substation and 230 kV line |
| Entergy | LA | 336011 | Bayou Laboutte 230kV | 336000 | Iberville 230kV | 1 | 230 | 1.5 | 2011 | Planned | Reliability | Construct new 500-230 kV substation and 230 kV line |
| Entergy | MS | 337000 | McAdams 230kV | 337015 | Pickens 230kV | 1 | 230 | 16.3 | 2011 | State/Budget Approval | Reliability | Add 2nd 500-230 kV auto and construct new 230 kV line |
| Entergy | MS | 337009 | McAdams 500 kV | 337000 | McAdams 230 kV | 2 | 500/230 | N/A | 2011 | State/Budget Approval | Reliability | Add 2nd 500-230 kV auto and construct new 230 kV line |
| Entergy | AR | 338682 | Osage Creek 161kV | 338099 | Grandview 161kV | 1 | 161 | 5 | 2011 | Planned | Reliability | Construct new 161 kV line |
| Entergy | LA | 500776 | Sellers Rd 230kV | 335381 | Meaux 230kV | 1 | 230 | 9.3 | 2011 | State/Budget Approval | Reliability | Construct new 230 kV line |
| Entergy | LA | 335190 | Nelson 230kV | 303101 | Moss Bluff 230kV | 1 | 230 | 7 | 2012 | Planned | Reliability | Construct new 230 kV line |
| Entergy | LA | 335771 | Loblolly 230kV | 336140 | Hammond 230kV | 1 | 230 | 26.3 | 2012 | State/Budget Approval | Reliability | Construct new 230 kV line |
| Entergy | LA | 336069 | Bayou Steel 230kV | 336192 | Tezcuco 230kV | 1 | 230 | 10 | 2012 | Planned | Reliability | Construct new 230 kV line |
| Entergy | LA | 336086 | Alliance 230 kV | 336085 | Alliance 115kV | 1 | 230/115 | N/A | 2012 | Planned | Reliability | Construct new 230 kV line and add auto at Alliance |
| Entergy | LA | 336088 | Oakville 230kV | 336086 | Alliance 230kV | 1 | 230 | 10.3 | 2012 | Planned | Reliability | Construct new 230 kV line and add auto at Alliance |
| Entergy | LA | 336261 | Peters Road 230kV | 336088 | Oakville 230kV | 1 | 230 | 6.6 | 2012 | Planned | Reliability | Construct new 230 kV line |
| Entergy | MS | 336830 | Baxter Wilson 500 kV | 336800 | Baxter Wilson 115 kV | 2 | 500/115 | N/A | 2012 | State/Budget Approval | Reliability | |
| Entergy | MS | 337059 | South Grenada 230 kV | 337063 | South Grenada 115 kV | 1 | 230/115 | N/A | 2012 | Planned | Reliability | Construct new 230 kV line and add auto at South Grenada |
| Entergy | MS | 337120 | Tillatoba 230kV | 337059 | South Grenada 230kV | 1 | 230 | 19 | 2012 | Planned | Reliability | Construct new 230 kV line and add auto at South Grenada |
| Entergy | AR | 337904 | South Russelville 161kV | 505508 | Dardanelle 161kV | 1 | 161 | 11.09 | 2012 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | AR | 338015 | Holland Bottoms 161kV | 337940 | Hamlet 161kV | 1 | 161 | 20 | 2012 | Planned | Reliability | Construct new 161 kV line |
| Entergy | AR | 338140 | Holland Bottoms 500 kV | 338015 | Holland Bottoms 161 kV | 1 | 500/161 | N/A | 2012 | Planned | Reliability | Construct new 500-161-115 kV substation |
| Entergy | AR | 338163 | Ebony South 161kV | N/A | N/A | N/A | 161 | N/A | 2012 | Planned | Reliability | Install 5 breaker ring bus at Ebony South and reconfigure substation to include two new lines |
| Entergy | AR | 338186 | Monette 161kV | 338204 | Paragould 161kV | 1 | 161 | 16.73 | 2012 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | LA | 502421 | Labbe 230kV | 500776 | Sellers Rd 230kV | 1 | 230 | 15.7 | 2012 | Planned | Reliability | Acadiana Load Pocket Project Construct new 230 kV line |
| Entergy | LA | 335568 | Willow Glen 230kV | 335580 | Conway 230kV | 1 | 230 | 15 | 2013 | Planned | Reliability | Construct new 230 kV line |
| Entergy | MS | 337149 | Church Road 230kV | 337140 | Getwell 230kV | 1 | 230 | 16 | 2013 | Planned | Reliability | Construct new 230 kV line |
| Entergy | LA | 337420 | Sterlington 500kV | 337414 | Sterlington 115kV | 3 | 500/115 | N/A | 2013 | State/Budget Approval | Reliability | Replace 500-115kV auto |
| Entergy | TX | 334325 | Hartburg 500 kV | 334363 | Hartburg 230 kV | 2 | 500/230 | N/A | 2014 | Planned | Reliability | Construct new 230 kV line and add 2nd auto at Hartburg |
| Entergy | TX | 334363 | Hartburg 230kV | 334429 | Chisolm Rd 230kV | 1 | 230 | 15 | 2014 | Planned | Reliability | Construct new 230 kV line and add 2nd auto at Hartburg |
| Entergy | LA | 303101 | Moss Bluff 230kV | 335209 | Lake Charles Bulk 230kV | 1 | 230 | 15.28 | 2015 | Planned | Reliability | Construct new 230 kV line and 230 kV switching station |
| Entergy | TX | 334204 | China 230kV | 334327 | Amelia 230kV | 2 | 230 | 11 | 2015 | Planned | Reliability | Construct 2nd China to Amelia 230 kV line |
| Entergy | TX | 334326 | Cypress 230kV | 334324 | Jacinto 230kV | 1 | 230 | 53 | 2015 | Planned | Reliability | Construct new 230 kV line |
| Entergy | MS | 337132 | Senatobia Industrial 230kV | 337133 | Senatobia Industrial 115kV | 1 | 230/115 | N/A | 2015 | Planned | Reliability | Construct new 230 kV line and add auto at Senatobia Industrial |
| Entergy | MS | 337140 | Getwell 230kV | 337132 | Senatobia Industrial 230kV | 1 | 230 | 26 | 2015 | Planned | Reliability | Construct new 230 kV line and add auto at Senatobia Industrial |
| Entergy | LA | 337377 | Sterlington 230kV | 337382 | Drew 230kV | 1 | 230 | 16.7 | 2015 | Planned | Reliability | Monroe Area: Convert to 230kV |
| Entergy | LA | 337381 | Rilla 230kV | 337386 | Rilla 115kV | 1 | 230/115 | N/A | 2015 | Planned | Reliability | Add 230-115 kV auto |
| Entergy | LA | 337381 | Rilla 230kV | 337387 | Selman Field 230kV | 1 | 230 | 10.25 | 2015 | Planned | Reliability | Monroe Area: Convert to 230kV |
| Entergy | LA | 337382 | Drew 230kV | 337383 | Cheniere 230kV | 1 | 230 | 2.98 | 2015 | Planned | Reliability | Monroe Area: Convert to 230kV |
| Entergy | LA | 337383 | Cheniere 230kV | 337384 | Riser 230kV | 1 | 230 | 6.62 | 2015 | Planned | Reliability | Monroe Area: Convert to 230kV |
| Entergy | LA | 337384 | Riser 230kV | 337412 | Frost Craft 230kV | 1 | 230 | 1.93 | 2015 | Planned | Reliability | Monroe Area: Convert to 230kV |
| Entergy | LA | 337387 | Selman Field 230kV | 337377 | Sterlington 230kV | 1 | 230 | 15.4 | 2015 | Planned | Reliability | Monroe Area: Convert to 230kV |
| Entergy | LA | 337412 | Frost Craft 230kV | 337385 | Frost Craft 115kV | 1 | 230/115 | N/A | 2015 | Planned | Reliability | Add 230-115 kV auto |
| Entergy | LA | 337420 | Sterlington 500kV | 337377 | Sterlington 230kV | 1 | 500/230 | N/A | 2015 | Planned | Reliability | Add 500-230 kV auto |
| Entergy | AR | 338130 | Calico Rock 161kV | 338131 | Melbourne 161kV | 1 | 161 | 16.63 | 2015 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | AR | 338156 | Viney Slough 500 kV | 338157 | Viney Slough 161 kV | 1 | 500/161 | N/A | 2015 | Planned | Reliability | Construct new 500-161 kV substation |
| Entergy | AR | 338157 | Viney Slough 161 kV | 338170 | Jonesboro 161kV | 1 | 161 | 11.59 | 2015 | Planned | Reliability | Upgrade 161kV line |
| Entergy | AR | 338157 | Viney Slough 161 kV | 338707 | Trumann West 161kV | 1 | 161 | 5.03 | 2015 | Planned | Reliability | Construct new 161 kV line |
| Entergy | AR | 338157 | Viney Slough 161 kV | 505420 | Hergett 161kV | 2 | 161 | 3.27 | 2015 | Planned | Reliability | Construct new 161 kV line |
| Entergy | AR | 338170 | Jonesboro 161kV | 505418 | Jonesboro SPA 161kV | 1 | 161 | 0.84 | 2015 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | AR | 338707 | Trumann West 161kV | 338169 | Trumann 161kV | 1 | 161 | 6.48 | 2015 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | AR | 505460 | Bullshoals 161kV | 338813 | Midway 161kV | 1 | 161 | 23.88 | 2015 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | TX | 334320 | Cypress 500 kV | 334326 | Cypress 230 kV | 3 | 500/230 | N/A | 2017 | Planned | Reliability | Add 2nd auto |
| Entergy | TX | 334326 | Cypress 230kV | 334328 | Bevil 230kV | 1 | 230 | 12.95 | 2017 | Planned | Reliability | Upgrade 230 kV line |
| Entergy | TX | 334327 | Amelia 230kV | 334360 | Helbig 230kV | 1 | 230 | 10.3 | 2017 | Planned | Reliability | Upgrade 230 kV line |
| Entergy | TX | 334328 | Bevil 230kV | 334327 | Amelia 230kV | 1 | 231 | 5.68 | 2017 | Planned | Reliability | Upgrade 230 kV line |
| Entergy | AR | 337905 | East Russelville 161kV | 337906 | North Russelville 161kV | 1 | 161 | 3.19 | 2017 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | MS | 337132 | Senatobia Industrial 230kV | 337123 | Batesville 230kV | 1 | 230 | 22 | 2018 | Planned | Reliability | Construct new 230 kV line |
| Entergy | AR | 337993 | Gobell 230kV | 337992 | Gobell 115kV | 1 | 230/115 | N/A | 2018 | Planned | Reliability | Construct new 230-115 kV substation |
| Entergy | AR | 338125 | Mt Home 161kV | 338814 | Southland 161kV | 1 | 161 | 1.38 | 2018 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | AR | 338226 | Jim Hill 161kV | 338202 | Datto 161kV | 1 | 161 | 40 | 2018 | Planned | Reliability | Construct new 161 kV line |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Entergy | AR | 338813 | Midway 161kV | 338125 | Mt Home 161kV | 1 | 161 | 4.41 | 2018 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | AR | 505448 | Norfork 161kV | 338130 | Calico Rock 161kV | 1 | 161 | 8.12 | 2018 | Planned | Reliability | Upgrade 161 kV line |
| Entergy | LA | 336190 | Gypsy 230kV | 336155 | Hooker 230kV | 1 | 230 | 4.35 | 2020 | Planned | Reliability | Reconfigure area 230 kV |
| Entergy | LA | 336225 | Waggaman 230kV | 336154 | Waterford 230kV | 1 | 230 | 9.4 | 2020 | Planned | Reliability | Convert line to 230 kV operation |
| Entergy | LA | 336225 | Waggaman 230kV | 336250 | Ninemile 230kV | 1 | 230 | 8.5 | 2020 | Planned | Reliability | Convert line to 230 kV operation |
| Entergy | LA | 336435 | A B Patterson 230 kV | 336412 | A B Patterson 115 kV | 1 | 230/115 | N/A | 2020 | Planned | Reliability | Add 230-115 kV auto |
| Entergy | LA | 337376 | Sarepta 345 kV | 337363 | Sarepta 115 kV | 1 | 345/115 | N/A | 2011 | State/Budget Approval | Reliability | Construct new 345-115 kV substation |
| Entergy | AR | 338140 | Holland Bottoms 500 kV | 338016 | Holland Bottoms 115 kV | 1 | 500/115 | N/A | 2011 | Planned | Reliability | Construct new 500-161-115 kV substation |
| FPL | FL | 400308 | Fruitville | 400352 | Ringling | 1 | 230 | 4.31 | 2011 | State/Budget Approval | Reliability | Line upgrade |
| FPL | FL | 400123 | Emerson | 400266 | Midway | 1 | 230 | 15 | 2010 | State/Budget Approval | Reliability | Line upgrade |
| FPL | FL | 400466 | Orangedale | 400841 | Millcreek | 1 | 230 | 0.33 | 2013 | State/Budget Approval | Reliability | Line upgrade |
| FPL | FL | 400571 | Deltona | 400469 | Sanford | 1 | 230 | 14.5 | 2010 | State/Budget Approval | Reliability | Line upgrade |
| FPL | FL | 401794 | Bobwhite | 400352 | Ringling | 2 | 230 | 0.1 | 2012 | State/Budget Approval | Reliability | New line |
| FPL | FL | 400351 | OrangeRiv | 400919 | Orangetree | 2 | 230 | 0.1 | 2013 | State/Budget Approval | Reliability | New line |
| FPL | FL | 401794 | Bobwhite | 400352 | Ringling | 1 | 230 | 0.1 | 2012 | State/Budget Approval | Reliability | New line |
| FPL | FL | 401794 | Bobwhite | 400348 | Laurelwood | 1 | 230 | 0.1 | 2012 | State/Budget Approval | Reliability | New line |
| FPL | FL | 401794 | Bobwhite | 400349 | Manatee | 1 | 230 | 13 | 2012 | State/Budget Approval | Reliability | New line |
| FPL | FL | 401725 | Gaco | 401054 | Pirolo | 1 | 230 | 12.5 | 2010 | State/Budget Approval | Reliability | New line |
| FPL | FL | 400470 | St Johns | 401062 | Pellicer | 1 | 230 | 8 | 2013 | Planned | Reliability | New line |
| FPL | FL | 400712 | O'Neil | 410024 | Kingsland | 1 | 230 | 7.5 | 2012 | State/Budget Approval | Reliability | New line |
| FPL | FL | 400750 | Alico | 400344 | Ft Myers | 1 | 230 | 19.5 | 2011 | State/Budget Approval | Reliability | New line |
| FPL | FL | 400750 | Alico | 400344 | Ft Myers | 1 | 230 | 1 | 2011 | State/Budget Approval | Reliability | New line |
| FPL | FL | 400119 | Turkey Pt | 401014 | Prince230 | 1 | 230 | 11 | 2011 | State/Budget Approval | Reliability | New line |
| FPL | FL | 400468 | Putnam | 400462 | Rice | 1 | 230 | 15.53 | 2013 | Planned | Reliability | Line upgrade |
| FPL | FL | 400468 | Putnam | 400398 | Hudson | 1 | 230 | 9.849 | 2015 | Planned | Reliability | Line upgrade |
| FPL | FL | 400817 | FPL120G1 | 406496 | Sampson | 1 | 230 | | 2012 | Planned | Reliability | Line upgrade |
| FPL | FL | 400266 | Midway | 400272 | St Lucie | 1 | 230 | 11.6 | 2011 | State/Budget Approval | Reliability | Line upgrade |
| FPL | FL | 400266 | Midway | 400272 | St Lucie | 2 | 230 | 11.7 | 2011 | State/Budget Approval | Reliability | Line upgrade |
| FPL | FL | 400266 | Midway | 400272 | St Lucie | 3 | 230 | 11.8 | 2011 | State/Budget Approval | Reliability | Line upgrade |
| FPL | FL | 410119 | Clear Sky | 410120 | autotransformer | 1 | 500/230 | 0 | 2020 | Proposed | Reliability | Nuclear Plant |
| FPL | FL | 410119 | Clear Sky | 410120 | autotransformer | 2 | 500/230 | 0 | 2020 | Proposed | Reliability | Nuclear Plant |
| FPL | FL | 410120 | Clear Sky | 400120 | Levee | 1 | 500 | 43 | 2020 | Proposed | Reliability | Nuclear Plant |
| FPL | FL | 410120 | Clear Sky | 400120 | Levee | 2 | 500 | 43 | 2020 | Proposed | Reliability | Nuclear Plant |
| FPL | FL | 410119 | Clear Sky | 400109 | Levee | 1 | 230 | 43 | 2020 | Proposed | Reliability | Nuclear Plant |
| FPL | FL | 410119 | Clear Sky | 400105 | Davis | 1 | 230 | 21 | 2020 | Proposed | Reliability | Nuclear Plant |
| FPL | FL | 400356 | Duval | 410014 | Series Comp | | 500 | 0 | 2020 | Proposed | Reliability | Nuclear Plant |
| FPL | FL | 400356 | Duval | 410014 | Series Comp | | 500 | 0 | 2020 | Proposed | Reliability | Nuclear Plant |
| FPL | FL | 400535 | Corbett | 401225 | Germantown | 1 | 230 | 38.1 | 2011 | State/Budget Approval | Reliability | New line |
| IESO | ON | 152000 | Hanmer | 156014 | Claireville | 1 | 500 | 215 | 2015 | Proposed | Reliability | Single circuit 500 kV from Claireville TS to Hanmer TS |
| IESO | ON | 151054 | Lakehead | 152061 | Wawa | 1 | 220 | 247.3 | 2015 | Proposed | Reliability | Double circuit 230 kV from Lakehead TS to Wawa TS |
| IESO | ON | 151054 | Lakehead | 152061 | Wawa | 2 | 220 | 247.3 | 2015 | Proposed | Reliability | |
| IESO | ON | 152049 | Mississagi | 152000 | Hanmer | 1 | 500 | 130.5 | 2015 | Proposed | Reliability | Single circuit 500 kV from Mississagi TS to Hanmer TS |
| IESO | ON | 160059 | Lambton | 160062 | Longwood | 1 | 220 | 47.2 | 2016 | Proposed | Reliability | Double circuit 230 kV from Lambton TS to Longwood TS |
| IESO | ON | 160069 | Lambton | 160062 | Longwood | 1 | 220 | 47.2 | 2016 | Proposed | Reliability | |
| IESO | ON | 152074 | Wawa | 152118 | Third Line | 1 | 220 | 103.1 | 2015 | Proposed | Reliability | Double circuit 230 kV from Wawa TS to Third Line TS |
| IESO | ON | 152074 | Wawa | 152118 | Third Line | 2 | 220 | 103.1 | 2015 | Proposed | Reliability | |
| IESO | ON | 156000 | Bowmanville | 156001 | Cherrywood | 5 | 500 | 28.6 | 2016 | Proposed | Reliability | Double circuit 500 kV from Bowmanville TS to Cherrywood TS |
| IESO | ON | 156000 | Bowmanville | 156001 | Cherrywood | 6 | 500 | 28.6 | 2016 | Proposed | Reliability | |
| IESO | ON | 155069 | St. Lawrence | 154050 | Hawthorne | 1 | 220 | 46.6 | 2016 | Proposed | Reliability | Double circuit 230 kV from Hawthorne TS to St. Lawrence TS |
| IESO | ON | 155069 | St. Lawrence | 154050 | Hawthorne | 2 | 220 | 46.6 | 2016 | Proposed | Reliability | |
| IESO | ON | 151391 | Nipigon | 151393 | Crow River | 1 | 220 | 261 | 2013 | Proposed | Reliability | Single circuit 230 kV from Nipigon TS to Crow River TS |
| IESO | ON | 160055 | Chatham | 160062 | Longwood | 1 | 220 | 51.6 | 2016 | Proposed | Reliability | Double circuit 230 kV from Chatham TS to Longwood TS |
| IESO | ON | 160055 | Chatham | 160062 | Longwood | 2 | 220 | 51.6 | 2016 | Proposed | Reliability | |
| IESO | ON | 152118 | Third Line | 152074 | Mississagi | 1 | 220 | 47.2 | 2015 | Proposed | Reliability | Double circuit 230 kV from Mississagi TS to Third Line TS |
| IESO | ON | 152118 | Third Line | 152074 | Mississagi | 2 | 220 | 47.2 | 2015 | Proposed | Reliability | |
| IESO | ON | 158171 | Ingersoll | 158168 | Karn | 1 | 220 | 9.3 | 2011 | State/Budget Approval | Reliability | Double circuit 230 kV from Ingersoll TS to Karn TS |
| IESO | ON | 158172 | Ingersoll | 158169 | Karn | 1 | 220 | 9.3 | 2011 | State/Budget Approval | Reliability | |
| IESO | ON | 160157 | Sandwitch Junction | 160060 | Lauzon TS | 1 | 220 | 7.5 | 2016 | Proposed | Reliability | Double circuit 230 kV from Lauzon TS to Sandwitch Junction |
| IESO | ON | 160158 | Sandwitch Junction | 160061 | Lauzon TS | 1 | 220 | 7.5 | 2016 | Proposed | Reliability | |
| IESO | ON | 158000 | Milton | 159000 | Bruce | 1 | 500 | 115.6 | 2013 | State/Budget Approval | Reliability | Double circuit 500 kV from Bruce TS to Milton TS |
| IESO | ON | 158000 | Milton | 159001 | Bruce | 1 | 500 | 115.6 | 2013 | State/Budget Approval | Reliability | |
| IESO | ON | 157280 | Allanburg | 158069 | Middleport | 1 | 220 | 47.2 | Unknown | State/Budget Approval | Reliability | The construction is on hold |
| IESO | ON | 157281 | Allanburg | 158071 | Middleport | 1 | 220 | 47.2 | Unknown | State/Budget Approval | Reliability | The construction is on hold |
| IESO | ON | | Oshawa TS | | | | 500/220 | | 2016 | Proposed | Reliability | Reinforce supply to Oshawa, Witby and Ajax areas |
| IESO | ON | | Karn TS | | | | 220/118 | | 2011 | State/Budget Approval | Reliability | Improve 115kV supply in Woodstock area |
| ISO-NE | ME | 100089 | South Gorham 345.00 | 100165 | South Gorham 115.00 | 2 | 345/115 | N/A | 2010 | State/Budget Approval | Reliability | New second transformer |
| ISO-NE | ME | 100002 | Orrington 345.00 | 100092 | Albion Road 345.00 | 1 | 345 | 59 | 2012 | State/Budget Approval | Reliability | 2-1590 ACSR |
| ISO-NE | ME | 100092 | Albion Road 345.00 | 100005 | Cooper Mills 345.00 | 1 | 345 | 21 | 2012 | State/Budget Approval | Reliability | 2-1590 ACSR |
| ISO-NE | ME | 100005 | Cooper Mills 345.00 | 100095 | Larrabee Rd 345.00 | 1 | 345 | 34 | 2012 | State/Budget Approval | Reliability | 2-1590 ACSR |
| ISO-NE | ME | 100095 | Larrabee Rd 345.00 | 100087 | Surowiec 345.00 | 1 | 345 | 17 | 2012 | State/Budget Approval | Reliability | 2-1590 ACSR |
| ISO-NE | ME | 100092 | Albion Road 345.00 | 100247 | Albion Road 115.00 | 1 | 345/115 | N/A | 2012 | State/Budget Approval | Reliability | New substation & transformer |
| ISO-NE | ME | 100095 | Larrabee Rd 345.00 | 100118 | Gulf Island 115.00 | 1 | 345/115 | N/A | 2012 | State/Budget Approval | Reliability | New substation & transformer |
| ISO-NE | ME | 100087 | Surowiec 345.00 | 100007 | Raven Farm 345.00 | 1 | 345 | 12 | 2012 | State/Budget Approval | Reliability | 2-1590 ACSR |
| ISO-NE | ME | 100089 | South Gorham 345.00 | 100098 | Maguire Road 345.00 | 1 | 345 | 21 | 2012 | State/Budget Approval | Reliability | 2-1590 ACSR |
| ISO-NE | ME | 100098 | Maguire Road 345.00 | 103710 | Three Rivers 345.00 | 1 | 345 | 27 | 2012 | State/Budget Approval | Reliability | 2-1590 ACSR (New 345kV substations) |
| ISO-NE | ME | 100007 | Raven Farm 345.00 | 100134 | Raven Farm 115.00 | 1 | 345/115 | N/A | 2012 | Planned | Reliability | New substation & transformer |
| ISO-NE | ME | 100098 | Maguire Road 345.00 | 100163 | Maguire Road 115.00 | 1 | 345/115 | N/A | 2012 | State/Budget Approval | Reliability | New substation & transformer |
| ISO-NE | NH | 104095 | Deerfield 345.00 | 104506 | Deerfield 115.00 | 2 | 345/115 | N/A | 2012 | State/Budget Approval | Reliability | New second transformer |
| ISO-NE | VT | 107040 | Vernon 345.00 | 107050 | Vernon 115.00 | 1 | 345/115 | N/A | 2011 | State/Budget Approval | Reliability | New substation & transformer |
| ISO-NE | VT | 107040 | Vernon 345.00 | 107050 | Newfane 345.00 | 1 | 345 | 17 | 2011 | State/Budget Approval | Reliability | 2-954 ACSR |
| ISO-NE | VT | 107050 | Newfane 345.00 | 107010 | Coolidge 345.00 | 1 | 345 | 35 | 2011 | State/Budget Approval | Reliability | 2-954 ACSR |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ISO-NE | VT | 107010 | Newfane 345.00 | 107700 | Newfane 115.00 | 1 | 345/115 | N/A | 2011 | State/Budget Approval | Reliability | New substation and transformer |
| ISO-NE | MA | 114063 | West Amesbury 345.00 | 114075 | West Amesbury 115.00 | 1 | 345/115 | N/A | 2011 | State/Budget Approval | Reliability | New transformer |
| ISO-NE | MA | 111133 | Carver 345.00 | 111134 | Long Trm LSM 345.00 | 1 | 345 | | 2012 | Planned | Reliability | |
| ISO-NE | MA | 111134 | Long Trm LSM 345.00 | 111135 | Long Trm LSM 115.00 | 1 | 345/115 | N/A | 2012 | Planned | Reliability | New transformer |
| ISO-NE | MA | 113266 | Pratts Junction 230.00 | 113292 | Pratts Junction 115.00 | 2 | 230/115 | N/A | 2011 | Planned | Reliability | New second transformer |
| ISO-NE | MA | 113001 | Bear Swamp 230.00 | 113008 | Bear Swamp 115.00 | 2 | 230/115 | N/A | 2011 | Planned | Reliability | New second transformer |
| ISO-NE | MA/VT | 113001 | Bear Swamp 230.00 | 113266 | Pratts Jct 230.00 | 1 | 230 | 74 | 2011 | Planned | Reliability | Retension existing line |
| ISO-NE | MA | 113265 | Wachusett 345.00 | 113299 | Wachusett 115.00 | 3 | 345/115 | N/A | 2012 | Planned | Reliability | New third transformer |
| ISO-NE | MA | 115447 | Auburn 345.00 | 115453 | Auburn 115.00 | 1 | 345/115 | N/A | 2012 | Planned | Reliability | New second transformer |
| ISO-NE | MA | 116081 | Agawam 345.00 | 116152 | Agawam 115.00 | 1 | 345/115 | N/A | 2013 | State/Budget Approval | Reliability | New substation & transformers |
| ISO-NE | MA | 116081 | Agawam 345.00 | 116152 | Agawam 115.00 | 2 | 345/115 | N/A | 2013 | State/Budget Approval | Reliability | New substation & transformers |
| ISO-NE | MA | 116045 | Ludlow 345.00 | 116081 | Agawam 345.00 | 1 | 345 | 17 | 2013 | State/Budget Approval | Reliability | 2-1590 ACSR |
| ISO-NE | MA | 116045 | Ludlow 345.00 | 116120 | Ludlow 115.00 | 1 | 345/115 | N/A | 2013 | State/Budget Approval | Reliability | Two replacement transformers |
| ISO-NE | MA | 116045 | Ludlow 345.00 | 116120 | Ludlow 115.00 | 2 | 345/115 | N/A | 2013 | State/Budget Approval | Reliability | Two replacement transformers |
| ISO-NE | MA | 116081 | Agawam 345.00 | 119116 | North Bloomfield 345.00 | 1 | 345 | 18 | 2013 | State/Budget Approval | Reliability | 2-1590 ACSR |
| ISO-NE | MA | 119116 | North Bloomfield 345.00 | 119246 | Frost Bridge 345.00 | 1 | 345 | 35 | 2013 | Planned | Reliability | 2-1590 ACSR |
| ISO-NE | MA | 119246 | Frost Bridge 345.00 | 120992 | Frost Bridge 115.00 | 2 | 345/115 | N/A | 2013 | Planned | Reliability | New second transformer |
| ISO-NE | CT | 119064 | Card Street 345.00 | 119051 | Lake Road 345.00 | 1 | 345 | 29 | 2013 | Planned | Reliability | 2-1590 ACSR |
| ISO-NE | CT | 119194 | Millstone 345.00 | 119064 | Card Street 345.00 | 1 | 345 | 29 | 2013 | Planned | Reliability | Millstone-Manchester line tapped into Card Street |
| ISO-NE | CT | 119064 | Card Street 345.00 | 119077 | Manchester 345.00 | 1 | 345 | 20 | 2013 | Planned | Reliability | Millstone-Manchester line tapped into Card Street |
| ISO-NE | CT/RI | 119051 | Lake Road 345.00 | 117001 | West Farnum 345.00 | 1 | 345 | 25 | 2013 | Planned | Reliability | 2-1590 ACSR |
| ISO-NE | MA | 114734 | Brayton Point 345.00 | 114900 | Plainville 345.00 | 1 | 345 | 20 | 2011 | State/Budget Approval | Reliability | Brayton Point-Bellingham line tapped into Plainville |
| ISO-NE | MA | 114900 | Plainville 345.00 | 114733 | Bellingham 345.00 | 1 | 345 | 15 | 2011 | State/Budget Approval | Reliability | Brayton Point-Bellingham line tapped into Plainville |
| ISO-NE | MA | 114900 | Plainville 345.00 | 114865 | Plainville 115.00 | 1 | 345/115 | N/A | 2011 | State/Budget Approval | Reliability | New substation & transformer |
| ISO-NE | RI | 117301 | Kent County 345.00 | 117332 | Kent County 115.00 | 3 | 345/115 | N/A | 2012 | State/Budget Approval | Reliability | New third transformer |
| ISO-NE | RI | 117301 | Kent County 345.00 | 117001 | West Farnum 345.00 | 1 | 345 | 17 | 2012 | State/Budget Approval | Reliability | 2-954 ACSR |
| ISO-NE | MA/RI | 113264 | Millbury 345.00 | 117001 | West Farnum 345.00 | 1 | 345 | 21 | 2013 | Planned | Reliability | 2-1590 ACSR |
| JEA | FL | 404953 | GEC | 404855 | Nocatee | 30 | 230 | 4.4 | Dec 1, 2014 | State/Budget Approval | Reliability | GEC = Greenland Energy Center |
| JEA | FL | 404780 | Jax Heights | 405015 | Yellow Water | 1 | 230 | 11 | Dec 1, 2012 | State/Budget Approval | Reliability | |
| LGEE | KY | 324145 | 5GRAHMVL | 360496 | 5C-33 | 2 | 161 | 2 | 2012 | State/Budget Approval | Reliability | Add second Grahamville-DOE 161kV line |
| MAPP | IA | 638000 | Ames | 638010 | Stange | 1 | 161 | 4 | 12/31/2009 | Planned | Reliability | |
| MAPP | ND | 652400 | Williston | 652421 | Williston | 1 | 230/115 | N/A | 4/1/2010 | Planned | Reliability | |
| MAPP | Manitoba | 667077 | St Joseph Wind 1 | 667048 | Letellier | 1 | 230 | 4.8 | 6/1/2010 | Planned | Reliability | New transmission line |
| MAPP | Manitoba | 667078 | St Joseph Wind 2 | 667048 | Letellier | 1 | 230 | 4.8 | 6/1/2010 | Planned | Reliability | New transmission line |
| MAPP | ND | 652400 | Williston | 652216 | Watford City | 1 | 230 | 42 | 12/1/2010 | Planned | Reliability | Uprate from 115kV to 230kV |
| MAPP | ND | 652400 | Williston | 661084 | Tioga | 1 | 230 | 45 | 12/31/2010 | Planned | Reliability | New transmission line |
| MAPP | WI | 681544 | Poplar Lake sub | N/A | N/A | N/A | 161/69 | N/A | 12/31/10 | Planned | Reliability | |
| MAPP | ND | 652216 | Watford City | 659302 | Charlie Creek | 1 | 230 | 34 | 1/2/2011 | Planned | Reliability | Uprate from 115kV to 230kV |
| MAPP | ND | 652216 | Watford City Sub | N/A | N/A | N/A | 230/115 | N/A | 1/2/2011 | Planned | Reliability | upgrade sub from 115 to 230/115 |
| MAPP | WI | 681544 | Poplar Lake | 681534 | Apple River | 1 | 161 | 24 | 5/31/2011 | Planned | Reliability | upgrade line |
| MAPP | Manitoba | 667054 | Herblet Lake | 667059 | Ralls Island | 1 | 230 | 103 | 8/31/2011 | Planned | Reliability | New transmission line |
| MAPP | Manitoba | 667054 | Herblet Lake | 667019 | Wuskwatim | 1,2 | 230 | 85.2 | 8/31/2011 | Planned | Reliability | New double ckt transmission line |
| MAPP | MN | 652582 | Appledorn | N/A | tap | 1 | 230 | 74.6 | 10/1/2011 | Planned | Reliability | tap taken b/n Watertown(652530) and Granite(652550) 230kV line |
| MAPP | MN | 652582 | Appledorn sub | N/A | N/A | N/A | 230 | N/A | 10/1/2011 | Planned | Reliability | |
| MAPP | MN | 620447 | Cass Lake sub | N/A | N/A | N/A | 230/115 | N/A | 12/31/2011 | Proposed | Reliability | It is between Bemidji and Clay Boswell. upgrade 115kV to 230/115kV |
| MAPP | MN | 652582 | Appledorn | 652604 | Appledorn | 1 | 230/69 | N/A | 12/31/2011 | Planned | Reliability | |
| MAPP | SD | 659310 | Witten | 659313 | Reliance | 1 | 230 | 25 | 2/1/2012 | Proposed | Reliability | New transmission line |
| MAPP | SD | 652541 | Big Bend | 659313 | Reliance | 1 | 230 | 18 | 2/1/2012 | Proposed | Reliability | It passes throug Lower Brule. New transmission line. |
| MAPP | SD | 659313 | Reliance sub | N/A | N/A | N/A | 230/69 | N/A | 2/1/2012 | Proposed | Reliability | |
| MAPP | SD | 659310 | Witten Sub | N/A | N/A | N/A | 230 | N/A | 2/1/2012 | Proposed | Reliability | upgrade sub from 115 to 230/115 |
| MAPP | SD | 659310 | Witten | 652495 | Witten | 1 | 230/115 | N/A | 2/1/2012 | Proposed | Reliability | |
| MAPP | ND, MT | 652409 | Wolf Point | 652421 | Williston | 1 | 230 | 94 | 3/1/2012 | Proposed | Reliability | The WOLFPT is 115kV. (built 230 oper. At 115) passes through poplar and culbertson |
| MAPP | ND | 652426 | Bismarck, KU3A | 652427 | Bismarck, KU3A | 1 | 230/115 | N/A | 6/1/2012 | Planned | Reliability | |
| MAPP | | 652486 | Philip, KV1A | 652487 | Philip | 1 | 230/115 | N/A | 6/25/2012 | Planned | Reliability | |
| MAPP | MN | 608626 | Boswell (Bemidji) | 620345 | Wilton (clay Boswell) | 1 | 230 | 72 | 7/1/2012 | Proposed | Reliability | passes through cass lake. New line |
| MAPP | MN | 620447 | Cass Lake | 620197 | Cass Lake | 1 | 230/115 | N/A | 9/30/2012 | Proposed | Reliability | New transformer |
| MAPP | Manitoba | 667043 | St Vital | 667048 | Letellier | 1 | 230 | 77.7 | 10/1/2012 | Planned | Reliability | New transmission line |
| MAPP | Manitoba | 667071 | Neepawa | 667070 | Cornwallis | 1 | 230 | 35.1 | 11/30/2012 | Planned | Reliability | Sectionalize existing D54C line into new Neepawa Station |
| MAPP | Manitoba | 667071 | Neepawa | 667035 | Dorsey | 1 | 230 | 107.8 | 11/30/2012 | Planned | Reliability | |
| MAPP | ND | 659143 | Blaisedale | 659144 | Blaisedale | 1 | 230/115 | N/A | 12/1/2012 | Proposed | Reliability | |
| MAPP | | 681545 | Lufkin sub | N/A | N/A | N/A | 161/69 | N/A | 12/31/2012 | Planned | Reliability | |
| MAPP | WI | 681544 | Poplar Lake | 680374 | Poplar Lake | 1 | 161/69 | N/A | 6/1/2013 | Proposed | Reliability | |
| MAPP | Manitoba | 667080 | Rockwood | 668133 | Rockwood | 1 | 230/110 | N/A | 10/31/2013 | Planned | Reliability | |
| MAPP | SD | 652507 | Fort Thompson | 659312 | Lower Brule | 1 | 230 | 9.3 | 12/31/2013 | Planned | Reliability | |
| MAPP | SD | 652541 | Big Bend | 659312 | Lower Brule | 1 | 230 | 2.1 | 12/31/2013 | Planned | Reliability | |
| MAPP | SD | 659312 | Lower Brule Sub | N/A | N/A | N/A | 230 | N/A | 12/31/2013 | Planned | Reliability | Substaion |
| MAPP | Manitoba | 667042 | Riel Stn | 667501 | Riel Stn | 1 | 500/230 | N/A | 3/30/2014 | Planned | Reliability | |
| MAPP | Manitoba | 667047 | LaVerendrye | 667043 | St Vital | 1 | 230 | 21.1 | 10/1/2014 | Planned | Reliability | New transmission line |
| MAPP | Manitoba | 667035 | Dorsey | 667053 | Portage South | 2 | 230 | 43.5 | 11/30/2014 | Proposed | Reliability | To double ckt an existing single ckt line |
| MAPP | WI | 602024 | Marshland | 601043 | La Crosse Tap | 1 | 161 | 24.2 | 12/31/2015 | Planned | Reliability | upgrade rating |
| MAPP | Manitoba | 667000 | Conawapa | 667001 | Henday | 1,2,3,4 | 230 | 19 | 10/1/2017 | Proposed | Reliability | New quadruple ckt transmission line |
| MAPP | Manitoba | 667000 | Conawapa | 667012 | Long Spruce | 1 | 230 | 34 | 10/1/2017 | Proposed | Reliability | New transmission line |
| MAPP | Manitoba | 667000 | Conawapa (dc) | 667041 | Riel (dc) | N/A | 500 | 833 | 10/1/2017 | Proposed | Reliability | New 500kV bipole DC transmission line |
| MAPP | Manitoba | 667000 | Conawapa (dc) convertor station | N/A | N/A | N/A | 500 | N/A | 10/1/2017 | Proposed | Reliability | New convertor station |
| MAPP | Manitoba | 667041 | Riel (dc) converter station | N/A | N/A | N/A | 500 | N/A | 10/1/2017 | Proposed | Reliability | New convertor station |
| MAPP | Manitoba | 667500 | Dorsey | 667501 | Riel | 1 | 500 | 31 | 10/1/2018 | Proposed | Reliability | New transmission line |
| MISO | SD | 601031 | Brookings County | 620313 | Big Stone | 1 | 345 | 35 | 12/31/2017 | Proposed | Multi Value | MVP 01. P2221-345 kV transmission for collection of wind energy |
| MISO | SD/MN | 601031, 601048, 601049 | Brookings County-Lyon County-Cedar Mountain | 601050, 601052, 601051 | Helena-Lake Marion-Hampton Corner | 1 | 345 | 206.5 | 4/27/2015 | State/Budget Approval | Multi Value | MVP 02. P1203-Brookings County-Lyon County-Cedar Mountain-Helena-Lake Marion-Hampton Corner 345 kV line. |
| MISO | MN | 601054 | Hazel | 602008 | Minnesota Valley tap | 1 | 230 | 6 | 4/27/2015 | State/Budget Approval | Multi Value | MVP 02. P1203-Hazel-MN Valley tap 230 |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MISO | MN | 601048 | Lyon County | 601054 | Hazel | 1 | 345 | 23.5 | 4/27/2015 | State/Budget Approval | Multi Value | MVP 02. P1203-Lyon County-Hazel 345 |
| MISO | IA,MN | 631144 | Mitchell Co | 631138 | Lakefield Junction | 2 | 345 | 86 | 12/31/2015 | Proposed | Multi Value | MVP 03. P3213-Lakefield Junction - Mitchell County 345 kV line. |
| MISO | IA | 636000 | Webster-Burt-Osgood | 635368 | Wisdom-Sheldon | 1 | 345 | 138 | 12/31/2016 | Proposed | Multi Value | MVP 04. P3205-Webster to Sheldon 345 kV line |
| MISO | IA | 636199 | Blackhawk | 636200 | Blackhawk | 1 | 345/161 | | 12/31/2018 | Proposed | Multi Value | MVP 04. P3211-Blackhawk 345/161 kV transformer |
| MISO | IA | 631139 | Hazelton | 636000 | Webster | 2 | 345 | 112 | 12/31/2018 | Proposed | Multi Value | MVP 04. P3211-Webster to Hazelton 345 kV line |
| MISO | ND | 661025 | Ellendale | 620313 | Big Stone | 2 | 345 | 114 | 8/1/2019 | Proposed | Multi Value | MVP 06. P2220-Build 345 kV double circuit line from Big Stone to Ellendale. |
| MISO | IA,MO | 631143 | Ottumwa | 344002 | West AdairTap | 1 | 345 | 57.75 | 6/1/2014 | Proposed | Multi Value | MVP 07. P2248-345 kV line for MO wind collection and increased North-South capability |
| MISO | MO | 300039 | Fairport | 344002 | West AdairTap | 1 | 345 | 101.13 | 6/1/2014 | Proposed | Multi Value | MVP 07. P2248-345 kV line for MO wind collection and increased North-South capability |
| MISO | MO | 300049 | Thomas Hill | 344002 | West AdairTap | 1 | 345 | 47.25 | 6/1/2014 | Proposed | Multi Value | MVP 07. P2248-345 kV line for MO wind collection and increased North-South capability |
| MISO | MO | 344002 | West AdairTap | 345436 | Palmyra | 1 | 345 | 64 | 6/1/2018 | Proposed | Multi Value | MVP 08. P3170-345 kV line for MO wind collection and increased North-South capability |
| MISO | IL | 347288 | Ipava | 347679 | Meredosia | 1 | 345 | 35 | 8/1/2015 | Proposed | Multi Value | MVP 09. P2235-345 kV line for IL wind collection and increased East-West energy transfer |
| MISO | IL | 347679 | Meredosia | 347962 | Pawnee | 1 | 345 | 63 | 6/1/2015 | Proposed | Multi Value | MVP 09. P2236-345 kV line for IL wind collection and increased East-West energy transfer |
| MISO | IL | 347679 | Meredosia | 348060 | SE Quincy | 1 | 345 | 45 | 6/1/2018 | Proposed | Multi Value | MVP 09. P3017-345 kV line for IL wind collection and increased East-West energy transfer |
| MISO | MO,IL | 345435 | Palmyra Tap | 348060 | SE Quincy | 1 | 345 | 15 | 6/1/2018 | Proposed | Multi Value | MVP 09. P3017-345 kV line for IL wind collection and increased East-West energy transfer |
| MISO | IL | 347962 | Pawnee | 347945 | Pana | 1 | 345 | 22 | 6/1/2019 | Proposed | Multi Value | MVP 10. P3169-Pawnee to Pana 345 kV line |
| MISO | IL | 347945 | Pana | 348961 | Mt. Zion | 1 | 345 | 30 | 6/1/2019 | Proposed | Multi Value | MVP 11. P2237-Build 345 kV circuit from Pana to Mt. Zion in Illinois. |
| MISO | IL | 348961 | Mt. Zion | 347340 | Kansas | 1 | 345 | 52 | 6/1/2019 | Proposed | Multi Value | MVP 11. P2238-Build 345 kV circuit from Mt. Zion to Kansas |
| MISO | IL | 347340 | Kansas | 249521 | Sugar Creek | 1 | 345 | 35 | 6/1/2019 | Proposed | Multi Value | MVP 11. P2240-Build 345 kV circuit from Kansas to Sugar Creek in Illinois. |
| MISO | IN | 255268 | Reynolds | 255101 | Burr Oak | 1 | 345 | | 12/31/2013 | Proposed | Multi Value | MVP 12. P3203-Build 345 kV circuit from Reynolds to Burr Oak to Hiple. |
| MISO | IN | 255101 | Burr Oak | 255105 | Hiple | 1 | 345 | | 12/31/2013 | Proposed | Multi Value | MVP 12. P3203-Build 345 kV circuit from Reynolds to Burr Oak to Hiple. |
| MISO | OH | 238569 | Beaver | 238654 | Davis Besse | 2 | 345 | 19 | 6/1/2013 | Proposed | Multi Value | MVP 13. P2260-345 kV line for interconnection of wind resources |
| MISO | IL | 348887 | Sidney | 348882 | Rising | 1 | 345 | 27 | 6/1/2017 | Proposed | Multi Value | MVP 14. P2239-Build 345 kV circuit from Rising to Sidney in Illinois. |
| MISO | IL | 349730 | Fargo | 636635 | Oak Grove | 1 | 345 | 102 | 12/31/2016 | Proposed | Multi Value | MVP 18. P3022-Fargo-Galesburg-Oak Grove (MEC) 345 kV Line. |
| MISO | MN | 601051<br>601309 | Hampton Corners-North Rochester | 601044 | North La Crosse | 1 | 345 | 118 | 9/30/2015 | State/Budget Approval | Reliability | P1024- Hampton Corners-North Rochester-North La Crosse 345 kV line |
| MISO | MO | 345543 | Enon Tap | 300597 | Enon | 1 | 161 | 1 | 6/1/2011 | Planned | Reliability | P1238-Extend 1 mile of 161 kV to AECI Enon Substation |
| MISO | IN | 249608 | Cayuga | 249615 | Frankfort | 1 | 230 | 0 | 6/1/2013 | Planned | Reliability | P1244-Upgrade wave traps at Cayuga and Frankfort to increase line rating to 797 MVA. |
| MISO | IN | 249619 | Greentown | 249627 | Peru SE | 1 | 230 | 0 | 6/1/2011 | Planned | Reliability | P1247-Upgrade Greentown to Peru SE 230kV line to 100C operating temperature. |
| MISO | IN | 249626 | Noblesville | 249618 | Geist | 1 | 230 | 0 | 6/1/2011 | Planned | Reliability | P1253-Replace 800A wave trap with a 2000A wave trap. Increase line rating for Noblesville to Geist 230kV line. |
| MISO | IN | 253620 | AB Brown 345 | 249510 | Gibson | 1 | 345 | 40 | 10/31/2011 | Under Construction | Reliability | P1257-New 345 kV transmission line Gibson (Cinergy) to AB Brown (Vectren) to Reid (BREC) |
| MISO | IN/KY | 253620 | AB Brown 345 | 340562 | Reid | 1 | 345 | 24 | 10/31/2011 | Planned | Reliability | P1257-New 345 kV transmission line Gibson (Cinergy) to AB Brown (Vectren) to Reid (BREC) |
| MISO | IN | 249520 | Speed 345 | 249850 | Speed 138 | 1 | 345/138 | 0 | 6/1/2013 | State/Budget Approval | Reliability | P1264-Replace existing 345/138 transformer at Speed with a new transformer rated at 3,000A or higher. |
| MISO | IA | 631139 | Hazelton 345 | 631050 | Hazelton 161 | 1 | 345/161 | 0 | 4/30/2011 | State/Budget Approval | Reliability | P1288-Replace Hazleton 345/161 kV transformer #1 with 448 MVA unit |
| MISO | IA | 631140 | Salem | 631139 | Hazelton | 1 | 345 | 81 | 12/31/2011 | Planned | Reliability | P1340-Build a new Hazleton - Salem 345 kV line. |
| MISO | IA | 631146 | Lewis Fields | 631147 | Lewis Fields | 1 | 161/115 | 0 | 12/31/2012 | Planned | Reliability | P1342-Lewis Fields transformer |
| MISO | IA | 631148 | Morgan | 631149 | Morgan | 1 | 345/161 | 0 | 6/1/2013 | Planned | Reliability | P1344-Morgan Valley 345/161 kV transformer |
| MISO | ND | 661053 | Heskett | 661054 | Heskett | 1 | 230/115 | 0 | 12/31/2014 | Planned | Reliability | P1355-Heskett 230/115 kV |
| MISO | IL | 348774 | Baldwin | 345669 | Rush | 1 | 345 | 26 | 10/1/2010 | Planned | Reliability | P150-Establish a new Prairie State 345 kV generator interconnection |
| MISO | IL | 348778 | Stallings | 348773 | Prairie State | 1 | 345 | 7.5 | 10/1/2010 | Planned | Reliability | P150-Establish a new Prairie State 345 kV generator interconnection |
| MISO | IL | 348827 | 7W | 348773 | Prairie State | 1 | 345 | 1.5 | 10/1/2010 | Planned | Reliability | P150-Establish a new Prairie State 345 kV generator interconnection |
| MISO | IN | 249630 | Staunton | 249633 | Wabash River | 1 | 230 | 0 | 6/1/2011 | Planned | Reliability | P1514-Uprate Wabash River to Staunton 23002 to 100C summer operating temperature and 80C winter (559MVA). |
| MISO | IN | 249621 | 08KOK HP | 249635 | Webster Street | | 230 | 0 | 6/1/2012 | State/Budget Approval | Reliability | P1561-Retire existing 1600A circuit switcher and complete the Webster St ring |
| MISO | IN | 249889 | Qualitech | 249518 | Qualitech | 1 | 345/138 | 0 | 6/1/2013 | State/Budget Approval | Reliability | P1568-Qualitech Sub- Install one 345/138kv, 300Mva Xtr and 2-345kv Bkrs and 1-138kv Bkr to provide second 138kv source to proposed Hendricks Co 138kv system |
| MISO | OH | 238615 | Chamberlin | 238941 | Mansfield | 1 | 345 | 2 | 6/1/2014 | Planned | Reliability | P1607-Loop the Chamberlin - Mansfield 345 kV Line in and out of Hanna Substation creating a Chamberlin - Hanna and a Hanna - Mansfield 345 kV Line. |
| MISO | PA | 239280 | Cranberry | 239281 | Cranberry | 2 | 500/138 | 0 | 6/1/2012 | Planned | Reliability | P1612-Construct a 500/138kV Sub with four exits in the Cranberry/Adams Township area. |
| MISO | MN | 631041 | Lakefield Junction | 631040 | Heron Lake | 1 | 161 | 17 | 12/31/2012 | Planned | Reliability | P1618-Rebuild Heron Lake-Lakefield Jct 161kV line, sum rate 446 MVA |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MISO | IA | 631115 | Ottumwa | | capacitor | | 161 | 0 | 5/30/2011 | State/Budget Approval | Reliability | P1641-Install a 161kV 50 MVAR cap bank at the Ottumwa Generating Station. |
| MISO | IA | 631070 | Anita | | capacitor | | 161 | 0 | 12/31/2013 | Planned | Reliability | P1643-Install a 161kV 24 MVAR cap bank at the Anita substation. |
| MISO | IA | 631074 | Grand Junction | | capacitor | | 161 | 0 | 12/31/2013 | Planned | Reliability | P1644-Install a 161kV 24 MVAR cap bank at the Grand Junction substation. |
| MISO | IA | 631096 | Grand Mound | 631098 | Maquoketa | 1 | 161 | 14.5 | 12/31/2016 | Planned | Reliability | P1744-Reconductor 161kV from Maquoketa to Grand Mound (old East Calamus-Maquoketa 161kV line) |
| MISO | OH | 238654 | Davis Besse | | | 3 | 345 | 0 | 12/17/2010 | State/Budget Approval | Reliability | P1909-Reconfigure the Davis Besse switch yard by extending J and K buses and adding 345kV breakers |
| MISO | MN | 601015 | Blue Lake | 601004 | Wilmarth | 1 | 345 | 0 | 12/1/2010 | Planned | Reliability | P1956- Wilmarth and Blue Lake phase raise the line to allow for a normal 100 degree C operation. |
| MISO | IN | 253620 | AB Brown 345 | 249510 | AB Brown 138 | 1 | 345 | 0 | 5/31/2011 | Planned | Reliability | P1970-New 448MVA 345/138kV transformer in addition to the Gibson-AB Brown-Reid 345kV line. |
| MISO | IN | 249508 | Dresser | 249721 | Dresser | 3 | 345/138 | 0 | 6/1/2011 | State/Budget Approval | Reliability | P2050-Add a 3rd 345/138kV transformer at Dresser Sub |
| MISO | IN | 254529 | Petersburg | 254638 | Petersburg | 2 | 345/138 | 0 | 6/1/2012 | Planned | Reliability | P2053-Replace and upgrade existing East and West 345/138kV autotransformer at Petersburg Substation. Add 345kV breaker. |
| MISO | MO | 344648 | Gray Summit | 344650 | Gray Summit | 2 | 345/138 | 0 | 12/1/2010 | Planned | Reliability | P2061-Install a 345 kV six position ring bus making Labadie - Tyson 1 & 2 345 kV lines and add a second 560 MVA 345/138 kV transformer. |
| MISO | IL | 348856 | Latham | 348851 | Oreana | 1 | 345 | 8.5 | 12/1/2014 | Planned | Reliability | P2068-Convert Oreana 345 kV Bus to 6-Position Ring Bus with 3000 A Capability; Construct 8.5 miles of 345 kV line (2-954 kcmil ACSR conductor or equivalent capability) from Oreana Substation to 345 kV Line 4571 tap to Latham Substation. 3-345 kV PCB's at Orean |
| MISO | IL | 349265 | S Bloomington | 348874 | S Bloomington | 1 | 345/138 | 0 | 12/1/2014 | Planned | Reliability | P2069-South Bloomington Area 345/138 kV Substation - Install 345/138 kV, 560 MVA Transformer. Extend new 345 kV line approximately 5 miles from Brokaw Substation to South Bloomington Substation. Install 1-138 kV PCB at South Bloomington Substation, and 2-345 |
| MISO | OH | 239313 | Fulton 345 | 238738 | Fulton 138 | 1 | 345/138 | 0 | 6/1/2014 | Proposed | Reliability | P2250-Construct Fulton Substation near the crossing point of the Allen Junction-Midway 345kV and Delta-Swanton 138kV lines, loop both lines into the new 345/138kV substation |
| MISO | IA | 631116 | Bridgeport | 631104 | EIC | 1 | 161 | 0 | 12/31/2010 | Under Construction | Reliability | P2359-Upgrade the Bridgeport 161kV sub & the EIC sub. These upgrades combined with the Tri-County upgrades will allow for the Bridgeport 69kV sub to be retired. The Bridgeport 69kV sub needs to be retired to allow for the plant to expand. |
| MISO | IA | 631052 | Lansing | 681523 | Genoa | 1 | 161 | 0 | 12/31/2010 | Planned | Reliability | P2365-Upgrade the terminal limits & relaying on the Lansing-Genoa 161kV. |
| MISO | IL | 349730 | Fargo | 349740 | Maple Ridge | 1 | 345 | 20 | 12/1/2016 | Planned | Reliability | P2472-Tap existing 345kV line from Duck Creek to Tazewell and create new Maple Ridge Substation ($6.5M) |
| MISO | MN | 608626 | Boswell | 620447 | Cass Lake | 1 | 230 | 50 | 12/31/2012 | State/Budget Approval | Reliability | P279-Boswell - Wilton 230 |
| MISO | MN | 620447 | Cass Lake | 608626 | Wilton | 1 | 230 | 18 | 12/31/2012 | State/Budget Approval | Reliability | P279-Boswell - Wilton 230 |
| MISO | IL | 346895 | Coffeen | 346886 | Coffeen N | 2 | 345 | 0 | 12/1/2010 | State/Budget Approval | Economic | P2829-Install a second 345 kV bus tie between Coffeen and Coffeen N ring busses. Replace Coffeen N. wave trap and Ramsey E. switch to increase line rating to 1195 MVA. |
| MISO | MN/ND | 657792 | Maple River | 601046 | Alexandria SS | 1 | 345 | 135 | 3/31/2015 | State/Budget Approval | Reliability | P286-Maple River- AlexandriaSS - Waite Park - Monticello 345 ckt 1, Sum rate 2085 |
| MISO | MN | 601046 | Alexandria SS | 601047 | Waite Park | 1 | 345 | 55 | 3/31/2015 | State/Budget Approval | Reliability | P286-Maple River- AlexandriaSS - Waite Park - Monticello 345 ckt 1, Sum rate 2085 |
| MISO | MN | 601047 | Waite Park | 601010 | Monitcello | 1 | 345 | 35 | 3/31/2015 | State/Budget Approval | Reliability | P286-Maple River- AlexandriaSS - Waite Park - Monticello 345 ckt 1, Sum rate 2085 |
| MISO | IN | 249626 | Noblesville | 249618 | Geist | 1 | 230 | 0.6 | 12/1/2011 | State/Budget Approval | Reliability | P2874-Relocate section of 23007 between Noblseville and Giest to new ROW |
| MISO | IN | 254529 | Petersburg | 254521 | Francis | 1 | 345 | 111.42 | 6/1/2013 | Proposed | Reliability | P2897-Increase line rating from 956 to 1195 MVA |
| MISO | IN | 254523 | Guion | 249529 | Whitestown | 1 | 345 | 11.14 | 6/1/2015 | Proposed | Reliability | P2899-Increase line rating from 956 to 1195 MVA |
| MISO | IL | 636600 | Sub 39 3 | 636601 | Sub 39 5 | 2 | 345 | 0 | 6/1/2014 | Proposed | Reliability | P2937-Add a second 345-161 kV xfmr. Expand 345 kV and 161 kV buses. |
| MISO | IL | 636600 | Sub 39 3 | 636605 | MEC Cordova 3 | 1 | 345 | 15.5 | 6/1/2014 | Proposed | Reliability | P2938-Change out structures to increase rating. |
| MISO | IA | 635200 | Raun | 652564 | Sioux City | 2 | 345 | 23 | 6/1/2016 | Proposed | Reliability | P2939-Construct a 23 mile 345 kV line between the Raun and Sioux City Substations |
| MISO | MO | 300617 | Scruggs | 344028 | Apache Flats | 1 | 161 | 0 | 6/1/2011 | Planned | Reliability | P2970-Apache Flats 161 kV Substation - Install 1-161 kV, 2000 A PCB and necessary metering and relaying to provide a delivery point for Associated Electric's Scruggs 161-69 kV Substation. |
| MISO | IN | 249525 | Westwood | 249874 | Westwood | 1 | 345/138 | | 6/1/2015 | State/Budget Approval | Reliability | P841-Replace 1600A 138kV breaker with 3000A to allow full transformer rating |
| MISO | MN | 620184 | Winger | 620238 | Winger | 1 | 230/115 | | 12/31/2014 | Planned | Reliability | P971-Winger 230/115 kV Transformer upgrade |
| MISO/ATC LLC | WI/IL | 699432 | Pleasant Prairie | 274817 | Zion Energy Center | 1 | 345 | 6 | 6/1/2014 | Proposed | Multi Value | MVP17: P2844-Construct a new Pleasant Prairie-Zion Energy Center 345-kV line. |
| MISO/ATC LLC | MN/WI | 631180 | Dubuque | 693668 | Spring Green | 1 | 345 | 75.13 | 12/31/2020 | Proposed | Multi Value | MVP 05. P2832-Construct a new Dubuque Co-Spring Green 345kV line |
| MISO/ATC LLC | WI | 693668 | Spring Green | 699829 | Cardinal | 1 | 345 | 28 | 8/1/2018 | Proposed | Multi Value | MVP 05. P2832-Construct a new Spring Green-Cardinal 345kV line |
| MISO/ATC LLC | WI | 601044 | North La Crosse | 699818 | North Madison | 1 | 345 | 136.3 | 12/31/2018 | Proposed | Multi Value | MVP 05. P3127-Construct a new North La Crosse-North Madison 345kV line |
| MISO/ATC LLC | WI | 699818 | North Madison | 699829 | Cardinal | 1 | 345 | 20.5 | 12/31/2018 | Proposed | Multi Value | MVP 05. P3127-Construct a new North Madison-Cardinal 345kV line |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MISO/ATC LLC | WI | 699630 | Kewaunee 345 | 699620 | Kewaunee 138 | 2 | 345/138 | 0 | 5/1/2011 | Proposed | Reliability | P1950-Reconfigure Kewaunee 345/138 kV switchyard and install a 2nd Kewaunee 345-138 kV transformer of 500 MVA. |
| MISO/ATC LLC | WI | 698863 | Bluemound | 698865 | Bluemound | 3 | 230/138 | 0 | 11/30/2011 | Planned | Reliability | P2819-Replace Bluemound 230/138kV transformer T3 with a 400 MVA unit |
| MISO/ATC LLC | WI | 699262 | Bluemound | 699263 | Bluemound | 1 | 230/138 | 0 | 5/31/2012 | Proposed | Reliability | P2820-Replace Bluemound 230/138kV transformer T1 with a 400 MVA unit |
| MISO/ATC LLC | WI | 693636 | Barnhart 345 | 693607 | Branch River 345 | 1 | 345 | 35.5 | 6/1/2018 | Proposed | Reliability | P3206. North - East 345 kV line for G833-834 long-term solution |
| MISO/ATC LLC | WI | 693636 | Branch River 345 | 699304 | Forrest Jct | 2 | 345 | 12.88 | 6/1/2018 | Proposed | Reliability | P3206. North - Forrest 345 kV line for G833-834 long-term solution |
| MISO/ATC LLC | WI | 699119 | Rockdale | 699829 | Cardinal | 1 | 345 | 32.14 | 6/1/2013 | Planned | Reliability | P356-Cardinal-Rockdale 345 and Cardinal 345/138 transformer |
| MISO/ATC LLC | WI | 602025 | Monroe Co | 699002 | Council Creek | 1 | 161 | 17.3 | 6/1/2013 | Planned | Reliability | P574 Monroe County - Council Creek 161 kV line |
| MISO/ATC LLC | WI | 699002 | Council Creek | 699239 | Council Creek | 1 | 161/138 | | 6/1/2013 | Planned | Reliability | P574-Monroe County - Council Creek 161 kV line |
| MISO/ATC LLC | WI/IL | 699432 | Pleasant Prairie | 270941 | Zion | 1 | 345 | 11.4 | 3/25/2011 | Planned | Reliability | Replace terminal equipment at Zion to increase the line capability |
| MISO/ATC LLC | MI | 699581 | Arnold | 699348 | Arnold | 1 | 345/138 | 0 | 6/1/2015 | Proposed | Reliability | Tap Plains-Dead River 345kV into the Arnold 138kV SS via a new 345/138 kV transformer |
| MISO/ATC LLC | WI | 699829 | Cardinal | 699820 | Cardinal | 1 | 345/138 | 0 | 6/1/2013 | Planned | Reliability | P356-Construct a new 345/138 kV substation at Cardinal (next to the existing West Middleton sub), install a 345/138 kV 500 MVA transformer at Cardinal, construct 47.9 miles overhead 345 kV line from Albion to Cardinal/West Middleton, modifications to the existing West Middleton substation, construct a new Albion 345 kV switching station. Facility costs listed in the facility table are for the southern route. |
| MISO/ATC LLC | WI | 699247 | Arcadian | 699250 | Arcadian | 1 | 345/138 | 0 | 6/1/2015 | Proposed | Reliability | Replace two smaller Arcadian 345/138 kV transformers with a 500 MVA unit |
| MISO/ATC LLC | WI | 693668 | Spring Green | 699114 | Spring Green | 1 | 345/138 | 0 | 8/1/2018 | Proposed | Multi Value | MVP 05. P2832-Construct a new Spring Green-Cardinal 345kV line |
| MISO/ITC | MI | 265076 | Rapson (19WYATT) | 265086 | Rapson (19WY_EAST) | 1 | 345/120 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 265075 | Baker (REESE) | 256026 | Thetford | 1, 2 | 345 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 256022 | Roosevelt | 256024 | Tallmadge | 1 | 345 | 0 | 12/31/2010 | Planned | Reliability | P1799-Remove the SAG limit on: Roosevelt - Tallmadge |
| MISO/ITC | MI | 256500 | Murphy | 256499 | Murphy | 4 | 345/138 | 0 | 6/1/2011 | Planned | Reliability | P2500-Install a second 345/138kV transformer at Murphy substation |
| MISO/ITC | MI | 256509 | Weeds Lake | 256000 | Argenta | 1 | 345 | 10 | 6/1/2013 | Planned | Reliability | P662-Loop the 345kV Argenta - Robinson Park 345kV circuit into a new 345/138kV EHV substation called Weeds Lake. |
| MISO/ITC | MI | 265076 | Rapson (19WYATT) | 265077 | Sandusky (19W-S-G) | 1 | 345 | 28 | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 265076 | Rapson (19WYATT) | 264706 | 19GRNEC | 1, 2 | 345 | 65 | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 264706 | 19GRNEC | 265077 | Sandusky (19W-S-G) | 2 | 345 | 22 | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 264706 | 19GRNEC | 264746 | Fitz (19STOGA) | 2 | 345 | 16 | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 265076 | Rapson (19WYATT) | 265086 | Rapson (19WY_EAST) | 2 | 345/120 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 265075 | Baker (REESE) | 256007 | Hampton | 1, 2 | 345 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 265075 | Baker (REESE) | 265076 | Rapson (19WYATT) | 1 | 345 | 56 | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 265075 | Baker (REESE) | 256027 | Titbawaassee (via Manning) | 1 | 345 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 265075 | Baker (REESE) | 264635 | Pontiac | 1 | 345 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 264746 | Fitz (19STOGA) | 264635 | Pontiac | 1 | 345 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 264746 | Fitz (19STOGA) | 264805 | Blackfoot | 1 | 345 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 264746 | Fitz (19STOGA) | 264604 | Belle River | 1, 2 | 345 | | 12/31/2015 | Planned | Multi Value | MVP 15. P3168-Double circuit 345 kV transmission for integration of wind resources |
| MISO/ITC | MI | 264883 | B3N PS | 264536 | BUNCE | 1 | 220 | 0 | 12/31/2010 | Planned | Reliability | P1308-Returns the Bunce Creek to Scott 220 kV circuit to service and replaces the Phase Angle Regulator with 2 new phase angle regulating transformers in series |
| MISO/ITC | MI | 264580 | Jewel | 264635 | Pontiac | 1 | 345 | 0 | 12/1/2011 | Proposed | Reliability | P1856-Cut the Pontiac section of the Belle River-Greenwood-Pontiac 345kV circuit into and out of Jewell station. Utilize an existing unused side of 345kV tower for one of the circuits into Jewell, and relocate the Jewell-Spokane 230kV circuit |
| NYISO | NY | 126281 | E. Fishkill | 125022 | E. Fishkill | 2 | 345/115 | | 2010 | Planned | Reliability | Transformer #2 (Standby) |
| NYISO | NY | 126298 | Sprain Brook | 126847 | Academy | 1 | 345 | | 2011 | Planned | Reliability | 2000 CU |
| NYISO | NY | 126277 | Farragut | 126272 | East 13th Street | 1 | 345 | | 2010 | Planned | Reliability | Refrigeration Cooling |
| NYISO | NY | 126277 | Farragut | 126273 | East 13th Street | 1 | 345 | | 2010 | Planned | Reliability | Refrigeration Cooling |
| NYISO | NY | 147845 | Willis 1 | 147980 | Patnode | 1 | 230 | | 2011 | Proposed | Reliability | 1-795 ACSR |
| NYISO | NY | 147980 | Patnode | 147859 | Duley | 1 | 230 | | 2011 | Proposed | Reliability | 1-795 ACSR |
| NYISO | NY | 130761 | Avoca | 131154 | Stony Ridge | 1 | 230 | | 2011 | Planned | Reliability | 1033.5 ACSR |
| NYISO | NY | 131154 | Stony Ridge | 130763 | Hillside | 1 | 230 | | 2011 | Planned | Reliability | 1033.5 ACSR |
| NYISO | NY | 131154 | Stony Ridge | 131155 | Stony Ridge | 1 | 230/115 | | 2011 | Planned | Reliability | Transformer |
| NYISO | NY | 126277 | Farragut | 126275 | East 13th Street | 1 | 345 | | 2016 | Planned | Reliability | Reconductoring |
| PEC | NC | 304803 | 6ASHEVL | 304763 | 6ENKA SW | 1 | 230 | 11.75 | 2010 | State/Budget Approval | Reliability | 115 to 230 kV Line Conversion & new 230/115 kV transformation |
| PEC | NC | 304378 | 6RICHMON | 304398 | 6FB-WODR | 1 | 230 | 70 | 2011 | State/Budget Approval | Reliability | Construct new 230 kV Line |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PEC | NC | 304332 | 6ASHEB | 306152 | 6PL GRDN | 1 | 230 | 18.9 | 2011 | State/Budget Approval | Reliability | Construct new 230 kV Line |
| PEC | NC | 304348 | 6RKH | 304361 | 6WESTEND | 1 | 230 | 32 | 2011 | State/Budget Approval | Reliability | Construct new 230 kV Line |
| PEC | NC | 304205 | 6CLINTON | 304251 | 6LEE | 1 | 230 | 28 | 2011 | State/Budget Approval | Reliability | Construct new 230 kV Line & new 230/115 kV substation |
| PEC | NC | 304542 | 6FOLKSTN | N/A | N/A | N/A | 230 | N/A | 2013 | State/Budget Approval | Reliability | Construct 230/115 kV substation, loop in 230kV line |
| PEC | NC | 304009 | 6HARRIS1 | 304159 | 6RTP230 | 1 | 230 | 18 | 2014 | State/Budget Approval | Reliability | Construct new 230 kV Line |
| PEC | NC | 304451 | 6PA-GRNV | 304474 | 6DUP KIN | 1 | 230 | 30 | 2017 | Planned | Reliability | Construct new 230 kV Line |
| PEF | FL | 403701 | DISSTON | 403704 | NORTHEAST | 1 | 230 | 4.21 | 2012 | Planned | Reliability | New line |
| PEF | FL | 403701 | DISSTON | 403702 | FORTIETH STREET | 1 | 230 | 3.5 | 2014 | Planned | Reliability | New line |
| PEF | FL | 403832 | Morgan Road | 408020 | DL MABRY (TECo) | 1 | 230 | 8 | 2011 | State/Budget Approval | Reliability | New line |
| PEF | FL | 403832 | Morgan Road | 403838 | ZEPHYRHILLS NORTH | 1 | 230 | 23 | 2013 | State/Budget Approval | Reliability | New 230kV Tie-Line |
| PEF | FL | 402288 | Lake Tarpon | 402913 | Kathleen | 1 | 500 | 44 | 2015 | Planned | Reliability | New line |
| PEF | FL | 402584 | MYRTLE LAKE | 402585 | NORTH LONGWOOD | 1 | 230 | 3.13 | 2017 | Planned | Reliability | Line upgrade |
| PEF | FL | 402887 | HINES ENERGY COMPLEX | 402891 | WEST LAKE WALES | 2 | 230 | 21 | 2011 | State/Budget Approval | Reliability | New line |
| PEF | FL | 402891 | DUNDEE | 402883 | INTERCESSION CITY | 1 | 230 | 20 | 2010 | State/Budget Approval | Reliability | Line upgrade |
| PEF | FL | 402891 | LOUGHMAN (FUT) | 402883 | INTERCESSION CITY | 2 | 230 | 20 | 2010 | State/Budget Approval | Reliability | New 230kV Line |
| PEF | FL | 403516 | AMERICAN CEMENT; SECO | 403517 | BUSHNELL EAST | 1 | 230 | 9.5 | 2020 | Planned | Reliability | New 230 kV Line |
| PEF | FL | 403518 | BROOKRIDGE | 403519 | BROOKSVILLE WEST | 1 | 230 | 3.32 | 2011 | State/Budget Approval | Reliability | New 230kV Line |
| PEF | FL | 403518 | BROOKRIDGE | 403532 | Lecanto | 1 | 230 | 22.36 | 2012 | State/Budget Approval | Reliability | New 230kV Line |
| PEF | FL | 403550 | Brookridge | 403559 | Levy | 1 | 500 | 42.400002 | 2017 | Proposed | Reliability | New 500kV Line |
| PEF | FL | 403551 | Central Florida | 403559 | Levy | 1 | 500 | 60.900002 | 2017 | Proposed | Reliability | New 500kV Line |
| PEF | FL | 402163 | Camp lake | 402160 | Hancock Road | 31 | 230 | 5.4 | 2017 | Planned | Reliability | Line upgrade |
| PEF | FL | 402068 | Haines Creek | 403521 | CENTRAL FLORIDA | 31 | 230 | 5.4 | 2017 | Planned | Reliability | Line upgrade |
| PEF | FL | 403514 | Central Florida South | 402163 | CampLake | 31 | 230 | 19.24 | 2017 | Planned | Reliability | Line upgrade |
| PEF | FL | 403514 | Central Florida South | 402164 | Clermont East | 31 | 230 | 4.88 | 2017 | Planned | Reliability | Line upgrade |
| PEF | FL | 402272 | LK TARPN-B | 402884 | KATHLEEN | 31 | 230 | 44 | 2017 | Planned | Reliability | New 500kV Line |
| PEF | FL | 403559 | LEVY 500.00 | 403561 | CFLA_SO500 500.00 | 31 | 500 | | 2017 | Proposed | Reliability | New 500kV Line |
| PEF | FL | 403559 | LEVY 500.00 | 403562 | CITRUS500 500.00 | 31 | 500 | | 2017 | Proposed | Reliability | New 500kV Line |
| PEF | FL | 403559 | LEVY 500.00 | 403562 | CITRUS500 500.00 | 32 | 500 | | 2017 | Proposed | Reliability | New 500kV Line |
| PEF | FL | 403555 | CRYST RV 500.00 | 403559 | LEVY 500.00 | 31 | 500 | | 2017 | Proposed | Reliability | New 500kV Line |
| PEF | FL | 403513 | CITRUS230 230.00 | 403523 | CRYST RE 230.00 | 31 | 230 | | 2017 | Planned | Reliability | New 230 kV Line |
| PEF | FL | 403513 | CITRUS230 230.00 | 403523 | CRYST RE 230.00 | 32 | 230 | | 2017 | Planned | Reliability | New 230 kV Line |
| PEF | FL | 403518 | BRKRIDGE 230.00 | 403519 | BRKSVL W 230.00 | 32 | 230 | | 2017 | Planned | Reliability | Loop into BrksvlWest |
| PEF | FL | 403518 | BRKRIDGE 230.00 | 403519 | BRKSVL W 230.00 | 33 | 230 | | 2017 | Planned | Reliability | Loop into BrksvlWest |
| PEF | FL | 403518 | BRKRIDGE 230.00 | 403522 | CR PLANT 230.00 | 32 | 230 | | 2017 | Planned | Reliability | Unloop the CREst sub from the existing CR-Brkrdge 230 kV line |
| PEF | FL | 403519 | BRKSVL W 230.00 | 403836 | HUDSN 230.00 | 32 | 230 | | 2017 | Planned | Reliability | Loop existing Brkrdge-Hudson 230 kV line into BrksvlWest |
| PEF | FL | 403527 | HOLDER 230.00 | 403533 | ROSSPRAI 230.00 | 32 | 230 | | 2017 | Planned | Reliability | Loop Holder-CFL 230 kV line into RossPrairie substation |
| PEF | FL | 403518 | BRKRIDGE 230.00 | 403522 | CR PLANT 230.00 | 33 | 230 | | 2017 | Planned | Reliability | New 230 kV line |
| PEF | FL | 403515 | ANDERSEN | 403521 | CENTRAL FLORIDA | 31 | 230 | | 2017 | Planned | Reliability | New 230 kV line |
| PEF | FL | 403515 | ANDERSEN | 403533 | ROSS PRAIRIE | 31 | 230 | | 2017 | Planned | Reliability | New 230 kV line |
| PEF | FL | 402883 | INTERCESSION CITY 230.00 | 402166 | LK BRYAN 230.00 | 1 | 230 | 10 | 2012 | Planned | Reliability | Line upgrade |
| PEF | FL | 402883 | INTERCESSION CITY 230.00 | 402166 | LK BRYAN 230.00 | 2 | 230 | 10 | 2012 | Planned | Reliability | Line upgrade |
| PEF | FL | 403159 | ARCHER 230.00 | 403171 | HAILE SW 230.00 | 1 | 230 | | 2015 | Planned | Reliability | Line upgrade |
| PEF | FL | 403159 | ARCHER 230.00 | 403528 | MARTIN W 230.00 | 1 | 230 | | 2015 | Planned | Reliability | Line upgrade |
| PEF | FL | 403163 | FT. WHITE SOUTH 230.00 | 403174 | GINNIE 230.00 | 1 | 230 | | 2015 | Planned | Reliability | Line upgrade |
| PEF | FL | 403165 | NEWBERRY 230.00 | 403174 | GINNIE 230.00 | 1 | 230 | | 2015 | Planned | Reliability | Line upgrade |
| PEF | FL | 403171 | HAILE SW 230.00 | 403174 | GINNIE 230.00 | 1 | 230 | | 2015 | Planned | Reliability | Line upgrade |
| PJM | NJ | 206242 | KITATINY | 206260 | NEWTON | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor Kittatinny - Newton (2 mile JCPL section) 230kV circuit with 1590ACSS |
| PJM | NJ | 206236 | GILBERT | 206233 | G GARDNR | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor the 8 mile Gilbert - Glen Gardner 230kV circuit |
| PJM | PA | 200007 | ELROY | 200070 | CENTERPT | 1 | 500 | - | 6/1/2011 | State/Budget Approval | Reliability | Install a new 500/230kV substation in PECO, and tap the high side to Elroy - Whitpain 500kV and the low side to North Wales - Perkiomen 230kV circuit |
| PJM | PA | 200070 | CENTERPT | 200015 | WHITPAIN | 1 | 500 | - | 6/1/2011 | State/Budget Approval | Reliability | Install a new 500/230kV substation in PECO, and tap the high side to Elroy - Whitpain 500kV and the low side to North Wales - Perkiomen 230kV circuit |
| PJM | PA | 200070 | CENTERPT | 213479 | CENTERPT | 1 | 500/230 | - | 6/1/2011 | State/Budget Approval | Reliability | Install a new 500/230kV substation in PECO, and tap the high side to Elroy - Whitpain 500kV and the low side to North Wales - Perkiomen 230kV circuit |
| PJM | PA | 213827 | N WALES8 | 213479 | CENTERPT | 1 | 230 | - | 6/1/2011 | State/Budget Approval | Reliability | Install a new 500/230kV substation in PECO, and tap the high side to Elroy - Whitpain 500kV and the low side to North Wales - Perkiomen 230kV circuit |
| PJM | PA | 213479 | CENTERPT | 213886 | PERKIOMN | 1 | 230 | - | 6/1/2011 | State/Budget Approval | Reliability | Install a new 500/230kV substation in PECO, and tap the high side to Elroy - Whitpain 500kV and the low side to North Wales - Perkiomen 230kV circuit |
| PJM | PA | 200009 | JUNIATA | 200071 | JACKMTN1 | 1 | 500 | - | 6/1/2013 | Planned | Reliability | Build Jack's Mountain 500kV substation - Tap the Keystone - Juniata and Conemaugh - Juniata 500kV, connect the circuits with a breaker and half scheme, and install new 400 MVAR capacitor |
| PJM | PA | 200071 | JACKMTN1 | 200011 | KEYSTONE | 1 | 500 | - | 6/1/2013 | Planned | Reliability | Build Jack's Mountain 500kV substation - Tap the Keystone - Juniata and Conemaugh - Juniata 500kV, connect the circuits with a breaker and half scheme, and install new 400 MVAR capacitor |
| PJM | PA | 200071 | JACKMTN1 | 200072 | JACKMTN2 | 1 | 500 | - | 6/1/2013 | Planned | Reliability | Build Jack's Mountain 500kV substation - Tap the Keystone - Juniata and Conemaugh - Juniata 500kV, connect the circuits with a breaker and half scheme, and install new 400 MVAR capacitor |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PJM | PA | 200005 | CONEM-GH | 200072 | JACKMTN2 | 1 | 500 | - | 6/1/2013 | Planned | Reliability | Build Jack's Mountain 500kV substation - Tap the Keystone - Juniata and Conemaugh - Juniata 500kV, connect the circuits with a breaker and half scheme, and install new 400 MVAR capacitor |
| PJM | PA | 200072 | JACKMTN2 | 200009 | JUNIATA | 1 | 500 | - | 6/1/2013 | Planned | Reliability | Build Jack's Mountain 500kV substation - Tap the Keystone - Juniata and Conemaugh - Juniata 500kV, connect the circuits with a breaker and half scheme, and install new 400 MVAR capacitor |
| PJM | PA | 200011 | KEYSTONE | 200071 | JACKMTN1 | 1 | 500 | - | 6/1/2013 | Planned | Reliability | Replace wave trap and upgrade a bus section at Keystone 500kV - on the Keystone - New Jack's Mountain 500kV sub |
| PJM | PA | 200011 | KEYSTONE | 200005 | CONEM-GH | 1 | 500 | - | 6/1/2012 | Planned | Reliability | Replace wave trap at Keystone 500kV - on the Keystone - Conemaugh 500kV |
| PJM | PA | 200005 | CONEM-GH | 200011 | KEYSTONE | 1 | 500 | - | 6/1/2012 | Planned | Reliability | Replace wave trap and relay at Conemaugh 500kV - on the Conemaugh - Keystone 500kV |
| PJM | MD | 200019 | BURCHES | 223994 | BURCH230 | 2 | 500/230 | - | 6/1/2011 | State/Budget Approval | Reliability | Burches Hill Substation - Add 2nd 1000 MVA 500/230kV Transformer |
| PJM | VA | 314902 | 8CARSON | 314928 | 8SULFOLK | 1 | 500 | - | 6/1/2011 | State/Budget Approval | Reliability | Build Carson-Suffolk 500 kV line |
| PJM | VA | 314928 | 8SULFOLK | 314537 | 6SUFFOLK | 2 | 500/230 | - | 6/1/2011 | State/Budget Approval | Reliability | Install second Suffolk 500/230 #2 transformer, build Suffolk-Fentress 230kV line |
| PJM | VA | 314309 | 6IRON208 | 314338 | 6SOUWEST | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Uprate/resag IronBridge-Walmsley-Southwest 230 kV |
| PJM | MD | 235105 | 01DOUBS | 235459 | 01DOUBS | 2 | 500/230 | - | 6/1/2011 | State/Budget Approval | Reliability | Replace Doubs 500/230 kV transformer #2 |
| PJM | MD | 235105 | 01DOUBS | 235459 | 01DOUBS | 3 | 500/230 | - | 6/1/2011 | Planned | Reliability | Replace Doubs 500/230 kV transformer #3 |
| PJM | PA | 213986 | TUNNEL2 | 214074 | GRAYSFRY4 | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Tunnel - Grays Ferry 230kV - Replace terminal equipment 220-89 line |
| PJM | PA | 213984 | TUNNEL | 213859 | PARRISH9 | 1 | 230 | - | 5/27/2011 | Planned | Reliability | Tunnel - Parrish 230kV - Replace terminal equipment 220-27 line |
| PJM | PA | 213586 | EDDYSTN3 | 213666 | ISLANDR6 | 1 | 230 | - | 6/1/2011 | State/Budget Approval | Reliability | Eddystone - Island Rd Upgrade line terminal equipment(CB # 235, three disconnect switches and two CTs) - new emergency rating of 1411 MVA, same impedance data |
| PJM | PA | 214143 | MASTER1 | 213819 | N PHILA8 | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor Master - North Philadelphia 230kV line, new rating would be 757N/757E MVA ACSS |
| PJM | PA | 213453 | BUCKNGHM | 218309 | PLSNT VY | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor Buckingham - Pleasant Valley 230kV; same impedance as existing line; ratings of 760MVA normal/882MVA emergency |
| PJM | NJ | 213453 | BUCKNGHM | 218309 | PLSNT VY | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor the PSEG portion of Buckingham - Pleasant Valley 230kV, replace wave trap and metering transformer |
| PJM | PA | 213817 | N PHILA | 214010 | WANEETA2 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | North Philadelphia - Waneeta 230kV reconductor same impedance as existing line; ratings of 760 MVA normal/882 MVA emergency |
| PJM | MD | 223941 | QUINC033 | 223937 | DICK 230 | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor 230kV Quince Orchard to Dickerson circuits 33 & 35 |
| PJM | MD | 223942 | QUINC035 | 223937 | DICK 230 | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor 230kV Quince Orchard to Dickerson circuits 33 & 35 |
| PJM | NJ | 206262 | READ-GTN | 218350 | BRANCHBG | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor Readington (2555) - Branchburg (4962) 230kV circuit w/ 1590 ACSS |
| PJM | NJ | 218300 | LINDEN | 218343 | TOSCO | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor Linden (4996) - Tosco (5190) 230kV circuit w/ 1590 ACSS (Assumes operating at 220 degrees C) |
| PJM | NJ | 218343 | TOSCO | 218441 | G22_MTX5 | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor Tosco (5190) - G22_MTX5 (90220) 230kV circuit w/ 1590 ACSS (Assumes operation at 220 degrees C) |
| PJM | NJ | 216900 | ATHENIA | 217012 | SADDLBRK | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Reconductor Athenia (4954) - Saddle Brook (5020) 230kV circuit river section |
| PJM | NJ | 206242 | KITATINY | 206260 | NEWTON | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Reconductor the PSEG portion of Kittatinny - Newton 230kV circuit w/ 1590 ACSS |
| PJM | VA | 314398 | 6NP NEWS | 314522 | 6CHCKTUK | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Reconductor 2.4 miles of Newport News - Chuckatuck 230kV |
| PJM | VA | 314907 | 8DOOMS | 314912 | 8LEXNGTN | 1 | 500 | - | 6/1/2012 | Planned | Reliability | Replace both wave traps on Dooms - Lexington 500kV |
| PJM | NJ | 217149 | LAWRENC4 | 218309 | PLSNT VY | 1 | 230 | - | 6/1/2012 | State/Budget Approval | Reliability | Replace the wave traps at both Lawrence and Pleasant Valley on the Lawrence - Pleasant Valley 230kV circuit |
| PJM | NJ | 217012 | SADDLBRK | 216900 | ATHENIA | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Increase the emergency rating of Saddle Brook - Athenia 230 kV by 25% by adding forced cooling |
| PJM | MD | 220963 | CONASTON | 220964 | GRACETON | 2 | 230 | - | 6/1/2014 | Planned | Reliability | Install a second Conastone - Graceton 230 kV circuit and replace Conastone 230 kV breaker 2323/2302 |
| PJM | MD | 200019 | BURCHES | 223994 | BURCH230 | 3 | 500/230 | - | 6/1/2012 | Planned | Reliability | Install third Burches Hill 500/230 kV transformer |
| PJM | PA | 220963 | CONASTON | 208048 | OTCR | 1 | 230 | - | 6/1/2012 | Proposed | Reliability | Conastone - Otter Creek 230 kV - Reconductor approximately 17.2 miles of 795 kcmil ACSR with new 795 kcmil ACSS operated at 160 deg C |
| PJM | MD | 220963 | CONASTON | 208048 | OTCR | 1 | 230 | - | 6/1/2012 | Proposed | Reliability | Conastone - Otter Creek 230 kV - Replace wavetrap and raise Operating temperature to 165 deg C |
| PJM | PA | 253990 | 15CARSON | 253983 | 15BRADY | 1 | 345 | - | 6/1/2013 | Planned | Reliability | New Underground Carson - Brady - Brunot Island 345 kV circuit |
| PJM | PA | 253983 | 15BRADY | 253975 | 15BI | 1 | 345 | - | 6/1/2013 | Planned | Reliability | New Underground Carson - Brady - Brunot Island 345 kV circuit |
| PJM | PA | 214020 | WARRNGT1 | 213642 | HARTMAN | 1 | 230 | - | 5/27/2011 | State/Budget Approval | Reliability | Replace station cable at Hartman on the Warrington - Hartman 230 kV circuit |
| PJM | PA | 213674 | JARRETT2 | 213652 | HEATON7 | 1 | 230 | - | 5/27/2011 | Planned | Reliability | Jarrett - Heaton - Upgrade 230kV line terminal equipment (220-51 line) |
| PJM | MD | 224017 | RITCH059 | 224021 | BENN 230 | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Two new 230 kV circuits between Ritchie - Benning Sta. "A" |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PJM | MD | 224018 | RITCH060 | 224021 | BENN 230 | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Two new 230 kV circuits between Ritchie - Benning Sta. "A" |
| PJM | PA | 204508 | N.TEMPLE | 204875 | NORTHKILL | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Construct a 230 kV Bernville station by tapping the North Temple-North Lebanon 230 kV line. Install a 230/69 kV transformer at existing Bernville 69 kV station. |
| PJM | PA | 204875 | NORTHKILL | 204507 | N.LEB | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Construct a 230 kV Bernville station by tapping the North Temple-North Lebanon 230 kV line. Install a 230/69 kV transformer at existing Bernville 69 kV station. |
| PJM | IL | 270729 | E FRA; R | 270767 | GOODI;1R | 1 | 345 | - | 6/1/2013 | Planned | Reliability | Reconductor East Frankfort - Goodings Grove 345 kV "Red" |
| PJM | NJ | 218350 | BRANCHBG | 218337 | FLAGTOWN | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Branchburg - Flagtown - Reconductor circuit - upgrade 230kV with 2x1033 ACSS (4 mi) |
| PJM | NJ | 218317 | SOMRVLLE | 218302 | BRIDGWTR | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Somerville - Bridgewater - upgrade 230kV with double 1033 ACSS conductor |
| PJM | MD | 235175 | 01ELKO | 235159 | 01CARB J | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Rebuild Elko-Carbon Center Junction using 230 kV construction |
| PJM | MD | 235488 | 01MONOCY | 235516 | 01WALKER | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Convert Monocacy - Walkersville 138 kV to 230 kV |
| PJM | MD | 235516 | 01WALKER | 235452 | 01CATOCT | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Convert Walkersville - Catoctin 138 kV to 230 kV |
| PJM | MD | 235506 | 01RINGLD | 235452 | 01CATOCT | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Convert Ringgold - Catoctin 138 kV to 230 kV |
| PJM | MD | 235452 | 01CATOCT | 235451 | 01CARROL | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Convert Catoctin - Carroll 138 kV to 230 kV |
| PJM | MD | 235506 | 01RINGLD | - | - | - | 230 | - | 6/1/2013 | Planned | Reliability | Convert portion of Ringgold Substation from 138 kV to 230 kV |
| PJM | MD | 235452 | 01CATOCT | - | - | - | 230 | - | 6/1/2013 | Planned | Reliability | Convert Catoctin Substation from 138 kV to 230 kV |
| PJM | MD | 235451 | 01CARROL | - | - | - | 230 | - | 6/1/2013 | Planned | Reliability | Convert portion of Carroll Substation from 138 kV to 230 kV |
| PJM | MD | 235488 | 01MONOCY | - | - | - | 230 | - | 6/1/2013 | Planned | Reliability | Convert Monocacy Substation from 138 kV to 230 kV |
| PJM | MD | 235516 | 01WALKER | - | - | - | 230 | - | 6/1/2013 | Planned | Reliability | Convert Walkersville Substation from 138 kV to 230 kV |
| PJM | MD | 235459 | 01DOUBS | 235481 | 01LIMEKN | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Reconductor Doubs - Lime Kiln (#207) 230kV |
| PJM | MD | 235459 | 01DOUBS | 235481 | 01LIMEKN | 2 | 230 | - | 6/1/2013 | Planned | Reliability | Reconductor Doubs - Lime Kiln (#231) 230kV |
| PJM | PA | 207922 | BRIS | 208136 | WSHO | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Rebuild existing Brunner Island-West Shore 230 kV line and add a 2nd Brunner Island-West Shore 230 kV line |
| PJM | PA | 207922 | BRIS | 208138 | WSHO TR2 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Rebuild existing Brunner Island-West Shore 230 kV line and add a 2nd Brunner Island-West Shore 230 kV line |
| PJM | MD | 223941 | QUINC033 | 223945 | BML028 | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Upgrade terminal equipment on Quince Orchard - Bells Mill Road 028 & 030 230 kV lines |
| PJM | MD | 223942 | QUINC035 | 223946 | BML030 | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Upgrade terminal equipment on Quince Orchard - Bells Mill Road 028 & 030 230 kV lines |
| PJM | MD | 223982 | OAKGV230 | 224016 | RITCH061 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Upgrade Oak Grove - Ritchie 23061 230 kV line |
| PJM | MD | 223982 | OAKGV230 | 224015 | RITCH058 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Upgrade Oak Grove - Ritchie 23058 230 kV line |
| PJM | MD | 223982 | OAKGV230 | 224017 | RITCH059 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Upgrade Oak Grove - Ritchie 23059 230 kV line |
| PJM | MD | 223982 | OAKGV230 | 224018 | RITCH060 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Upgrade Oak Grove - Ritchie 23060 230 kV line |
| PJM | MD | 232005 | VIENNA | 232008 | LOR_230 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Convert 138 kV network path from Vienna – Loretto – Piney Grove to 230 kV, add 230/138 kV transformer to Loretto 230 kV |
| PJM | MD | 232008 | LOR_230 | 232007 | PINEY GR | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Convert 138 kV network path from Vienna – Loretto – Piney Grove to 230 kV, add 230/138 kV transformer to Loretto 230 kV |
| PJM | VA | 314388 | 6LANEXA | 314387 | 3LANEXA | 2 | 230 | - | 11/1/2011 | State/Budget Approval | Reliability | Build a parallel Chickahominy – Lanexa 230 kV line |
| PJM | VA | 314423 | 6YORKTWN | 314189 | 6PAPERMILL | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Build a new 230 kV line from Yorktown to Hayes |
| PJM | VA | 314918 | 8NO ANNA | 314911 | 8LDYSMTH | 1 | 500 | - | 6/1/2013 | Planned | Reliability | Replace wave traps on North Anna to Ladysmith 500 kV |
| PJM | PA | 213440 | BRADFRD2 | 213894 | PLANBRK1 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Bradford - Planebrook 230 kV Ckt.220-02: Reconductor the line to provide a normal rating of 677 MVA and an emergency rating of 827 MVA |
| PJM | PA | 213436 | BRADFR12 | 213898 | PLANBRK3 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Reconductor the Bradford – Planebrook 230 kV Ckt. 220-31 to provide a normal rating of 677 MVA and emergency rating of 827 MVA |
| PJM | NJ | 206242 | KITATINY | 206260 | NEWTON | 1 | 230 | - | 6/1/2012 | Planned | Reliability | Kittatinny-Newton 230 kV: Increase operating temperature for one year to get 925E MVA rating |
| PJM | NJ | 217000 | HUDSN1-6 | 217117 | S WTRFRP | 1 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor Hudson-South Waterfront 230 kV |
| PJM | MD | 223961 | BURT2314 | 220983 | SANDY14T | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Rebuild Burtonsville - Sandy Spring 230 kV circuits (2314 and 2334) (0.2 miles each) to increase rating to 968N/1227E MVA |
| PJM | MD | 223962 | BURT2334 | 220984 | SANDY34T | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Rebuild Burtonsville - Sandy Spring 230 kV circuits (2314 and 2334) (0.2 miles each) to increase rating to 968N/1227E MVA |
| PJM | MD | 232005 | VIENNA | 232000 | STEELE | 1 | 230 | - | 6/1/2014 | Planned | Reliability | Build a 2nd Vienna-Steele 230 kV line |
| PJM | PA | 207999 | JENK | 208097 | STAN TR3 | 1 | 230 | - | 6/1/2013 | Planned | Reliability | Install a second 230 kV line between Jenkins and Stanton |
| PJM | VA | 314171 | 6BRAMBL | 314170 | 6COHMIL | 2 | 230 | - | 6/1/2011 | Planned | Reliability | Reconductor Brambleton - Cochran Mill 230 kV line with 201 Yukon conductor |
| PJM | MD | 220964 | GRACETON | 221000 | BAGLEY | 1 | 230 | - | 6/1/2014 | Planned | Reliability | Rebuild Graceton - Bagley 230 kV as double circuit line using 1590 ACSR. Terminate new line at Graceton with a new circuit breaker. |
| PJM | MD | 220964 | GRACETON | 220999 | BAGLEY2 | 1 | 230 | - | 6/1/2014 | Planned | Reliability | Rebuild Graceton - Bagley 230 kV as double circuit line using 1590 ACSR. Terminate new line at Graceton with a new circuit breaker. |
| PJM | NJ | 146752 | SMAHWAH1 | 217063 | WALDWICK | 1 | 345 | - | 6/1/2011 | Planned | Reliability | Reconductor South Mahwah - Waldwick 345 kV J-3410 circuit |
| PJM | NJ | 146753 | SMAHWAH2 | 217063 | WALDWICK | 1 | 345 | - | 6/1/2011 | Planned | Reliability | Reconductor South Mahwah - Waldwick 345 kV K-3411 circuit |
| PJM | OH | 242938 | 05MARQUI | 246888 | 05NFORK | 1 | 345 | - | 6/1/2014 | Planned | Reliability | Construct a new 345/138kV station on the Marquis-Bixby 345kV line near the intersection with Ross - Highland 69kV |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PJM | OH | 246888 | 05NFORK | 243454 | 05BIXBY | 1 | 345 | - | 6/1/2014 | Planned | Reliability | Construct a new 345/138kV station on the Marquis-Bixby 345kV line near the intersection with Ross - Highland 69kV |
| PJM | IL | 270679 | BYRON; R | 270918 | WEMPL; B | 1 | 345 | - | 6/1/2014 | Planned | Reliability | Change relay settings on Byron – Wempletown 345 kV to bring relay trip setting up to 115% of Rate C |
| PJM | VA | 314918 | 8NO ANNA | 314232 | 6NO ANNA | 1 | 500/230 | - | 6/1/2014 | Planned | Reliability | Replace existing North Anna 500-230kV transformer with larger unit |
| PJM | MD | 224019 | BUZZ NEW | 224018 | RITCH060 | 1 | 230 | - | 6/1/2014 | Planned | Reliability | Convert the 138kV line from Buzzard 138-Ritchie 851 to a 230kV line and Remove 230/138kV Transformer at Ritchie and install a spare 230/138kV transformer at Buzzard Pt |
| PJM | MD | 224013 | BUZZ 016 | 224017 | RITCH059 | 1 | 230 | - | 6/1/2014 | Planned | Reliability | Upgrade the 230kV line from Buzzard 016 - Ritchie 059 |
| PJM | PA | 200005 | CONEM-GH | 200912 | CONEMGH230 | 1 | 500/230 | - | 6/1/2014 | Planned | Reliability | Upgrade Conemaugh 500/230 KV transformer and new line from Conemaugh-Seward 230 KV |
| PJM | PA | 200912 | CONEMGH230 | 200793 | SEWARD 2 | 1 | 230 | - | 6/1/2014 | Planned | Reliability | Upgrade Conemaugh 500/230 KV transformer and new line from Conemaugh-Seward 230 KV |
| PJM | MD | 220980 | RAPHAEL | 220999 | BAGLEY2 | 2 | 230 | - | 6/1/2015 | Planned | Reliability | Build a second Raphael - Bagley 230 kV |
| PJM | MD | 220980 | RAPHAEL | 221000 | BAGLEY | 1 | 230 | - | 6/1/2015 | Planned | Reliability | Re-build the existing Raphael - Bagley 230 kV |
| PJM | OH | 238569 | 02BEAVER | 238654 | 02DAV-BE | 2 | 345 | - | 6/1/2015 | Planned | Reliability | Build Beaver - Hayes - Davis - Besse #2 345 kV line |
| PJM | OH | 238615 | 02CHAMBR | 238781 | 02HANNA | 1 | 345 | - | 6/1/2015 | Planned | Reliability | Loop the Chamberlin - Mansfield 345 kV line into the Hanna 345 kV substation |
| PJM | OH/PA | 238781 | 02HANNA | 238941 | 02MANSFD | 1 | 345 | - | 6/1/2015 | Planned | Reliability | Loop the Chamberlin - Mansfield 345 kV line into the Hanna 345 kV substation |
| PJM | IL | 270763 | GARFI; R | 270899 | TAYLO; R | 1 | 345 | - | 6/1/2015 | Planned | Reliability | Upgrade both Garfield - Taylor 345 kV lines (17723 and 17724) |
| PJM | IL | 270762 | GARFI; B | 270898 | TAYLO; B | 1 | 345 | - | 6/1/2015 | Planned | Reliability | Upgrade both Garfield - Taylor 345 kV lines (17723 and 17724) |
| PJM | VA | 314749 | 6CHARLVL | 314761 | 6HOLLY T | 1 | 230 | - | 6/1/2014 | Planned | Reliability | Loop the 2054 line in and out of Hollymeade and place a 230 kV breaker at Hollymeade. This creates two lines: Charlottesville - Hollymeade and Hollymeade - Gordonsville |
| PJM | VA | 314761 | 6HOLLY T | 314758 | 6GORDNVL | 1 | 230 | - | 6/1/2014 | Planned | Reliability | Loop the 2054 line in and out of Hollymeade and place a 230 kV breaker at Hollymeade. This creates two lines: Charlottesville - Hollymeade and Hollymeade - Gordonsville |
| PJM | NC | 314647 | 6SHAWBRO | 314632 | 6AYDLETT | 1 | 230 | - | 6/1/2015 | Planned | Reliability | Build a 230 kV line from Shawboro to Aydlett tap and connect Aydlett to the new line |
| PJM | NJ/PA | 219125 | CAMDEN | 213922 | RICHMOND | 1 | 230 | - | 6/1/2015 | Proposed | Reliability | Reconductor the Camden – Richmond 230 kV circuit (PECO portion) and upgrade terminal equipments at Richmond substations |
| PJM | NJ/PA | 219125 | CAMDEN | 213922 | RICHMOND | 1 | 230 | - | 6/1/2015 | Proposed | Reliability | Reconductor the Camden – Richmond 230 kV circuit (PSEG portion) and upgrade terminal equipments at Camden substations |
| PJM | PA | 213922 | RICHMOND | 214012 | WANEETA3 | 1 | 230 | - | 6/1/2015 | Proposed | Reliability | Reconductor Richmond – Waneeta 230 kV and replace terminal equipments at Richmond and Waneeta substations |
| PJM | OH | 235108 | 01HATFLD | 235774 | 01RONCO | 1 | 500 | - | 5/1/2012 | Proposed | Reliability | Hatfield - Ronco - Reconductor 500kV circuit |
| PJM | NJ | 218311 | SEWAREN | 218341 | WDBRDG O | 1 | 230 | - | 3/10/2012 | Proposed | Reliability | Sewaren - Woodbridge "O" - Reconductor Circuit - Upgrade 230kV line |
| PJM | NJ | 206257 | WHIPPANY | 216950 | ROSELAND | 1 | 230 | - | 6/30/2012 | Planned | Reliability | Whippany - Roseland - upgrade 230kV of JCPL side (rebuild circuit) |
| PJM | NJ | 206286 | ATLANTIC | 206294 | LARRABEE | 1 | 230 | - | 6/30/2012 | Planned | Reliability | Atlantic - Larrabee - upgrade 230kV reconductor circuit |
| PJM | VA | 314918 | 8NO ANNA | 314911 | 8LDYSMTH | 1 | 500 | - | 9/18/2018 | Planned | Reliability | North Anna - Ladysmith - New 15 mile 500kV line |
| PJM | DE | 213750 | LINWOOD | 213490 | CHICHST2 | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Linwood - Chichester (Circuit 1) - Reconductor line and upgrade substation equipment Linwood to Chichester 220-39 line. |
| PJM | DE | 220964 | GRACETON | 221000 | BAGLEY | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Graceton - Bagley - The line needs to be reconductored with 1,272 kcm rated at 125 deg. C. (SE becomes 699 MVA) The cost is approx. $6M and 3 Years to complete |
| PJM | MD | 235632 | 01KEMPTOWN | 200004 | CNASTONE | 1 | 500 | - | 12/31/2010 | Proposed | Reliability | Kemptown - Conastore - Replace 500kV Breaker Disconnects |
| PJM | PA | 208009 | LACK | 200708 | OXBOW | 1 | 230 | - | 12/15/2011 | Proposed | Reliability | Lackawanna - Oxbow - Rebuild approximately 16.33 miles of transmission line to support bundled conductor |
| PJM | PA | 200708 | OXBOW | 200706 | N.MESHPN | 1 | 230 | - | 12/15/2011 | Proposed | Reliability | Oxbow - N. Meshhoppen - Rebuild approximately 10.6 miles of transmission line to support bundled conductor, North Meshoppen Substation upgrade/replace two CT circuits and replace substation conductor |
| PJM | PA | 200009 | JUNIATA | 208005 | JUNI BU2 | 2 | 500/230 | - | 12/15/2011 | Proposed | Reliability | Juniata - Replace 500/230kV transformer #2 |
| PJM | NJ | 206298 | WILLIAMS | 206292 | FRENEAU | 1 | 230 | - | 6/1/2013 | Proposed | Reliability | Williams - Freneau Mitigation Upgrade, Drop Loop/Bus Conductor (Bundled) |
| PJM | NJ | 206322 | PARLIN | 206298 | WILLIAMS | 1 | 230 | - | 6/1/2013 | Proposed | Reliability | Parlin - Williams Mitigation Upgrade, Drop Loop/Bus Conductor (Bundled) |
| PJM | DE | 232004 | MILF_230 | 232000 | STEELE | 1 | 230 | - | 6/1/2014 | Proposed | Reliability | Milford - Steele - Reconductor 230kV line |
| PJM | DE | 232008 | LOR_230 | 232007 | PINEY GR | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Loretto - Piney Grove - Upgrade 9.51 miles of 477ACSR at 80 degrees C to 125 degrees C |
| PJM | OH | 242528 | 05SPORN | 248005 | 06KYGER | 1 | 345 | - | 5/31/2012 | Proposed | Reliability | Sporn - Loop the Kyger Creek - Tristate line in an out of substation. Add 3-345kV circuit breakers, switches |
| PJM | OH | 248005 | 06KYGER | 242529 | 05TRISTA | 1 | 345 | - | 5/31/2012 | Proposed | Reliability | Sporn - Loop the Kyger Creek - Tristate line in an out of substation. Add 3-345kV circuit breakers, switches |
| PJM | MD/PA | 208048 | OTCR | 220963 | CONASTON | 1 | 230 | - | 12/31/2012 | Proposed | Reliability | Otter Creek - Conastone - Reconductor the 12 mile 230kV circuit with 795 kcmil 30/19 ACSS conductor (PPL segment) and increase the line rating on the BGE segment to 140 degree C |
| PJM | DE | 232004 | MILF_230 | 232000 | STEELE | 1 | 230 | - | 1/31/2011 | Planned | Reliability | Milford - Steele - Upgrade 230kV line |
| PJM | DE | 232002 | CEDAR CK | 231004 | RL_230 | 1 | 230 | - | 1/31/2011 | Planned | Reliability | Cedar Creek - Red Lion - Reconductor the 230kV line |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PJM | VA | 314037 | 6GAINSVL | 314061 | 6LOUDOUN | 1 | 230 | - | 6/1/2012 | Proposed | Reliability | Gainesville - Loudoun - Reconductor 230kV line 2030 to 1200 MVA and convert 115kV line 124 to 230kV including 3 breakers and assoicated equipment |
| PJM | VA | 314037 | 6GAINSVL | 314125 | 6VINTHIL | 1 | 230 | - | 6/1/2012 | Proposed | Reliability | Gainesville - Vint - Reconductor 230kV line |
| PJM | DE | 231001 | EDGEMR 5 | 231000 | CLAY_230 | 1 | 230 | - | 1/31/2011 | Planned | Reliability | Edgemoor 5 - Claymont - Replace 7.1 miles of existing 1590 ACSR |
| PJM | PA | 235116 | 01YUKON | 292625 | T174_TAP | 1 | 500 | - | 6/1/2011 | Proposed | Reliability | Rhodes Lane - Construct new 500kV substation in a 3 breaker ring bus design adjacent to the existing Yukon-Browns Run (Hatfield) 500kV EHV circuit |
| PJM | PA | 292625 | T174_TAP | 235850 | 01BRNRUN | 1 | 500 | - | 6/1/2011 | Proposed | Reliability | Rhodes Lane - Construct a one span 2-2032 ACSR 500kV loop line from the existing Yukon-Browns Run (Hatfield) line at approx 2.8 miles from substation to new switching station |
| PJM | PA | 219125 | CAMDEN | 213922 | RICHMOND | 1 | 230 | - | 1/1/2013 | Proposed | Reliability | Richmond - Camden 7 - Reconductor (PS portion) Position 42H at Camden 230kV bus section 2-6, disconnect switch 230BS2-6/2 - 831MVA and disconnect switch 230BS2-6/6 - 831 MVA |
| PJM | PA | 207922 | BRIS | 204515 | YORKANA | 1 | 230 | - | 1/1/2013 | Proposed | Reliability | Brunner - Yorkana - Reconductor (PPL portion) approx. .64 miles of 1033 kcmil ACSR with 1590 kcmil ACCC |
| PJM | PA | 220963 | CONASTON | 208048 | OTCR | 1 | 230 | - | 1/1/2013 | Proposed | Reliability | Ottercreek - Conastone - Install 3 prop poles to increase the line rating (BGE portion) for a conductor temperature to 140 degrees C gets 579 MVA (Summer emergency) with the existing wire |
| PJM | PA | 220963 | CONASTON | 208048 | OTCR | 1 | 230 | - | 1/1/2013 | Proposed | Reliability | Ottercreek - Conastone - Reconductor appro. 12 miles of 795 kcmil 30/19 ACSR |
| PJM | PA | 213846 | NOTTREAC | 213869 | PCHBTMTP | 1 | 230 | - | 10/1/2012 | Proposed | Reliability | Nottingham - Peach Bottom - Reconductor 14 miles of the 220-08 line (current emergency rating 627MVA) |
| PJM | NJ | 217000 | HUDSN1-6 | 217079 | ESSEX | 1 | 230 | - | 6/1/2012 | Proposed | Reliability | Husdon - Essex - Construct new 230kV circuit and add new terminations at each end |
| PJM | VA | 235707 | 01WYLIE R | 239092 | 02SAMMIS | 1 | 345 | - | 11/1/2010 | Proposed | Reliability | Wylie Ridge - Sammis - Upgrade the line trap on the terminal 345kV circuit |
| PJM | IN | 243218 | 05DESOTO | 243233 | 05TANNER | 2 | 345 | - | 12/31/2011 | Planned | Reliability | Desoto - Tanners Creek - Construct new switching station connecting to the 345kV line, including 3 345kV circuit breakers, relays, metering, SCADA and assoicated equipment |
| PJM | IN | 243218 | 05DESOTO | 243233 | 05TANNER | 1 | 345 | - | 12/31/2011 | Planned | Reliability | Tanners Creek - Modify relay settings on the Desoto circuit |
| PJM | NJ | 228401 | MCKLTON | 219121 | THOROFAR | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Mickelton - Thorofare (AE portion) - Reconductor 230kV line |
| PJM | NJ | 219121 | THOROFAR | 219109 | DEPTFORD | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Mickelton - Thorofare - Deptford (PS portion) - Upgrade terminal equipment on the 230kV line |
| PJM | NJ | 228401 | MCKLTON | 228402 | MONROE | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Mickelton - Monroe - Reconductor 230kV line #1 |
| PJM | NJ | 228401 | MCKLTON | 228402 | MONROE | 2 | 230 | - | 6/1/2011 | Proposed | Reliability | Mickelton - Monroe - Reconductor 230kV line #2 |
| PJM | NJ | 219120 | EAGLE PT | 219110 | GLOUCSTR | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Eagle Point -Gloucester - Upgrade terminal equipment on the 230kV line |
| PJM | VA | 314074 | 6POSSUM | 314029 | 6DUMFRES | 1 | 230 | - | 4/1/2016 | Proposed | Reliability | Possum Point - Dumfres - Reconductor the 230kV line |
| PJM | VA | 314067 | 6OCCOQUN | 314068 | 6OX | 1 | 230 | - | 4/1/2016 | Proposed | Reliability | Occoquan - Ox - Reconductor the 230kV line and replace 1 in-line switch |
| PJM | VA | 314074 | 6POSSUM | 314057 | 6LAKERD | 1 | 230 | - | 4/30/2015 | Proposed | Reliability | Possum Point - Lake Ridge - Reconductor 12 miles of the 230kV line |
| PJM | NJ | 220964 | GRACETON | 214089 | COOPER | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Graceton - Cooper - Improve the line rating from 165 C to 180 C and remove sag limitation on the 230kV line |
| PJM | IN | 243229 | 05OLIVE | 243878 | 05MEADOW | 1 | 345 | - | 11/1/2010 | Proposed | Reliability | Olive - Dequine - #2 circuit into the expanded Meadow Lake switching station |
| PJM | IN | 243878 | 05MEADOW | 243217 | 05DEQUIN | 1 | 345 | - | 11/1/2010 | Proposed | Reliability | Olive - Dequine - #2 circuit into the expanded Meadow Lake switching station |
| PJM | VA | 314074 | 6POSSUM | 314057 | 6LAKERD | 1 | 230 | - | 6/30/2016 | Proposed | Reliability | Possum Point - Reconductor 12 miles of the 230kV transmission line #237 (Possum Point to Lake Ridge) |
| PJM | NJ | 228401 | MCKLTON | 219121 | THOROFAR | 1 | 230 | - | 6/1/2011 | Proposed | Reliability | Mickleton - Thorofare - Rebuild 1.69 miles of the 230 kV (AE portion) line with a conductor that has a capability of at least 2500 A emergency |
| PJM | NJ/NY | 218300 | LINDEN | 126321 | GOETHALS | 1 | 230 | - | 6/1/2013 | Proposed | Reliability | Reloacte the Linden – Goethals 230 kV circuit to the existing vacant bay at Linden |
| PJM | PA/WV/VA | 235111 | 01 502 J | 314917 | 8MT STM | 1 | 500 | - | 6/1/2011 | State/Budget Approval | Reliability | TRAIL Project |
| PJM | PA/WV/VA | 314917 | 8MT STM | 235637 | 01WELTON S | 1 | 500 | - | 6/1/2011 | State/Budget Approval | Reliability | TRAIL Project |
| PJM | PA/WV/VA | 235637 | 01WELTON S | 235110 | 01MDWBRK | 1 | 500 | - | 6/1/2011 | State/Budget Approval | Reliability | TRAIL Project |
| PJM | PA/WV/VA | 235110 | 01MDWBRK | 314913 | 8LOUDOUN | 1 | 500 | - | 6/1/2011 | State/Budget Approval | Reliability | TRAIL Project |
| PJM | MD/WV/VA | 242508 | 05AMOS | 235635 | 01WELTON S | 1 | 765 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | MD/WV/VA | 235635 | 01WELTON S | 235636 | 01KEMPTOWN | 1 | 765 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | MD/WV/VA | 235635 | 01WELTON S | 235637 | 01WELTON S | 1 | 765/500 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | MD/WV/VA | 235636 | 01KEMPTOWN | 235632 | 01KEMPTOWN | 1 | 765/500 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | MD/WV/VA | 235636 | 01KEMPTOWN | 235632 | 01KEMPTOWN | 2 | 765/500 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | MD/WV/VA | 235632 | 01KEMPTOWN | 200003 | BRIGHTON | 1 | 500 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | MD/WV/VA | 235632 | 01KEMPTOWN | 200003 | BRIGHTON | 2 | 500 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | MD/WV/VA | 235632 | 01KEMPTOWN | 200004 | CNASTONE | 1 | 500 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | MD/WV/VA | 235632 | 01KEMPTOWN | 235105 | 01DOUBS | 1 | 500 | - | 6/1/2015 | Planned | Reliability | PATH Project |
| PJM | VA | 314902 | 8CARSON | 314928 | 8SULFOLK | 1 | 500 | - | 6/1/2011 | State/Budget Approval | Reliability | Carson - Suffolk 500 kV line |
| PJM | NJ/PA | 200022 | SUSQHANA | 200074 | LACKAW | 1 | 500 | - | 6/1/2012 | State/Budget Approval | Reliability | Susquehanna - Roseland Project |
| PJM | NJ/PA | 200074 | LACKAW | 200098 | LACKJEFF_T | 1 | 500 | - | 6/1/2012 | State/Budget Approval | Reliability | Susquehanna - Roseland Project |
| PJM | NJ/PA | 200098 | LACKJEFF_T | 208009 | LACK | 1 | 500/230 | - | 6/1/2012 | State/Budget Approval | Reliability | Susquehanna - Roseland Project |
| PJM | NJ/PA | 200098 | LACKJEFF_T | 208009 | LACK | 2 | 500/230 | - | 6/1/2012 | State/Budget Approval | Reliability | Susquehanna - Roseland Project |
| PJM | NJ/PA | 200098 | LACKJEFF_T | 200091 | HOPATCONG | 1 | 500 | - | 6/1/2012 | State/Budget Approval | Reliability | Susquehanna - Roseland Project |
| PJM | NJ/PA | 200091 | HOPATCONG | 200094 | ROSELD | 1 | 500 | - | 6/1/2012 | State/Budget Approval | Reliability | Susquehanna - Roseland Project |
| PJM | MD/VA | 314922 | 8POSSUM | 200019 | BURCHES | 1 | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project |
| PJM | MD/VA | 314922 | 8POSSUM | 200019 | BURCHES | 2 | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project |
| PJM | MD/VA | 200019 | BURCHES | 200018 | CHALK PT | 1 | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PJM | MD/VA | 200019 | BURCHES | 200018 | CHALK PT | 2 | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project |
| PJM | MD/VA | 200018 | CHALK PT | 200020 | CLVT CLF | 1 | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project |
| PJM | MD/VA | 200018 | CHALK PT | 200020 | CLVT CLF | 2 | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project |
| PJM | MD/VA | 200150 | VN_500 | - | - | - | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project (Generator at bus to model HVDC line) |
| PJM | MD/VA | 200160 | IR_500 | - | - | - | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project (Generator at bus to model HVDC line) |
| PJM | MD/VA | 200020 | CLVT CLF | - | - | - | 500 | - | 6/1/2017 | Planned | Reliability | MAPP Project (Loads at bus to model HVDC line) |
| SCE&G | SC | 370103 | Pineland | 370106 | Denny Terrace | 1 | 230 | 8 | 2011 | State/Budget Approval | Reliability | Construct approximately 8 mi of 230kV |
| SCE&G | SC | 370201 | Lake Murray | 370210 | Lake Murray | 2 | 230/115 | 0 | 2011 | State/Budget Approval | Reliability | Install a second 230/115kV autotransformer |
| SCE&G | SC | 370302 | Graniteville | 370320 | Graniteville | 3 | 230/115 | 0 | 2011 | State/Budget Approval | Reliability | Install a third 230/115kV autotransformer |
| SCE&G | SC | 370013 | Pepper Hill | 370507 | Summerville | 1 | 230 | 8.19 | 2012 | State/Budget Approval | Reliability | Construct approximately 8 mi of 230kV |
| SCE&G | SC | 370407 | Yemassee | 370470 | Yemassee | 2 | 230/115 | 0 | 2012 | State/Budget Approval | Reliability | Install a second 230/115kV autotransformer |
| SCE&G | SC | 370409 | Ritter | 370490 | Ritter | 1 | 230/115 | 0 | 2012 | State/Budget Approval | Reliability | Construct a new 230/115kV substation |
| SCE&G | SC | 370013 | Pepper Hill | 370406 | Canadys | 2 | 230 | 35 | 2013 | State/Budget Approval | Reliability | Construct approximately 35 mi of 230kV |
| SCE&G | SC | 370013 | Pepper Hill | 370605 | Church Creek | 2 | 230 | 21.74 | 2013 | State/Budget Approval | Reliability | Construct approximately 22 mi of 230kV |
| SCE&G | SC | 370201 | Lake Murray | 370205 | Edenwood | 2 | 230 | 14.09 | 2013 | State/Budget Approval | Reliability | Construct approximately 14 mi of 230kV |
| SCE&G | SC | 370407 | Yemassee | 370470 | Yemassee | 3 | 230/115 | 0 | 2013 | State/Budget Approval | Reliability | Install a third 230/115kV autotransformer |
| SCE&G | SC | 370405 | Okatie | 370410 | Okatie | 1 | 230/115 | 0 | 2014 | State/Budget Approval | Reliability | Construct a new 230/115kV substation |
| SCE&G | SC | 370701 | Cainhoy | 370710 | Cainhoy | 1 | 230/115 | 0 | 2014 | State/Budget Approval | Reliability | Construct a new 230/115kV substation |
| SCE&G | SC | 370012 | VCS Sub 1 | 370105 | Killian | 1 | 230 | 38 | 2015 | State/Budget Approval | Reliability | Construct approximately 38 mi of 230kV |
| SCE&G | SC | 370021 | VCS Sub 2 | 370201 | Lake Murray | 2 | 230 | 19 | 2015 | State/Budget Approval | Reliability | Construct approximately 19 mi of 230kV |
| SCE&G | SC | 370106 | Denny Terrace | 370160 | Denny Terrace | 3 | 230/115 | 0 | 2015 | State/Budget Approval | Reliability | Install a third 230/115kV autotransformer |
| SCE&G | SC | 370201 | Lake Murray | 370210 | Lake Murray | 3 | 230/115 | 0 | 2015 | State/Budget Approval | Reliability | Install a third 230/115kV autotransformer |
| SCE&G | SC | 370204 | Columbia Industrial Park | 370240 | Columbia Industrial Park | 2 | 230/115 | 0 | 2015 | State/Budget Approval | Reliability | Install a second 230/115kV autotransformer |
| SCE&G | SC | 370011 | AM Williams | 370701 | Cainhoy | 2 | 230 | 9 | 2016 | Planned | Reliability | Construct approximately 9 mi of 230kV |
| SCE&G | SC | 370302 | Graniteville | 370306 | Urquhart | 2 | 230 | 17.76 | 2016 | Planned | Reliability | Construct approximately 18 mi of 230kV |
| SCE&G | SC | 370021 | VCS Sub 2 | 370404 | St George | 1 | 230 | 135 | 2018 | State/Budget Approval | Reliability | Construct approximately 135 mi of 230kV |
| SCE&G | SC | 370021 | VCS Sub 2 | 370404 | St George | 2 | 230 | 135 | 2018 | State/Budget Approval | Reliability | Construct approximately 135 mi of 230kV |
| SCE&G | SC | 370404 | St George | 370406 | Canadys | 1 | 230 | 9.5 | 2018 | State/Budget Approval | Reliability | Rebuild approximately 10 mi of 230kV |
| SCE&G | SC | 370404 | St George | 370507 | Summerville | 1 | 230 | 27.2 | 2018 | State/Budget Approval | Reliability | Rebuild approximately 27 mi of 230kV |
| SCPSA | SC | 311322 | Arcadia | 312766 | Garden City | 2 | 115 | 14.5 | 2011 | Under Construction | Reliability | Arcadia-Garden City 115 kV Line #2 |
| SCPSA | SC | 312712 | Hemingway | 311384 | Lake City | 1 | 230 | 19 | 2012 | State/Budget Approval | Reliability | Fold the existing Hemingway-Marion 230 kV Line into the Lake City 230-69 kV Substation |
| SCPSA | SC | 312729 | Marion | 311384 | Lake City | 1 | 230 | 19 | 2012 | State/Budget Approval | Reliability | Fold the existing Hemingway-Marion 230 kV Line into the Lake City 230-69 kV Substation |
| SCPSA | SC | 311688 | Carolina Forest | 312813 | Carolina Forest | | 230/115 | | 2012 | State/Budget Approval | Reliability | Carolina Forest 230-115 kV Sub |
| SCPSA | SC | 312813 | Carolina Forest | 312764 | Dunes | 2 | 115 | 4 | 2012 | State/Budget Approval | Reliability | Carolina Forest-Dunes115 kV Line #2 |
| SCPSA | SC | 311627 | Orangeburg | 311628 | Orangeburg | | 230/115 | | 2012 | State/Budget Approval | Reliability | Orangeburg 230-115 kV Sub |
| SCPSA | SC | 311612 | Pomaria | 312993 | Pomaria | | 230/69 | | 2012 | Planned | Reliability | Pomaria 230-69 kV Sub |
| SCPSA | SC | 311382 | Winnsboro | 311059 | Winnsboro | | 230/69 | | 2013 | Planned | Reliability | Winnsboro 230-69 kV Sub |
| SCPSA | SC | 370012 | VC Summer | 311382 | Winnsboro | 1 | 230 | 14 | 2013 | Planned | Reliability | VC Summer-Winnsboro 230 kV Line |
| SCPSA | SC | 311654 | Richburg | 311399 | Richburg | | 230/69 | | 2014 | Planned | Reliability | Richburg 230-69 kV Sub |
| SCPSA | SC | 311382 | Winnsboro | 311654 | Richburg | 1 | 230 | 26.3 | 2014 | Planned | Reliability | Winnsboro-Richburg 230 kV Line |
| SCPSA | SC | 370012 | VC Summer | 311612 | Pomaria | 2 | 230 | 6.93 | 2014 | Planned | Reliability | VC Summer-Pomaria 230 kV Line #2 |
| SCPSA | SC | 311716 | Bucksville | 311717 | Bucksville | | 230/115 | | 2015 | Planned | Reliability | Bucksville 230-115 kV Sub |
| SCPSA | SC | 311654 | Richburg | 312732 | Flat Creek | 1 | 230 | 32.45 | 2015 | Planned | Reliability | Richburg-Flat Creek 230 kV Line |
| SCPSA | SC | 312719 | Winyah | 311716 | Bucksville | 1 | 230 | 32.5 | 2016 | Planned | Reliability | Winyah-Bucksville 230 kV Line |
| SCPSA | SC | 311612 | Pomaria | 312737 | Sandy Run | 1 | 230 | 58 | 2016 | Planned | Reliability | Pomaria-Sandy Run 230 kV Line |
| SCPSA | SC | 312737 | Sandy Run | 311330 | Sandy Run | | 230/115 | | 2016 | Planned | Reliability | Sandy Run 230-115 kV Sub |
| SCPSA | SC | 311717 | Bucksville | 312766 | Garden City | 1 | 115 | 15 | 2017 | Planned | Reliability | Bucksville-Garden City 115 kV Line |
| SCPSA | SC | 312737 | Sandy Run | 311627 | Orangeburg | 1 | 230 | 33.2 | 2017 | Planned | Reliability | Sandy Run-Orangeburg 230 kV Line |
| SCPSA | SC | 311673 | Wassamassaw | 311674 | Wassamassaw | | 230/115 | | 2017 | Planned | Reliability | Wassamassaw 230-115 kV Sub |
| SCPSA | SC | 312728 | St. George | 311393 | St. George | | 230/115 | | 2018 | Planned | Reliability | St. George 230-115 kV Substation |
| SCPSA | SC | 311627 | Orangeburg | 312728 | St. George | 1 | 230 | 29.07 | 2018 | Planned | Reliability | Orangeburg-St. George 230 kV Line |
| SCPSA | SC | 312710 | Cross | 311673 | Wassamassaw | 2 | 230 | 18.3 | 2018 | Planned | Reliability | Cross-Wassamassaw 230 kV Line |
| SCPSA | SC | 312728 | St. George | 312718 | Varnville | 1 | 230 | 41.1 | 2019 | Planned | Reliability | St. George-Varnville 230 kV Line |
| SCPSA | SC | 312718 | Varnville | 312840 | Varnville | | 230/115 | | 2019 | Planned | Reliability | Construct a new Varnville 230-115 kV Sub |
| SOCO | AL | 385180 | N.OPEL6 | 385310 | HILLABEE | 1 | 230 | 37.6 | 2011 | State/Budget Approval | Reliability | Upgrade approximately 37.6 mi of 230 kV line to 110 C |
| SOCO | AL | 384215 | HOLT 6 | 385182 | TUSC6 | 1 | 230 | 6.9 | 2011 | State/Budget Approval | Reliability | Construct approximately 6.9 mi of 230 kV line |
| SOCO | MS | 388460 | CARIERSW 230.00 | 388461 | CARIERSW 115.00 | 1 | 230/115 | | 2011 | State/Budget Approval | Reliability | Construct a new 230/115 kV substation |
| SOCO | MS | 388460 | CARIERSW 230.00 | 388400 | KILN 230.00 | 1 | 230 | 26.4 | 2011 | State/Budget Approval | Reliability | Construct approximately 26.4 mi of 230 kV line |
| SOCO | GA | 380100 | E SOCIAL CIR | 382370 | R_ESC B-ESC | 1 | 230 | | 2011 | State/Budget Approval | Reliability | Install a 2% reactor at East Social Circle |
| SOCO | GA | 380100 | E SOCIAL CIR | 382326 | R_EAT SW E-E | 1 | 230 | | 2011 | State/Budget Approval | Reliability | Install a 2% reactor at East Social Circle |
| SOCO | GA | 389001 | MCINTOSH 230.00 | 389003 | KRAFT 230.00 | 1 | 230 | 16.3 | 2012 | State/Budget Approval | Reliability | Rebuild approximately 16 mi of 230 kV lines |
| SOCO | GA | 389001 | MCINTOSH 230.00 | 389003 | KRAFT 230.00 | 2 | 230 | 16.3 | 2012 | State/Budget Approval | Reliability | Rebuild approximately 16 mi of 230 kV lines |
| SOCO | AL | 384965 | DANWAYSS | 385310 | HILLABEE | 1 | 230 | 32.05 | 2012 | State/Budget Approval | Reliability | Upgrade approximately 32 mi of 230 kV line to 110 C |
| SOCO | AL | 384508 | MONTG SS | 384513 | S MONTG6 | 1 | 230 | 7.7 | 2012 | State/Budget Approval | Reliability | Reconductor approximately 7.7 mi of 230 kV line |
| SOCO | GA | 389001 | MCINTOSH 230.00 | 389155 | BLANDFORD 230 | 1 | 230 | 8.6 | 2013 | State/Budget Approval | Reliability | Reconductor approximately 18.2 mi of 230 kV line |
| SOCO | GA | 389155 | BLANDFORD 230 | 389044 | MELDRIM 230 | 2 | 230 | 9.6 | 2013 | State/Budget Approval | Reliability | Reconductor approximately 18.2 mi of 230 kV line |
| SOCO | AL | 384471 | GREENCO6 230.00 | 384470 | GREENCO3 115.00 | 2 | 230/115 | | 2013 | State/Budget Approval | Reliability | Install a new 230/115 kV transformer |
| SOCO | AL | 385178 | AUTAUSS8 500.00 | 385500 | AUTAUG6 230.00 | 1 | 500/230 | | 2013 | State/Budget Approval | Reliability | Install a new 500/230 kV transformer |
| SOCO | MS | 388000 | MDN NE 230.00 | 388001 | MDN NE 115.00 | 1 | 230/115 | | 2013 | State/Budget Approval | Reliability | Replace the 230/115 kV transformer |
| SOCO | MS | 388000 | MDN NE 230.00 | 388001 | MDN NE 115.00 | 2 | 230/115 | | 2013 | State/Budget Approval | Reliability | Replace the 230/115 kV transformer |
| SOCO | FL | 387765 | LAGUNA B 230.00 | 387836 | L SMITH | 1 | 230 | 14.2 | 2013 | State/Budget Approval | Reliability | Reconductor approximately 14.2 mi of 230 kV line |
| SOCO | FL | 387765 | LAGUNA B 230.00 | 387766 | LAGUNA B 115.00 | 2 | 230/115 | | 2013 | State/Budget Approval | Reliability | Install a new 230/115 kV transformer |
| SOCO | GA | 389146 | DEAN FOREST | 389147 | DEAN FOREST | | 230/115 | | 2014 | State/Budget Approval | Reliability | Install a 400 MVA, 230/115 kV transformer |
| SOCO | GA | 389175 | BOULEVARD 2 | 389146 | DEAN FOREST | 1 | | | 2014 | State/Budget Approval | Reliability | Rebuild approximately |
| SOCO | GA | 389001 | MCINTOSH 230.00 | 389176 | GS-W | 1 | 230 | 14.3 | 2014 | State/Budget Approval | Reliability | Tap the Kraft-McIntosh 230 kV line with new 230 kV station |
| SOCO | GA | 389176 | GS-W | 389003 | KRAFT 230.00 | 1 | 230 | 2 | 2014 | State/Budget Approval | Reliability | Tap the Kraft-McIntosh 230 kV line with new 230 kV station |
| SOCO | GA | 389146 | DEAN FOREST | 389176 | GS-W | 1 | 230 | 5 | 2014 | State/Budget Approval | Reliability | Build approximately 5 mi of new 230 kV line |
| SOCO | GA | 389146 | DEAN FOREST | 389003 | KRAFT 230.00 | 1 | 230 | 5.7 | 2014 | State/Budget Approval | Reliability | Rebuild approximately 5.7 mi of 230 kV line |
| SOCO | AL | 384400 | GASTON | 380179 | ROOPVILLE | 1 | 230 | 72 | 2014 | State/Budget Approval | Reliability | Upgrade approximately 72 mi of 230 kV line |
| SOCO | AL | 385235 | E PELHAM6 | 384400 | GASTON | 1 | 230 | 11.97 | 2014 | State/Budget Approval | Reliability | Upgrade approximately 11.97 mi of 230 kV line |
| SOCO | AL | 385897 | CO LINE6 230.00 | 385898 | CO LINE3 115.00 | 2 | 230/115 | | 2014 | State/Budget Approval | Reliability | Install a 230/115 kV transformer |
| SOCO | AL | 384511 | SNOWDN6 | 385138 | PIKE CO6 | 1 | 230 | 32.3 | 2014 | State/Budget Approval | Reliability | Reconductor approximately 32.3 mi of 230 kV line |
| SOCO | MS | 388008 | KEMPER | 388006 | MDN EAST | 1 | 230 | 18 | 2014 | State/Budget Approval | Reliability | Construct approximately 18 mi of new 230 kV line |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SOCO | MS | 388008 | KEMPER | 388007 | MDN WEST | 1 | 230 | 18 | 2014 | State/Budget Approval | Reliability | Construct approximately 18 mi of new 230 kV line |
| SOCO | MS | 388006 | MDN EAST | 384471 | GREENCO6 | 1 | 230 | 52.72 | 2014 | State/Budget Approval | Reliability | Construct new 230 kV Sw St along Green Co - MDN NE 230 kV line |
| SOCO | MS | 388006 | MDN EAST | 388000 | MDN NE | 1 | 230 | 4.28 | 2014 | State/Budget Approval | Reliability | Construct new 230 kV Sw St along Green Co - MDN NE 230 kV line |
| SOCO | MS | 388007 | MDN WEST | 388000 | MDN NE | 1 | 230 | 4.02 | 2014 | State/Budget Approval | Reliability | Construct new 230 kV Sw St along Enterprise - MDN NE 230 kV line |
| SOCO | MS | 388007 | MDN WEST | 388072 | ENTPRISE | 1 | 230 | 24 | 2014 | State/Budget Approval | Reliability | Construct new 230 kV Sw St along Enterprise - MDN NE 230 kV line |
| SOCO | MS | 388036 | VIMVILLE | 388035 | VIMVL TP | 1 | 230/115 | | 2014 | State/Budget Approval | Reliability | Construct a new 230/115 kV Substation |
| SOCO | MS | 388006 | MDN EAST | 388036 | VIMVILLE | 1 | 230 | 6 | 2014 | State/Budget Approval | Reliability | Construct approximately 6 mi of new 230 kV line |
| SOCO | MS | 388036 | VIMVILLE | 388065 | SWEATT | 1 | 230 | 14 | 2014 | State/Budget Approval | Reliability | Construct approximately 14 mi of new 230 kV line |
| SOCO | GA | 380317 | ROCKVILLE 500.00 | 380018 | SCHERER | 1 | 500 | 54 | 2015 | State/Budget Approval | Reliability | Construct new 500 kV Sw St along Scherer-Warthen 500 kV line |
| SOCO | GA | 380317 | ROCKVILLE 500.00 | 383052 | WARTHEN | 1 | 500 | 24.5 | 2015 | State/Budget Approval | Reliability | Construct new 500 kV Sw St along Scherer-Warthen 500 kV line |
| SOCO | GA | 380017 | E WALTON 500.00 | 382098 | E WALTON 230.00 | 1 | 500/230 | | 2015 | State/Budget Approval | Reliability | Construct a new 500/230/115 kV Substation |
| SOCO | GA | 380317 | ROCKVILLE 500.00 | 380017 | E WALTON 500.00 | 1 | 500 | 46.6 | 2015 | State/Budget Approval | Reliability | Construct approximately 46.6 mi of new 500 kV line |
| SOCO | GA | 382098 | E WALTON 230.00 | 382055 | BETHABARA | 1 | 230 | 13.3 | 2015 | State/Budget Approval | Reliability | Construct with 1351 ACSS at 200ºC |
| SOCO | GA | 382098 | E WALTON 230.00 | 382059 | BOSTWICK | 1 | 230 | 5.45 | 2015 | State/Budget Approval | Reliability | Construct with 1351 ACSS at 200ºC |
| SOCO | GA | 382098 | E WALTON 230.00 | 382799 | JACKS CREEK | 1 | 230 | 13 | 2015 | State/Budget Approval | Reliability | Construct with 1351 ACSS at 200ºC |
| SOCO | GA | 380065 | NORCROSS | 380056 | BERKELEY LAKE | 1 | 230 | 3.5 | 2015 | State/Budget Approval | Reliability | Reconductor approximately 3.5 mi of 230 kV line |
| SOCO | GA | 380086 | CUMMING | 381977 | SHARON SP 230.00 | 1 | 230 | 6.6 | 2015 | State/Budget Approval | Reliability | Construct approximately 6.6 mi of new 230 kV line |
| SOCO | FL | 387776 | S ROSA 230.00 | 387775 | SNT ROSA 115.00 | 1 | 230/115 | | 2015 | State/Budget Approval | Reliability | Construct a new 230/115 Substation |
| SOCO | FL | 387776 | S ROSA 230.00 | 387775 | SNT ROSA 115.00 | 2 | 230/115 | | 2015 | State/Budget Approval | Reliability | Construct a new 230/115 Substation |
| SOCO | FL | 387776 | S ROSA 230.00 | 387765 | LAGUNA B 115.00 | 1 | 230 | 21.35 | 2015 | State/Budget Approval | Reliability | Construct a new 230/115 Substation |
| SOCO | FL | 387776 | S ROSA 230.00 | 387765 | LAGUNA B 115.00 | 2 | 230 | 21.35 | 2015 | State/Budget Approval | Reliability | Construct a new 230/115 Substation |
| SOCO | GA | 380147 | BRANCH | 380172 | W MILLEDGVL | 1 | 230 | 6.23 | 2016 | Planned | Reliability | Bundle approximately 6.23 mi of 230 kV line |
| SOCO | GA | 382224 | CORN CRIB 230.00 | 382225 | CORN CRIB 115.00 | 1 | 230/115 | | 2016 | Planned | Reliability | Construct a new 230/115 kV substation |
| SOCO | GA | 382224 | CORN CRIB | 380123 | YATES | 1 | 230 | 14.8 | 2016 | Planned | Reliability | Loop in the existing 230 kV line into new substation |
| SOCO | GA | 382224 | CORN CRIB | 380169 | THOMASTON | 1 | 230 | 40.5 | 2016 | Planned | Reliability | Loop in the existing 230 kV line into new substation |
| SOCO | GA | 380148 | GORDON | 380156 | N DUBLIN | 1 | 230 | 32 | 2016 | Planned | Reliability | Construct approximately 32 mi of new 230 kV line |
| SOCO | GA | 383070 | APPLING BIO | 380224 | OFFERMAN | 1 | 230 | 27.1 | 2016 | Planned | Reliability | Reconductor approximately 27.1 mi of 230 kV line |
| SOCO | GA | 381216 | HWY 54 | 381936 | HWY 54 | 1 | 230/115 | | 2016 | Planned | Reliability | Construct a new 230/115 kV substation |
| SOCO | GA | 381216 | HWY 54 | 380026 | UNION CITY | 1 | 230 | 9.4 | 2016 | Planned | Reliability | Loop in the existing 230 kV line into new substation |
| SOCO | GA | 381216 | HWY 54 | 380174 | NEW HOPE | 1 | 230 | 7.13 | 2016 | Planned | Reliability | Loop in the existing 230 kV line into new substation |
| SOCO | GA | 380090 | LAWRENCEVL | 380095 | WINDER | 1 | 230 | 15.3 | 2016 | Planned | Reliability | Rebuild approximately 15.3 mi of existing 230 kV line |
| SOCO | GA | 380040 | ROSWELL 230.00 | 380048 | PARKAIRE 230.00 | 1 | 230 | 4.5 | 2016 | Planned | Reliability | Construct approximately 4.5 mi of new 230 kV line |
| SOCO | GA | 380040 | ROSWELL 230.00 | 380322 | ROSWELL | 1 | 230/115 | | 2016 | Planned | Reliability | Install a 230/115 kV transformer |
| SOCO | GA | 380149 | S MACON 230.00 | 380767 | S MACON 115.00 | 1 | 230/115 | | 2016 | Planned | Reliability | Replace the existing 230/115 kV transformers |
| SOCO | GA | 380149 | S MACON 230.00 | 380767 | S MACON 115.00 | 2 | 230/115 | | 2016 | Planned | Reliability | Replace the existing 230/115 kV transformers |
| SOCO | GA | 380008 | VOGTLE | 381490 | THOMSON | 1 | 500 | 50 | 2016 | State/Budget Approval | Reliability | Construct approximately 50 mi of new 500 kV transmission line |
| SOCO | AL | 384638 | CHICK 6 | 384700 | BARRY 6 | 1 | 230 | 18.43 | 2016 | Planned | Reliability | Reconductor approximately 18.4 mi of 230 kV line |
| SOCO | AL | 385425 | S.DUNVL6 230.00 | 385426 | S.DUNVL3 | 1 | 230/115 | | 2016 | Planned | Reliability | Install a 230/115 kV transformer |
| SOCO | GA | 382059 | BOSTWICK | 380122 | E WATKNSV 2 | 1 | 230 | 11.38 | 2017 | Planned | Reliability | Reconductor existing line with 1351 ACSS at 170ºC |
| SOCO | GA | 380095 | WINDER P 230.00 | 382021 | CLARKSBORO 230.00 | 1 | 230 | 14 | 2017 | Planned | Reliability | Reconductor approximately 14.0 mi of 230 kV line |
| SOCO | GA | 382751 | CORNELIA 230.00 | 380407 | CORNELIA 115.00 | 1 | 230/115 | | 2017 | Planned | Reliability | Install a 230/115 kV transformer |
| SOCO | GA | 382751 | CORNELIA 230.00 | 380091 | MIDDLE FORK 230.00 | 1 | 230 | 10 | 2017 | Planned | Reliability | Build approximately 10 mi of new 230 kV line |
| SOCO | GA | 380165 | W BRUNSWICK 230.00 | 382152 | DORCHESTER 230.00 | 1 | 230 | 45 | 2017 | Planned | Reliability | Build approximately 45 mi of new 230 kV line |
| SOCO | GA | 382152 | DORCHESTER 230.00 | 382140 | DORCHESTER 115.00 | 2 | 230/115 | | 2017 | State/Budget Approval | Reliability | Install a 230/115 kV transformer |
| SOCO | GA | 382152 | DORCHESTER 230.00 | 389051 | LT OGEECHEE 230.00 | 1 | 230 | 21.9 | 2017 | Planned | Reliability | Reconductor approximately 21.9 mi of 230 kV line |
| SOCO | GA | 382470 | E CARROLTON 230.00 | 382471 | E CARROLTON 115.00 | 1 | 230/115 | | 2017 | Planned | Reliability | Construct a new 230/115 kV substation |
| SOCO | GA | 382470 | E CARROLTON 230.00 | 382469 | BRIGHT STAR | 1 | 230 | 5.3 | 2017 | Planned | Reliability | Construct a new 230/115 kV substation and loop in 230 kV line |
| SOCO | GA | 382470 | E CARROLTON 230.00 | 382480 | YELLOW DIRT | 1 | 230 | 14.1 | 2017 | Planned | Reliability | Construct a new 230/115 kV substation and loop in 230 kV line |
| SOCO | GA | 380088 | MCGRAU FORD 230.00 | 380209 | HOPEWELL 230.00 | 2 | 230 | 11.9 | 2017 | Planned | Reliability | Construct approximately 11.9 mi of new 230 kV line |
| SOCO | GA | 380224 | OFFERMAN 230.00 | 381093 | OFFERMAN 115.00 | 3 | 230/115 | | 2017 | Planned | Reliability | Install a 230/115 kV transformer |
| SOCO | GA | 381301 | SUWANEE 230.00 | 382035 | S HALL 230.00 | 1 | 230 | 20 | 2017 | Planned | Reliability | Construct approximately 20 mi of new 230kV line |
| SOCO | GA | 380171 | OHARA 230.00 | 381933 | MCDONOUGH 230.00 | 1 | 230 | 20 | 2017 | Planned | Reliability | Rebuild existing 115 kV to create new 230 kV circuit |
| SOCO | GA | 381933 | MCDONOUGH 230.00 | 380743 | MCDONOUGH 115.00 | 1 | 230/115 | | 2017 | Planned | Reliability | Install a new 230/115 kV transformer |
| SOCO | GA | 380147 | BRANCH 230.00 | 382325 | R_EATC B-E3 230.00 | 1 | 230 | 11.1 | 2018 | Planned | Reliability | Install a 2% reactor at 230 kV substation |
| SOCO | GA | 382325 | R_EATC B-E3 230.00 | 382054 | EATONTON C | 1 | 230 | 0 | 2018 | Planned | Reliability | Install a 2% reactor at 230 kV substation |
| SOCO | GA | 380089 | GAINSVL#2-1 230.00 | 380420 | GAINSVL#2-1 115.00 | 1 | 230/115 | | 2018 | Planned | Reliability | Replace the existing 230/115 kV transformer |
| SOCO | GA | 389001 | MCINTOSH 230.00 | 389021 | MCINTOSH 115.00 | 1 | 230/115 | | 2018 | Planned | Reliability | Replace the existing 230/115 kV transformer |
| SOCO | GA | 380056 | BERKELEY LK 230.00 | 381232 | SPRUILL RD | 1 | 230 | 3.9 | 2018 | Planned | Reliability | Reconductor approximately 3.9 mi of 230 kV line |
| SOCO | GA | 380066 | SCOTTDALE 230.00 | 380357 | SCOTTDALE 115.00 | 2 | 230/115 | | 2018 | Planned | Reliability | Install a new 230/115 kV transformer |
| SOCO | GA | 381301 | SUWANEE 230.00 | 381977 | SHARON SP 230.00 | 1 | 230 | 14.5 | 2018 | Planned | Reliability | Construct approximately 14.5 mi of new 230 kV line |
| SOCO | GA | 380033 | ADAMSVILLE | 380034 | BAKERS FRY | 1 | 230 | 1.6 | 2019 | Planned | Reliability | Reconductor approximately 1.6 mi of 230 kV line |
| SOCO | GA | 380171 | OHARA 230.00 | 381912 | JONESBORO 230.00 | 1 | 230 | 8.9 | 2019 | Planned | Reliability | Reconductor approximately 8.9 mi of 230 kV line |
| SOCO | GA | 380117 | WAYNESBORO 230.00 | 380562 | WAYNESBORO 115.00 | 1 | 230/115 | | 2019 | Planned | Reliability | Replace the existing 230/115 kV transformer |
| SOCO | GA | 382181 | R_WMCINTSH1 230.00 | 381421 | W MCINTOSH1 230.00 | 1 | 230 | 0 | 2019 | Planned | Reliability | Install a 1% reactor on the 230 kV line |
| SOCO | GA | 382181 | R_WMCINTSH1 230.00 | 389001 | MCINTOSH 230.00 | 1 | 230 | 0.43 | 2019 | Planned | Reliability | Install a 1% reactor on the 230 kV line |
| SOCO | GA | 382182 | R_WMCINTSH2 230.00 | 381424 | W MCINTOSH2 230.00 | 1 | 230 | 0 | 2019 | Planned | Reliability | Install a 1% reactor on the 230 kV line |
| SOCO | GA | 382182 | R_WMCINTSH2 230.00 | 389001 | MCINTOSH 230.00 | 1 | 230 | 0.37 | 2019 | Planned | Reliability | Install a 1% reactor on the 230 kV line |
| SOCO | AL | 385180 | N.OPEL6 230.00 | 385181 | N.OPEL3 115.00 | 2 | 230/115 | | 2019 | Planned | Reliability | Install a 230/115 kV transformer |
| SOCO | AL | 384700 | BARRY SP | 387060 | CRIST SP | 1 | 230 | 61.5 | 2019 | Planned | Reliability | Upgrade approximately 61.5 mi of 230 kV line |
| SOCO | GA | 380011 | S HALL 500.00 | 380017 | E WALTON 500.00 | 1 | 500 | 35 | 2020 | Planned | Reliability | Construct approximately 35 mi of new 500 kV transmission line |
| SOCO | GA | 381977 | SHARON SP 230.00 | 382084 | SHARON SP 115.00 | 1 | 230/115 | | 2015 | State/Budget Approval | Reliability | Install a 230/115 kV transformer |
| SOCO | GA | 380337 | BAY CREEK | 381937 | BAY CREEK | 1 | 230/115 | | 2016 | Planned | Reliability | Install a second 230/115 kV transformer |
| SPP | AR | 506935 | FLINT CREEK | 90002 | OSAGE CREEK | | 345 | 63 | 6/1/2016 | Planned | Reliability | Install 22 miles of new 345 kV, 2-954 ACSR line (Flint Creek to Shipe Road). Install 9 miles of 345 kV line from Shipe Road to East Rogers. Install 32 miles of 345 kV line from East Rogers to Osage Creek |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SPP | NM/TX | 527896 | HOBBS | 527916 | MIDLAND | | 345 | 89 | 2012 | Planned | Reliability | Convert existing 89.22 mile Hobbs - Midland 230 kV line to operate at 345 kV. |
| SPP | MO | 542982 | IATAN | 542980 | NASHUA | 1 | 345 | 30 | 2015 | Planned | Economic | Tap Nashua 345kV bus in Hawthorn - St. Joseph 345 kV line. Build new 345 kV line from Iatan to Nashua. |
| SPP | KS/NEB | 530583 | KNOLL | 640065 | AXTELL | | 345 | 125 | 2013 | Planned | Economic | Build new 345 kV line from Knoll to interception point of Axtell to Knoll line. Updated mileage for filed route; reactor added at Post Rock (55 Mvar) |
| SPP | TX/AR | 508072 | NW TEXARKANA | 507455 | TURK | 1 | 345 | 33 | 2012 | Planned | TS | Build approximately 33 miles of 2-954 ACSR from Turk to NW Texarkana. |
| SPP | KS | 532771 | RENO CO | 532773 | SUMMIT | 1 | 345 | 51 | 2010 | Planned | Economic | Install new 50.55-mile 345 kV line from Reno county to Summit; Substation work required at Summit for new 345 kV terminal |
| SPP | KS/OK | 532794 | ROSE HILL | 514803 | SOONER | 1 | 345 | 53 | 2012 | Planned | Reliability | New 345 kV line from Sooner to Oklahoma/Kansas Stateline or the interface with the Westar Energy line segment to achieve 3000 amp or greater emergency rating. |
| SPP | OK | 515045 | SEMINOLE | 515224 | MUSKOGEE | 1 | 345 | 100 | 2013 | Planned | Economic | Build new 345 kV line from Seminole to Muskogee |
| SPP | KS | 531469 | SPEARVILLE | 530583 | KNOLL | 1 | 345 | 90 | 2012 | Planned | Economic | Build new 345 kV line from Knoll to interception point of Spearville to Knoll line. Updated for approved route mileage; reflect addition of reactor at Post Rock (35 Mvar) |
| SPP | TX | 521157 | HUGO | 510911 | VALLIANT | 1 | 345 | 19 | 2012 | Planned | TS | Install 345 kV terminal equipment at Valliant Substation |
| SPP | TX/OK | 525832 | TUCO | 523775 | WOODWARD | 1 | 345 | 178 | 2014 | Planned | Economic | New 345kV line from Woodward EHV to SPS Tuco |
| SPP | KS | 532861 | EAST MANHATTAN | 532862 | MCDOWELL | | 230 | 15.65 | 2012 | Planned | Reliability | The East Manhattan-McDowell 115 kV is built as a 230 kV line but is operated at 115 kV. Substation work will have to be performed in order to convert this line to 230 kV operation.. |
| SPP | TX | 524365 | RANDALL CO. | 524415 | AMARILLO S. | 1 | 230 | 20 | 2014 | Planned | Reliability | Build new 20 mile Randall Co - Amarillo South 230 kV line. Install second 230/115 kV transformer in Randall substation. |
| SPP | TX | 526338 | JONES | 526677 | GRASSLAND | 2 | 230 | 18 | 2013 | Planned | Reliability | Build new second Jones - Grassland 230 kV line, first one built 345 kV |
| SPP | NM | 524875 | OASIS | 524897 | PLEASANT HILL | 1 | 230 | 16 | 2012 | Planned | Reliability | Build new 16 mile Frio - Draw - Oasis 230 kV line. New 230/115 kV transformer at Frio - Draw substation. |
| SPP | NM | 524897 | PLEASANT HILL | 524909 | ROOSEVELT | 1 | 230 | 26 | 2012 | Planned | Reliability | Build new 26 mile Frio - Draw - Roosevelt County 230 kV line. |
| SPP | TX | 525461 | NEWHART | 525213 | SWISHER CO. | 1 | 230 | 19 | 2015 | Planned | Reliability | New 19 mile Swisher County Interchange - Newhart 230 kV line to new Newhart substation with 230/115 kV, 150/173 MVA transformer |
| SPP | TX | 523095 | HITCHLAND | 523309 | MOORE CO. | 1 | 230 | 50 | 2011 | Planned | Reliability | Build new 50 mile Moore County - Hitchland 230 kV rated at 541 MVA. |
| SPP | TX | 523095 | HITCHLAND | 523155 | OCHILTREE | 1 | 230 | 35 | 2012 | Planned | Reliability | Add 230 kV line from Hitchland to Ochilltree - 541 MVA. |
| SPP | OGE | 515355 | Igo 161 kV | 515357 | Razorback 161 kV | 1 | 161 | 9.5 | 2011 | Planned | PL | Conversion from 69kV to 161kV. |
| SPP | OGE | 515358 | Short Mountain 161 kV | 515316 | Branch 161 kV | 1 | 161 | 10.77 | 2011 | Planned | PL | Conversion from 69kV to 161kV. |
| SPP | OGE | 503902 | Fitzhugh 161 kV | 515327 | Helberg 161 kV | 1 | 161 | 4.72 | 2011 | Planned | PL | Conversion from 69kV to 161kV. |
| SPP | OGE | 515352 | Altus 161 kV | 503902 | Fitzhugh 161 kV | 1 | 161 | 2.2 | 2011 | Planned | PL | Conversion from 69kV to 161kV. |
| SPP | OGE | 515319 | Little Spadra 161 kV | 515355 | Igo 161 kV | 1 | 161 | 6.93 | 2011 | Planned | PL | Conversion from 69kV to 161kV. |
| SPP | OGE | 515353 | Great Lakes Carbon 161 kV | 515352 | Altus 161 kV | 1 | 161 | 1.81 | 2011 | Planned | PL | Conversion from 69kV to 161kV |
| SPP | OGE | 515354 | Noark 161 kV | 515353 | Great Lakes Carbon 161 kV | 1 | 161 | 1.74 | 2011 | Planned | PL | Conversion from 69kV to 161kV |
| SPP | GRDA | 512714 | Kansas Tap 161 kV | 512642 | W Siloam Springs 161 kV | 1 | 161 | 8.8 | 2015 | Planned | R2 | Reconductor line to 347MVA |
| SPP | GRDA | 512642 | W Siloam Springs 161 kV | 512643 | Siloam City 161 kV | 1 | 161 | 4.2 | 2015 | Planned | R2 | Reconductor line to 347MVA |
| SPP | KCPL | 543069 | Paola 161 kV | 543129 | Middle Creek 161 kV | 1 | 161 | 10.35 | 2013 | Planned | PL | New Middle Creek sub and Paola-Middle Creek 161kV line |
| SPP | KCPL | 543058 | North Louisburg 161 kV | 543129 | Middle Creek 161 kV | 1 | 161 | 3.65 | 2013 | Planned | PL | New North Louisburg-Middle Creek 161kV line |
| SPP | KCPL | 543054 | Cedar Niles 161 kV | 543131 | Clare 161 kV | 1 | 161 | 4.84 | 2012 | Planned | PL | New Cedar Niles-Clare 161 kV Line & Clare substation |
| SPP | GMO | 541346 | Ritchfield 161 kV | 541202 | Sibley 161kV | 1 | 161 | | 2010 | Planned | PL | 161kV Tap of Hallmark to Sibley |
| SPP | GMO | 541215 | Hallmark 161kV | 541346 | Ritchfield 161 kV | 1 | 161 | 16.71 | 2010 | Planned | PL | 161kV Tap of Hallmark to Sibley |
| SPP | KCPL | 543030 | Waldron 161 kV | 546656 | Maywood 161 kV | 1 | 161 | | 2013 | Planned | PL | New Waldron sub cut-in |
| SPP | KCPL | 543030 | Waldron 161 kV | 543017 | Weatherby 161 kV | 1 | 161 | 6.2 | 2013 | Planned | PL | New Waldron sub cut-in |
| SPP | OGE | 515300 | Fort Smith 161 kV | 515345 | Colony 161 kV | 1 | 161 | 2.2 | 2013 | Planned | Reliability | Reconductor 2.2 miles of Fort Smith - Colony 161 kV line to 1590 kcmil ACSR and change terminal equipment at Ft. Smith and Colony substations to 2000A. |
| SPP | KCPL | 543130 | Sunflower | 542966 | West Gardner | 1 | 161 | | 2013 | Planned | PL | New Sunflower sub and cut-in |
| SPP | KCPL | 543121 | Hillsdale 161 kV | 543054 | Cedar Niles 161 kV | 1 | 161 | 7.6 | 2015 | Planned | Reliability | New Hillsdale - Cedar Niles 161 kV Line and Cedar Niles ring bus. |
| SPP | SUNC/WFEC | 531469 | Spearville 345 kV | 765341 | Comanche 345 kV | 1 | 345 | 71.5 | 12/31/2014 | Planned | Economic | Priority Projects, Spearville to Comanche 345 kV |
| SPP | SUNC/WFEC | 531469 | Spearville 345 kV | 765341 | Comanche 345 kV | 2 | 345 | 71.5 | 12/31/2014 | Planned | Economic | Priority Projects, Spearville to Comanche 345 kV |
| SPP | WFEC/MKEC | 765341 | Comanche 345 kV | 765342 | Medicine Lodge 345 kV | 1 | 345 | 42.9 | 12/31/2014 | Planned | Economic | Priority Projects, Comanche to Medicine Lodge 345 kV |
| SPP | WFEC/MKEC | 765341 | Comanche 345 kV | 765342 | Medicine Lodge 345 kV | 2 | 345 | 42.9 | 12/31/2014 | Planned | Economic | Priority Projects, Comanche to Medicine Lodge 345 kV |
| SPP | MKEC/WERE | 765342 | Medicine Lodge 345 kV | 532796 | Wichita 345 kV | 1 | 345 | 73.7 | 12/31/2014 | Planned | Economic | Priority Projects, Medicine Lodge to Wichita 345 kV |
| SPP | MKEC/WERE | 765342 | Medicine Lodge 345 kV | 532796 | Wichita 345 kV | 2 | 345 | 73.7 | 12/31/2014 | Planned | Economic | Priority Projects, Medicine Lodge to Wichita 345 kV |
| SPP | WFEC/OKGE | 765341 | Comanche 345 kV | 515375 | Woodward 345 kV | 1 | 345 | 53.9 | 12/31/2014 | Planned | Economic | Priority Projects, Comanche to Woodward 345 kV |
| SPP | WFEC/OKGE | 765341 | Comanche 345 kV | 515375 | Woodward 345 kV | 2 | 345 | 53.9 | 12/31/2014 | Planned | Economic | Priority Projects, Comanche to Woodward 345 kV |
| SPP | SPS/OKGE | 523097 | Hitchland 345 kV | 515375 | Woodward 345 kV | 1 | 345 | 123.2 | 6/30/2014 | Planned | Economic | Priority Projects, Hitchland to Woodward 345 kV |
| SPP | SPS/OKGE | 523097 | Hitchland 345 kV | 515375 | Woodward 345 kV | 2 | 345 | 123.2 | 6/30/2014 | Planned | Economic | Priority Projects, Hitchland to Woodward 345 kV |
| SPP | MIPU | 541197 | Maryville 345 kV | 541201 | Sibley 345 kV | 1 | 345 | 105 | 6/1/2017 | Planned | Economic | Priority Projects, Maryville to Sibley 345 kV |
| SPP | MIPU/OPPD | 541197 | Maryville 345 kV | 645458 | Nebraska City 345 kV | 1 | 345 | 70 | 6/1/2017 | Planned | Economic | Priority Projects, Maryville to Nebraska City 345 kV |
| SPP | AEPW | 508072 | Texarkana 345 kV | 510911 | Valliant 345 kV | 1 | 345 | 76 | 12/31/2014 | Planned | Economic | Priority Projects, Texarkana to Valliant 345 kV |
| TVA | TN | 360011 | Rutherford | 361655 | Rockvale | 1 | 161 | 7.38 | 11-Nov | Planned | Reliability | Construct Rockvale 161 kV, tap into Rutherford - East Murfreesboro 161 kV |
| TVA | TN | 360011 | Rutherford | 360412 | Christiana | 1 | 161 | 16.08 | 10-Nov | Under Construction | Reliability | Loop East Murfreesboro-Christiana 161 kV into Rutherford 161 kV |
| TVA | TN | 360011 | Rutherford | 360386 | East Murfreesboro | 1 | 161 | 29.1 | 10-Nov | Under Construction | Reliability | Loop East Murfreesboro-Christiana 161 kV into Rutherford 161 kV |
| TVA | TN | 360012 | Hemlock Semiconductor | 360045 | Montgomery 2 | 1 | 161 | 2.6 | 11-Nov | Planned | Reliability | Construct Hemlock Semiconductor 161 kV, provide loop feed into Montogemery 161 kV |
| TVA | TN | 360019 | Jackson | 360683 | Jackson 2 | 1 | 500/161 | N/A | 11-Jun | Under Construction | Reliability | Jackson 500/161 kV #2, install |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TVA | TN | 360021 | Shelby | 360568 | Lagoon Creek | 1 | 500 | 35.15 | 12-Jun | Planned | Reliability | Shelby-Lagoon Creek 500 kV, uprate to 2598 MVA |
| TVA | MS | 360030 | Lowndes | 360539 | Caledonia CT | 1 | 500 | 0.09 | 12-Jun | Planned | Reliability | Lowndes-Caledonia CT 500 kV, construct to provide connection for Caledonia CT generation |
| TVA | MS | 360035 | West Point | 360688 | Clay | 1 | 500 | 0.08 | 12-Jun | Planned | Reliability | Construct Clay 500 kV, Re-terminate Choctaw-West Point 500 kV into Clay 500 kV, uprate to 2598 MVA; using original 1732 MVA rating, tie West Point 500 kV and Clay 500 kV together |
| TVA | MS | 360036 | West Point | 361615 | Waterway Drive Tap | 1 | 161 | 26.67 | 11-Jun | Under Construction | Reliability | Construct Waterway Drive 161 kV, tap into West Point-Amory 161 kV |
| TVA | MS | 360036 | West Point | 361496 | Severcorr 2 | 2 | 161 | 20.39 | 10-Nov | Under Construction | Reliability | West Point-Severcorr 2 161 kV #2, construct for 371 MVA |
| TVA | TN | 360038 | Johnsonville Fossil 1-4 | 361027 | Trace Creek Tap | 1 | 161 | 3.83 | 11-Jun | Under Construction | Reliability | Johnsonville Fossil 1-4-Trace Creek Tap 161 kV, uprate to 334 MVA |
| TVA | TN | 360041 | Cumberland | 360318 | Erin | 1 | 161 | 5.2 | 11-Jun | Under Construction | Reliability | Cumberland-Erin 161 kV, uprate to 299 MVA |
| TVA | KY | 360043 | Paradise | 361032 | Aberdeen Tap (KY) | 1 | 161 | 14.9 | 11-Jun | Under Construction | Reliability | Uprate 161 kV line |
| TVA | TN | 360044 | Montgomery | 360045 | Montgomery 2 | 1 | 500/161 | N/A | 13-Jun | Planned | Reliability | Montgomery 500/161 kV #2, install |
| TVA | TN | 360045 | Montgomery 2 | 360012 | Hemlock Semiconductor | 3 | 161 | 2.7 | 11-Nov | Planned | Reliability | Construct Hemlock Semiconductor (390 MW) 161 kV, provide loop feed into Montgomery 161 kV |
| TVA | TN | 360045 | Montgomery 2 | 361654 | West Creek | 1 | 161 | 9.14 | 10-Nov | Under Construction | Reliability | Construct West Creek 161 kV, tap into Montgomery-Screaming Eagles Tap 161 kV |
| TVA | TN | 360048 | Davidson | 360581 | Pin Hook | 1 | 500 | 27.72 | 12-Jun | Planned | Reliability | Davidson-Pin Hook 500 kV, uprate to 2598 MVA |
| TVA | TN | 360051 | Maury | 361593 | Spring Hill | 1 | 161 | 6.02 | 10-Nov | Under Construction | Reliability | Construct Spring Hill 161 kV, tap into Maury-Kedron Road 161 kV |
| TVA | AL | 360060 | Madison | 360088 | Limestone | 1 | 161 | 23.8 | 11-Nov | Planned | Reliability | Madison-Limestone 500 kV, uprate to 2598 MVA |
| TVA | AL | 360061 | Madison 1 | 361313 | Redstone Tap 2 | 1 | 161 | 13.23 | 11-Jun | Under Construction | Reliability | Madison 1-Redstone Tap 2 161 kV, uprate to 472 MVA |
| TVA | AL | 360062 | Bellefonte 1 | 360065 | Widows Creek | 1 | 500 | 29.75 | 18-Jun | Planned | Reliability | In response to TVA building a new nuclear facility, TVA will construct Bellefonte 500 kV substation and loop into Widows Creek 500 kV – Madison 500 kV |
| TVA | AL | 360062 | Bellefonte 1 | 360060 | Madison | 1 | 500 | 40.82 | 18-Jun | Planned | Reliability | In response to TVA building a new nuclear facility, TVA will construct Bellefonte 500 kV substation and loop into Widows Creek 500 kV – Madison 500 kV |
| TVA | AL | 360063 | Bellefonte 2 | 360065 | Widows Creek | 1 | 500 | 21.3 | 18-Jun | Planned | Reliability | In response to TVA building a new nuclear facility, TVA will construct Bellefonte 500 kV substation and loop into Widows Creek 500 kV – East Point 500 kV |
| TVA | AL | 360063 | Bellefonte 2 | 360058 | East Point | 1 | 500 | 71 | 18-Jun | Planned | Reliability | In response to TVA building a new nuclear facility, TVA will construct Bellefonte 500 kV substation and loop into Widows Creek 500 kV – East Point 500 kV |
| TVA | AL-GA | 360067 | Widows Creek 2 | 360414 | Oglethorpe | 1 | 161 | 30.56 | 11-Nov | Planned | Reliability | Widows Creek-Oglethorpe 161 kV 1 (#2 line), uprate to 299 MVA |
| TVA | AL-GA | 360067 | Widows Creek 2 | 360414 | Oglethorpe | 2 | 161 | 30.47 | 11-Nov | Planned | Reliability | Widows Creek-Oglethorpe 161 kV 2 (#3 line), uprate to 299 MVA |
| TVA | TN | 360071 | Wilson | 360581 | Pin Hook | 1 | 161 | 14.18 | 12-Nov | Planned | Reliability | Wilson-Pin Hook 500 kV, uprate to 2598 MVA |
| TVA | TN | 360081 | Sequoyah | 360110 | Hiwassee | 1 | 500 | 20.5 | 13-Nov | Planned | Reliability | Construct Hiwassee 500 kV, loop into Sequoyah-Watts Bar 500 kV #2 |
| TVA | TN | 360084 | Athens (TN) | 361403 | Niota | 1 | 161 | 3.9 | 11-Nov | Planned | Reliability | Construct Niota 161 kV, tap into Athens (TN)-Sweetwater 161 kV |
| TVA | TN | 360085 | Watts Bar 1 | 360093 | Bull Run | 1 | 500 | 53.91 | 10-Nov | Under Construction | Reliability | Watts Bar 1-Bull Run 500 kV, uprate to 2598 MVA |
| TVA | TN | 360098 | Volunteer 1 | 360527 | East Knox | 1 | 161 | 13 | 13-Nov | Planned | Reliability | Volunteer-East Knox 161 kV, construct for 450 MVA |
| TVA | TN | 360100 | John Sevier 1 | 360103 | Phipps Bend | 1 | 161 | 11.85 | 11-Nov | Planned | Reliability | John Sevier-Phipps Bend 161 kV #1, open circuit |
| TVA | TN | 360100 | John Sevier 1 | 360103 | Phipps Bend | 3 | 161 | 11.91 | 11-Nov | Planned | Reliability | John Sevier-Phipps Bend 161 kV #3, open circuit |
| TVA | TN | 360100 | John Sevier 1 | 360703 | John Sevier CC Units 1-2 Tap | 1 | 161 | 0 | 11-Nov | Planned | Reliability | John Sevier-John Sevier CC 161 kV, construct to provide connection for John Sevier CC generation |
| TVA | TN | 360100 | John Sevier 1 | 360705 | John Sevier CC Units 1-2 | 3 | 161 | 0 | 11-Nov | Planned | Reliability | John Sevier-John Sevier CC 161 kV, construct to provide connection for John Sevier CC generation |
| TVA | TN | 360110 | Hiwassee | 360085 | Watts Bar 1 | 1 | 500 | 24.5 | 13-Nov | Planned | Reliability | Construct Hiwassee 500 kV, loop into Sequoyah-Watts Bar 500 kV #2 |
| TVA | TN | 360111 | Hiwassee | 360110 | Hiwassee | 1 | 500/161 | N/A | 13-Nov | Planned | Reliability | Hiwassee 500/161 kV install |
| TVA | TN | 360112 | Hiwassee | 360111 | Hiwassee | 2 | 500/162 | N/A | 14-Nov | Planned | Reliability | Hiwassee 500/161 kV install |
| TVA | TN | 360133 | Dumplin Valley | 360527 | East Knox | 1 | 161 | 7.8 | 11-Jun | Under Construction | Reliability | Construct East Knox 161 kV, loop into Dumplin Valley-Nixon Road 161 kV |
| TVA | TN | 360135 | Union City | 361406 | South Fifth Union City Tap | 1 | 161 | 3 | 10-Nov | Under Construction | Reliability | Construct South Fifth Union City 161 kV, tap into Union City-Troy 161 kV |
| TVA | TN | 360150 | Alamo (TN) | 361658 | Bells | 1 | 161 | 6 | 13-Jun | Planned | Reliability | Alamo-Bells 161 kV, construct for 472 MVA |
| TVA | TN | 360152 | South Jackson | 361640 | Morris Tap | 1 | 161 | 8.42 | 11-Jun | Under Construction | Reliability | Construct Morris 161 kV, tap into South Jackson-McKellar 161 kV |
| TVA | TN | 360158 | Covington | 361647 | Burlison Tap | 1 | 161 | 0.15 | 12-Jun | Planned | Reliability | Construct Burlison 161 kV, tap into Covington-Brighton Tap 161 kV |
| TVA | TN | 360173 | North Lexington | 361594 | Lexington | 1 | 161 | 3.78 | 14-Jun | Planned | Reliability | Construct Lexington 161 kV, tap into North Lexington-West Lexington 161 kV |
| TVA | MS | 360204 | South Philadelphia | 361120 | Pearl River Tap | 1 | 161 | 7.36 | 12-Jun | Planned | Reliability | Construct South Philadelphia 161 kV, tap into Philadelphia-Pearl River Tap 161 kV |
| TVA | MS | 360209 | Corinth | 361531 | Biggersville | 1 | 161 | 8.9 | 10-Nov | Under Construction | Reliability | Corinth-Biggersville 161 kV, construct for 299 MVA |
| TVA | MS | 360229 | Calhoun City | 361607 | Southwest Bruce Tap | 1 | 161 | 4.8 | 12-Jun | Planned | Reliability | Construct Southwest Bruce 161 kV, tap into Calhoun City-Coffeeville 161 kV |
| TVA | MS | 360232 | Sturgis | 361589 | Northwest Louisville | 1 | 161 | 12.32 | 15-Jun | Planned | Reliability | Construct Northwest Louisville 161 kV, tap into Sturgis-Louisville 161 kV |
| TVA | MS | 360234 | Lowndes | 361624 | Black Warrior Tap | 1 | 161 | 10.2 | 11-Jun | Under Construction | Reliability | Construct Black Warrior 161 kV, tap into Lowndes-New Hamilton 161 kV |
| TVA | MS | 360236 | Columbus | 361620 | Caldwell Road | 1 | 161 | 16.36 | 10-Nov | Under Construction | Reliability | Construct Caldwell Road 161 kV, tap into Lowndes-Columbus 161 kV |
| TVA | MS | 360242 | Philadelphia | 360204 | South Philadelphia | 1 | 161 | 0.9 | 12-Jun | Planned | Reliability | Construct South Philadelphia 161 kV, tap into Philadelphia-Pearl River Tap 161 kV |
| TVA | AL | 360267 | Wheeler | 360268 | Elgin | 1 | 161 | 5.7 | 11-Jun | Under Construction | Reliability | Reconductor 161 kV line |
| TVA | AL | 360268 | Elgin | 360502 | Dunn | 1 | 161 | 24.46 | 11-Jun | Under Construction | Reliability | Reconductor 161 kV line |
| TVA | TN | 360279 | Guntersville | 360280 | Guntersville | 14 | 161/115 | N/A | 10-Nov | Under Construction | Reliability | Guntersville 161/115 kV, replace |
| TVA | AL | 360281 | Limestone | 361637 | County Line Road | 1 | 161 | 6.9 | 10-Nov | Under Construction | Reliability | Construct County Line Road 161 kV, tap into Limestone-Jetport 161 kV |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TVA | AL | 360287 | Pisgah | 360288 | Henagar | 1 | 161 | 5.99 | 11-Jun | Under Construction | Reliability | Pisgah-Henagar 161 kV, retire line trap, new rating of 299 MVA |
| TVA | AL | 360288 | Henagar | 360286 | Fort Payne | 1 | 161 | 11.96 | 11-Jun | Under Construction | Reliability | Loop Flat Rock Tap-Fort Payne 161 kV into Henagar 161 kV |
| TVA | AL | 360291 | Farley | 361650 | Byrd Springs | 1 | 161 | 4.71 | 11-Nov | Planned | Reliability | Construct Bird Springs 161 kV, tap into Farley-Redstone Tap 2 161 kV |
| TVA | AL | 360291 | Farley | 360279 | Guntersville | 1 | 161 | 16.68 | 11-Nov | Planned | Reliability | Guntersville-Farley 161 kV, reconductor to 367 MVA |
| TVA | AL | 360291 | Farley | 361566 | Big Cove Tap | 1 | 161 | 4.82 | 10-Nov | Under Construction | Reliability | Farley-Big Cove Tap 161 kV, reconductor to 472 MVA |
| TVA | TN | 360322 | Clarksville | 361656 | Gibbs Lane | 1 | 161 | 5.9 | 11-Jun | Under Construction | Reliability | Construct Gibbs Lane 161 kV, tap into Clarksville-Saint Bethlehem Tap 161 kV |
| TVA | KY | 360331 | Bowling Green | 360540 | Lost City | 1 | 161 | 26.71 | 11-Jun | Under Construction | Reliability | Bowling Green-Lost City 161 kV, uprate to 237 MVA |
| TVA | KY | 360334 | Summer Shade | 361603 | East Glasgow Tap | 1 | 161 | 12.2 | 10-Nov | Under Construction | Reliability | Construct East Glasgow 161 kV, tap into Summer Shade-Glasgow Tap |
| TVA | KY | 360336 | Franklin (KY) | 361634 | East Simpson Tap | 1 | 161 | 2.2 | 11-Jun | Under Construction | Reliability | 161 kV |
| TVA | TN | 360349 | Lebanon | 360552 | Lascassas | 1 | 161 | 19 | 10-Nov | Under Construction | Reliability | Loop Gallatin-Lascassas 161 kV into Lebanon 161 kV |
| TVA | TN | 360352 | Gallatin | 360530 | Angeltown | 1 | 161 | 19.4 | 12-Jun | Planned | Reliability | Gallatin-Angeltown 161 kV, construct for 410 MVA |
| TVA | TN | 360352 | Gallatin Fossil 1 | 360349 | Lebanon | 1 | 161 | 12.6 | 10-Nov | Under Construction | Reliability | Loop Gallatin-Lascassas 161 kV into Lebanon 161 kV |
| TVA | TN | 360356 | Springfield | 365215 | Goodlettsville (NES) | 1 | 161 | 15.47 | 12-Jun | Planned | Reliability | Loop North Nashville-Springfield 161 kV into Goodlettsville (NES) 161 kV |
| TVA | TN | 360356 | Springfield | 360358 | North Nashville | 1 | 161 | 17.31 | 12-Jun | Planned | Reliability | Loop North Nashville-Springfield 161 kV into Goodlettsville (NES) 161 kV |
| TVA | TN | 360358 | North Nashville | 361192 | Bethel Road | 1 | 161 | 9.84 | 12-Jun | Planned | Reliability | Loop North Nashville-Springfield 161 kV into Goodlettsville (NES) 161 kV |
| TVA | TN | 360385 | Murfreesboro | 361651 | Gateway | 1 | 161 | 1.75 | 11-Jun | Under Construction | Reliability | Construct Gateway 161 kV, tap into Murfreesboro-Blackman Tap 161 kV |
| TVA | TN | 360399 | Great Falls | 361516 | Wheeler Mountain | 1 | 161 | 25.84 | 11-Jun | Under Construction | Reliability | Construct Wheeler Mountain 161 kV, tap into Great Falls-Spring City 161 kV |
| TVA | TN | 360433 | Kingston Fossil 7-9 | 361626 | Kingston Tap | 1 | 161 | 3.5 | 10-Nov | Under Construction | Reliability | Construct Kingston 161 kV, tap into Kingston Fossil 7-9-Loudon 161 kV |
| TVA | TN | 360442 | Elza | 361542 | Windrock | 1 | 161 | 10.86 | 11-Jun | Under Construction | Reliability | Elza-Windrock 161 kV, reconductor to 237 MVA |
| TVA | TN | 360444 | Fort Loudoun | 361652 | Poland Creek Tap | 1 | 161 | 10.24 | 14-Nov | Planned | Reliability | Construct Poland Creek 161 kV, tap into Fort Loudoun-Alcoa SS 161 kV |
| TVA | TN | 360448 | Wolf Creek | 361618 | Kelsey Road | 1 | 161 | 14 | 11-Nov | Planned | Reliability | Construct Byrdstown 161 kV, tap into Wolf Creek-Huntsville (TN) 161 kV at Kelsey Road 161 kV |
| TVA | TN | 360485 | Elizabethton | 361494 | Row Branch | 1 | 161 | 15.87 | 10-Nov | Under Construction | Reliability | Construct Row Branch 161 kV, tap into Elizabethton-Elk Mills 161 kV |
| TVA | AL | 360502 | Dunn | 360305 | Mount Pleasant | 1 | 161 | 26.54 | 11-Jun | Under Construction | Reliability | Wheeler-Mount Pleasant 161 kV, reconductor to 334 MVA |
| TVA | TN | 360505 | Rally Hill | 361657 | Chapel Hill | 1 | 161 | 11.2 | 11-Nov | Planned | Reliability | Rally Hill-Chapel Hill 161 kV, construct for 299 MVA |
| TVA | TN | 360520 | Cross Plains | 361613 | White House Tap | 1 | 161 | 4.23 | 10-Nov | Under Construction | Reliability | Construct White House 161 kV, tap into Cross Plains-Bethel Road 161 kV |
| TVA | TN | 360527 | East Knox | 360460 | Nixon Road | 1 | 161 | 11.1 | 11-Jun | Under Construction | Reliability | Construct East Knox 161 kV, loop into Dumplin Valley-Nixon Road 161 kV |
| TVA | MS | 360528 | Clayton Village | 361290 | Lakeside | 1 | 161 | 1 | 13-Jun | Planned | Reliability | Construct Clayton Village 161 kV, loop into Clay-Lakeside 161 kV |
| TVA | MS | 360528 | Clayton Village | 361610 | Starkville Tap | 1 | 161 | 4.6 | 13-Jun | Planned | Reliability | Clayton Village-Starkville Tap 161 kV, construct for 371 MVA |
| TVA | MS | 360528 | Clayton Village | 361161 | Catalpa Creek | 1 | 161 | 9.1 | 13-Jun | Planned | Reliability | Clayton Village-Catalpa Creek 161 kV, construct for 371 MVA |
| TVA | TN | 360530 | Angeltown | 360439 | Portland SS | 1 | 161 | 9.55 | 12-Jun | Planned | Reliability | Construct Angeltown 161 kV, loop into Portland SS-Westmoreland 161 kV |
| TVA | GA | 360533 | Center Point | 360621 | Moss Lake | 1 | 230 | 16.08 | 10-Nov | Under Construction | Reliability | Center Point-Moss Lake 230 kV, construct for 530 MVA |
| TVA | GA | 360621 | Moss Lake | 360622 | Moss Lake | 1 | 230/115 | N/A | 10-Nov | Under Construction | Reliability | Moss Lake 230/115 kV, install |
| TVA | GA | 360622 | Moss Lake | 361442 | Gordon County Tap | 1 | 115 | 4.4 | 10-Nov | Under Construction | Reliability | Construct Gordon County 115 kV, tap into Moss Lake-Fuller 115 kV |
| TVA | GA | 360622 | Moss Lake | 361486 | Resaca South | 1 | 115 | 2.67 | 10-Nov | Under Construction | Reliability | Moss Lake-Resaca South 115 kV, construct for 265 MVA |
| TVA | MS | 360654 | Choctaw | 360035 | West Point | 1 | 500 | 37.38 | 12-Jun | Planned | Reliability | Re-terminate Choctaw-West Point 500 kV into Clay 500 kV, uprate to 2598 MVA; using original 1732 MVA rating, tie West Point 500 kV and Clay 500 kV together |
| TVA | TN | 360678 | Shelby (MLGW) 1 | 365573 | Bolen Huse (MLGW) | 1 | 161 | 5.8 | 15-Jun | Planned | Reliability | Construct Bolen Huse 161 kV, tap into Shelby 1-Northeast Gate 161 kV |
| TVA | MS | 360688 | Clay | 360654 | Choctaw | 1 | 500 | 37.38 | 12-Jun | Planned | Reliability | Re-terminate Choctaw-West Point 500 kV into Clay 500 kV, uprate to 2598 MVA; using original 1732 MVA rating, tie West Point 500 kV and Clay 500 kV together |
| TVA | MS | 360689 | Clay | 360528 | Clayton Village | 1 | 161 | 12 | 13-Jun | Planned | Reliability | Construct Clayton Village 161 kV, loop into Clay-Lakeside 161 kV |
| TVA | TN | 360690 | Montgomery 1 | 360012 | Hemlock Semiconductor | 1 | 161 | 3 | 13-Jun | Planned | Reliability | Instal second 500-161 kV bank |
| TVA | TN | 361027 | Trace Creek Tap | 360318 | Erin | 1 | 161 | 28.87 | 11-Jun | Under Construction | Reliability | Trace Creek-Erin 161 kV, uprate to 273 MVA |
| TVA | TN | 361031 | Tennol Tap | 361636 | Chicago Bridge & Iron | 1 | 161 | 0.5 | 10-Nov | Under Construction | Reliability | Tennol Tap-Chicago Bridge & Iron 161 kV, construct for 299 MVA |
| TVA | KY | 361032 | Aberdeen Tap (KY) | 360332 | East Bowling Green | 1 | 161 | 25.64 | 11-Jun | Under Construction | Reliability | Uprate Paradise-East Bowling Green 161 kV |
| TVA | MS | 361107 | Egypt Pumping Station Tap | 360036 | West Point | 1 | 161 | 16.18 | 12-Jun | Planned | Reliability | Re-terminate Egypt P.S. Tap-West Point 161 kV into Clay 161 kV |
| TVA | MS | 361107 | Egypt Pumping Station Tap | 360689 | Clay | 1 | 161 | 16.44 | 12-Jun | Planned | Reliability | Re-terminate Egypt P.S. Tap-West Point 161 kV into Clay 161 kV |
| TVA | MS | 361107 | Egypt Pumping Station Tap | 360227 | Egypt Pumping Station | 1 | 161 | 1.75 | 12-Jun | Planned | Reliability | Egypt Pumping Station Tap-Egypt Pumping Station 161 kV, replace line trap, new rating of 136 MVA |
| TVA | MS | 361121 | Aberdeen Tap (MS) | 360036 | West Point | 1 | 161 | 10.61 | 12-Jun | Planned | Reliability | Re-terminate Aberdeen Tap-West Point 161 kV into Clay 161 kV, uprate to 446 MVA |
| TVA | MS | 361121 | Aberdeen Tap (MS) | 360689 | Clay | 1 | 161 | 10.74 | 12-Jun | Planned | Reliability | Re-terminate Aberdeen Tap-West Point 161 kV into Clay 161 kV, uprate to 446 MVA |
| TVA | MS | 361175 | Langford | 361600 | Fannin Tap | 1 | 161 | 5 | 11-Nov | Planned | Reliability | Construct Fannin 161 kV, tap into Langford-Sand Hill 161 kV |
| TVA | TN | 361192 | Bethel Road | 365215 | Goodlettsville (NES) | 1 | 161 | 7.91 | 12-Jun | Planned | Reliability | Install new structures and conductors |
| TVA | AL | 361224 | Addison | 361642 | Helicon | 1 | 161 | 6.5 | 11-Nov | Planned | Reliability | Construct Helicon, Addison-Helicon 161 kV, construct for 299 MVA |

# New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TVA | TN | 361228 | Moscow Tap (TN) | 361628 | Macon Tap (TN) | 1 | 161 | 4.85 | 13-Jun | Planned | Reliability | Construct Macon Tap (TN) 161 kV, tap into Moscow Tap (TN)-Canadaville 161 kV |
| TVA | MS | 361255 | Woodson Ridge | 361428 | College Hill | 1 | 161 | 2 | 11-Jun | Planned | Reliability | Woodson Ridge-College Hill 161 kV, construct for 237 MVA |
| TVA | TN | 361267 | Westmoreland | 360530 | Angeltown | 1 | 161 | 6.4 | 12-Jun | Planned | Reliability | Construct Angeltown 161 kV, loop into Portland SS-Westmoreland 161 kV |
| TVA | GA | 361289 | Crawfish Creek | 361633 | Cloudland Canyon | 1 | 230 | 5.59 | 10-Nov | Under Construction | Reliability | Construct Cloudland Canyon 230 kV, tap into Crawfish Creek-Kensington 230 kV |
| TVA | MS | 361290 | 5LAKESIDE MS | 360036 | West Point | 1 | 161 | 13 | 12-Jun | Planned | Reliability | Re-terminate Lakeside-West Point 161 kV into Clay 161 kV |
| TVA | MS | 361290 | 5LAKESIDE MS | 360689 | Clay | 1 | 161 | 13 | 12-Jun | Planned | Reliability | Re-terminate Lakeside-West Point 161 kV into Clay 161 kV |
| TVA | AL | 361332 | Sylvania | 361645 | Rainsville Industrial Park Tap | 1 | 161 | 2.46 | 11-Jun | Under Construction | Reliability | Construct Rainsville Industrial Park 161 kV, tap into Sylvania-Section 161 kV |
| TVA | TN | 361388 | Unionville | 361657 | Chapel Hill | 1 | 161 | 6.09 | 12-Jun | Planned | Reliability | Unionville-Chapel Hill 161 kV, construct for 299 MVA |
| TVA | TN | 361403 | Niota | 361210 | Sweetwater | 1 | 161 | 7.94 | 11-Nov | Planned | Reliability | Construct Niota 161 kV, tap into Athens (TN)-Sweetwater 161 kV |
| TVA | TN | 361406 | South Fifth Union City Tap | 361422 | Troy | 1 | 161 | 6.88 | 10-Nov | Under Construction | Reliability | Construct South Fifth Union City 161 kV, tap into Union City-Troy 161 kV |
| TVA | MS | 361411 | Sand Hill | 361600 | Fannin Tap | 1 | 161 | 4.18 | 11-Nov | Planned | Reliability | Construct Fannin 161 kV, tap into Langford-Sand Hill 161 kV |
| TVA | AL | 361438 | Flat Rock Tap | 360288 | Henagar | 1 | 161 | 9.46 | 11-Jun | Under Construction | Reliability | Loop Flat Rock Tap-Fort Payne 161 kV into Henagar 161 kV |
| TVA | GA | 361442 | Gordon County Tap | 360626 | Fuller | 1 | 115 | 3.1 | 10-Nov | Under Construction | Reliability | Construct Gordon County 115 kV, tap into Moss Lake-Fuller 115 kV |
| TVA | TN | 361494 | Row Branch | 361142 | Elk Mills | 1 | 161 | 3 | 10-Nov | Under Construction | Reliability | Construct Row Branch 161 kV, tap into Elizabethton-Elk Mills 161 kV |
| TVA | MS | 361496 | Severcorr 2 | 360036 | West Point | 1 | 161 | 20.28 | 12-Jun | Planned | Reliability | Re-terminate Severcorr 2-West Point 161 kV #1 into Clay 161 kV |
| TVA | MS | 361496 | Severcorr 2 | 360689 | Clay | 1 | 161 | 20.39 | 12-Jun | Planned | Reliability | Re-terminate Severcorr 2-West Point 161 kV #1 into Clay 161 kV |
| TVA | GA | 361504 | West Ringgold | 361514 | West Ringgold | 2 | 230/115 | N/A | 11-Jun | Under Construction | Reliability | West Ringgold 230/115 kV #2, install |
| TVA | TN | 361516 | Wheeler Mountain | 360427 | Spring City | 1 | 161 | 21.04 | 11-Jun | Under Construction | Reliability | Construct Wheeler Mountain 161 kV, tap into Great Falls-Spring City 161 kV |
| TVA | MS | 361529 | Starkville SS | 360036 | West Point | 1 | 161 | 14.19 | 12-Jun | Planned | Reliability | Re-terminate Starkville SS-West Point 161 kV #1 into Clay 161 kV |
| TVA | MS | 361529 | Starkville SS | 360689 | Clay | 1 | 161 | 12.9 | 12-Jun | Planned | Reliability | Re-terminate Starkville SS-West Point 161 kV #1 into Clay 161 kV |
| TVA | MS | 361529 | Starkville SS | 361610 | Starkville Tap | 1 | 161 | 1 | 13-Jun | Planned | Reliability | Construct Starkville Tap 161 kV, tap into Starkville SS-Starkville 161 kV |
| TVA | TN | 361542 | Windrock | 360445 | Braytown | 1 | 161 | 3.04 | 11-Jun | Under Construction | Reliability | Windrock-Braytown 161 kV, uprate to 181 MVA |
| TVA | MS | 361589 | Northwest Louisville | 360239 | Louisville | 1 | 161 | 20.32 | 15-Jun | Planned | Reliability | Construct Northwest Louisville 161 kV, tap into Sturgis-Louisville 161 kV |
| TVA | TN | 361593 | Spring Hill | 360531 | Kedron Road | 1 | 161 | 0.54 | 10-Nov | Under Construction | Reliability | Construct Spring Hill 161 kV, tap into Maury-Kedron Road 161 kV |
| TVA | TN | 361594 | Lexington | 361319 | West Lexington | 1 | 161 | 0.75 | 14-Jun | Planned | Reliability | Construct Lexington 161 kV, tap into North Lexington-West Lexington 161 kV |
| TVA | KY | 361603 | East Glasgow Tap | 361113 | Glasgow Tap | 1 | 161 | 5.94 | 10-Nov | Under Construction | Reliability | Construct East Glasgow 161 kV, tap into Summer Shade-Glasgow Tap 161 kV |
| TVA | MS | 361607 | Southwest Bruce Tap | 360230 | Coffeeville | 1 | 161 | 18.67 | 12-Jun | Planned | Reliability | Construct Southwest Bruce 161 kV, tap into Calhoun City-Coffeeville 161 kV |
| TVA | MS | 361610 | Starkville Tap | 360233 | Starkville Tap | 1 | 161 | 2 | 13-Jun | Planned | Reliability | Construct Starkville Tap 161 kV, tap into Starkville SS-Starkville 161 kV |
| TVA | TN | 361613 | White House Tap | 361192 | Bethel Road | 1 | 161 | 4.7 | 10-Nov | Under Construction | Reliability | Construct White House 161 kV, tap into Cross Plains-Bethel Road 161 kV |
| TVA | MS | 361615 | Waterway Drive Tap | 360225 | Amory | 1 | 161 | 1.7 | 11-Jun | Under Construction | Reliability | Construct Waterway Drive 161 kV, tap into West Point-Amory 161 kV |
| TVA | TN | 361618 | Kelsey Road | 361619 | Byrdstown | 1 | 161 | 15 | 11-Nov | Planned | Reliability | Construct Byrdstown 161 kV, tap into Wolf Creek-Huntsville (TN) 161 kV at Kelsey Road 161 kV |
| TVA | TN | 361618 | Kelsey Road | 360450 | Huntsville (TN) | 1 | 161 | 36.66 | 11-Nov | Planned | Reliability | Construct Byrdstown 161 kV, tap into Wolf Creek-Huntsville (TN) 161 kV at Kelsey Road 161 kV |
| TVA | MS | 361620 | Caldwell Road | 360234 | Lowndes | 1 | 161 | 0.12 | 10-Nov | Under Construction | Reliability | Construct Caldwell Road 161 kV, tap into Lowndes-Columbus 161 kV |
| TVA | MS | 361624 | Black Warrior Tap | 361649 | New Hamilton | 1 | 161 | 1.6 | 11-Jun | Under Construction | Reliability | Construct Black Warrior 161 kV, tap into Lowndes-New Hamilton 161 kV |
| TVA | TN | 361626 | Kingston Tap | 361214 | Loudon | 1 | 161 | 14.1 | 10-Nov | Under Construction | Reliability | Construct Kingston 161 kV, tap into Kingston Fossil 7-9-Loudon 161 kV |
| TVA | TN | 361628 | Macon Tap (TN) | 361269 | Canadaville | 1 | 161 | 6.59 | 13-Jun | Planned | Reliability | Construct Macon Tap (TN) 161 kV, tap into Moscow Tap (TN)-Canadaville 161 kV |
| TVA | TN | 361631 | Jena | 361638 | Niles Ferry | 1 | 161 | 5.6 | 11-Nov | Planned | Reliability | Jena-Niles Ferry 161 kV, construct for 299 MVA |
| TVA | GA | 361633 | Cloudland Canyon | 361503 | Kensington | 1 | 230 | 6.93 | 10-Nov | Under Construction | Reliability | Construct Cloudland Canyon 230 kV, tap into Crawfish Creek-Kensington 230 kV |
| TVA | KY | 361634 | East Simpson Tap | 361570 | Mitchellville Tap | 1 | 161 | 5.65 | 11-Jun | Under Construction | Reliability | Construct East Simpson 161 kV, tap into Franklin (KY)-Mitchellville Tap 161 kV |
| TVA | TN | 361636 | Chicago Bridge & Iron | 361036 | Tennol | 1 | 161 | 5.35 | 10-Nov | Under Construction | Reliability | Construct Chicago Bridge & Iron 161 kV |
| TVA | AL | 361637 | County Line Road | 360273 | Jetport | 1 | 161 | 2.4 | 10-Nov | Under Construction | Reliability | Construct County Line Road 161 kV, tap into Limestone-Jetport 161 kV |
| TVA | TN | 361640 | Morris Tap | 361457 | McKellar | 1 | 161 | 1 | 11-Jun | Under Construction | Reliability | Construct Morris 161 kV, tap into South Jackson-McKellar 161 kV |
| TVA | AL | 361645 | Rainsville Industrial Park Tap | 361472 | Section | 1 | 161 | 10.03 | 11-Jun | Under Construction | Reliability | Construct Rainsville Industrial Park 161 kV, tap into Sylvania-Section 161 kV |
| TVA | TN | 361647 | Burlison Tap | 361338 | Brighton Tap | 1 | 161 | 5.17 | 12-Jun | Planned | Reliability | Construct Burlison 161 kV, tap into Covington-Brighton Tap 161 kV |

## New or Upgraded Transmission Facilities in EIPC 2020 Roll-Up Case

**Includes ALL new/upgraded facilities (161 kV and above) that are projected to be in-service by 2020**

| PA | State(s) | From Bus # | From Bus Name | To Bus # | To Bus Name | Ckt | Voltage (kV) | Line Length (miles) | Expected In-Service Year | Planning Status | Project Type | Project Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TVA | MS | 361649 | New Hamilton | 361125 | Hamilton (MS) | 1 | 161 | 0.2 | 11-Jun | Under Construction | Reliability | Construct New Hamilton 161 kV, tap into Lowndes-Hamilton (MS) 161 kV |
| TVA | AL | 361650 | Byrd Springs | 361313 | Redstone Tap 2 | 1 | 161 | 0.76 | 11-Nov | Planned | Reliability | Construct Bird Springs 161 kV, tap into Farley-Redstone Tap 2 161 kV |
| TVA | TN | 361651 | Gateway | 361375 | Blackman Tap | 1 | 161 | 4 | 11-Jun | Under Construction | Reliability | Construct Gateway 161 kV, tap into Murfreesboro-Blackman Tap 161 kV |
| TVA | TN | 361652 | Poland Creek Tap | 360096 | Alcoa SS | 1 | 161 | 5.28 | 14-Nov | Planned | Reliability | Construct Poland Creek 161 kV, tap into Fort Loudoun-Alcoa SS 161 kV |
| TVA | TN | 361654 | West Creek | 361443 | Screaming Eagles Tap | 1 | 161 | 5 | 10-Nov | Under Construction | Reliability | Construct West Creek 161 kV, tap into Montgomery-Screaming Eagles Tap 161 kV |
| TVA | TN | 361655 | Rockvale | 360386 | East Murfreesboro | 1 | 161 | 21.72 | 11-Nov | Planned | Reliability | Construct Rockvale 161 kV, tap into Rutherford-East Murfreesboro 161 kV |
| TVA | TN | 361656 | Gibbs Lane | 361274 | Saint Bethlehem Tap | 1 | 161 | 1.96 | 11-Jun | Under Construction | Reliability | Construct Gibbs Lane 161 kV, tap into Clarksville-Saint Bethlehem Tap 161 kV |
| TVA | TN | 365573 | Bolen Huse (MLGW) | 365591 | Northeast Gate (MLGW) | 1 | 161 | 9.77 | 15-Jun | Planned | Reliability | Construct Bolen Huse 161 kV, tap into Shelby 1-Northeast Gate 161 kV |
| TVA | TN | 365577 | North Primary (MLGW) | 365576 | Poplar Avenue (MLGW) | 1 | 161 | 9.78 | 13-Jun | Planned | Reliability | North Primary-Poplar Avenue 161 kV, reconductor to 222 MVA |
| TVA | TN | 365577 | North Primary (MLGW) | 365595 | University (MLGW) | 1 | 161 | 4.11 | 13-Jun | Planned | Reliability | North Primary-University 161 kV, reconductor to 222 MVA |
| TVA | TN | 365591 | Northeast Gate (MLGW) | 365593 | Chelsea (MLGW) | 1 | 161 | 4.19 | 13-Jun | Planned | Reliability | Northeast Gate-Chelsea 161 kV, reconductor to 222 MVA |
| TVA | TN | 365600 | Fite Road | 365511 | Fite Road | 1 | 161/115 | N/A | 13-Jun | Planned | Reliability | Fite Road 161/115 kV, install |
| TVA | TN | 365826 | Collierville Gate (MLGW) | 365913 | South Collierville (MLGW) | 1 | 161 | 5.6 | 13-Jun | Planned | Reliability | Construct South Collierville 161 kV, tap into Collierville Gate-Shelton Road 161 kV |
| TVA | TN | 365913 | South Collierville (MLGW) | 365827 | Shelton Road (MLGW) | 1 | 161 | 5.6 | 13-Jun | Planned | Reliability | Construct South Collierville 161 kV, tap into Collierville Gate-Shelton Road 161 kV |
| TVA | KY | 366005 | Grahamville | 360496 | C-33 (DOE) | 1 | 161 | 0 | 12-Jun | Planned | Reliability | Grahamville (EON) to C-33 (DOE) 161 kV #2, construct for 307 MVA (with 5% series reactor at Grahamville) |

Eastern Interconnection Planning Collaborative

# Appendix C: New/Upgraded Generation Included in Roll-Up Model

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Duke Carolinas | SC | CLFSDGEN 27.000 | 6 | 306460 | 825 | 825 | Coal | Steam Turbine | Committed | 2012 | Under Construction |
| Duke Carolinas | SC | CLEVELAND1 18.000 | 1 | 306578 | 179.3 | 179.3 | Gas | Combustion Turbine | Committed | 2012 | Under Construction |
| Duke Carolinas | SC | CLEVELAND2 18.000 | 2 | 306579 | 179.3 | 179.3 | Gas | Combustion Turbine | Committed | 2012 | Under Construction |
| Duke Carolinas | SC | CLEVELAND3 18.000 | 3 | 306580 | 179.3 | 179.3 | Gas | Combustion Turbine | Committed | 2012 | Under Construction |
| Duke Carolinas | SC | CLEVELAND4 18.000 | 4 | 306581 | 179.3 | 0 | Gas | Combustion Turbine | Committed | 2012 | Under Construction |
| Duke Carolinas | NC | BUCKG1 18.000 | 1 | 306565 | 179 | 179 | Gas | Combined Cycle | Committed | 2011 | Under Construction |
| Duke Carolinas | NC | BUCKG2 18.000 | 2 | 306566 | 179 | 179 | Gas | Combined Cycle | Committed | 2011 | Under Construction |
| Duke Carolinas | NC | BUCKS1 18.000 | 3 | 306567 | 263 | 263 | Gas | Combined Cycle | Committed | 2011 | Under Construction |
| Duke Carolinas | NC | DNRVRG1 18.000 | 1 | 306570 | 179 | 179 | Gas | Combined Cycle | Committed | 2012 | Under Construction |
| Duke Carolinas | NC | DNRVRG2 18.000 | 2 | 306571 | 179 | 179 | Gas | Combined Cycle | Committed | 2012 | Under Construction |
| Duke Carolinas | NC | DNRVRS1 18.000 | 3 | 306572 | 263 | 263 | Gas | Combined Cycle | Committed | 2012 | Under Construction |
| Entergy | AR | Plum point Unit 2 | 1 | 338389 | 735 | 200 | Fossil | Steam Turbine | Committed | 2012 | |
| Entergy | TX | Lewis Creek Combustion Turbine 1(CT) | 1 | 334014 | 211 | 0 | Fossil | Combustion Turbine | Proposed | 2019 | |
| Entergy | TX | Lewis Creek CT 2 | 1 | 334015 | 211 | 0 | Fossil | Combustion Turbine | Proposed | 2019 | |
| Entergy | TX | Lewis Creek Steam Turbine (ST) | 1 | 334016 | 211 | 0 | Fossil | Steam Turbine | Proposed | 2019 | |
| FPL | FL | CAPE-CT1 | 1 | 401111 | 231 | 231 | Natural Gas | Combustion Turbine | State/Budget Approva | 2013 | |
| FPL | FL | CAPE-CT2 | 1 | 401112 | 242 | 242 | Natural Gas | Combustion Turbine | State/Budget Approva | 2013 | |
| FPL | FL | CAPE-CT3 | 1 | 401113 | 231 | 231 | Natural Gas | Combustion Turbine | State/Budget Approva | 2013 | |
| FPL | FL | CAPE-STE | 1 | 401115 | 515 | 515 | Waste Heat | Combined Cycle | State/Budget Approva | 2013 | |
| FPL | FL | WCE3-CT1 | 1 | 401355 | 240 | 240 | Natural Gas | Combustion Turbine | State/Budget Approva | 2011 | |
| FPL | FL | WCE3-CT2 | 1 | 401356 | 240 | 240 | Natural Gas | Combustion Turbine | State/Budget Approva | 2011 | |
| FPL | FL | WCE3-CT3 | 1 | 401357 | 240 | 240 | Natural Gas | Combustion Turbine | State/Budget Approva | 2011 | |
| FPL | FL | WCE3-STE | 1 | 401358 | 498.9 | 498.9 | Waste Heat | Steam Turbine | State/Budget Approva | 2011 | |
| FPL | FL | RIV-CT1 | 1 | 401390 | 231 | 231 | Natural Gas | Combustion Turbine | Planned | 2014 | |
| FPL | FL | RIV-CT2 | 1 | 401391 | 242 | 242 | Natural Gas | Combustion Turbine | Planned | 2014 | |
| FPL | FL | RIV-CT3 | 1 | 401392 | 231 | 231 | Natural Gas | Combustion Turbine | Planned | 2014 | |
| FPL | FL | RIV-STE | 1 | 401394 | 503 | 503 | Waste Heat | Steam Turbine | Planned | 2014 | |
| FPL | FL | TURK.PT.6 | 1 | 410006 | 1300 | 1290 | Nuclear | Steam Turbine | Proposed | 2020 | |
| FPL | FL | TURK.PT.7 | 1 | 410007 | 1300 | 1290 | Nuclear | Steam Turbine | Proposed | 2020 | |
| FPL | FL | TURK.PT.6 | 1 | 410006 | 1300 | 1290 | Nuclear | Steam Turbine | Planned | 2020 | |
| FPL | FL | TURK.PT.7 | 1 | 410007 | 1300 | 1290 | Nuclear | Steam Turbine | Planned | 2020 | |
| IESO | ON | 22DEG 13.800 | 1 | 158976 | 150 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | ADELAIDEKRWD13.800 | 1 | 160190 | 60 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | ADELAIDESROY13.800 | 1 | 160185 | 40 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | ARMOW 13.800 | 1 | 158998 | 80 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | ARRAN 13.800 | 1 | 158977 | 115 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | BELLERIVER 13.800 | 1 | 160193 | 95 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | BLUEWATERB 13.800 | 1 | 158999 | 125 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | BLUEWATERW 13.800 | 1 | 160183 | 60 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | BLUFFYLAKE 13.800 | 1 | 151082 | 4.2 | 0 | Water | Hydro Turbine | Proposed | 2016 | |
| IESO | ON | BORNISH 13.800 | 1 | 160186 | 73.5 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | BRUCEPEN 13.800 | 1 | 158996 | 125 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | CALSTOCK 13.800 | 1 | 152153 | 27 | 0 | Water | Hydro Turbine | Proposed | 2016 | |
| IESO | ON | CEDARPOINT1 13.800 | 1 | 160188 | 100 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | CEDARPOINT2 13.800 | 1 | 160198 | 50 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | CHIINODEN 13.800 | 1 | 151073 | 90 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | COLDWELL 13.800 | 1 | 151078 | 100 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | DOVER 13.800 | 1 | 160192 | 39 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | DOVER 13.800 | 2 | 160192 | 40.5 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | EASTLAKE 13.800 | 1 | 160181 | 99 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | ELKLAKE 13.800 | 1 | 152159 | 200 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | ERIEAU 13.800 | 1 | 160182 | 99 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | FIT_BIG_EDDY13.800 | 1 | 160491 | 5.3 | 0 | Water | Hydro Turbine | Committed | 2011 | |
| IESO | ON | FIT_BL_2A 13.800 | 1 | 160500 | 20 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_BL_2B 13.800 | 1 | 160501 | 20 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_BL_PH1 13.800 | 1 | 160488 | 20 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_BOUNDARY13.800 | 1 | 160457 | 3.75 | 0 | Water | Hydro Turbine | Committed | 2011 | |
| IESO | ON | FIT_COMBER23220.00 | 1 | 160476 | 82.8 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_COMBER24220.00 | 1 | 160474 | 82.8 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_COMBERG113.800 | 1 | 160504 | 82.8 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | FIT_COMBERG213.800 | 1 | 160505 | 82.8 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | FIT_COMBERG313.800 | 1 | 160506 | 82.8 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | FIT_COMBERG413.800 | 1 | 160507 | 82.8 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | FIT_COMBERG513.800 | 1 | 160508 | 82.8 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | FIT_COMBERG613.800 | 1 | 160509 | 82.8 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | FIT_CONESTOG13.800 | 1 | 160485 | 6.9 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_FARM_OWN13.800 | 1 | 160496 | 100 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_GITCHIG113.800 | 1 | 160481 | 10 | 0 | Water | Hydro Turbine | Committed | 2014 | |
| IESO | ON | FIT_GITCHIG213.800 | 1 | 160482 | 8.9 | 0 | Water | Hydro Turbine | Committed | 2014 | |
| IESO | ON | FIT_GOUL_BAY13.800 | 1 | 160497 | 25 | 0 | Wind | Wind Turbine | Committed | 2012 | |
| IESO | ON | FIT_HALF_MIL13.800 | 1 | 160494 | 4.8 | 0 | Water | Hydro Turbine | Committed | 2011 | |
| IESO | ON | FIT_IVANHOE 13.800 | 1 | 160451 | 5.1 | 0 | Water | Hydro Turbine | Committed | 2011 | |
| IESO | ON | FIT_LAPINIGA13.800 | 1 | 160454 | 8.2 | 0 | Water | Hydro Turbine | Committed | 2011 | |
| IESO | ON | FIT_LISKEAR113.800 | 1 | 160466 | 10 | 0 | Solar | Photovoltaic | Committed | 2011 | |
| IESO | ON | FIT_LISKEAR313.800 | 1 | 160467 | 10 | 0 | Solar | Photovoltaic | Committed | 2011 | |
| IESO | ON | FIT_LISKEAR413.800 | 1 | 160468 | 10 | 0 | Solar | Photovoltaic | Committed | 2014 | |
| IESO | ON | FIT_MCLEANS113.800 | 1 | 160483 | 50 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_MCLEANS213.800 | 1 | 160484 | 10 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_MIDDLETW13.800 | 1 | 160455 | 5 | 0 | Water | Hydro Turbine | Committed | 2011 | |
| IESO | ON | FIT_NAME_G1 13.800 | 1 | 160490 | 10 | 0 | Water | Hydro Turbine | Committed | 2014 | |
| IESO | ON | FIT_NEES_GEN13.800 | 1 | 160441 | 6.5 | 0 | Water | Hydro Turbine | Committed | 2013 | |
| IESO | ON | FIT_NP_ABITI13.800 | 1 | 160462 | 10 | 0 | Solar | Photovoltaic | Committed | 2014 | |
| IESO | ON | FIT_NP_EMPIR13.800 | 1 | 160463 | 10 | 0 | Solar | Photovoltaic | Committed | 2014 | |
| IESO | ON | FIT_NP_LONG_13.800 | 1 | 160472 | 10 | 0 | Solar | Photovoltaic | Committed | 2014 | |
| IESO | ON | FIT_NP_MART_13.800 | 1 | 160461 | 10 | 0 | Solar | Photovoltaic | Committed | 2011 | |
| IESO | ON | FIT_OUTLET 13.800 | 1 | 160459 | 2.5 | 0 | Water | Hydro Turbine | Committed | 2011 | |
| IESO | ON | FIT_PAR_G1 13.800 | 1 | 160478 | 48.6 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_PEES_GEN13.800 | 1 | 160442 | 6.5 | 0 | Water | Hydro Turbine | Committed | 2013 | |

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IESO | ON | FIT_PRT_DOV 13.800 | 1 | 160499 | 105 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_SUMHV_G113.800 | 1 | 160487 | 125 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_TROU_GEN13.800 | 1 | 160447 | 4 | 0 | Water | Hydro Turbine | Committed | 2014 | |
| IESO | ON | FIT_WAHP_GEN13.800 | 1 | 160443 | 6.5 | 0 | Water | Hydro Turbine | Committed | 2011 | |
| IESO | ON | FIT_WAPO_GEN13.800 | 1 | 160444 | 6.5 | 0 | Water | Hydro Turbine | Committed | 2012 | |
| IESO | ON | FIT_WHE_PNE 13.800 | 1 | 160502 | 60 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FIT_WOLF_IS 13.800 | 1 | 160503 | 300 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | FLOWERFALLS 13.800 | 1 | 151075 | 9.9 | 0 | Water | Hydro Turbine | Proposed | 2016 | |
| IESO | ON | FRIDAYLAKE 13.800 | 1 | 152154 | 100 | 0 | Wind | Wind Turbine | Proposed | 2014 | |
| IESO | ON | GOSFIELDWTG10.6900 | 1 | 160787 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2014 | |
| IESO | ON | GOSFIELDWTG20.6900 | 1 | 160788 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2014 | |
| IESO | ON | GOSHEN 13.800 | 1 | 158971 | 100 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | GRANDBEND 13.800 | 1 | 158972 | 100 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | GRANDVALLEY 13.800 | 1 | 158973 | 40 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | GREENWCHWTG10.6900 | 1 | 151770 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2012 | |
| IESO | ON | GREENWCHWTG20.6900 | 1 | 151771 | 23 | 0 | Wind | Wind Turbine | Committed | 2012 | |
| IESO | ON | GREENWCHWTG30.6900 | 1 | 151772 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2013 | |
| IESO | ON | GREENWCHWTG40.6900 | 1 | 151773 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2014 | |
| IESO | ON | GRNFLDS_CTG116.500 | 1 | 156741 | 195.3 | 0 | Gas | Combined Cycle | Committed | 2012 | |
| IESO | ON | GRNFLDS_STG213.800 | 1 | 156742 | 134 | 0 | Gas | Combined Cycle | Committed | 2012 | |
| IESO | ON | HEALEY_FG1 4.1600 | 1 | 155746 | 6.7 | 0 | Water | Hydro Turbine | Proposed | 2014 | |
| IESO | ON | HEALEY_FG2346.6000 | 2 | 155747 | 3.38 | 0 | Water | Hydro Turbine | Proposed | 2014 | |
| IESO | ON | HEALEY_FG2346.6000 | 3 | 155747 | 3.38 | 0 | Water | Hydro Turbine | Proposed | 2014 | |
| IESO | ON | HEALEY_FG2346.6000 | 4 | 155747 | 3.38 | 0 | Water | Hydro Turbine | Proposed | 2014 | |
| IESO | ON | HIGHFALLS 13.800 | 1 | 160448 | 6.4 | 0 | Water | Hydro Turbine | Committed | 2013 | |
| IESO | ON | JERICHO 13.800 | 1 | 160184 | 150 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | KEFKATIKGWAN13.800 | 1 | 151074 | 60 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | KENTCNTR 13.800 | 1 | 160194 | 100 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | KINGSBRDG2 13.800 | 1 | 158991 | 270 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | KRUGER-WTG1 0.6900 | 1 | 160772 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2013 | |
| IESO | ON | KRUGER-WTG2 0.6900 | 1 | 160773 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2013 | |
| IESO | ON | KRUGER-WTG3 0.6900 | 1 | 160774 | 32.2 | 0 | Wind | Wind Turbine | Committed | 2013 | |
| IESO | ON | KRUGER-WTG4 0.6900 | 1 | 160775 | 18.4 | 0 | Wind | Wind Turbine | Committed | 2013 | |
| IESO | ON | LAURIER 13.800 | 1 | 153150 | 100 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| IESO | ON | LISKEARD2 13.800 | 1 | 152164 | 10 | 0 | Solar | Photovoltaic | Proposed | 2016 | |
| IESO | ON | LISKEARD5 13.800 | 1 | 152165 | 10 | 0 | Solar | Photovoltaic | Proposed | 2017 | |
| IESO | ON | LOCHLOMOND 13.800 | 1 | 151077 | 48.3 | 0 | Solar | Photovoltaic | Proposed | 2017 | |
| IESO | ON | LOWERLAKE 13.800 | 1 | 151081 | 10 | 0 | Water | Hydro Turbine | Proposed | 2018 | |
| IESO | ON | MASINABIK 13.800 | 1 | 151072 | 150 | 0 | Wind | Wind Turbine | Proposed | 2019 | |
| IESO | ON | MCLEANSMT 13.800 | 1 | 152151 | 40 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | MERLINQUINN 13.800 | 1 | 160304 | 46 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | MURILLO_DSB224.900 | 1 | 151709 | 6.4 | 6.08 | Water | Hydro Turbine | Proposed | 2014 | |
| IESO | ON | MURILLO_DSB224.900 | 2 | 151709 | 6.4 | 6.08 | Water | Hydro Turbine | Proposed | 2014 | |
| IESO | ON | MYRTLEFALLS 13.800 | 1 | 151080 | 2 | 0 | Water | Hydro Turbine | Proposed | 2016 | |
| IESO | ON | NBRUCEPEN 13.800 | 1 | 158997 | 150 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | NIMAASING 13.800 | 1 | 152152 | 200 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | NRTHLNDCOCRN13.800 | 1 | 152162 | 10 | 0 | Solar | Photovoltaic | Proposed | 2018 | |
| IESO | ON | NRTHLNDHUNTA13.800 | 1 | 152161 | 10 | 0 | Solar | Photovoltaic | Proposed | 2016 | |
| IESO | ON | NRTHLNDMTHSN13.800 | 1 | 152163 | 10 | 0 | Solar | Photovoltaic | Proposed | 2016 | |
| IESO | ON | RALEIGH-WTG10.5750 | 1 | 160763 | 18 | 0 | Wind | Wind Turbine | Committed | 2012 | |
| IESO | ON | RALEIGH-WTG20.5750 | 1 | 160764 | 18 | 0 | Wind | Wind Turbine | Committed | 2011 | |
| IESO | ON | RALEIGH-WTG30.5750 | 1 | 160765 | 21 | 0 | Wind | Wind Turbine | Committed | 2013 | |
| IESO | ON | RALEIGH-WTG40.5750 | 1 | 160766 | 21 | 0 | Wind | Wind Turbine | Committed | 2014 | |
| IESO | ON | RANGERLAKE1A13.800 | 1 | 152155 | 50 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | RANGERLAKE1B13.800 | 1 | 152156 | 50 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | RANGERLAKE2A13.800 | 1 | 152157 | 50 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | RANGERLAKE2B13.800 | 1 | 152158 | 50 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | ROARINGRAPID13.800 | 1 | 151079 | 5.1 | 0 | Water | Hydro Turbine | Proposed | 2013 | |
| IESO | ON | ROCKHILL 13.800 | 1 | 155150 | 100 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | SHILOH 13.800 | 1 | 160302 | 46 | 0 | Wind | Wind Turbine | Proposed | 2018 | |
| IESO | ON | SILCOTE 13.800 | 1 | 158980 | 46.8 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | SKYWAY 13.800 | 1 | 158974 | 100 | 0 | Wind | Wind Turbine | Proposed | 2016 | |
| IESO | ON | SUPERIORSHOR13.800 | 1 | 151076 | 25.3 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | SYDENHAM 13.800 | 1 | 160196 | 66.7 | 0 | Wind | Wind Turbine | Proposed | 2017 | |
| IESO | ON | TALBOT_WTG1 0.5750 | 1 | 160781 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2012 | |
| IESO | ON | TALBOT_WTG2 0.5750 | 1 | 160782 | 23 | 0 | Wind | Wind Turbine | Committed | 2012 | |
| IESO | ON | TALBOT_WTG3 0.5750 | 1 | 160783 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2012 | |
| IESO | ON | TALBOT_WTG4 0.5750 | 1 | 160784 | 25.3 | 0 | Wind | Wind Turbine | Committed | 2012 | |
| IESO | ON | WIKWEMIKONG 13.800 | 1 | 152160 | 100 | 0 | Wind | Wind Turbine | Proposed | 2019 | |
| IESO | ON | YORK_EC_LV1 16.500 | 1 | 153655 | 184 | 0 | Gas | Fossil | Committed | 2012 | |
| IESO | ON | YORK_EC_LV2 16.500 | 1 | 153656 | 184 | 0 | Gas | Fossil | Committed | 2012 | |
| IESO | ON | ZURICH 13.800 | 1 | 158979 | 37.5 | 0 | Wind | Wind Turbine | Proposed | 2019 | |
| ISO-NE | ME | QP197 STRNG1 | 1 | 100707 | 25.3 | 5.1 | Wind | Wind Turbine | Committed | 2011 | |
| ISO-NE | ME | QP197 STRNG2 | 2 | 100708 | 25.3 | 5.1 | Wind | Wind Turbine | Committed | 2011 | |
| ISO-NE | ME | QP221-1_CLR2 | 2 | 103157 | 21.6 | 4.2 | Wind | Wind Turbine | Committed | 2012 | |
| ISO-NE | NH | GRANITE DIX | 7 | 105166 | 21 | 4.2 | Wind | Wind Turbine | Committed | 2011 | |
| ISO-NE | NH | GRANITE OWLS | 14 | 105167 | 42 | 8.4 | Wind | Wind Turbine | Committed | 2011 | |
| ISO-NE | NH | GRANITE FISH | 12 | 105168 | 36 | 7.2 | Wind | Wind Turbine | Committed | 2011 | |
| ISO-NE | VT | SHEFLD CLR-N | 1 | 108898 | 30 | 6 | Wind | Wind Turbine | Committed | 2010 | |
| ISO-NE | MA | CAPE W CLR-1 | 1 | 111380 | 126 | 37.8 | Wind | Wind Turbine | Committed | | In-Service Date under negotiation |
| ISO-NE | MA | CAPE W CLR-2 | 2 | 111381 | 108 | 32.4 | Wind | Wind Turbine | Committed | | In-Service Date under negotiation |
| ISO-NE | MA | CAPE W CLR-3 | 3 | 111382 | 126 | 37.8 | Wind | Wind Turbine | Committed | | In-Service Date under negotiation |
| ISO-NE | MA | CAPE W CLR-4 | 4 | 111383 | 108 | 32.4 | Wind | Wind Turbine | Committed | | In-Service Date under negotiation |
| ISO-NE | MA | RUSSELL BIO | 1 | 116563 | 60 | 60 | Biomass | Steam Turbine | Committed | 2013 | |
| ISO-NE | CT | PLAINFIELD | 1 | 121560 | 43 | 43 | Biomass | Steam Turbine | Committed | 2014 | |
| ISO-NE | CT | PLAINFIELD | 1 | 121560 | 43 | 43 | Biomass | Steam Turbine | Committed | 2014 | |
| ISO-NE | CT | KLEEN_C1 | C1 | 122030 | 158 | 158 | Natural Gas | Combined Cycle | Committed | 2011 | |
| ISO-NE | CT | KLEEN_C2 | C2 | 122031 | 158 | 158 | Natural Gas | Combined Cycle | Committed | 2011 | |

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ISO-NE | CT | KLEEN_S1 | S1 | 122032 | 318 | 318 | Natural Gas | Combined Cycle | Committed | 2011 | |
| ISO-NE | CT | MIDDLETWN_11 | 11 | 122045 | 112 | 0 | Natural Gas | Gas Turbine | Committed | 2011 | |
| ISO-NE | CT | MIDDLETWN_12 | 12 | 122046 | 50 | 0 | Natural Gas | Gas Turbine | Committed | 2011 | |
| ISO-NE | CT | MIDDLETWN_13 | 13 | 122047 | 50 | 0 | Natural Gas | Gas Turbine | Committed | 2011 | |
| ISO-NE | CT | MIDDLETWN_14 | 14 | 122048 | 50 | 0 | Natural Gas | Gas Turbine | Committed | 2011 | |
| ISO-NE | CT | MIDDLETWN_15 | 15 | 122049 | 50 | 0 | Natural Gas | Gas Turbine | Committed | 2011 | |
| ISO-NE | CT | MERIDEN GT1 | C1 | 122310 | 182 | 182 | Natural Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | CT | MERIDEN GT2 | C2 | 122311 | 182 | 182 | Natural Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | CT | MERIDEN ST | S1 | 122312 | 170 | 170 | Natural Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | CT | ANSONIA GEN | C1 | 123157 | 54.5 | 54.5 | Natural Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | RI | RIDGEWOOD LD | C1 | 117455 | 6.1 | 6.1 | Landfill Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | RI | RIDGEWOOD LD | C2 | 117455 | 6.1 | 6.1 | Landfill Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | RI | RIDGEWOOD LD | C3 | 117455 | 6.1 | 6.1 | Landfill Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | RI | RIDGEWOOD LD | C4 | 117455 | 6.1 | 6.1 | Landfill Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | RI | RIDGEWOOD LD | C5 | 117455 | 6.1 | 6.1 | Landfill Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | RI | RIDGEWOOD LD | C6 | 117455 | 6.1 | 6.1 | Landfill Gas | Combined Cycle | Committed | 2012 | |
| ISO-NE | RI | RIDGEWOOD LD | S1 | 117455 | 12.66 | 12.6 | Landfill Gas | Steam Turbine | Committed | 2012 | |
| ISO-NE | ME | QP316-1_GT | 5 | 103096 | 9.5 | 0 | Natural Gas | Gas Turbine | Committed | 2010 | |
| ISO-NE | VT | QP276-1 EAST | 1 | 109403 | 14 | 2.8 | Wind | Wind Turbine | Committed | 2012 | |
| ISO-NE | VT | QP276-1 WEST | 1 | 109404 | 16 | 3.2 | Wind | Wind Turbine | Committed | 2012 | |
| ISO-NE | MA | QP273-1 | 1 | 116472 | 40.3 | 0 | Biomass | Steam Turbine | Committed | 2012 | |
| ISO-NE | MA | MATEP_CC | C3 | 110984 | 12.5 | 0 | Natural Gas | Gas Turbine | Committed | 2014 | |
| ISO-NE | NH | QP251-1 | 1 | 104222 | 65.9 | 65.9 | Biomass | Steam Turbine | Committed | 2012 | |
| ISO-NE | CT | QP207-1_CT1 | C1 | 121033 | 168.4 | 168.4 | Natural Gas | Combined Cycle | Committed | 2014 | |
| ISO-NE | CT | QP207-1_CT2 | C2 | 121034 | 168.4 | 168.4 | Natural Gas | Combined Cycle | Committed | 2014 | |
| ISO-NE | CT | QP207-1_ST | S1 | 121035 | 188.6 | 188.6 | Natural Gas | Combined Cycle | Committed | 2014 | |
| ISO-NE | MA | QP174-1_CT | C3 | 116423 | 190.6 | 190.6 | Natural Gas | Combined Cycle | Committed | 2014 | |
| ISO-NE | MA | QP174-1_ST | S3 | 116424 | 111 | 111 | Natural Gas | Combined Cycle | Committed | 2014 | |
| ISO-NE | NH | Comerford Unit 2 | 2 | 106041 | 48.2 | 41 | Water | Hydro Turbine | Committed | 2011 | Uprate to existing unit |
| ISO-NE | NH | Comerford Unit 3 | 3 | 106042 | 48.3 | 31 | Water | Hydro Turbine | Committed | 2012 | Uprate to existing unit |
| ISO-NE | NH | Comerford Unit 4 | 4 | 106043 | 48.2 | 41 | Water | Hydro Turbine | Committed | 2013 | Uprate to existing unit |
| ISO-NE | MA | Northfield Mountain Unit 1 | 1 | 116411 | 295 | 175 | Water | Hydro Turbine | Committed | 2014 | Uprate to existing unit |
| ISO-NE | MA | Northfield Mountain Unit 2 | 2 | 116412 | 295 | 175 | Water | Hydro Turbine | Committed | 2012 | Uprate to existing unit |
| ISO-NE | MA | Northfield Mountain Unit 3 | 3 | 116413 | 295 | 175 | Water | Hydro Turbine | Committed | 2011 | Uprate to existing unit |
| ISO-NE | MA | Northfield Mountain Unit 4 | 4 | 116414 | 295 | 175 | Water | Hydro Turbine | Committed | 2013 | Uprate to existing unit |
| JEA | FL | GEC CT 1 | 30 | 404551 | 150 | 150 | Natural Gas | Combustion Turbine | Committed | June 1, 2011 | GEC = Greenland Energy Center |
| JEA | FL | GEC CT 2 | 30 | 404552 | 150 | 150 | Natural Gas | Combustion Turbine | Committed | June 1, 2011 | |
| JEA | FL | GEC ST 3 | 30 | 404553 | 201 | 201 | Waste Heat | Steam Turbine | Proposed | June 1, 2020 | Heat Recovery Combined cycle with |
| LGEE | KY | Estill Energy | 1 | 324047 | 120 | 0 | Coal | Steam Turbine | Committed | 2013 | IPP |
| MAPP | SD | WESSINGT | 1 | 662101 | 51 | 0 | Wind | Wind Turbine | Committed | 6/1/2010 | WAPA |
| MAPP | SD | SDPRAIRW | 1 | 659296 | 151.5 | 42.1 | Wind | Wind Turbine | Committed | 12/31/2010 | SD Prairie Wind 1, BEPC |
| MAPP | Manitoba | STJOS1 W | 1 | 669831 | 151.2 | 30 | Wind | Wind Turbine | Committed | 12/31/2010 | Letellier - St. Joseph |
| MAPP | Manitoba | STJOS2 W | 1 | 669832 | 151.2 | 30 | Wind | Wind Turbine | Committed | 12/31/2010 | Letellier - St. Joseph |
| MAPP | Manitoba | WUSK 1G | 1 | 669765 | 74.3 | 66.7 | Water | Hydro Turbine | Committed | 12/31/2011 | Wuskwatim Hydro |
| MAPP | Manitoba | WUSK 2G | 2 | 669766 | 74.3 | 66.7 | Water | Hydro Turbine | Committed | 12/31/2011 | Wuskwatim Hydro |
| MAPP | Manitoba | WUSK 3G | 3 | 669767 | 74.3 | 66.7 | Water | Hydro Turbine | Committed | 12/31/2011 | Wuskwatim Hydro |
| MAPP | SD | DEERCREE | 1 | 659285 | 300 | 300 | Natural Gas | Combustion Turbine | Committed | 1/1/2012 | BEPC, Under Construction |
| MAPP | Manitoba | KELSEY1G | 1 | 669750 | 45 | 45 | Water | Hydro Turbine | Proposed | 6/30/2012 | Kelsey Upgrades |
| MAPP | Manitoba | KELSEY2G | 2 | 669751 | 45 | 45 | Water | Hydro Turbine | Proposed | 6/30/2012 | Kelsey Upgrades |
| MAPP | Manitoba | KELSEY3G | 3 | 669752 | 45 | 45 | Water | Hydro Turbine | Proposed | 6/30/2012 | Kelsey Upgrades |
| MAPP | Manitoba | KELSEY4G | 4 | 669753 | 45 | 45 | Water | Hydro Turbine | Proposed | 6/30/2012 | Kelsey Upgrades |
| MAPP | Manitoba | KELSEY5G | 5 | 669754 | 45 | 45 | Water | Hydro Turbine | Proposed | 6/30/2012 | Kelsey Upgrades |
| MAPP | Manitoba | KELSEY6G | 6 | 669755 | 45 | 45 | Water | Hydro Turbine | Proposed | 6/30/2012 | Kelsey Upgrades |
| MAPP | Manitoba | KELSEY7G | 7 | 669756 | 45 | 45 | Water | Hydro Turbine | Proposed | 6/30/2012 | Kelsey Upgrades |
| MAPP | Manitoba | PINFLS1G | 1 | 669778 | 16.7 | 16.7 | Water | Hydro Turbine | Committed | 12/31/2012 | Pine Falls Unit upgrade |
| MAPP | Manitoba | PINFLS2G | 2 | 669779 | 16.7 | 16.7 | Water | Hydro Turbine | Committed | 12/31/2012 | Pine Falls Unit upgrade |
| MAPP | Manitoba | PINFLS3G | 3 | 669780 | 18.4 | 18.4 | Water | Hydro Turbine | Committed | 12/31/2012 | Pine Falls Unit upgrade |
| MAPP | Manitoba | PINFLS4G | 4 | 669781 | 18.4 | 18.4 | Water | Hydro Turbine | Committed | 12/31/2012 | Pine Falls Unit upgrade |
| MAPP | Manitoba | PINFLS5G | 5 | 669782 | 16.5 | 16.5 | Water | Hydro Turbine | Committed | 12/31/2012 | Pine Falls Unit upgrade |
| MAPP | Manitoba | PINFLS6G | 6 | 669783 | 16.8 | 16.8 | Water | Hydro Turbine | Committed | 12/31/2012 | Pine Falls Unit upgrade |
| MAPP | Manitoba | POINTE1G | 1 | 669800 | 32.5 | 30 | Water | Hydro Turbine | Proposed | 5/1/2016 | |
| MAPP | Manitoba | POINTE2G | 2 | 669801 | 32.5 | 30 | Water | Hydro Turbine | Proposed | 7/1/2016 | |
| MAPP | Manitoba | POINTE3G | 3 | 669802 | 32.5 | 30 | Water | Hydro Turbine | Proposed | 9/1/2016 | |
| MAPP | Manitoba | POINTE4G | 4 | 669803 | 32.5 | 30 | Water | Hydro Turbine | Proposed | 11/1/2016 | |
| MAPP | Manitoba | KEEYAS1G | 1 | 669742 | 99.3 | 90 | Water | Hydro Turbine | Proposed | 12/31/2017 | Gull/Keeyask Hydro Plant |
| MAPP | Manitoba | KEEYAS2G | 2 | 669743 | 99.3 | 90 | Water | Hydro Turbine | Proposed | 12/31/2017 | Gull/Keeyask Hydro Plant |
| MAPP | Manitoba | KEEYAS3G | 3 | 669744 | 99.3 | 90 | Water | Hydro Turbine | Proposed | 12/31/2017 | Gull/Keeyask Hydro Plant |
| MAPP | Manitoba | KEEYAS4G | 4 | 669745 | 99.3 | 90 | Water | Hydro Turbine | Proposed | 12/31/2017 | Gull/Keeyask Hydro Plant |
| MAPP | Manitoba | KEEYAS5G | 5 | 669746 | 99.3 | 90 | Water | Hydro Turbine | Proposed | 12/31/2017 | Gull/Keeyask Hydro Plant |
| MAPP | Manitoba | KEEYAS6G | 6 | 669747 | 99.3 | 90 | Water | Hydro Turbine | Proposed | 12/31/2017 | Gull/Keeyask Hydro Plant |
| MAPP | Manitoba | KEEYAS7G | 7 | 669748 | 99.3 | 90 | Water | Hydro Turbine | Proposed | 12/31/2017 | Gull/Keeyask Hydro Plant |
| MAPP | SD | NEXTGEN | 1 | 659112 | 790 | 631 | | | Proposed | | BEPC |
| MISO | OH | 02DAV-BE 345.00 | 1 | 238654 | 375.0 | 18.8 | Wind | Wind Turbine | Proposed | 2013 | P2260 |
| MISO | MI | 18MURPHY 345.00 | N1 | 256500 | 500.0 | 25.0 | Wind | Wind Turbine | Proposed | | |
| MISO | MI | 18PALISD 345.00 | N1 | 256019 | 350.0 | 17.5 | Wind | Wind Turbine | Proposed | | |
| MISO | MI | 19GRNEC 345.00 | N1 | 264706 | 500.0 | 25.0 | Wind | Wind Turbine | Proposed | 2015 | P3168 |
| MISO | MI | 19GRNECP 345.00 | N1 | 264758 | 500.0 | 25.0 | Wind | Wind Turbine | Proposed | 2015 | P3168 |
| MISO | IL | 1PR STATE G126.000 | 1 | 349129 | 895.0 | 895.0 | Coal | Steam Turbine | Committed | 2011 | |
| MISO | IL | 1PR STATE G226.000 | 2 | 349130 | 895.0 | 895.0 | Coal | Steam Turbine | Committed | 2011 | |
| MISO | MO | 5ADAIR 161.00 | N1 | 344001 | 300.0 | 15.0 | Wind | Wind Turbine | Proposed | 2014 | P2248 |
| MISO | IL | 7DUCK CRK 345.00 | N1 | 349661 | 375.0 | 18.8 | Wind | Wind Turbine | Proposed | 2016 | P3022 |
| MISO | WI | ATC_J084POI 69.000 | N1 | 693561 | 100.0 | 5.0 | Wind | Wind Turbine | Committed | 2010 | J084 |
| MISO | IA | ATCHSN2W 0.6900 | W2 | 635016 | 250.0 | 12.5 | Wind | Wind Turbine | Committed | | |
| MISO | SD | BRKNGCO3 345.00 | N1 | 601031 | 200.0 | 10.0 | Wind | Wind Turbine | Proposed | 2015 | P1203 |
| MISO | WI | BWS RD G 0.5750 | W | 693568 | 105.0 | 5.3 | Wind | Wind Turbine | Proposed | | |
| MISO | MN | CHANRMB7 115.00 | N1 | 603180 | 500.0 | 25.0 | Wind | Wind Turbine | Proposed | 2015 | P1203 |
| MISO | WI | ECOMET WTG1 12.000 | W | 693692 | 49.5 | 2.5 | Wind | Wind Turbine | Committed | 2012 | |

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MISO | WI | ECOMET WTG2 12.000 | W | 693694 | 51.0 | 2.6 | Wind | Wind Turbine | Committed | 2012 | |
| MISO | WI | ECOMONT WTG 12.000 | W | 693565 | 50.0 | 10.0 | Wind | Wind Turbine | Committed | 2012 | |
| MISO | MN | EXCLSRG1 18.000 | 1 | 608619 | 234.0 | 197.0 | Coal | | Committed | 2010 | G519 suspended |
| MISO | MN | EXCLSRG2 18.000 | 2 | 608620 | 234.0 | 197.0 | Coal | | Committed | 2010 | G519 suspended |
| MISO | MN | EXCLSRG3 18.000 | 3 | 608621 | 250.0 | 209.1 | Coal | | Committed | 2010 | G519 suspended |
| MISO | WI | GLR HL WTG1 0.6900 | W | 693698 | 99.0 | 5.0 | Wind | Wind Turbine | Committed | 2011 | |
| MISO | WI | GLR HL WTG2 0.6900 | W | 693722 | 150.0 | 30.0 | Wind | Wind Turbine | Committed | 2011 | |
| MISO | MN | GRE-MAPLE 1G69.000 | 1 | 615070 | 29.4 | 19.2 | Oil | Combustion Turbine | Committed | | |
| MISO | WI | GRNL WTG 0.5750 | W | 693556 | 160.0 | 8.0 | Wind | Wind Turbine | Proposed | | |
| MISO | WI | J079 80 138.00 | N1 | 927513 | 24.0 | 1.2 | Wind | Wind Turbine | Committed | 2011 | J079, Withdrawn |
| MISO | WI | LAKBRZ G 0.6900 | W | 693584 | 98.0 | 4.9 | Wind | Wind Turbine | Committed | 2013 | |
| MISO | WI | LDGE WD WTG 0.6900 | W | 693642 | 150.0 | 7.5 | Wind | Wind Turbine | Committed | 2013 | |
| MISO | IA | LEHIGH 3 345.00 | N1 | 636010 | 300.0 | 25.0 | Wind | Wind Turbine | Proposed | 2015 | P3211 |
| MISO | MN | MERRICT 1G 0.5750 | W | 600119 | 50.0 | 2.5 | Wind | Wind Turbine | Committed | 2011 | G359 |
| MISO | MN | MERRICT 2G 0.5750 | W | 600120 | 50.0 | 2.5 | Wind | Wind Turbine | Committed | 2011 | G359 |
| MISO | MN | MERRICT 3G 0.5750 | W | 600121 | 50.0 | 2.5 | Wind | Wind Turbine | Committed | 2011 | G359 |
| MISO | MI | MI-C STA 345345.00 | N1 | 700306 | 500.0 | 25.0 | Wind | Wind Turbine | Proposed | 2015 | P3168 |
| MISO | MI | MI-D STA 345345.00 | N1 | 700307 | 500.0 | 25.0 | Wind | Wind Turbine | Proposed | 2015 | P3168 |
| MISO | WI | NoM 138 138.00 | N1 | 699036 | 500.0 | 25.0 | Wind | Wind Turbine | Proposed | 2018 | P3127 |
| MISO | WI | QLT B W1 0.6000 | W | 698979 | 25.2 | 1.3 | Wind | Wind Turbine | Committed | 2013 | |
| MISO | WI | QLT B W2 0.6000 | W | 699839 | 25.2 | 1.3 | Wind | Wind Turbine | Committed | 2013 | |
| MISO | WI | QLT B W3 0.6000 | W | 699862 | 25.2 | 1.3 | Wind | Wind Turbine | Committed | 2013 | |
| MISO | WI | QLT B W4 0.6000 | W | 699863 | 23.1 | 1.2 | Wind | Wind Turbine | Committed | 2013 | |
| MISO | IA | RLHILLSW 0.5750 | W1 | 635102 | 250.0 | 12.5 | Wind | Wind Turbine | Committed | | |
| MISO | WI | STONYBRK WTG0.6000 | W | 693688 | 98.7 | 4.9 | Wind | Wind Turbine | Committed | 2012 | |
| MISO | IA | WEBSTER3 345.00 | N1 | 636000 | 300.0 | 25.0 | Wind | Wind Turbine | Proposed | 2015 | P3211 |
| MISO | MN | JHNDEER1W 0.5750 | W | 600122 | 8.0 | 0.4 | Wind | Wind Turbine | Committed | | |
| MISO | MN | LAKEFLD3 345.00 | N1 | 631138 | 500.0 | 25.0 | Wind | Wind Turbine | Proposed | 2015 | P3213 |
| MISO | WI | Point Beach | 1 | 699434 | 617.06 | 617.06 | Nuclear | Steam Turbine | Committed | 2011 | uprate capacity by 123 MW |
| MISO | WI | Point Beach | 2 | 699435 | 617.06 | 617.06 | Nuclear | Steam Turbine | Committed | 2011 | uprate capacity by 113 MW |
| NYISO | NY | BALLHL1G 0.5750 | W | 146013 | 12 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BALLHL2G 0.5750 | W | 146014 | 10.5 | 10.5 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BALLHL3G 0.5750 | W | 146015 | 10.5 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BALLHL4G 0.5750 | W | 146016 | 12 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BALLHL5G 0.5750 | W | 146017 | 10.5 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BALLHL6G 0.5750 | W | 146018 | 10.5 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BALLHL7G 0.5750 | W | 146019 | 12 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BALLHL8G 0.5750 | W | 146020 | 10.5 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BALLHL9G 0.5750 | W | 146021 | 10.5 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | BAY_G1&2 13.800 | 1 | 128253 | 64 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | BAY_G1&2 13.800 | 2 | 128253 | 64 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | BAY_G3&4 13.800 | 3 | 128254 | 64 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | BAY_G3&4 13.800 | 4 | 128254 | 64 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | BAY_G5&6 13.800 | 5 | 128255 | 64 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | BAY_G5&6 13.800 | 6 | 128255 | 64 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | BAY_G7&8 13.800 | 7 | 128256 | 64 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | BAY_G7&8 13.800 | 8 | 128256 | 64 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | CNSTO_1G 0.5750 | W | 134780 | 24 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | CNSTO_2G 0.5750 | W | 134781 | 25.5 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | CNSTO_3G 0.5750 | W | 134782 | 25.5 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | CNSTO_4G 0.5750 | W | 134783 | 25.5 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | CNSTO_5G 0.5750 | W | 134784 | 25.5 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | CNSTO_6G 0.5750 | W | 134785 | 24 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | ECOGEN_SWT1 0.6900 | W | 130898 | 9.2 | 9.2 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | ECOGEN_SWT2 0.6900 | W | 131165 | 23 | 23 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | ECOGEN_SWT3 0.6900 | W | 131166 | 23 | 23 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | ECOGEN_SWT4 0.6900 | W | 131167 | 23 | 23 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | FRFLD_G1 0.6900 | W | 137068 | 24 | 24 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | FRFLD_G2 0.6900 | W | 137069 | 24 | 24 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | FRFLD_G3 0.6900 | W | 137070 | 26 | 26 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | HOUNS10G 0.6900 | W | 148987 | 28.8 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF1G 0.6900 | W | 148978 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF2G 0.6900 | W | 148979 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF3G 0.6900 | W | 148980 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF4G 0.6900 | W | 148981 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF5G 0.6900 | W | 148982 | 28.8 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF6G 0.6900 | W | 148983 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF7G 0.6900 | W | 148984 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF8G 0.6900 | W | 148985 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOUNSF9G 0.6900 | W | 148986 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | HOWD_C93_G1 0.6900 | W | 131350 | 7.5 | 7.5 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | HOWD_C93_G2 0.6900 | W | 131653 | 27.5 | 27.5 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | HOWD_C93_G3 0.6900 | W | 131654 | 27.5 | 27.5 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | HRTVL_1G 0.6900 | W | 134768 | 18.4 | 18.4 | Wind | Wind Turbine | Proposed | 2014 | |
| NYISO | NY | HRTVL_2G 0.6900 | W | 134769 | 13.8 | 13.8 | Wind | Wind Turbine | Proposed | 2014 | |
| NYISO | NY | HRTVL_3G 0.6900 | W | 134770 | 18.4 | 18.4 | Wind | Wind Turbine | Proposed | 2014 | |
| NYISO | NY | JRCHO_1G 0.6900 | W | 131865 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | JRCHO_2G 0.6900 | W | 131866 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | JRCHO_3G 0.6900 | W | 131867 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | JRCHO_4G 0.6900 | W | 131868 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | JRDN_G87_G1 0.6900 | W | 137201 | 8 | 8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | JRDN_G87_G2 0.6900 | W | 136982 | 24 | 24 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | JRDN_G87_G3 0.6900 | W | 136983 | 24 | 24 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | JRDN_G87_G4 0.6900 | W | 136984 | 24 | 24 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MORESVL_1G 1.0000 | W | 131855 | 21 | 21 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MORESVL_2G 1.0000 | W | 131856 | 21 | 21 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MORESVL_5G 1.0000 | W | 131859 | 21 | 21 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MRBLRV1G_S880.6000 | W | 147988 | 25.2 | 25.2 | Wind | Wind Turbine | Proposed | 2011 | |

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NYISO | NY | MRBLRV2G_S880.6000 | W | 147989 | 21 | 21 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MRBLRV3G_S880.6000 | W | 147990 | 44.1 | 44.1 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MRBLRV4G_S880.6000 | W | 147991 | 44.1 | 44.1 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MRBLRV5G_S880.6000 | W | 147992 | 42 | 42 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MRBLRV6G_S880.6000 | W | 147993 | 39.9 | 39.9 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | MUNSVIL_GE1 0.5750 | W | 131664 | 6 | 6 | Wind | Wind Turbine | Committed | 2013 | |
| NYISO | NY | MUNSVIL_GE2 0.5750 | W | 131836 | 16.5 | 0 | Wind | Wind Turbine | Committed | 2013 | |
| NYISO | NY | MUNSVIL_GE3 0.5750 | W | 131837 | 18 | 0 | Wind | Wind Turbine | Committed | 2013 | |
| NYISO | NY | Q157_ORIN_1G0.5750 | W | 146041 | 25.5 | 0 | Wind | Wind Turbine | Proposed | 2013 | |
| NYISO | NY | Q157_ORIN_2G0.5750 | W | 146042 | 25.5 | 0 | Wind | Wind Turbine | Proposed | 2013 | |
| NYISO | NY | Q157_ORIN_3G0.5750 | W | 146043 | 25.5 | 0 | Wind | Wind Turbine | Proposed | 2013 | |
| NYISO | NY | Q157_ORIN_4G0.5750 | W | 146044 | 24 | 0 | Wind | Wind Turbine | Proposed | 2013 | |
| NYISO | NY | Q168_PRY_1G 0.6900 | W | 134805 | 28 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q168_PRY_2G 0.6900 | W | 134806 | 28 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q168_PRY_3G 0.6900 | W | 134807 | 24 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q168_PRY_4G 0.6900 | W | 134808 | 28 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q168_PRY_5G 0.6900 | W | 134809 | 28 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q169_V90_1G 1.0000 | W | 146656 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q169_V90_2G 1.0000 | W | 146655 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q169_V90_3G 1.0000 | W | 146654 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q169_V90_4G 1.0000 | W | 146653 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q180A_CLIB_G0.6900 | W | 146650 | 10 | 10 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | Q197_G87_1G 0.6900 | W | 146721 | 20 | 20 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q197_G87_2G 0.6900 | W | 146722 | 20 | 20 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q197_G87_3G 0.6900 | W | 146723 | 20 | 20 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q197_G87_4G 0.6900 | W | 146724 | 18 | 18 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q198_V90_1G 1.0000 | W | 146714 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q198_V90_2G 1.0000 | W | 146713 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q198_V90_3G 1.0000 | W | 146712 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q198_V90_4G 1.0000 | W | 146711 | 19.8 | 19.8 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q207_GE_01G 0.6900 | 1 | 146699 | 24 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_02G 0.6900 | 1 | 146700 | 24 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_03G 0.6900 | 1 | 146701 | 24 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_04G 0.6900 | 1 | 146702 | 22.5 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_05G 0.6900 | 1 | 146703 | 12 | 12 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_06G 0.6900 | 1 | 146704 | 22.5 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_07G 0.6900 | 1 | 146705 | 12 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_08G 0.6900 | 1 | 146706 | 24 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_09G 0.6900 | 1 | 146707 | 9 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_10G 0.6900 | 1 | 146708 | 24 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q207_GE_11G 0.6900 | 1 | 146709 | 12 | 0 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | Q231SEN19-224.1600 | 1 | 134762 | 6.4 | 0 | Methane | Steam Turbine | Committed | 2010 | |
| NYISO | NY | Q234_CLIB_G10.6900 | W | 146732 | 7.5 | 7.5 | Wind | Wind Turbine | Committed | 2010 | |
| NYISO | NY | Q234_CLIB_G20.6900 | W | 146733 | 7.5 | 0 | Wind | Wind Turbine | Committed | 2010 | |
| NYISO | NY | Q237ALGANY1G0.6600 | W | 146065 | 17.5 | 17.5 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q237ALGANY2G0.6600 | W | 146066 | 30 | 30 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q237ALGANY3G0.6600 | W | 146067 | 30 | 30 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q239WDOOR_1G12.000 | W | 135172 | 18 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | Q239WDOOR_2G12.000 | W | 135173 | 18 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | Q239WDOOR_3G12.000 | W | 135174 | 18 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | Q239WDOOR_4G12.000 | W | 135175 | 18 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | Q239WDOOR_5G12.000 | W | 135176 | 18 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | Q239WDOOR_6G12.000 | W | 135177 | 9 | 0 | Wind | Wind Turbine | Proposed | 2015 | |
| NYISO | NY | Q241CHTWND_G0.5750 | W | 134811 | 19.5 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_1G 0.6900 | W | 146081 | 26 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_2G 0.6900 | W | 146082 | 26 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_3G 0.6900 | W | 146083 | 24 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_4G 0.6900 | W | 146084 | 24 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_5G 0.6900 | W | 146085 | 24 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_6G 0.6900 | W | 146086 | 26 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_7G 0.6900 | W | 146087 | 26 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_8G 0.6900 | W | 146088 | 26 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH_9G 0.6900 | W | 146089 | 24 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q246DUTCH10G 0.6900 | W | 146090 | 24 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q254RIPW_1G 0.6900 | W | 146157 | 24 | 24 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q254RIPW_2G 0.6900 | W | 146158 | 24 | 24 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q254RIPW_3G 0.6900 | W | 146159 | 24 | 24 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q254RIPW_4G 0.6900 | W | 146160 | 26.4 | 26.4 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q254RIPW_5G 0.6900 | W | 146161 | 26.4 | 26.4 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q260FLYWHEEL0.4800 | 1 | 146164 | 20 | 0 | Flywheel | Flywheel | Committed | 2010 | |
| NYISO | NY | Q263STONY_1G0.6900 | W | 135195 | 24 | 24 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | Q263STONY_2G0.6900 | W | 135194 | 24 | 0 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | Q263STONY_3G0.6900 | W | 135193 | 24 | 0 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | Q263STONY_4G0.6900 | W | 135192 | 24 | 0 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | Q263STONY_5G0.6900 | W | 135191 | 24 | 0 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | Q263STONY_6G0.6900 | W | 135190 | 22.5 | 0 | Wind | Wind Turbine | Proposed | 2010 | |
| NYISO | NY | Q271STLINE1G0.6900 | W | 146271 | 24 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q271STLINE2G0.6900 | W | 146272 | 24 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q271STLINE3G0.6900 | W | 146273 | 24 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q271STLINE4G0.6900 | W | 146274 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q271STLINE5G0.6900 | W | 146275 | 26.4 | 0 | Wind | Wind Turbine | Proposed | 2011 | |
| NYISO | NY | Q308_GT1 18.000 | 1 | 148708 | 193.1 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | Q308_GT2 18.000 | 1 | 148709 | 193.1 | 0 | Natural Gas | Combined Cycle | Committed | 2011 | |
| NYISO | NY | Q308_ST 18.000 | 1 | 148710 | 277.2 | 0 | Steam | Combined Cycle | Committed | 2011 | |
| NYISO | NY | Q330 G 13.800 | 1 | 130632 | 32 | 32 | Solar | Photovoltaic | Proposed | 2011 | |
| NYISO | NY | STLAW_AW_G1 12.000 | W | 136830 | 12 | 12 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | STLAW_AW_G2 12.000 | W | 136993 | 39 | 39 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | STLAW_AW_G3 12.000 | W | 136994 | 39 | 39 | Wind | Wind Turbine | Proposed | 2012 | |

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NYISO | NY | STLAW_AW_G4 12.000 | W | 136995 | 39 | 39 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | WHILL_AW_1 12.000 | W | 138054 | 12 | 12 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | WHILL_AW_2 12.000 | W | 138055 | 12 | 12 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | WHILL_AW_3 12.000 | W | 138057 | 13.5 | 13.5 | Wind | Wind Turbine | Proposed | 2012 | |
| NYISO | NY | WHORSE G 0.5750 | 1 | 134845 | 19.5 | 0 | Wind | Wind Turbine | Proposed | 2013 | |
| PEC | NC | 6DBGENW | D | 304860 | 350 | 350 | N/A | Conceptual | Proposed | | |
| PEC | NC | 1RICHCC2 | A | 304978 | 643 | 643 | Gas | Combined Cycle | Committed | 2011 | |
| PEC | NC | 8DBGEN | 1 | 304998 | 700 | 700 | N/A | Conceptual | Proposed | | |
| PEF | FL | HIG P1&2 | 1 | 402196 | 26 | 0 | Distillate Fuel Oil | Gas Turbine | Retired | 2016 | |
| PEF | FL | HIG P1&2 | 2 | 402196 | 27 | 0 | Distillate Fuel Oil | Gas Turbine | Retired | 2016 | |
| PEF | FL | HIG P3&4 | 1 | 402197 | 30 | 0 | Distillate Fuel Oil | Gas Turbine | Retired | 2016 | |
| PEF | FL | HIG P3&4 | 2 | 402197 | 30 | 0 | Distillate Fuel Oil | Gas Turbine | Retired | 2016 | |
| PEF | FL | SUW CT4 | 30 | 402975 | 178 | 0 | Natural Gas | Gas Turbine | Planned | 2019 | |
| PEF | FL | SUW CT5 | 30 | 402976 | 178 | 0 | Natural Gas | Gas Turbine | Planned | 2019 | |
| PEF | FL | SWN P1&2 | 1 | 402987 | 52 | 0 | Distillate Fuel Oil | Steam Turbine | Retired | 2015 | |
| PEF | FL | LEVY G1 | 30 | 403283 | 1092 | 1092 | Nuclear | Steam Turbine | Planned | 2019 | |
| PEF | FL | LEVY G2 | 30 | 403284 | 1092 | 1092 | Nuclear | Steam Turbine | Planned | 2020 | |
| PJM | IL | FREEPT_G | 1 | 90800, 99070 | 80.0 | 14.3 | Wind | Wind Turbine | Committed | 10/15/2011 | K04_CE19 |
| PJM | WV | J07 | 1 | 292090 | 124 | 117.4 | Wind | Wind Turbine | Committed | 11/30/2011 | |
| PJM | PA | K02 | 1 | 200857 | 70 | - | Wind | Wind Turbine | Committed | 11/1/2010 | |
| PJM | IL | K02_CE18 | 1 | 99902, 29990 | 80 | - | Wind | Wind Turbine | Committed | 12/31/2011 | |
| PJM | WV | K26 | 1 | 292380 | 31 | 29.4 | Wind | Wind Turbine | Committed | 11/30/2011 | |
| PJM | MD | K28 | 1 | 92400, 29240 | 100.0 | 17.6 | Wind | Wind Turbine | Committed | 12/31/2010 | |
| PJM | OH | L01_AEP137 | 1 | 246759 | 165 | - | Biomass | | Committed | 12/31/2009 | Suspended Project |
| PJM | IL | L12_CE23 | 1 | 92535, 29253 | 4 | 3.6 | Wind | Wind Turbine | Committed | 4/15/2007 | |
| PJM | IL | LEEDK;1U | 1 | 74872, 29010 | 240.0 | 44.6 | Wind | Wind Turbine | Committed | 6/1/2010 | Q57 |
| PJM | WV | M23 | 1 | 92850, 29285 | 150 | 0 | Wind | Wind Turbine | Committed | 11/30/2011 | |
| PJM | PA | M26 | 1 | 292880 | 272 | 0 | Coal | | Committed | 11/30/2013 | |
| PJM | DE | N03 | 1 | 93654, 29365 | 300 | 53.3 | Natural Gas | | Committed | 8/9/2004 | |
| PJM | VA | N07 | 1 | 92860, 29286 | 38 | 173.3 | Wind | Wind Turbine | Committed | 9/14/2009 | |
| PJM | IL | N21 | 1 | 93120, 29312 | 6 | 1 | Wind | Wind Turbine | Committed | 4/15/2007 | |
| PJM | IL | N22 | 1 | 93130, 29313 | 11 | 2 | Wind | Wind Turbine | Committed | 4/15/2007 | |
| PJM | IL | N23 | 1 | 93140, 29314 | 11 | 2 | Wind | Wind Turbine | Committed | 4/15/2007 | |
| PJM | IL | N24 | 1 | 93150, 29315 | 11 | 2 | Wind | Wind Turbine | Committed | 4/15/2007 | |
| PJM | IL | N25 | 1 | 93160, 29316 | 11 | 2 | Wind | Wind Turbine | Committed | 4/15/2007 | |
| PJM | PA | N32 | 1 | 93230, 29323 | 10.1 | 9.0 | Wind | Wind Turbine | Committed | 1/31/2011 | |
| PJM | OH | N42 | 1 | 293330 | 600 | 2 | Coal | | Committed | 5/1/2010 | |
| PJM | WV | N47 | 1 | 93380, 29338 | 85 | 15.1 | Wind | Wind Turbine | Committed | 12/31/2011 | |
| PJM | IL | O09 | 1 | 93515, 29351 | 212 | 18.3, 10.2, 9.3 | Wind | Wind Turbine | Committed | 1/1/2009 | |
| PJM | PA | O19 | 1 | 93611, 29361 | 33.0 | 5.9 | Wind | Wind Turbine | Committed | 5/31/2012 | |
| PJM | NJ | O20 | 1 | 206280 | 9.1 | 8.1 | Methane | | Committed | 6/1/2007 | |
| PJM | IL | O24 | 1 | 93664, 29366 | 100.8 | 18 | Wind | Wind Turbine | Committed | 12/1/2008 | |
| PJM | IL | O27 | 1 | 90003, 29000 | 300 | 26.7, 26.7 | Wind | Wind Turbine | Committed | 12/1/2009 | |
| PJM | IL | O29 | 1 | 93714, 29371 | 225 | 19.7, 10.5, 9.8 | Wind | Wind Turbine | Committed | 1/1/2009 | |
| PJM | WV | O32 | 1 | 293740 | 20.0 | 17.8 | Coal | | Committed | 6/30/2007 | |
| PJM | WV | O32 | 1 | 293740 | 20 | 17.8 | Coal | | Committed | 6/30/2007 | |
| PJM | IL | O33 | 1 | 90008, 29000 | 20 | 3.6 | Wind | Wind Turbine | Committed | 12/30/2007 | |
| PJM | MI | O42 | 1 | 293840 | 84.0 | 74.8 | Nuclear | Steam Turbine | Committed | 1/19/2007 | |
| PJM | IL | O43 | 1 | 274805 | 42 | 37.4 | Natural Gas | | Committed | 6/1/2007 | |
| PJM | PA | O48, R40 | 1 | 93432, 29390 | 37.8 | 0.4, 7.2 | Wind | Wind Turbine | Committed | 6/30/2008 | |
| PJM | IL | O49 | 1 | 93911, 29391 | 200 | 35.6 | Wind | Wind Turbine | Committed | 9/30/2011 | |
| PJM | PA | O54 | 1 | 253901 | 77 | - | Nuclear | Steam Turbine | Committed | 7/1/2008 | Uprate to Beaver Valley Unit 2 |
| PJM | IL | O68 | 1 | 94175, 29412 | 100 | 17.8 | Wind | Wind Turbine | Committed | 12/31/2011 | |
| PJM | IL | O73 | 1 | 90046, 29004 | 100 | 17.8 | Wind | Wind Turbine | Committed | 12/31/2010 | |
| PJM | PA | P04 | 1 | 00192-20019 | 555.0 | 8.7, 108.7, 108.7, 16 | Natural Gas | | Committed | 7/1/2011 | |
| PJM | VA | P09 | 1 | 15158-31516 | 91.0 | - | Water | Hydro Turbine | Committed | 9/30/2008 | Uprate to Kerr Damn Units |
| PJM | IL | P10 | 1 | 94391, 29439 | 340.5 | 35.6 | Wind | Wind Turbine | Committed | 12/1/2009 | |
| PJM | IL | P11 | 1 | 94400, 29440 | 100 | 17.8 | Wind | Wind Turbine | Committed | 6/1/2009 | |
| PJM | IL | P14 | 1 | 90050, 29005 | 80 | 14.3 | Wind | Wind Turbine | Committed | 6/1/2009 | |
| PJM | IL | P20 | 1 | 94500, 29450 | 210 | 37.4 | Wind | Wind Turbine | Committed | 3/1/2009 | |
| PJM | IL | P24 | 1 | 95103, 29510 | 20 | 3.6 | Wind | Wind Turbine | Committed | 12/1/2008 | |
| PJM | IL | P25 | 1 | 95106, 29510 | 20 | 3.6 | Wind | Wind Turbine | Committed | 12/1/2008 | |
| PJM | IL | P26 | 1 | 90052, 29005 | 20 | 3.6 | Wind | Wind Turbine | Committed | 12/1/2008 | |
| PJM | OH | P30 | 1 | 246759 | 20 | - | Biomass | | Committed | 12/31/2009 | Suspended Project; Uprate to L01_AEP137 |
| PJM | PA | P34 | 1 | 294155 | 7 | 6.2 | Biomass | | Committed | 3/17/2009 | |
| PJM | IL | P36 | 1 | 74857, 27485 | 240.0 | 42.8 | Wind | Wind Turbine | Committed | 6/30/2010 | |
| PJM | IL | P37 | 1 | 94670, 29467 | 212 | 37.8 | Wind | Wind Turbine | Committed | 3/1/2009 | |
| PJM | VA | P38 | 1 | 15414-31541 | 625.0 | 137.2, 137.2, 282.5 | Natural Gas | | Committed | 4/1/2011 | |
| PJM | IL | P39 | 1 | 90055, 29005 | 60 | 10.7 | Wind | Wind Turbine | Committed | 12/1/2008 | |
| PJM | IL | P40 | 1 | 94700, 29470 | 20 | 3.6 | Wind | Wind Turbine | Committed | 11/12/2010 | |
| PJM | NC | P43 | 1 | 315417 | 63 | 56.1 | Wood | | Committed | 10/1/2010 | |
| PJM | WV | P52 | 1 | 90065, 29006 | 80 | 14.3 | Wind | Wind Turbine | Committed | 12/31/2012 | |
| PJM | WV | P59 | 1 | 90073, 29007 | 125.0 | 22.3 | Wind | Wind Turbine | Committed | 7/30/2011 | |
| PJM | IN | Q03 | 1 | 94962, 29496 | 250.0 | 44.6 | Wind | Wind Turbine | Committed | 7/1/2012 | |
| PJM | NJ | Q11 | 1 | 295016 | 100 | 89.1 | Natural Gas | | Committed | 12/1/2011 | |
| PJM | PA | Q20 | 1 | 25, 295130, 2 | 140.0 | 60.6, 60.6, 1.8, 1.8 | Water | Hydro Turbine | Committed | 7/1/2013 | |
| PJM | PA | Q25 | 1 | 95191, 29519 | 80 | 14.3 | Wind | Wind Turbine | Committed | 3/1/2013 | |
| PJM | PA | Q34 | 1 | 90081, 29008 | 100.0 | 17.8 | Wind | Wind Turbine | Committed | 4/1/2011 | |
| PJM | PA | Q36 | 1 | 90085, 29008 | 50.0 | 10.7 | Wind | Wind Turbine | Committed | 3/8/2011 | |
| PJM | IL | Q39 | 1 | 90089, 29009 | 147 | 26.2 | Wind | Wind Turbine | Committed | 3/1/2009 | |
| PJM | NJ | Q41 | 1 | 290092 | 30 | - | Biomass | | Committed | 12/31/2013 | |
| PJM | VA | Q43 | 1 | 290094 | 534.0 | 475.8 | Coal | | Committed | 3/1/2012 | |
| PJM | VA | Q43 | 1 | 290094 | 534 | 475.8 | Coal | | Committed | 3/1/2012 | |
| PJM | PA | Q46 | 1 | 295247 | 10 | 8.9 | Coal | | Committed | 3/1/2009 | |
| PJM | PA | Q47 | 1 | 00034, 20003 | 140.0 | - | Nuclear | Steam Turbine | Committed | 4/1/2013 | Uprate to Peachbottom Units 2,3 |
| PJM | IL | Q49 | 1 | 274658 | 70.0 | - | Nuclear | Steam Turbine | Committed | 1/31/2012 | Uprate to Dresden Unit 2 |
| PJM | IL | Q50 | 1 | 274659 | 70.0 | - | Nuclear | Steam Turbine | Committed | 1/31/2012 | Uprate to Dresden Unit 3 |

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PJM | IL | Q51 | 1 | 74662, 27466 | 140.0 | - | Nuclear | Steam Turbine | Committed | 10/31/2010 | Uprate to Quad City Units |
| PJM | PA | Q53 | 1 | 00882, 20088 | 38.0 | 8.9 | Wind | Wind Turbine | Committed | 12/31/2010 | |
| PJM | WV | Q55 | 1 | 90103, 29010 | 100 | 17.8 | Wind | Wind Turbine | Committed | 12/31/2009 | |
| PJM | PA | Q63 | 1 | 290113 | 16 | 14.3 | Water | Hydro Turbine | Committed | 3/31/2008 | |
| PJM | WV | Q79 | 1 | 295731 | 100.0 | 89.1 | Coal | | Committed | 3/12/2011 | |
| PJM | NJ | Q90 | 1 | 295841 | 650 | 579.2 | Natural Gas | | Committed | 6/1/2012 | |
| PJM | PA | R02 | 1 | 295870 | 1600 | 1425.6 | Nuclear | Steam Turbine | Committed | 12/31/2018 | |
| PJM | IN | R03 | 1 | 95880, 29588 | 130 | 23.2 | Wind | Wind Turbine | Committed | 12/31/2008 | |
| PJM | NJ | R11 | 1 | 295952 | 440 | - | Natural Gas | | Committed | 6/1/2013 | |
| PJM | MD | R17 | 1 | 292425 | 275 | 245 | Natural Gas | | Committed | 6/1/2013 | |
| PJM | IL | R18 | 1 | 290266 | 6.4 | - | Methane | | Committed | 1/3/2008 | |
| PJM | VA | R31 | 1 | 15420, 31542 | 18 | 7.1 | Natural Gas | | Committed | 10/1/2010 | |
| PJM | PA | R32 | 1 | 96322, 29633 | 75 | 13.4 | Wind | Wind Turbine | Committed | 12/1/2009 | |
| PJM | IL | R35 | 1 | 274839 | 50.0 | 44.6 | Biomass | | Committed | 9/30/2011 | |
| PJM | DE | R36 | 1 | 96355, 29635 | 450.0 | 80.2 | Wind | Wind Turbine | Committed | 6/1/2015 | |
| PJM | PA | R43 | 1 | 212386 | 20.0 | 3.6 | Wind | Wind Turbine | Committed | 6/1/2012 | |
| PJM | OH | R48 | 1 | 96145, 29614 | 48.3 | 8.6 | Wind | Wind Turbine | Committed | 8/1/2013 | |
| PJM | OH | R49 | 1 | 96456, 29645 | 150 | - | Wind | Wind Turbine | Committed | 10/31/2011 | |
| PJM | OH | R52 | 1 | 96455, 29647 | 200 | 17.8, 17.8 | Wind | Wind Turbine | Committed | 10/1/2008 | |
| PJM | OH | R52a | 1 | 90286, 29028 | 100 | 17.8 | Wind | Wind Turbine | Committed | 10/1/2008 | |
| PJM | IN | R60 | 1 | 96883, 29688 | 350 | 20.7, 20.7, 21.0 | Wind | Wind Turbine | Committed | 12/31/2011 | |
| PJM | VA | R63 | 1 | 315450 | 19.0 | 16.9 | Coal | | Committed | 6/1/2011 | |
| PJM | WV | R76 | 1 | 296610 | 100 | 89.1 | Water | Hydro Turbine | Committed | 10/1/2010 | |
| PJM | VA | R80 | 1 | 15008-31501 | 60.0 | - | Natural Gas | | Committed | 6/1/2013 | Uprate to Possum Point Units |
| PJM | IN | R97 | 1 | 243442 | 20.0 | - | Coal | | Committed | 6/27/2008 | Uprate to Rockport Units |
| PJM | VA | S100 | 1 | 291005 | 80 | 71.3 | Coal | | Committed | 3/1/2012 | |
| PJM | OH | S101 | 1 | 92083-29208 | 580.0 | 155.0, 155.0, 206.7 | Natural Gas | | Committed | 7/1/2014 | |
| PJM | PA | S103 | 1 | 291011 | 57 | 50.8 | Natural Gas | | Committed | 5/31/2011 | |
| PJM | NJ | S107 | 1 | 17, 291018, 2 | 580 | 142.6, 142.6, 231.7 | Natural Gas | | Committed | 6/1/2011 | |
| PJM | VA | S111 | 1 | 315233 | 15.0 | - | Nuclear | Steam Turbine | Committed | 12/13/2010 | Uprate to Surry Unit 2 |
| PJM | VA | S112 | 1 | 315225 | 65.0 | - | Nuclear | Steam Turbine | Committed | 4/15/2012 | Uprate to North Anna Unit 1 |
| PJM | VA | S113 | 1 | 315116 | 15.0 | - | Nuclear | Steam Turbine | Committed | 11/13/2010 | Uprate to Surry Unit 1 |
| PJM | VA | S114 | 1 | 315116 | 75.0 | - | Nuclear | Steam Turbine | Committed | 11/13/2010 | Uprate to Surry Unit 1 |
| PJM | VA | S115 | 1 | 315233 | 75.0 | - | Nuclear | Steam Turbine | Committed | 5/4/2011 | Uprate to Surry Unit 2 |
| PJM | NJ | S121 | 1 | 291065 | 63.0 | 56.1 | Natural Gas | | Committed | 6/1/2012 | |
| PJM | MD | S14 | 1 | 90228, 29022 | 70 | 12.5 | Wind | Wind Turbine | Committed | 12/1/2009 | |
| PJM | MD | S17 | 1 | 290893 | 112.5 | 100.2 | Natural Gas | | Committed | 12/31/2010 | |
| PJM | PA | S29B | 1 | 291409 | 5.7 | 5.1 | Methane | | Committed | 3/31/2011 | |
| PJM | PA | S29B | 1 | 291409 | 5.7 | 5.1 | Methane | | Committed | 3/31/2011 | |
| PJM | OH | S35 | 1 | 242931 | 20.0 | - | Coal | | Committed | 6/27/2007 | Uprate to Washington Units |
| PJM | MD | S38 | 1 | 290304 | 8 | - | Coal | | Committed | 1/26/2009 | |
| PJM | OH | S45 | 1 | 90685, 29068 | 100 | 17.8 | Wind | Wind Turbine | Committed | 12/31/2009 | |
| PJM | NJ | S60 | 1 | 290740 | 63 | 56.1 | Natural Gas | | Committed | 6/1/2008 | |
| PJM | NJ | S61 | 1 | 290745 | 20 | 17.8 | Natural Gas | | Committed | 7/1/2007 | |
| PJM | PA | S64 | 1 | 290760 | 18 | 16 | Biomass | | Committed | 1/1/2011 | |
| PJM | WV | S70 | 1 | 90784, 29078 | 36.4 | 16.2, 16.2 | Water | Hydro Turbine | Committed | 7/1/2012 | |
| PJM | IN | S71 | 1 | 90787, 29078 | 120 | 21.4, 21.4 | Wind | Wind Turbine | Committed | 10/1/2012 | |
| PJM | IN | S72 | 1 | 90792, 29080 | 300 | 26.7, 26.7 | Wind | Wind Turbine | Committed | 12/1/2010 | |
| PJM | IN | S73 | 1 | 290797, 2907 | 200 | 17.8, 17.8 | Wind | Wind Turbine | Committed | 12/1/2010 | |
| PJM | WV | S74 | 1 | 315252 | 25.0 | - | Coal | | Committed | 6/1/2011 | Uprate to Mt. Storm Unit 2 |
| PJM | WV | S75 | 1 | 315253 | 27.0 | - | Coal | | Committed | 6/1/2012 | Uprate to Mt. Storm Unit 3 |
| PJM | WV | S76 | 1 | 315251 | 25.0 | - | Coal | | Committed | 6/1/2013 | Uprate to Mt. Storm Unit 1 |
| PJM | VA | S79 | 1 | 315065 | 27.0 | - | Coal | | Committed | 12/1/2010 | Uprate to Chesterfield Unit 6 |
| PJM | VA | S80 | 1 | 315060 | 20.0 | - | Coal | | Committed | 6/1/2011 | Uprate to Chesterfield Unit 5 |
| PJM | VA | S82 | 1 | 315119 | 20.0 | - | Natural Gas | | Committed | 6/1/2010 | Uprate to Gravel Neck Unit 3 |
| PJM | VA | S83 | 1 | 315120 | 20.0 | - | Natural Gas | | Committed | 6/1/2010 | Uprate to Gravel Neck Unit 4 |
| PJM | VA | S84 | 1 | 315121 | 20.0 | - | Natural Gas | | Committed | 6/1/2010 | Uprate to Gravel Neck Unit 5 |
| PJM | VA | S85 | 1 | 315122 | 20.0 | - | Natural Gas | | Committed | 6/1/2010 | Uprate to Gravel Neck Unit 6 |
| PJM | VA | S97 | 1 | 315437 | 20.0 | 17.8 | Natural Gas | | Committed | 6/1/2013 | |
| PJM | VA | S98 | 1 | 315438 | 20.0 | 17.8 | Natural Gas | | Committed | 6/1/2013 | |
| PJM | VA | T06 | 1 | 315092 | 20.0 | - | Oil | | Committed | 5/1/2014 | Uprate to Yorktown Unit 3 |
| PJM | VA | T10 | 1 | 315441 | 3.0 | 2.7 | Methane | | Committed | 12/30/2007 | |
| PJM | NJ | T107 | 1 | 31, 292332, 2 | 624.5 | 139.2, 139.2, 278.4 | Natural Gas | | Committed | 1/31/2012 | |
| PJM | PA | T109 | 1 | 292339 | 20 | 17.8 | Coal | | Committed | 4/1/2009 | |
| PJM | MI | T111 | 1 | 292348 | 8.0 | 1.4, 1.4, 1.4, 1.4, 1.4 | Methane | | Committed | 12/31/2008 | |
| PJM | PA | T117 | 1 | 92375-29237 | 126.0 | 42.8, 42.8, 26.7 | Natural Gas | | Committed | 6/1/2012 | |
| PJM | PA | T118 | 1 | 13889, 21389 | 10.0 | - | Natural Gas | | Committed | 6/1/2010 | Uprate to Phillips Island Units |
| PJM | PA | T129 | 1 | 38, 213739, 2 | 20.0 | - | Natural Gas | | Committed | 6/1/2010 | Uprate to Eddystone Units |
| PJM | OH | T130 | 1 | 92439, 29244 | 300 | 53.5 | Wind | Wind Turbine | Committed | 10/30/2010 | |
| PJM | OH | T131 | 1 | 92443, 29244 | 150 | 26.7 | Wind | Wind Turbine | Committed | 10/30/2010 | |
| PJM | MD | T133 | 1 | 292451 | 225 | 200.5 | Natural Gas | | Committed | 5/1/2011 | |
| PJM | MD | T134 | 1 | 292457 | 325 | 289.6 | Natural Gas | | Committed | 5/1/2012 | |
| PJM | NJ | T135 | 1 | 228309 | 15.0 | - | Coal | | Committed | 1/7/2008 | Uprate to CCLP Unit |
| PJM | OH | T142 | 1 | 92490, 29249 | 300 | 53.5 | Wind | Wind Turbine | Committed | 10/30/2010 | |
| PJM | OH | T154 | 1 | 292544 | 10 | 8.9 | Methane | | Committed | 2/18/2009 | |
| PJM | PA | T155 | 1 | 292548 | 6 | 5.3 | Water | Hydro Turbine | Committed | 6/1/2010 | |
| PJM | PA | T156 | 1 | 292552 | 20 | 17.8 | Coal | | Committed | 2/28/2011 | |
| PJM | WV | T157 | 1 | 92557, 29255 | 160 | 28.5 | Wind | Wind Turbine | Committed | 6/30/2011 | |
| PJM | OH | T164 | 1 | 242940 | 15.0 | - | Coal | | Committed | 2/1/2008 | Uprate to Muskingum River Unit 5 |
| PJM | OH | T165 | 1 | 243623 | 20.0 | - | Coal | | Committed | 2/1/2008 | Uprate to Conesville Unit 5 |
| PJM | OH | T166 | 1 | 243624 | 20.0 | - | Coal | | Committed | 2/1/2008 | Uprate to Conesville Unit 6 |
| PJM | VA | T167 | 1 | 292597 | 120 | 106.9 | Natural Gas | | Committed | 6/1/2016 | |
| PJM | PA | T174 | 1 | 92627, 29262 | 930 | 4.8, 164.8, 164.8, 33 | Natural Gas | | Committed | 6/1/2011 | |
| PJM | VA | T180 | 1 | 61, 292652, 2 | 650 | 164.8,. 164.8, 249.5 | Natural Gas | | Committed | 6/1/2012 | |
| PJM | PA | T182 | 1 | 204659 | 24.0 | - | Nuclear | Steam Turbine | Committed | 1/31/2008 | Uprate to Three Mile Island Unit |
| PJM | PA | T39 | 1 | 92133, 29213 | 18 | 3.2 | Wind | Wind Turbine | Committed | 3/31/2011 | |
| PJM | NJ | T41 | 1 | 92142-29214 | 178.0 | 39.7, 39.7, 39.7, 39.7 | Natural Gas | | Committed | 6/1/2012 | |
| PJM | NJ | T41 | 1 | 292142 | 44.5 | 39.7 | Natural Gas | | Committed | 6/1/2012 | |

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PJM | NJ | T42 | 1 | 92146, 29214 | 88 | 39.7 | Natural Gas | | Committed | 6/1/2012 | |
| PJM | NJ | T43 | 1 | 92151, 29215 | 178 | 39.7, 39.7, 39.7, 39. | Natural Gas | | Committed | 6/1/2012 | |
| PJM | NJ | T45 | 1 | 69, 292160, 2 | 205 | 5, 36.5, 36.5, 36.5, 3 | Natural Gas | | Committed | 6/1/2011 | |
| PJM | OH | T48 | 1 | 92163, 29216 | 50 | 8.9 | Wind | Wind Turbine | Committed | 11/30/2013 | |
| PJM | DE | T52 | 1 | 31911-23191 | 20.0 | - | Natural Gas | | Committed | 5/1/2008 | Uprate to Hay Road Units 5,6,7,8 |
| PJM | DE | T53 | 1 | 292178 | 7.3 | 6.5 | Oil | | Committed | 6/1/2008 | |
| PJM | NJ | T54 | 1 | 292183 | 6.6 | 5.9 | Natural Gas | | Committed | 4/1/2009 | |
| PJM | NJ | T54 | 1 | 292183 | 6.6 | 5.9 | Natural Gas | | Committed | 4/1/2009 | |
| PJM | NJ | T55 | 1 | 292187 | 15.3 | 13.6 | Natural Gas | | Committed | 4/1/2009 | |
| PJM | NJ | T55 | 1 | 292187 | 12.4 | 13.6 | Natural Gas | | Committed | 4/1/2009 | |
| PJM | DE | T56 | 1 | 31919, 23192 | 8.4 | - | Oil | | Committed | 4/1/2009 | Uprate to Christiana Units |
| PJM | NJ | T59 | 1 | 292200 | 12.9 | 11.5 | Natural Gas | | Committed | 4/1/2009 | |
| PJM | NJ | T59 | 1 | 292200 | 12.9 | 11.5 | Natural Gas | | Committed | 4/1/2009 | |
| PJM | DE | T67 | 1 | 231918 | 5.3 | - | Oil | | Committed | 4/1/2009 | Uprate to West Substation Unit |
| PJM | DE | T68 | 1 | 231917 | 5.2 | - | Oil | | Committed | 4/1/2009 | Uprate to Edge Moor Unit 10 |
| PJM | NJ | T76 | 1 | 292241 | 27.3 | 24.3 | Natural Gas | | Committed | 6/15/2009 | |
| PJM | NJ | T76 | 1 | 292241 | 27.3 | 24.3 | Natural Gas | | Committed | 6/15/2009 | |
| PJM | NJ | T77 | 1 | 218435 | 64.0 | - | Natural Gas | | Committed | 10/4/2007 | Uprate to Linden Unit 1 |
| PJM | NJ | T84 | 1 | 92271, 29227 | 350 | 31.2, 31.2 | Wind | Wind Turbine | Committed | 12/31/2012 | |
| PJM | PA | T85 | 1 | 292274 | 6.0 | 5.3 | Methane | | Committed | 12/31/2008 | |
| PJM | PA | T86 | 1 | 203283 | 1.5 | 1.3 | Methane | | Committed | 7/1/2008 | |
| PJM | PA | U1-010 | 1 | 292769 | 10.0 | 16.0 | Natural Gas | | Committed | 7/1/2011 | |
| PJM | NC | U1-031 | 1 | 92789, 29279 | 80 | 35.6 | Wood | | Committed | 6/30/2012 | |
| PJM | IL | U1-054 | 1 | 93964, 29396 | 46.0 | 29.9, 10.8 | Natural Gas | | Committed | 3/28/2008 | |
| PJM | NJ | U1-056 | 1 | 92815, 29281 | 350 | 40.5 | Wind | Wind Turbine | Committed | 4/1/2014 | |
| PJM | OH | U1-059 | 1 | 92821, 29282 | 50 | 5.8 | Wind | Wind Turbine | Committed | 4/1/2011 | |
| PJM | NJ | U1-66 | 1 | 292827 | 9 | 8 | Oil | | Committed | 5/1/2011 | |
| PJM | NJ | U1-066 | 1 | 292846 | 12 | 10.7 | Water | Hydro Turbine | Committed | 5/1/2011 | |
| PJM | OH | U1-090 | 1 | 292881 | 12 | 10.7 | Coal | | Committed | 5/31/2008 | |
| PJM | MD | U2-030 | 1 | 929512 | 60.0 | 6.9 | Wind | Wind Turbine | Committed | 10/1/2010 | |
| PJM | VA | U2-031 | 1 | 92953, 29295 | 30 | 22.1 | Methane | | Committed | 6/1/2011 | |
| PJM | OH | U2-041 | 1 | 92960, 29296 | 300.0 | 17.4, 17.4 | Wind | Wind Turbine | Committed | 12/1/2011 | |
| PJM | VA | U2-050 | 1 | 92972, 29297 | 100 | 11.6 | Wind | Wind Turbine | Committed | 12/1/2010 | |
| PJM | VA | U2-051 | 1 | 92974, 29297 | 60 | 6.9 | Wind | Wind Turbine | Committed | 12/1/2010 | |
| PJM | VA | U2-056 | 1 | 292986 | 89 | 79.3 | Other | | Committed | 12/1/2010 | |
| PJM | VA | U2-057 | 1 | 292988 | 48 | 42.8 | Other | | Committed | 12/1/2010 | |
| PJM | MD | U2-061 | 1 | 29962, 92997 | 50.0 | 5.8 | Wind | Wind Turbine | Committed | 12/15/2010 | |
| PJM | PA | U2-067 | 1 | 209021 | 2.5 | - | Other | | Committed | 7/1/2008 | Uprate to Westwood Nug Unit |
| PJM | VA | U2-068 | 1 | 93011, 29301 | 130 | 15.1 | Wind | Wind Turbine | Committed | 12/1/2011 | |
| PJM | PA | U2-069 | 1 | 209032 | 56.0 | 6.5 | Wind | Wind Turbine | Committed | 6/1/2014 | |
| PJM | PA | U2-074 | 1 | 293031 | 300 | 267.3 | Natural Gas | | Committed | 10/1/2012 | |
| PJM | NJ | U3-032 | 1 | 99905, 29990 | 20 | 5.8 | Solar | | Committed | 6/1/2011 | |
| PJM | VA | U4-026 | 1 | 91956, 29195 | 100 | 11.6 | Wind | Wind Turbine | Committed | 12/31/2013 | |
| PJM | IL | U4-030 | 1 | 291972 | 6 | 5.3 | Natural Gas | | Committed | 6/23/2010 | |
| PJM | OH | U4-034 | 1 | 291988 | 5.0 | 4.5 | Coal | | Committed | 1/1/2010 | |
| PJM | OH | U4-035 | 1 | 291992 | 5.0 | 4.5 | Coal | | Committed | 1/1/2010 | |
| PJM | NJ | U4-036 | 1 | 91995, 29199 | 5.45 | 4.1 | Solar | | Committed | 4/1/2011 | |
| PJM | PA | U4-040 | 1 | 292011 | 2 | 1.8 | Natural Gas | | Committed | 1/1/2011 | |
| PJM | PA | U4-041 | 1 | 292015 | 2 | 1.8 | Diesel | | Committed | 1/1/2011 | |
| PJM | PA | U4-042 | 1 | 292019 | 2 | 1.8 | Diesel | | Committed | 1/1/2011 | |
| PJM | PA | U4-043 | 1 | 292023 | 2 | 1.8 | Diesel | | Committed | 1/1/2011 | |
| PJM | PA | U4-044 | 1 | 292027 | 2 | 1.8 | Diesel | | Committed | 1/1/2011 | |
| PJM | PA | U4-045 | 1 | 292031 | 2 | 1.8 | Diesel | | Committed | 1/1/2011 | |
| PJM | PA | U4-046 | 1 | 292035 | 2 | 1.8 | Diesel | | Committed | 1/1/2011 | |
| PJM | PA | U4-047 | 1 | 292039 | 2 | 1.8 | Diesel | | Committed | 1/1/2011 | |
| PJM | PA | U4-048 | 1 | 292043 | 2 | 1.8 | Diesel | | Committed | 1/1/2011 | |
| PS | AL | MCNTSH6G | | 17756 | 187 | 187 | Gas | Combined Cycle | Proposed | 2019 | |
| SCE&G | SC | VC Summer #2 | 2 | 370835 | 1165.0 | 1165.0 | Nuclear | Steam Turbine | Committed | 2016 | |
| SCE&G | SC | VC Summer #3 | 3 | 370836 | 1165.0 | 1165.0 | Nuclear | Steam Turbine | Committed | 2019 | |
| SOCO | GA | 1MCDON 4ST 18.000 | 4 | 383878 | 379.7 | 379.7 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1MCDON 4A 21.000 | 4A | 383879 | 240 | 240 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1MCDON 4B 21.000 | 4B | 383880 | 240 | 240 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1MCDON 6ST 18.000 | 6 | 383883 | 375.1 | 375.1 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1MCDON 6A 21.000 | 6A | 383884 | 240 | 240 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1MCDON 6B 21.000 | 6B | 383885 | 240 | 240 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1MCDON 5ST 18.000 | 5 | 383961 | 373.1 | 373.1 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1MCDON 5A 21.000 | 5A | 383962 | 240 | 240 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1MCDON 5B 21.000 | 5B | 383963 | 240 | 240 | Gas | Combined Cycle | Committed | 2011 | Approved by State Public Service Commission |
| SOCO | GA | 1LIVEOAKS1ST18.000 | 1 | 386038 | 250 | 0 | Gas | Combined Cycle | Committed | 2011 | Signed IA in suspension |
| SOCO | GA | 1LIVEOAKS 1A18.000 | 1A | 386039 | 171 | 0 | Gas | Combined Cycle | Committed | 2011 | Signed IA in suspension |
| SOCO | GA | 1LIVEOAKS 1B18.000 | 1B | 386040 | 171 | 0 | Gas | Combined Cycle | Committed | 2011 | Signed IA in suspension |
| SOCO | GA | 1FITZ BIO 13.800 | 1 | 383778 | 55 | 55 | Biomass | Biomass | Committed | 2012 | IA has been signed by customer |
| SOCO | GA | 1LONGLF1 23.000 | 1 | 383714 | 600 | 0 | Coal | Coal | Committed | 2013 | Customer has executed IA |
| SOCO | GA | 1LONGLF2 23.000 | 2 | 383715 | 600 | 0 | Coal | Coal | Committed | 2013 | Customer has executed IA |
| SOCO | GA | 1WARREN BIO 13.800 | 1 | 383776 | 100 | 100 | Biomass | Biomass | Proposed | 2014 | IC Facility Study is in progress |
| SOCO | GA | 1WASHOPC CT118.000 | 1 | 383701 | 183.6 | 108.6 | Gas | Combustion Turbine | Proposed | 2015 | IC Facility Study is in progress |
| SOCO | GA | 1WASHOPC CT218.000 | 2 | 383702 | 183.5 | 108.6 | Gas | Combustion Turbine | Proposed | 2015 | IC Facility Study is in progress |
| SOCO | GA | 1WASHOPC CT318.000 | 3 | 383703 | 183.6 | 108.6 | Gas | Combustion Turbine | Proposed | 2015 | IC Facility Study is in progress |
| SOCO | GA | 1SMARR CC1 18.000 | 1 | 383723 | 210 | 211 | Gas | Combined Cycle | Committed | 2015 | IA is pending |

## New or Upgraded Generation Resources in EIPC 2020 Roll-Up Case

| PA | State/ Province | Unit Name | Unit ID | PSSE Bus # | Installed Capacity (MW) | Dispatched Amount (MW) | Fuel Type | Generation Technology | Status | In-Service Year | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SOCO | GA | 1SMARR CC1A 18.000 | 1A | 383724 | 185.5 | 185.5 | Gas | Combined Cycle | Committed | 2015 | IA is pending |
| SOCO | GA | 1SMARR CC1B 18.000 | 1B | 383725 | 185.5 | 185.5 | Gas | Combined Cycle | Committed | 2015 | IA is pending |
| SOCO | MS | 1KEMP CC1 1 18.000 | 1 | 386881 | 268 | 268 | Gas | Combined Cycle | Committed | 2015 | Approved by State Public Service Commission |
| SOCO | MS | 1KEMP CC1 1A18.000 | 1A | 386882 | 166 | 166 | Gas | Combined Cycle | Committed | 2015 | Approved by State Public Service Commission |
| SOCO | MS | 1KEMP CC1 1B18.000 | 1B | 386883 | 166 | 166 | Gas | Combined Cycle | Committed | 2015 | Approved by State Public Service Commission |
| SOCO | GA | 1VOGTLE3 26.000 | 3 | 383753 | 1100 | 1100 | Nuclear | Steam Turbine | Committed | 2016 | Approved by State Public Service Commission |
| SOCO | GA | 1VOGTLE4 26.000 | 4 | 383754 | 1100 | 1100 | Nuclear | Steam Turbine | Committed | 2017 | Approved by State Public Service Commission |
| SOCO | GA | 1HANCOCK 1ST18.000 | 1 | 383991 | 320 | 320 | Gas | Combined Cycle | Proposed | 2019 | Load Serving Entity Future Resource Assumption |
| SOCO | GA | 1HANCOCK 1A 21.000 | 1A | 383992 | 260 | 260 | Gas | Combined Cycle | Proposed | 2019 | Load Serving Entity Future Resource Assumption |
| SOCO | GA | 1HANCOCK 1B 21.000 | 1B | 383993 | 260 | 260 | Gas | Combined Cycle | Proposed | 2019 | Load Serving Entity Future Resource Assumption |
| SOCO | GA | 1HANCOCK 2ST18.000 | 2 | 383994 | 320 | 320 | Gas | Combined Cycle | Proposed | 2020 | Load Serving Entity Future Resource Assumption |
| SOCO | GA | 1HANCOCK 2A 21.000 | 2A | 383995 | 260 | 260 | Gas | Combined Cycle | Proposed | 2020 | Load Serving Entity Future Resource Assumption |
| SOCO | GA | 1HANCOCK 2B 21.000 | 2B | 383996 | 260 | 260 | Gas | Combined Cycle | Proposed | 2020 | Load Serving Entity Future Resource Assumption |
| SOCO | GA | 1SMARR CC2 18.000 | 2 | 383726 | 210 | 211 | Gas | Combined Cycle | Committed | 2020 | IA is pending |
| SOCO | GA | 1SMARR CC2A 18.000 | 2A | 383727 | 185.5 | 185.5 | Gas | Combined Cycle | Committed | 2020 | IA is pending |
| SOCO | GA | 1SMARR CC2B 18.000 | 2B | 383728 | 185.5 | 185.5 | Gas | Combined Cycle | Committed | 2020 | IA is pending |
| SPP | AR | TURKCOAL 24.000 | 1 | 509416 | 713 | 620 | Coal | Steam Turbine | Planned | 2012 | |
| SPP | OK | TLGAWND1 34.500 | 1 | 515389 | 130 | 12 | Wind | Wind Turbine | Planned | 2010 | |
| SPP | OK | KEENAN 1 34.500 | 1 | 515393 | 150 | 14 | Wind | Wind Turbine | Planned | 2010 | |
| SPP | OK | OGEWND11 34.500 | 1 | 515425 | 150 | 14 | Wind | Wind Turbine | Planned | 2011 | |
| SPP | OK | OGEWND21 34.500 | 1 | 515428 | 150 | 14 | Wind | Wind Turbine | Planned | 2016 | |
| SPP | OK | MORLND4 18.000 | 1 | 521130 | 300 | 0 | Gas | Steam Turbine | Planned | 1905 | |
| SPP | TX | ANTELOPE A 113.800 | A1 | 525841 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_A 113.800 | A2 | 525841 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE A 113.800 | A3 | 525841 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_A 113.800 | A4 | 525841 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE A 113.800 | A5 | 525841 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_A 113.800 | A6 | 525841 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_B 113.800 | B1 | 525842 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_B 113.800 | B2 | 525842 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_B 113.800 | B3 | 525842 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_B 113.800 | B4 | 525842 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_B 113.800 | B5 | 525842 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_B 113.800 | B6 | 525842 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_C 113.800 | C1 | 525843 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_C 113.800 | C2 | 525843 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_C 113.800 | C3 | 525843 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE C 113.800 | C4 | 525843 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE_C 113.800 | C5 | 525843 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | TX | ANTELOPE C 113.800 | C6 | 525843 | 9.444 | 9.34 | Gas | Gas Turbine | Planned | 2010 | |
| SPP | MO | MAC GT3&4 113.800 | 1 | 549894 | 50 | 50 | Gas/Oil | Combustion Turbine | Planned | 2018 | |
| SPP | MO | MAC GT3&4 113.800 | 2 | 549894 | 50 | 50 | Gas/Oil | Combustion Turbine | Planned | 2018 | |
| SPP | NE | BROKEN1X 34.500 | 1 | 640428 | 80 | 0 | Wind | Wind Turbine | Planned | 2010 | |
| SPP | NE | PETSBG1X 34.500 | 1 | 640431 | 80 | 0 | Wind | Wind Turbine | Planned | 2010 | |
| SPP | NE | EGYCTR2G 22.000 | 2 | 641089 | 232.1 | 232 | Coal | Steam Turbine | Planned | 2011 | |
| SPP | TX | JONES 3 | 1 | 526333 | 243 | 243 | Gas | Steam Turbine | Planned | 2012 | |
| SPP | NE | CROFTON HILLS | 1 | 640421 | 42 | 0 | Wind | Wind Turbine | Planned | 2009 | |
| SPP | MO | SOUTHWEST 2 | 2 | 549893 | 275 | 275 | Coal/Gas | | Planned | 2010 | |
| TVA | TN | Watts Bar Nuclear 2 | 2 | 364022 | 1204 | 1204 | Nuclear | Steam Turbine | Under Construction | 13-Jun | |
| TVA | AL | Bellefonte Nuclear 1 | 1 | 364031 | 1192 | 1192 | Nuclear | Steam Turbine | Planned | 18-Jun | |
| TVA | TN | Lagoon Creek CC Turbine 1 | 1 | 364301 | 160 | 160 | Gas | Combined Cycle | Under Construction | 10-Oct | |
| TVA | TN | Lagoon Creek CC Turbine 2 | 1 | 364302 | 160 | 160 | Gas | Combined Cycle | Under Construction | 10-Oct | |
| TVA | TN | Lagoon Creek CC Steam Turbine | 1 | 364303 | 220 | 220 | Gas | Combined Cycle | Under Construction | 10-Oct | |
| TVA | TN | John Sevier CC Turbine 1 | 1 | 364321 | 165 | 165 | Gas | Combined Cycle | Under Construction | 12-Jan | |
| TVA | TN | John Sevier CC Turbine 2 | 2 | 364322 | 165 | 165 | Gas | Combined Cycle | Under Construction | 12-Jan | |
| TVA | TN | John Sevier CC Turbine 3 | 3 | 364323 | 165 | 165 | Gas | Combined Cycle | Under Construction | 12-Jan | |
| TVA | TN | John Sevier CC Steam Turbine | 4 | 364324 | 383 | 383 | Gas | Combined Cycle | Under Construction | 12-Jun | |

# Appendix D: Linear Transfer Analysis Results

**Appendix D: Summary of Incremental Transfer Capabilities**
**Transfers to Subsystem A**

| Transfer | FCITC (MW) | Limiting PA | Limiting Facility | Rating (MVA) | TDF (%) | LODF (%) | Cont.PA | Contingency / Outaged Facility |
|---|---|---|---|---|---|---|---|---|

No data has been provided.

**Appendix D: Summary of Incremental Transfer Capabilities**
**Transfers to Subsystem B**

| Transfer | FCITC (MW) | Limiting PA | Limiting Facility | Rating (MVA) | TDF (%) | LODF (%) | Cont.PA | Contingency / Outaged Facility |
|---|---|---|---|---|---|---|---|---|
| | -3900 | PJM | 270809 LISLE; R 345 270811 LOCKP; R 345 1 | 1528 | -3.7 | 32.9 | PJM | 270808 LISLE; B 345 270810 LOCKP; B 345 1 |
| | 700 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 | 1088 | 3.7 | 20 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 |
| | | | | | | -16.9 | MISO | 636420 TIFFIN 3 345 636421 TIFFIN 5 161 1 |
| | | | | | | -16.7 | MISO | 631148 MORGANV3 345 636420 TIFFIN 3 345 1 |
| | 750 | PJM | 200004 CNASTONE 500 200013 PEACHBTM 500 1 | 2815 | -9.4 | 46.6 | PJM | 200004 CNASTONE 500 200026 HUNTERTN 500 1 |
| | 850 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 | 1088 | 3.7 | -19.6 | MISO | 631148 MORGANV3 345 636420 TIFFIN 3 345 1 |
| | 950 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 | 1088 | 3.5 | -24.8 | PJM-MISO | 270866 QUAD 6-7 345 636610 SUB 91 3 345 1 |
| | | | | | | -1.8 | MISO | 636610 SUB 91 3 345 636611 SB 91 5 161 1 |
| | | | | | | -2.5 | MISO | 636610 SUB 91 3 345 636615 SB 56 3 345 1 |
| | 1100 | PJM | 270809 LISLE; R 345 270811 LOCKP; R 345 1 | 1528 | -3.6 | -41.5 | PJM | 270811 LOCKP; R 345 270849 PLANO;TR 345 1 |
| | | | | | | 15.7 | PJM | 270813 LOMBA; R 345 270849 PLANO;TR 345 1 |
| | 1900 | NYISO-PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | 128 | 6.7 | 28.6 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | 2000 | NYISO-PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | 128 | 6.6 | 1.5 | NYISO | 130763 HILSD230 230 131154 STONY RIDGE 230 1 |
| | | | | | | -5.2 | NYISO | 130763 HILSD230 230 131230 HILSD M4 34.5 1 |
| | | | | | | 0.3 | NYISO | 130814 HILSD115 115 131230 HILSD M4 34.5 1 |
| | | | | | | 15.1 | NYISO | 131194 HILSD 34 34.5 131230 HILSD M4 34.5 1 |
| | | | | | | 28 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | 2200 | NYISO-PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | 128 | 6.4 | 12.7 | NYISO | 130763 HILSD230 230 130768 WATRC230 230 1 |
| | | | | | | -3.2 | NYISO | 130763 HILSD230 230 131193 HILSD M3 34.5 1 |
| | | | | | | 20.6 | NYISO | 130814 HILSD115 115 131193 HILSD M3 34.5 1 |
| | | | | | | 34.9 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | 2400 | NYISO-PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | 128 | 5.2 | 15.2 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | | | | | | 17.7 | NYISO-PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 |
| | 2800 | PJM | 270809 LISLE; R 345 270811 LOCKP; R 345 1 | 1528 | -3.1 | -37.9 | PJM | 270788 JO 29; B 345 270810 LOCKP; B 345 1 |
| | 2900 | NYISO-PJM | 135277 FALCONER 115 200579 WARREN 115 1 | 118 | 4.7 | 20.2 | NYISO-PJM | 135251 S RIPLEY 230 200654 ERIE E 230 1 |
| | 2900 | MISO-PJM | 256019 18PALISD 345 292292 T-94B 345 1 | 1859 | 9.8 | -44.8 | PJM | 243215 05COOK 345 292290 T-94A 345 1 |
| | 2900 | PJM | 200679 TIFFANY 115 200680 LAUREL L 115 1 | 149 | -5.2 | -15.2 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | | | | | | -17.7 | NYISO-PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 |
| | 2900 | NYISO-PJM | 135277 FALCONER 115 200579 WARREN 115 1 | 118 | 4.7 | | NYISO-PJM | SB:SRIPLEY_230_R102>R202>R302 |
| C to B | 3000 | NYISO-PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | 128 | 4.1 | -3.6 | NYISO | 130763 HILSD230 230 130768 WATRC230 230 1 |
| | | | | | | 0.1 | NYISO | 130763 HILSD230 230 131193 HILSD M3 34.5 1 |
| | | | | | | 0.9 | NYISO | 130814 HILSD115 115 131193 HILSD M3 34.5 1 |
| | | | | | | 8.2 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | 3000 | NYISO-PJM | 135277 FALCONER 115 200579 WARREN 115 1 | 118 | 4.7 | | NYISO | SB:RWFLD_230 |
| | 3000 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131 | -6.6 | -1.5 | NYISO | 130763 HILSD230 230 131154 STONY RIDGE 230 1 |
| | | | | | | 5.2 | NYISO | 130763 HILSD230 230 131230 HILSD M4 34.5 1 |
| | | | | | | -0.3 | NYISO | 130814 HILSD115 115 131230 HILSD M4 34.5 1 |
| | | | | | | -15.1 | NYISO | 131194 HILSD 34 34.5 131230 HILSD M4 34.5 1 |
| | | | | | | -28 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | 3000 | MISO-PJM | 256019 18PALISD 345 292292 T-94B 345 1 | 1409 | 7.2 | | | Base Case |
| | 3000 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131 | -6.7 | -28.6 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | 3100 | IESO | 160064 LAMBTON_T7T8 220 160069 LAMBTON_P2K2 220 S4 | 845 | -45.8 | 67.3 | IESO-MISO | 160065 LAMBTON_L51D 220 264830 19STCPP 220 1 |
| | 3100 | IESO | 160064 LAMBTON_T7T8 220 160069 LAMBTON_P2K2 220 S4 | 845 | -45.8 | 67.3 | MISO | 264656 19STCPP 345 264830 19STCPP 220 1 |
| | 3100 | IESO | 160064 LAMBTON_T7T8 220 160069 LAMBTON_P2K2 220 S4 | 845 | -45.8 | 67.3 | IESO-MISO | 160065 LAMBTON_L51D 220 264830 19STCPP 220 1 |
| | | | | | | -47.2 | IESO | 160059 LAMBTON_P1K1 220 160638 LAMBTON_D 27.6 T5 |
| | 3100 | NYISO-PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | 128 | 4 | 1.7 | NYISO | 130763 HILSD230 230 131154 STONY RIDGE 230 1 |
| | | | | | | 1.2 | NYISO | 130763 HILSD230 230 131230 HILSD M4 34.5 1 |
| | | | | | | | NYISO | 130814 HILSD115 115 131230 HILSD M4 34.5 1 |
| | | | | | | 2.4 | NYISO | 131194 HILSD 34 34.5 131230 HILSD M4 34.5 1 |
| | | | | | | 10.5 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | 3300 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | 845 | 42.8 | -62.9 | IESO-MISO | 160050 LAMBTON_L4D 345 264656 19STCPP 345 1 |
| | 3300 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131 | -6.4 | -12.7 | NYISO | 130763 HILSD230 230 130768 WATRC230 230 1 |
| | | | | | | 3.2 | NYISO | 130763 HILSD230 230 131193 HILSD M3 34.5 1 |
| | | | | | | -20.6 | NYISO | 130814 HILSD115 115 131193 HILSD M3 34.5 1 |
| | | | | | | -34.9 | NYISO-PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 |
| | 3300 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | 845 | 42.8 | | IESO-MISO | L4D |
| | 3400 | PJM | 200004 CNASTONE 500 200013 PEACHBTM 500 1 | 2338 | -8.5 | | | Base Case |
| | 3400 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | 845 | 42.8 | -62.9 | IESO | 160064 LAMBTON_T7T8 220 160069 LAMBTON_P2K2 220 S4 |
| | 3400 | PJM | 200004 CNASTONE 500 200013 PEACHBTM 500 1 | 2815 | -9.2 | -40.7 | PJM | 200005 CONEM-GH 500 200026 HUNTERTN 500 1 |
| | -4800 | PJM | 270809 LISLE; R 345 270811 LOCKP; R 345 1 | 1528 | -3.1 | 32.9 | PJM | 270808 LISLE; B 345 270810 LOCKP; B 345 1 |
| | 650 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 | 1088 | 4 | 20 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 |
| | | | | | | -16.9 | MISO | 636420 TIFFIN 3 345 636421 TIFFIN 5 161 1 |
| | | | | | | -16.7 | MISO | 631148 MORGANV3 345 636420 TIFFIN 3 345 1 |
| | 750 | PJM | 200004 CNASTONE 500 200013 PEACHBTM 500 1 | 2815 | -9.5 | 46.6 | PJM | 200004 CNASTONE 500 200026 HUNTERTN 500 1 |
| | 800 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 | 1088 | 4 | -19.6 | MISO | 631148 MORGANV3 345 636420 TIFFIN 3 345 1 |
| | 850 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 | 1088 | 3.9 | -24.8 | PJM-MISO | 270866 QUAD 6-7 345 636610 SUB 91 3 345 1 |
| | | | | | | -1.8 | MISO | 636610 SUB 91 3 345 636611 SB 91 5 161 1 |
| D to B | | | | | | -2.5 | MISO | 636610 SUB 91 3 345 636615 SB 56 3 345 1 |
| | 2700 | PJM | 200004 CNASTONE 500 200013 PEACHBTM 500 1 | 2338 | -10.4 | | | Base Case |
| | 3400 | PJM | 200004 CNASTONE 500 200013 PEACHBTM 500 1 | 2815 | -9.4 | -40.7 | PJM | 200005 CONEM-GH 500 200026 HUNTERTN 500 1 |
| | 4000 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 | 1022 | 3.6 | -21.2 | MISO | 631140 SALEM 3 345 631141 ROCK CK3 345 1 |
| | 4200 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 | 1022 | 3.5 | -15.7 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 |
| | 4300 | PJM | 270809 LISLE; R 345 270813 LOMBA; R 345 1 | 1341 | 3 | 40.2 | PJM | 270808 LISLE; B 345 270812 LOMBA; B 345 1 |
| | 4700 | MISO | 631148 MORGANV3 345 636420 TIFFIN 3 345 1 | 961 | -3.8 | 22.3 | MISO | 631140 SALEM 3 345 631141 ROCK CK3 345 1 |
| | 4700 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 | 1022 | 3.1 | | MISO | 3Wnd: B$0120 1 |
| | 4900 | MISO | 698928 WERNER W 345 699359 N APPLETON 345 1 | 912 | -3.4 | | MISO | ITCM-B102-NW-LAKEFIELD_SPS |
| | 900 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 | 1088 | 3 | 20 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 |
| | | | | | | -16.9 | MISO | 636420 TIFFIN 3 345 636421 TIFFIN 5 161 1 |
| | | | | | | -16.7 | MISO | 631148 MORGANV3 345 636420 TIFFIN 3 345 1 |
| | 1000 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 | 1088 | 3 | -19.6 | MISO | 631148 MORGANV3 345 636420 TIFFIN 3 345 1 |
| | 2800 | MISO | 345435 7PALM TAP 345 345992 7SPENCER 345 1 | 908 | -3.9 | 25 | MISO | 345088 7MCCREDIE 345 345230 7MONTGMRY 345 1 |
| | 2900 | MISO | 345435 7PALM TAP 345 345992 7SPENCER 345 1 | 908 | -4 | 4.3 | MISO | 345088 7MCCREDIE 345 345408 7OVERTON 345 1 |
| E to B | | | | | | 26.4 | MISO | 345088 7MCCREDIE 345 345230 7MONTGMRY 345 1 |
| | 4200 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 | 1022 | 3.4 | -21.2 | MISO | 631140 SALEM 3 345 631141 ROCK CK3 345 1 |
| | 4500 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 | 1022 | 3.3 | -15.7 | PJM-MISO | 270864 QUAD3-11 345 631141 ROCK CK3 345 1 |
| | 4800 | MISO | 344822 7JOACHIM 345 345668 7RUSH 2 345 1 | 1195 | -3.1 | -57.6 | MISO | 345667 7RUSH 1 345 345857 7TYSON 3 345 1 |
| | 4800 | MISO | 636400 HILLS 3 345 636420 TIFFIN 3 345 1 | 1022 | 3.1 | | MISO | 3Wnd: B$0120 1 |
| | 4900 | MISO | 631148 MORGANV3 345 636420 TIFFIN 3 345 1 | 961 | -3.6 | 22.3 | MISO | 631140 SALEM 3 345 631141 ROCK CK3 345 1 |
| | 4900 | MISO | 345435 7PALM TAP 345 345992 7SPENCER 345 1 | 908 | -3.5 | -15.8 | MISO | 347679 7MEREDOSIA 345 347962 7PAWNEE 345 1 |
| | 3200 | TVA | 360065 8WID CRK FP 500 360081 8SEQUOYAH NP 500 1 | 1732 | 5.9 | -29.2 | TVA | 360050 8MAURY TN 500 360052 8BR FERRY NP 500 1 |
| | 3300 | MISO | 345435 7PALM TAP 345 345992 7SPENCER 345 1 | 908 | -3.5 | 4.3 | MISO | 345088 7MCCREDIE 345 345408 7OVERTON 345 1 |
| | | | | | | 26.4 | MISO | 345088 7MCCREDIE 345 345230 7MONTGMRY 345 1 |
| E to B | 3300 | MISO | 345435 7PALM TAP 345 345992 7SPENCER 345 1 | 908 | -3.3 | 25 | MISO | 345088 7MCCREDIE 345 345230 7MONTGMRY 345 1 |

**Appendix D: Summary of Incremental Transfer Capabilities**
**Transfers to Subsystem B**

| Transfer | FCITC (MW) | Limiting PA | Limiting Facility | Rating (MVA) | TDF (%) | LODF (%) | Cont.PA | Contingency / Outaged Facility |
|---|---|---|---|---|---|---|---|---|
| [illegible] | 3900 | TVA | 360065 8WID CRK FP 500 360081 8SEQUOYAH NP 500 1 | 1732 | 5 | | PJM | SURRY_UNIT1_UNIT2 |
| | 4000 | MISO | 345435 7PALM TAP 345 345992 7SPENCER 345 1 | 908 | -4.6 | | PJM-MISO | SPS-2105&U1 |
| | 4700 | SPP | 541199 ST JOE 3 345 542982 IATAN 7 345 1 | 1136 | -8.7 | 48.2 | SPP | 542980 NASHUA 7 345 542982 IATAN 7 345 1 |
| | 4800 | SPP | 532765 HOYT 7 345 532766 JEC N 7 345 1 | 1076 | -5.1 | 41.8 | SPP | 532851 AUBURN 6 230 532852 JEC 6 230 1 |

**Appendix D: Summary of Incremental Transfer Capabilities**
**Transfers to Subsystem C**

| Transfer | FCITC (MW) | Limiting PA | Limiting Facility | Rating (MVA) | TDF (%) | LODF (%) | Cont.PA | Contingency / Outaged Facility |
|---|---|---|---|---|---|---|---|---|
| B to C | 1902.1 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131.0 | 0.0651 | - | NY | C:SB:Hillside_230_B312 |
| | 1962.2 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131.0 | 0.0681 | - | NY | C:SB:Hillside_230_B412 |
| | 2032.5 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131.0 | 0.0683 | - | PJM | C:B_PN230-SX-#8 |
| | 2548.5 | NY/PJM | 135277 FALCONER 115 200579 WARREN 115 1 | -118.0 | -0.0476 | - | NY | C:SB:DUNK#230_R1402>R1502>R1452>R1552 |
| | 2548.5 | NY/PJM | 135277 FALCONER 115 200579 WARREN 115 1 | -118.0 | -0.0476 | - | NY | C:SB:DUNK_230_R1402>R1502>R1452>R1552@CY10 |
| | 2817.9 | IESO | 160064 LAMBTON_T7T8 220 160069 LAMBTON_P2K2 220 S4 | 845.0 | 0.4451 | - | ITC | C:264656 19STCPP 345 264830 19STCPP 220 1 |
| | 2818.3 | IESO | 160064 LAMBTON_T7T8 220 160069 LAMBTON_P2K2 220 S4 | 845.0 | 0.4451 | - | IESO/ITC | C:160065 LAMBTON_L51D 220 264830 19STCPP 220 1 |
| | 2824.6 | IESO | 160064 LAMBTON_T7T8 220 160069 LAMBTON_P2K2 220 S4 | 845.0 | 0.4419 | - | IESO | C:LAMBT_L23L51 |
| | 2832.7 | NY/PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | -128.0 | -0.0651 | - | NY | C:SB:Hillside_230_B312 |
| | 2837.8 | NY/PJM | 135277 FALCONER 115 200579 WARREN 115 1 | -118.0 | -0.0339 | - | PJM | C:B_PN345-SX-#7 |
| | 2852.3 | NY/PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | -128.0 | -0.0681 | - | NY | C:SB:Hillside_230_B412 |
| | 2920.0 | NY/PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | -128.0 | -0.0683 | - | PJM | C:B_PN230-SX-#8 |
| | 2934.4 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | -845.0 | -0.4161 | -0.62511 | IESO | C:LAMBT_KL4 |
| | 2934.4 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | -845.0 | -0.4161 | - | IESO/ITC | C:160050 LAMBTON_L4D 345 264656 19STCPP 345 1 |
| | 2982.3 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | -845.0 | -0.4161 | - | IESO | C:L4D |
| | 3328.2 | PJM | 200678 LENOX 115 200679 TIFFANY 115 1 | 150.0 | 0.0509 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 3447.1 | PJM | 200678 LENOX 115 200679 TIFFANY 115 1 | 150.0 | 0.0340 | - | NY | C:SB:Oakdale_345_36-3122_no-sps |
| | 3486.4 | IESO/ITC | 160050 LAMBTON_L4D 345 264656 19STCPP 345 1 | -1188.0 | -0.4451 | - | ITC | C:264656 19STCPP 345 264830 19STCPP 220 1 |
| | 3486.7 | IESO/ITC | 160050 LAMBTON_L4D 345 264656 19STCPP 345 1 | -1188.0 | -0.4451 | - | IESO/ITC | C:160065 LAMBTON_L51D 220 264830 19STCPP 220 1 |
| | 3498.0 | IESO/ITC | 160050 LAMBTON_L4D 345 264656 19STCPP 345 1 | -1188.0 | -0.4419 | - | IESO | C:LAMBT_L23L51 |
| | 3521.8 | PJM | 200706 N.MESHPN 230 200825 MESH2REA 115 3 | 188.0 | 0.0519 | - | PJM | C:B_PN230-SX-#11 |
| | 3522.0 | PJM | 200677 NO MESHO 115 200825 MESH2REA 115 3 | -188.0 | -0.0519 | - | PJM | C:B_PN230-SX-#11 |
| | 3530.8 | NY/PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | -128.0 | -0.0532 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 3557.9 | IESO/ITC | 160065 LAMBTON_L51D 220 264830 19STCPP 220 1 | -1141.0 | -0.4161 | -0.62511 | IESO | C:LAMBT_KL4 |
| | 3557.9 | IESO/ITC | 160065 LAMBTON_L51D 220 264830 19STCPP 220 1 | -1141.0 | -0.4161 | - | IESO | C:160050 LAMBTON_L4D 345 264656 19STCPP 345 1 |
| | 3576.8 | PJM | 200677 NO MESHO 115 200678 LENOX 115 1 | 179.0 | 0.0532 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 3605.9 | IESO/ITC | 160065 LAMBTON_L51D 220 264830 19STCPP 220 1 | -1141.0 | -0.4161 | - | IESO | C:L4D |
| | 3736.6 | ITC | 264604 19BLRPP 345 264656 19STCPP 345 1 | 1974.0 | 0.4048 | - | IESO | C:GEN: 2 BRUCE Units B7&B8 |
| | 3738.3 | NY/PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 | -531.0 | -0.1514 | - | NY/PJM | C:Relay:Homer City-Watercure x-trip 956 |
| | 3747.0 | ITC | 264604 19BLRPP 345 264656 19STCPP 345 1 | 1974.0 | 0.3612 | - | ITC | C:264604 19BLRPP 345 264888 19LENOX 345 1 |
| | 3750.5 | NY/PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | -128.0 | -0.0355 | - | NY | C:SB:Oakdale_345_36-3122_no-sps |
| | 3819.3 | PJM | 200677 NO MESHO 115 200678 LENOX 115 1 | 179.0 | 0.0355 | - | NY | C:SB:Oakdale_345_36-3122_no-sps |
| | 3830.4 | PJM | 200679 TIFFANY 115 200680 LAUREL L 115 1 | 149.0 | 0.0532 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 3965.2 | PJM | 200678 LENOX 115 200679 TIFFANY 115 1 | 150.0 | 0.0395 | - | NY | C:SB:Hillside_230_B412 |
| | 3967.0 | ITC | 264604 19BLRPP 345 264656 19STCPP 345 1 | 1656.0 | 0.4048 | - | | Base Case |
| | 3975.9 | PJM | 200708 OXBOW 230 208009 LACK 230 1 | -617.0 | -0.1224 | - | PJM | C:PJM JEFF-LACK 500_B |
| | 3975.9 | PJM | 200708 OXBOW 230 208009 LACK 230 1 | -617.0 | -0.1224 | - | PJM | C:PJM JEFF-LACK 500_A |
| | 4097.2 | PJM | 200708 OXBOW 230 208009 LACK 230 1 | -617.0 | -0.1435 | - | PJM | C:B_PN345-SX-#8 |
| | 4109.7 | PJM | 200677 NO MESHO 115 200678 LENOX 115 1 | 136.0 | 0.0305 | - | | Base Case |
| | 4132.1 | PJM | 200706 N.MESHPN 230 200708 OXBOW 230 1 | -608.0 | -0.1201 | - | PJM | C:PJM JEFF-LACK 500_B |
| | 4132.1 | PJM | 200706 N.MESHPN 230 200708 OXBOW 230 1 | -608.0 | -0.1201 | - | PJM | C:PJM JEFF-LACK 500_A |
| | 4174.1 | NY/PJM | 130757 WATRC345 345 200769 HOMER CY 345 1 | -927.0 | -0.1119 | - | NE | C:HVDC_PHASE_2 |
| | 4199.0 | NY/PJM | 130757 WATRC345 345 200769 HOMER CY 345 1 | -927.0 | -0.1231 | - | NY | C:TWR:67&37_Stolle-Sheldon |
| | 4199.3 | PJM | 200679 TIFFANY 115 200680 LAUREL L 115 1 | 149.0 | 0.0355 | - | NY | C:SB:Oakdale_345_36-3122_no-sps |
| | 4213.9 | NY/PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 | -531.0 | -0.1302 | - | NY/PJM | C:Relay:HomerCity-Watercure x-tripWF_171 |
| | 4225.9 | NY/PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | -128.0 | -0.0413 | - | NY | C:SB:Hillside_230_B412 |
| | 4229.8 | PJM | 200706 N.MESHPN 230 200708 OXBOW 230 1 | -478.0 | -0.1236 | - | | Base Case |
| | 4253.2 | NY/PJM | 130757 WATRC345 345 200769 HOMER CY 345 1 | -927.0 | -0.1365 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 4300.4 | NY/PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 | -531.0 | -0.1279 | - | PJM | C:B_PN345-SX-#8 |
| | 4427.0 | IESO/ITC | 160058 KEITH_J5D_PS 230 264690 19WTRMN 230 1 | -416.0 | -0.0311 | -0.10856 | IESO | C:LAMBT_KL4 |
| | 4427.0 | IESO/ITC | 160058 KEITH_J5D_PS 230 264690 19WTRMN 230 1 | -416.0 | -0.0311 | - | IESO/ITC | C:160050 LAMBTON_L4D 345 264656 19STCPP 345 1 |
| | 4585.6 | IESO/ITC | 160058 KEITH_J5D_PS 230 264690 19WTRMN 230 1 | -416.0 | -0.0311 | -0.10856 | IESO | C:LAMBT_PS4 |
| | 4611.4 | PJM | 200679 TIFFANY 115 200680 LAUREL L 115 1 | 149.0 | 0.0413 | - | NY | C:SB:Hillside_230_B412 |
| | 4827.0 | IESO/ITC | 160063 SCOTT_TS 220 264883 19B3N PS 220 1 | -498.0 | -0.0367 | -0.12801 | IESO | C:LAMBT_KL4 |
| | 4827.0 | IESO/ITC | 160063 SCOTT_TS 220 264883 19B3N PS 220 1 | -498.0 | -0.0367 | - | IESO/ITC | C:160050 LAMBTON_L4D 345 264656 19STCPP 345 1 |
| | 4962.7 | IESO/ITC | 160063 SCOTT_TS 220 264883 19B3N PS 220 1 | -498.0 | -0.0367 | - | IESO | C:L4D |
| D to C | 1641.0 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131.0 | 0.0755 | - | NY | C:SB:Hillside_230_B312 |
| | 1708.9 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131.0 | 0.0782 | - | NY | C:SB:Hillside_230_B412 |
| | 1768.2 | PJM | 200674 TOWANDA 115 200676 E.SAYRE 115 1 | 131.0 | 0.0785 | - | PJM | C:B_PN230-SX-#8 |
| | 2040.9 | NY/PJM | 135277 FALCONER 115 200579 WARREN 115 1 | -80.0 | -0.0332 | - | | Base Case |
| | 2040.9 | NY/PJM | 135277 FALCONER 115 200579 WARREN 115 1 | -80.0 | -0.0332 | - | | Base Case |
| | 2040.9 | NY/PJM | 135277 FALCONER 115 200579 WARREN 115 1 | -80.0 | -0.0332 | - | | Base Case |
| | 2443.8 | NY/PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | -128.0 | -0.0755 | - | NY | C:SB:Hillside_230_B312 |
| | 2484.2 | NY/PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | -128.0 | -0.0782 | - | NY | C:SB:Hillside_230_B412 |
| | 2540.3 | NY/PJM | 130836 N.WAV115 115 200676 E.SAYRE 115 1 | -128.0 | -0.0785 | - | PJM | C:B_PN230-SX-#8 |
| | 2902.4 | PJM | 200678 LENOX 115 200679 TIFFANY 115 1 | 150.0 | 0.0583 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 3048.6 | PJM | 200706 N.MESHPN 230 200825 MESH2REA 115 3 | 188.0 | 0.0600 | - | PJM | C:B_PN230-SX-#11 |
| | 3048.8 | PJM | 200677 NO MESHO 115 200825 MESH2REA 115 3 | -188.0 | -0.0600 | - | PJM | C:B_PN230-SX-#11 |
| | 3066.3 | PJM | 200678 LENOX 115 200679 TIFFANY 115 1 | 150.0 | 0.0382 | - | NY | C:SB:Oakdale_345_36-3122_no-sps |
| | 3079.1 | NY/PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | -128.0 | -0.0610 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 3119.1 | PJM | 200677 NO MESHO 115 200678 LENOX 115 1 | 179.0 | 0.0610 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 3257.1 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | -845.0 | -0.3749 | -0.62511 | IESO | C:LAMBT_KL4 |
| | 3257.1 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | -845.0 | -0.3749 | - | IESO/ITC | C:160050 LAMBTON_L4D 345 264656 19STCPP 345 1 |
| | 3291.6 | NY/PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 | -531.0 | -0.1720 | - | NY/PJM | C:Relay:Homer City-Watercure x-trip 956 |
| | 3310.4 | IESO | 160059 LAMBTON_P1K1 220 160065 LAMBTON_L51D 220 51 | -845.0 | -0.3749 | - | IESO | C:L4D |
| | 3312.6 | PJM | 200678 LENOX 115 200679 TIFFANY 115 1 | 112.0 | 0.0333 | - | | Base Case |
| | 3336.2 | NY/PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | -128.0 | -0.0399 | - | NY | C:SB:Oakdale_345_36-3122_no-sps |
| | 3340.3 | PJM | 200679 TIFFANY 115 200680 LAUREL L 115 1 | 149.0 | 0.0610 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 3397.5 | PJM | 200677 NO MESHO 115 200678 LENOX 115 1 | 179.0 | 0.0399 | - | NY | C:SB:Oakdale_345_36-3122_no-sps |
| | 3405.2 | PJM | 200708 OXBOW 230 208009 LACK 230 1 | -617.0 | -0.1429 | - | PJM | C:PJM JEFF-LACK 500_B |
| | 3405.2 | PJM | 200708 OXBOW 230 208009 LACK 230 1 | -617.0 | -0.1429 | - | PJM | C:PJM JEFF-LACK 500_A |
| | 3493.0 | PJM | 200708 OXBOW 230 208009 LACK 230 1 | -488.0 | -0.1480 | - | | Base Case |
| | 3537.4 | PJM | 200706 N.MESHPN 230 200708 OXBOW 230 1 | -608.0 | -0.1403 | - | PJM | C:PJM JEFF-LACK 500_B |
| | 3537.4 | PJM | 200706 N.MESHPN 230 200708 OXBOW 230 1 | -608.0 | -0.1403 | - | PJM | C:PJM JEFF-LACK 500_A |
| | 3598.6 | PJM | 200706 N.MESHPN 230 200708 OXBOW 230 1 | -478.0 | -0.1453 | - | | Base Case |
| | 3598.7 | PJM | 200677 NO MESHO 115 200678 LENOX 115 1 | 136.0 | 0.0348 | - | | Base Case |
| | 3694.7 | NY/PJM | 130807 WESTOVER115 115 200680 LAUREL L 115 1 | -128.0 | -0.0473 | - | NY | C:SB:Hillside_230_B412 |
| | 3708.4 | NY/PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 | -531.0 | -0.1479 | - | NY/PJM | C:Relay:HomerCity-Watercure x-tripWF_171 |
| | 3735.4 | PJM | 200679 TIFFANY 115 200680 LAUREL L 115 1 | 149.0 | 0.0399 | - | NY | C:SB:Oakdale_345_36-3122_no-sps |
| | 3784.5 | NY/PJM | 130763 HILSD230 230 200675 E.TWANDA 230 1 | -531.0 | -0.1453 | - | PJM | C:B_PN345-SX-#8 |
| | 3869.9 | IESO/ITC | 160050 LAMBTON_L4D 345 264656 19STCPP 345 1 | -1188.0 | -0.4010 | - | ITC | C:264656 19STCPP 345 264830 19STCPP 220 1 |
| | 3870.3 | IESO/ITC | 160050 LAMBTON_L4D 345 264656 19STCPP 345 1 | -1188.0 | -0.4010 | - | IESO/ITC | C:160065 LAMBTON_L51D 220 264830 19STCPP 220 1 |
| | 3884.0 | IESO/ITC | 160050 LAMBTON_L4D 345 264656 19STCPP 345 1 | -1188.0 | -0.3980 | - | IESO | C:LAMBT_L23L51 |

**Appendix D: Summary of Incremental Transfer Capabilities**
**Transfers to Subsystem C**

| Transfer | FC/ITC (MW) | Limiting PA | Limiting Facility | Rating (MVA) | TDF (%) | LODF (%) | Cont.PA | Contingency / Outaged Facility |
|---|---|---|---|---|---|---|---|---|
| | 3949.3 | IESO/ITC | 160065 LAMBTON_L51D 220 264830 19STCPP 220 1 | -1141.0 | -0.3749 | -0.62511 | IESO | C:LAMBT_KL4 |
| | 3949.3 | IESO/ITC | 160065 LAMBTON_L51D 220 264830 19STCPP 220 1 | -1141.0 | -0.3749 | - | IESO/ITC | C:160050 LAMBTON_L4D 345 264656 19STCPP 345 1 |
| | 4002.5 | IESO/ITC | 160065 LAMBTON_L51D 220 264830 19STCPP 220 1 | -1141.0 | -0.3749 | - | IESO | C:L4D |
| | 4011.8 | NY/PJM | 130757 WATRC345 345 200769 HOMER CY 345 1 | -927.0 | -0.1447 | - | NY/PJM | C:Relay:ETHS E.Towanda-Hillside x-trip 956 |
| | 4015.0 | NY/PJM | 130757 WATRC345 345 200769 HOMER CY 345 1 | -927.0 | -0.1164 | - | NE | C:HVDC_PHASE_2 |
| | 4028.7 | NY/PJM | 130757 WATRC345 345 200769 HOMER CY 345 1 | -927.0 | -0.1283 | - | NY | C:TWR:67&37_Stolle-Sheldon |
| | 4031.7 | PJM | 200679 TIFFANY 115 200680 LAUREL L 115 1 | 149.0 | 0.0473 | - | NY | C:SB:Hillside_230_B412 |
| | 4216.6 | ITC | 264604 19BLRPP 345 264656 19STCPP 345 1 | 1974.0 | 0.3587 | - | IESO | C:GEN: 2 BRUCE Units B7&B8 |
| | 4268.1 | ITC | 264604 19BLRPP 345 264656 19STCPP 345 1 | 1974.0 | 0.3171 | - | ITC | C:264604 19BLRPP 345 264888 19LENOX 345 1 |
| | 4476.6 | ITC | 264604 19BLRPP 345 264656 19STCPP 345 1 | 1656.0 | 0.3587 | - | | Base Case |
| | 4694.4 | PJM | 200675 E.TWANDA 230 200706 N.MESHPN 230 1 | -549.0 | -0.1228 | - | PJM | C:B_PN230-SX-#7 |
| | 4857.4 | PJM | 200674 TOWANDA 115 200675 E.TWANDA 230 2 | -279.0 | -0.0441 | - | NY | C:SB:Hillside_230_B412 |
| | 4857.6 | PJM | 200675 E.TWANDA 230 200706 N.MESHPN 230 1 | -549.0 | -0.1205 | - | PJM | C:B_PN345-SX-#8 |
| | 4869.1 | PJM | 200675 E.TWANDA 230 200706 N.MESHPN 230 1 | -549.0 | -0.1203 | - | NY/PJM | C:Relay:HomerCity-Watercure x-tripWF_171 |
| | 4895.6 | PJM | 200674 TOWANDA 115 200675 E.TWANDA 230 2 | -279.0 | -0.0429 | - | NY | C:SB:Hillside_230_B312 |
| | 4899.0 | PJM | 200674 TOWANDA 115 200675 E.TWANDA 230 2 | -279.0 | -0.0442 | - | PJM | C:B_PN230-SX-#8 |

**Appendix D: Summary of Incremental Transfer Capabilities**
**Transfers to Subsystem D**

| Transfer | FCITC (MW) | Limiting PA | Limiting Facility | Rating (MVA) | TDF (%) | LODF (%) | Cont.PA | Contingency / Outaged Facility |
|---|---|---|---|---|---|---|---|---|
| B to D | 4400 | IESO | Lambton T7T8 - Lambton P2K2 220 kV Ckt S4 | 845.0 | 4.8% | 67.3% | IESO | Lambton L51D 51 - Lambton P1K1 220 kV Ckt 1 |
| | 4700 | IESO | Lambton T7T8 - Lambton P2K2 220 kV Ckt S4 | 845.0 | 4.8% | --- | IESO | Lambton L51D - St. Clair 220 kV Ckt 1 |
| | | | | | | | | Lambton P1K1 - Lambton L51D 220 kV Ckt 51 |
| | 8000 | PJM-ATC | Zion 'Red' - Pleasant Prairie 345 kV Ckt 1 | 1334.0 | 9.0% | - | - | Base Case |
| C to D | 1700 | NYISO-PJM | North Waverly - E. Sayre 115 kV Ckt 1 | 128.0 | 7.7% | --- | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 1700 | IESO | Sithe JV42H - Sithe V73RS 220 kV Ckt 1 | 334.6 | 4.3% | - | | Base Case |
| | 1700 | NYISO-PJM | North Waverly - E. Sayre 115 kV Ckt 1 | 128.0 | 7.7% | --- | NYISO | Hillside - Stony Ridge 230 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 230/34.5 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 115/34.5 kV Ckt 1 |
| | | | | | | | NYISO | Hillside M4 - Hillside M3 34.5 kV Ckt 1 |
| | | | | | | | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 1900 | NYISO-PJM | North Waverly - E. Sayre 115 kV Ckt 1 | 128.0 | 7.5% | --- | NYISO | Hillside - Watercure 230 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 230/34.5 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 115/34.5 kV Ckt 1 |
| | | | | | | | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 2100 | NYISO-PJM | Westover - Laurel Lake 115 kV Ckt 1 | 128.0 | 6.0% | --- | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | | | | | | | NYISO-PJM | North Waverly - E. Sayre 115 Ckt 1 |
| | 2500 | PJM | Tiffany - Laurel Lake 115 kV Ckt 1 | 149.0 | 6.0% | --- | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | | | | | | | NYISO-PJM | North Waverly - E. Sayre 115 Ckt 1 |
| | 2500 | PJM | Towanda East - E. Sayre 115 kV Ckt 1 | 131.0 | 7.8% | --- | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 2600 | NYISO-PJM | Westover - Laurel Lake 115 kV Ckt 1 | 128.0 | 4.7% | --- | NYISO | Hillside - Watercure 230 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 230/34.5 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 115/34.5 kV Ckt 1 |
| | | | | | | | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 2600 | NYISO-PJM | Falconer - Warren 115 kV Ckt 1 | 118.0 | 5.4% | --- | NYISO | 135251 S RIPLEY 230 146150 Q254RIPWEST 230 1 |
| | | | | | | | NYISO-PJM | S. Ripley - Erie East 230 kV Ckt 1 |
| | | | | | | | NYISO | 135251 S RIPLEY 230 135279 NORCNGEN 115 1 |
| | | | | | | | NYISO | 135251 S RIPLEY 230 146265 Q271STLINEC 34.5 1 |
| | 2600 | NYISO-PJM | Falconer - Warren 115 kV Ckt 1 | 118.0 | 5.4% | --- | NYISO-PJM | S. Ripley - Erie East 230 kV Ckt 1 |
| | 2600 | PJM | Towanda East - E. Sayre 115 kV Ckt 1 | 131.0 | 7.7% | --- | NYISO | Hillside - Stony Ridge 230 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 230/34.5 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 115/34.5 kV Ckt 1 |
| | | | | | | | NYISO | Hillside M4 - Hillside M3 34.5 kV Ckt 1 |
| | | | | | | | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 2600 | NYISO-PJM | Falconer - Warren 115 kV Ckt 1 | 118.0 | 5.4% | --- | NYISO | 146150 Q254RIPWEST 230 146151 Q254RIPWEST 34.5 1 |
| | | | | | | | NYISO | 135250 DUNKIRK 230 146150 Q254RIPWEST 230 1 |
| | | | | | | | NYISO | 135251 S RIPLEY 230 146140 Q254RIPWEST 230 1 |
| | 2600 | MISO-PJM | Palisades - T94B 345 kV Ckt 1 | 1859.0 | 10.9% | --- | PJM | T94A - Cook 345 kV Ckt 1 |
| | 2700 | MISO-PJM | Palisades - T94B 345 kV Ckt 1 | 1409.0 | 8.0% | 44.8% | | Base Case |
| | 2700 | NYISO-PJM | Westover - Laurel Lake 115 kV Ckt 1 | 128.0 | 4.6% | - | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 2800 | PJM | Towanda East - E. Sayre 115 kV Ckt 1 | 131.0 | 7.5% | - | NYISO | Hillside - Watercure 230 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 230/34.5 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 115/34.5 kV Ckt 1 |
| | | | | | | | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 2800 | PJM-MISO | Bay Shore - Monroe Power Plant Units 3&4 345 kV Ckt | 1544.0 | 14.8% | --- | NYISO | Allen Junction - Lulu Site 345 kV Ckt 1 |
| | | | | | | | NYISO | Lulu Site - Milan 345 kV Ckt 1 |
| | | | | | | | NYISO | Lulu Site - Monroe Power Plant -Units 3&4 345 kV Ckt 1 |
| | 3100 | PJM-MISO | Bay Shore - Monroe Power Plant Units 3&4 345 kV Ckt | 1544.0 | 14.8% | | | Allen Junction - Lulu Site 345 kV Ckt 1 |
| | 3100 | PJM | Tiffany - Laurel Lake 115 kV Ckt 1 | 149.0 | 4.8% | --- | NYISO | Hillside - Watercure 230 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 230/34.5 kV Ckt 1 |
| | | | | | | | NYISO | Hillside 115/34.5 kV Ckt 1 |
| | | | | | | | NYISO-PJM | Hillside - East Towanda 230 kV Ckt 1 |
| | 3200 | PJM | Tiffany - Laurel Lake 115 kV Ckt 1 | 111.0 | 3.4% | - | | Base Case |
| E to D | 1700 | Duke | Woodleaf - Pleasant Garden 500 kV Ckt 1 | 1904.3 | 5.5% | 22.8% | Duke | McGuire - Antioch 500 kV Ckt 1 |
| | 2100 | Duke | Woodleaf - Pleasant Garden 500 kV Ckt 1 | 1904.3 | 3.6% | 18.6% | Duke-CPLE | Newport - Richmond 500 kV Ckt 1 |
| | 2200 | PJM | Clover 500/230 kV transformer | 926.7 | 4.9% | 21.5% | CPLE-PJM | DB Gen - Carson 500 kV Ckt 1 |
| | 3500 | MISO | Spencer - Palm Tap 345 kV Ckt 1 | 908.0 | 3.2% | 25.0% | MISO | Montgomery - McCredie 345 kV Ckt 1 |
| | 3600 | MISO | Spencer - Palm Tap 345 kV Ckt 1 | 908.0 | 3.2% | --- | MISO | McCredie - Overton 345 kV Ckt 1 |
| | | | | | | | MISO | Montgomery - McCredie 345 kV Ckt 1 |
| | 4000 | Duke | Woodleaf - Pleasant Garden 500 kV Ckt 1 | 1904.3 | 3.6% | 9.9% | CPLE | Richmond - Cumberland 500 kV Ckt 1 |
| | 4300 | Duke | Woodleaf - Pleasant Garden 500 kV Ckt 1 | 1904.3 | 3.1% | - | PJM | Remove Unit 1 from Surry 1 22.0 |
| | | | | | | | PJM | Remove Unit 2 from Surry 2 22.0 |
| | 4500 | TVA | Widow Creek - Sequoyah 500 kV Ckt 1 | 1732.1 | 4.2% | 29.2% | TVA | Brown's Ferry - Maury 500 kV Ckt 1 |
| | 4700 | Duke | Woodleaf - Pleasant Garden 500 kV Ckt 1 | 1904.3 | 3.8% | 9.8% | CPLE | Wake - Cumberland 500 kV Ckt 1 |

**Appendix D: Summary of Incremental Transfer Capabilities**
**Transfers to Subsystem E**

| Transfer | FCITC (MW) | Limiting PA | Limiting Facility | Rating (MVA) | TDF (%) | LODF (%) | Cont.PA | Contingency / Outaged Facility |
|---|---|---|---|---|---|---|---|---|
| A to E | 650 | PEF | 403551 Central Florida – 403562 Citrus 500 kV | 2598 | 9.12 | 93.07 | PEF | 403559 Levy Plant – 403561 Central Florida South 500 kV |
| | 750 | SOCO | 389001 McIntosh 230/115 kV XFMR | 400 | 4.65 | 28.85 | SC - SOCO | 312721 Purrysburg – 389001 McIntosh 230 kV |
| | 850 | PEF | 403551 Central Florida 500/230 kV XFMR #2 | 802 | 3.8 | 18.4 | PEF | 403551 Central Florida – 403561 Central Florida South 500 kV |
| | 1000 | PEF | 403551 Central Florida – 403562 Citrus 500 kV | 2598 | 6.43 | 35.88 | PEF | 403550 Brookridge – 403555 Crystal River 500 kV |
| | 1000 | PEF | 403551 Central Florida 500/230 kV XFMR #2 | 802 | 4.75 | 31.1 | PEF | 403551 Central Florida 500/230 kV XFMR #4 |
| | 1100 | PEF | 403522 CR Plant – 403526 King Rd Tap 230 kV | 492 | 8.75 | -- | -- | BASE CASE PROBLEM |
| | 1100 | PEF | 400123 Emerson – 400266 Midway 230 kV | 526 | 3.36 | 9.19 | PEF | 400276 Midway – 400476 Poinsetta 500 kV |
| | 1400 | PEF | 403173 Bronson – 403526 King Rd Tap 230 kV | 492 | 8.75 | -- | -- | BASE CASE PROBLEM |
| | 1500 | SOCO | 380022 Villa Rica 500/230 kV XFMR | 1647 | 4.17 | 42.46 | SOCO | 380005 Union City – 380022 Villa Rica 500 kV |
| | 1500 | PEF | 403522 Crystal River Plant – 403526 King Road Tap 230 kV | 604 | 9.98 | 30.03 | PEF – SEC | 403528 Martin West – 407120 Silver Springs (North) 230 kV |
| | 1500 | PEF | 403551 Central Florida – 403562 Citrus 500 kV | 2598 | 12.55 | 49.67 | PEF | 403522 Crystal River Plant – 403526 King Rd Tap 230 kV |
| | 1500 | PEF | 403522 Crystal River Plant – 403526 King Road Tap 230 kV | 604 | 9.01 | 32.33 | PEF | 403551 Central Florida – 403562 Citrus 500 kV |
| | 1600 | PEF | 403551 Central Florida – 403562 Citrus 500 kV | 2598 | 12.55 | 49.67 | PEF | 403173 Bronson – 403526 King Road Tap 230 kV |
| | 1700 | PEF | 403522 Crystal River Plant – 403526 King Road Tap 230 kV | 604 | 10.27 | 34.24 | PEF | 403159 Archer – 403528 Martin West 230 kV |
| | 1700 | PEF | 403522 Crystal River Plant – 403526 King Road Tap 230 kV | 604 | 9.95 | 11.23 | PEF | 403521 Central Florida – 403525 Dallas 230 kV |
| | 1700 | PEF | 403173 Bronson – 403526 King Road Tap 230 kV | 604 | 9.98 | 30.03 | PEF – SEC | 403528 Martin West – 407120 Silver Springs (North) 230 kV |
| | 1800 | PEF | 403173 Bronson – 403526 King Road Tap 230 kV | 604 | 9.01 | 3.23 | PEF | 403551 Central Florida – 403562 Citrus 500 kV |
| | 1800 | PEF | 403551 Central Florida 500/230 kV XFMR #4 | 840 | 4.75 | -- | PEF | 403551 Central Florida 500/230 kV XFMR #2 |
| B to E | 6700 | AEP | 242620 Danville – 242631 East Danville 138kV | 275 | 34.86 | 11.03 | AEP | 242514 Jacksons Ferry – 242520 Jacksons Ferry 500kV |
| | 6700 | AEP | 242620 Danville – 242631 East Danville 138kV | 275 | 34.86 | 11.03 | AEP | 242514 Jacksons Ferry – 306100 Antioch 500kV |
| | 9200 | CE | 270941 Zion – 699432 Pleasant Prairie 345 kV | 1334 | 7.85 | -- | | BASE CASE PROBLEM |
| D to E | 600 | PJM | 200004 Conastone – 200013 Peach Bottom 500 kV | 2815 | 11.65 | 46.64 | PJM | 200004 Conastone – 200026 Hunterstown 500 kV |
| | 2400 | PJM | 200004 Conastone – 200013 Peach Bottom 500 kV | 2338 | 12.06 | -- | | BASE CASE PROBLEM |
| | 2800 | PJM | 200004 Conastone – 200013 Peach Bottom 500 kV | 2815 | 11.52 | 40.72 | PJM | 200005 Conemaugh – 200026 Hunterstown 500 kV |
| | 3400 | LGEE | 324107 Middletown – 324114 Trimble County 345 kV | 1195 | 3.03 | 62.12 | LGEE | 324103 Buckner Dynegy – 324107 Middletown 345 kV |
| | 4100 | PJM | 200004 Conastone – 200013 Peach Bottom 500 kV | 2815 | 11 | -- | PJM | 235634 Welton Springs – 235636 Kemptown 765 kV |
| | 4200 | PJM | 200004 Conastone – 200013 Peach Bottom 500 kV | 2815 | 11.2 | 25.6 | PJM | 200013 Peach Bottom – 200024 Limerick 500 kV |
| | 4700 | PJM | 200004 Conastone – 200013 Peach Bottom 500 kV | 2815 | 12.08 | 10.71 | PJM | 235101 Bedington– 235103 Black Oak 500 kV |
| | 4800 | PJM | 200004 Conastone – 200013 Peach Bottom 500 kV | 2815 | 12.15 | 33.76 | PJM | 200016 Three Mile Island – 204514 Three Mile Island 230 kV |
| F to E | 3800 | EES – AEPW | 338875 Patmos West SS – 503912 Fulton 115 kV | 159 | 3.37 | 10.19 | EES – AEPW | 337376 Sarepta – 508809 Longwood 345 kV |
| | 3900 | EES | 338874 Lewisville – 338875 Patmos West SS 115 kV | 159 | 3.37 | 10.19 | EES – AEPW | 337376 Sarepta – 508809 Longwood 345 kV |
| | 4600 | EES | 337502 Couch – 338874 Lewisville 115 kV | 160 | 3.37 | 10.19 | EES – AEPW | 337376 Sarepta – 508809 Longwood 345 kV |

**Appendix D: Summary of Incremental Transfer Capabilities**
**Transfers to Subsystem F**

| Transfer | FCITC (MW) | Limiting PA | Limiting Facility | Rating (MVA) | TDF (%) | LODF (%) | Cont.PA | Contingency / Outaged Facility |
|---|---|---|---|---|---|---|---|---|
| E to F | 1953 | SPP | 505508 DARDANE5 161 505514 CLARKSV5 161 1 | 223 | 3.312 | 13.985 | SERC-SPP | 337909 8ANO 50 500 515305 FTSMITH8 500 1 19 |
| | 2659 | EES-SPP | 337904 5RUSL-S 161 505508 DARDANE5 161 1 | 416 | 5.827 | 23.913 | SERC-SPP | 337909 8ANO 50 500 515305 FTSMITH8 500 1 12 |
| | 2786 | SPP | 504440 BUFORD 5 161 505460 BULL SH5 161 1 | 167 | 3.072 | -61.921 | SERC-SPP | 338814 5SOLAND# 161 505448 NORFORK5 161 1 19 |
| | 2951 | EES-SPP | 337909 8ANO 50 500 515305 FTSMITH8 500 1 | 1299 | 13.914 | -22.975 | SPP | 509782 R.S.S.-7 345 509834 COGENT 7 345 1 8 |
| | 3013 | SPP | 504440 BUFORD 5 161 505460 BULL SH5 161 1 | 167 | 3.072 | -61.921 | SERC | 338125 5MT HOM 161 338814 5SOLAND# 161 1 17 |
| | 3096 | EES-SPP | 337909 8ANO 50 500 515305 FTSMITH8 500 1 | 1299 | 15.053 | -45.598 | SERC | 337904 5RUSL-S 161 337905 5RUSL-E 161 1 16 |
| | 3158 | EES-SPP | 337909 8ANO 50 500 515305 FTSMITH8 500 1 | 1299 | 13.913 | -12.276 | SPP | 640011 GENTLM2G 24.0 640183 GENTLMN3 345 1 13 |
| | 3557 | SPP | 504440 BUFORD 5 161 505460 BULL SH5 161 1 | -189 | -3.072 | 61.921 | SERC | 338125 5MT HOM 161 338813 5MIDWAY# 161 1 17 |
| | 4108 | EES-SPP | 300867 5LBRTYT 161 505522 VAN BUR5 161 1 | -189 | -3.001 | 11.908 | SPP | 515224 MUSKOGE7 345 515302 FTSMITH7 345 1 9 |
| | 4349 | EES-SPP | 337902 5DANVI 161 507195 MAGZREC5 161 1 | 335 | 3.69 | 15.819 | SERC-SPP | 337909 8ANO 50 500 515305 FTSMITH8 500 1 12 |
| | 4573 | SPP | 507190 NMAGZIN5 161 507195 MAGZREC5 161 1 | -335 | -3.69 | -15.819 | SERC-SPP | 337909 8ANO 50 500 515305 FTSMITH8 500 1 12 |
| | 4638 | SPP | 515341 WHITESD5 161 515343 MASSARD5 161 1 | -312 | -3.927 | 20.86 | SPP | 515224 MUSKOGE7 345 515302 FTSMITH7 345 1 9 |

# Appendix E: Area Interchange Tables

**Alcoa Power Generating**

**APGI - Yadkin**
**DETAILED INTERCHANGE**

APGI - Yadkin Interchange Schedule

| | |
|---|---|
| Total Net Interchange | 0 MW |

**Duke Energy Carolinas**

DEC Balancing Authority Area Imports:

| To Area # | To Area | | |
|---|---|---|---|
| 353 | SEHA | (SEPA) | -155 |
| 340 | CPLE | (NCEMC#1) | -150 |
| 355 | SETH | (SEPA) | -113 |
| 340 | CPLE | (NCEMC/Anson) | -60 |
| 346 | SOUTHERN | (Seneca) | -31 |
| | | TOTAL IMPORTS | -509 |

DEC Balancing Authority Area Exports:

| To Area # | To Area | | |
|---|---|---|---|
| 340 | CPLE | (Broad River) | 850 |
| 340 | CPLE | (PEC-Rowan) | 150 |
| 340 | CPLE | (NCEMC/CNS) | 105 |
| 340 | CPLE | (NCEMC#2) | 100 |
| 345 | DVP | (NCEMC) | 50 |
| | | TOTAL EXPORTS | 1255 |

**TOTAL IMPORTS/EXPORTS** **746 MW**

Notes:
1. Positive interchange indicates an export
2. Negative interchange indicates an import

**Entergy Services**

ENTERGY ELECTRIC SYSTEM BALANCING AUTHORITY ("EES") AREA INTERCHANGE
Area (s) in the case that make up the EES: 351
EIPC 2020 Summer Future Year Study

Entergy Balancing Authority Area Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| SWPA | 1440190 (SPA - AECC) | -100 MW |
| SWPA | 1448044 (SPA - Thayer) | -4 MW |
| SWPA | 1602650 (SPA - BRAZOS) | -3 MW |
| AEPW | 1084342 (AEPW - ETEC) | -50 MW |
| AEPW | AEPW Load on EES | -5 MW |
| OKGE | 1348508 (OKGE - MDEA) | -10 MW |
| LAGN | 569011 (Big Cajun - EES) | -242 MW |
| LAGN | 851493 (Big Cajun - SMEPA) | -13 MW |
| LAGN | 1477069 (Big Cajun - EES) | -10 MW |
| TVA | 850239 (TVA - MEAM) | -19 MW |
| TVA | 1096986 (TVA Load on EES) | -30 MW |
| TVA | 1161925 (TVA - MDEA) | -11 MW |
| SMEPA | 810234 (SMEPA - SMEPA load) | -642 MW |
| **Total** | | **-1139 MW** |

Entergy Balancing Authority Area Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| CELE | Toledo Bend | 20 MW |
| 504 | LEPA 1461442 (Mury - LEPA) | 12 MW |
| SWPA | 759196 (Blakley - SPA) | 143 MW |
| SWPA | 1024194 (White Bluff - SPA) | 81 MW |
| SWPA | 1024198 (ISES - SPA) | 163 MW |
| SWPA | 1440189 (White Bluff - SPA) | 85 MW |
| SWPA | 73884558 (PLUM - SPA) | 40 MW |
| AEPW | 759294 (ISES - AEPW) | 30 MW |
| MIPU | 1460876 (Crossroads - MIPU) | 75 MW |
| MIPU | 1460878 (Crossroads - MIPU) | 75 MW |
| MIPU | 1460879 (Crossroads - MIPU) | 75 MW |
| MIPU | 1460881 (Crossroads - MIPU) | 75 MW |
| EMDE | 1340028 (Plum Point - EDE) | 50 MW |
| EMDE | 1340029 (Plum Point - EDE) | 50 MW |
| AECI | 1340019 (Plum Point - AECI) | 35 MW |
| DERS | DERS - Other Resources | 76.1 MW |
| DENL | 1410022 (Plum Point - DENL) | 60 MW |
| DENL | 1498120 (Plum Point - DENL) | 60 MW |
| DENL | DENL - Other Resources | 85.2 MW |
| WESTMEMP | 1381404 (ISES - WMUC) | 17 MW |
| WESTMEMP | 1381406 (White Bluff - WMUC) | 17 MW |
| WESTMEMP | 1470484 (Plum Point - WMUC) | 20 MW |

| | | |
|---|---|---|
| CONWAY | 1381398 (White Bluff - CNWY) | 34 MW |
| CONWAY | 1381400 (ISES - CNWY) | 34 MW |
| CONWAY | 1498129 (Plum Point - CNWY) | 50 MW |
| CONWAY | City of Conway - Other Resources | 86.4 MW |
| BUBA | 1498122 (Plum Point - BUBA) | 30 MW |
| BUBA | City of Benton - Other Resources | 63.5 MW |
| SMEPA | 1139982 Grand Gulf - SMEPA load) | 125 MW |
| SMEPA | 1406786 (Plum Point - SMEPA load) | 100 MW |
| SMEPA | 1408199 (Plum Point - SMEPA load) | 100 MW |
| **Total** | | **1967.2 MW** |

Notes:

3. Positive interchange indicates an export
4. Negative interchange indicates an import

**Georgia Transmission Corporation (Included as part of Southern Companies)**

**Independent Electricity System Operator**

ONTARIO BALANCING AUTHORITY ("IESO") AREA INTERCHANGE
Area (s) in the case that make up the IESO: 103
EIPC 2020 Summer Future Year Study

IESO Balancing Authority Area Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| IESO | ITCT | 0 MW |
| **Total** | | **0 MW** |

IESO Balancing Authority Area Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| IESO | NYISO | 0 MW |
| **Total** | | **0 MW** |

**Total Net Interchange** **0 MW**

Notes:
1. The small flows observed at these interfaces are not scheduled

**ISO New England**

## ERAG MULTIREGIONAL MODELING WORKING GROUP (ERAG MMWG)
## INTERCHANGE DATA FOR 2009 SERIES LOAD FLOW BASE CASES

### ISO-NE Area 101

| REGION | From Area # | From Area Name | To Area # | To Area Name | Comments | Firm | *2020SUM* |
|---|---|---|---|---|---|---|---|
| NPCC | 101 | ISO-NE | 102 | NYISO | NYPA Hydro Contracts | x | -81.0 |
| NPCC | 101 | ISO-NE | 102 | NYISO | Cross Sound HVDC Cable | | 330.0 |
| NPCC | 101 | ISO-NE | 104 | TE | Highgate HVDC | | -200.0 |
| NPCC | 101 | ISO-NE | 104 | TE | Phase II HVDC | | -1500.0 |
| NPCC | 101 | ISO-NE | 105 | NB | | | -600.0 |
| | **101** | **ISO-NE** | | | **NET SCHEDULE** | | **-2051.0** |

**LG&E and KU Energy**

LG&E/KU BALANCING AUTHORITY ("LGEE") AREA INTERCHANGE
Area (s) in the roll-up case that make up the EBA: 363
EIPC 2020 Summer Future Year Study

LG&E/KU Balancing Authority Area Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| TVA | SEPA Power | -62 MW |
| TVA | Warren Load on LGEE | -110 MW |
| BREC | BREC Load on LGEE | -11 MW |
| EKPC | EKPC Load on LGEE | -562 MW |
| DEM | DEM Load on LGEE | -6 MW |
| DEM | KMPA Load on LGEE | -100 MW |
| AMIL | KMPA Load on LGEE | -128 MW |
| OVEC | Clifty Creek Surplus | -163 MW |
| **Total** | | **- 1,142 MW** |

LG&E/KU Balancing Authority Area Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| AEP | IMPA Trimble #1 | 66 MW |
| AEP | IMPA Trimble #2 | 94 MW |
| AMIL | IMEA Trimble #1 | 62 MW |
| AMIL | IMEA Trimble #2 | 89 MW |
| EKPC | LGEE Load on EKPC | 130 MW |
| **Total** | | **441 MW** |

**Total Net Interchange** **-701 MW**

Notes:
1. Positive interchange indicates an export
2. Negative interchange indicates an import

**MAPPCOR**

MID-CONTINENT AREA POWER POOL ("MAPP") AREA INTERCHANGE
Area (s) in the case that make up the MAPP: 652, 667, 680
EIPC 2020 Summer Future Year Study

Mid-Continent Area Power Pool (MAPP) Area Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| OTP | Joint Owned Unit BSP II | -99.0 |
| MRES | MRES Gen in OTP BA | -33.0 |
| OTP | BIG STONE GENERATION | -110.0 |
| OTP | COYOTE GENERATION | -40.0 |
| MRES | MRES Gen in ALTW BA | -22.0 |
| MEC | Neal #4 | -31.0 |
| MEC | Wisdom #2 | -40.0 |
| MRES | MRES Gen in XCEL BA | -18.0 |
| MEC | NEAL 4 GENERATION | -55.0 |
| MEC | WAPA(Harlan)/MEC LOUISA GEN | -6.0 |
| MEAN | HCPD(WAPA)/MEAN WEC2- Intraregional | -61.0 |
| NPPD | GEN (NPPD/WAPA) - Intraregional | -20.0 |
| NPPD | NPPD Loads in NPPD BA (Reduction of WAPA Firm) | -4.0 |
| WPS | 75439243 Weston 4 | -150.0 |
| WPS | 76288610 Weston 4 | -14.0 |
| **Total** | | **-703 MW** |

Mid-Continent Area Power Pool (MAPP) Area Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| GRE | Supplemental Power | 367.0 |
| GRE | WAPA/GRE (CPA) #233493 | 86.0 |
| GRE | WAPA/GRE (UPA) #233481 | 3.0 |
| MPC | WAPA/MPC #1603 | 35.0 |
| ALTW | WAPA/ALTW (CIPCO) #233579 | 12.0 |
| MEC | Cornbelt | 50.0 |
| MEC | 50 MW 7x16 -> 5/31/11 | 0.0 |
| MEC | WAPA/MEC (CBPC) #233581 | 20.0 |
| MEC | WAPA/MEC (Atlantic) #287697 | 8.0 |
| MEAN | Redirect from Cooper | 0.0 |
| NPPD | Tri-State + Rushmore Co-supply | 357.0 |
| NPPD | HCPD(WAPA)/NPPD CNS- Intraregional | 0.0 |

| | | |
|---|---|---|
| NPPD | WAPA/NPPD (F+P) #234276- Intraregional | 436.0 |
| NPPD | WAPA/NPPD (RMR) #345442- Intraregional | 4.0 |
| NPPD | WAPA/NPPD (LOUP) #251005- Intraregional | 15.0 |
| GRIS | WAPA/NPPD (GRIS) #224204- Intraregional | 9.0 |
| NPPD | LOAD (WAPA/NPPD) - Intraregional | 86.0 |
| NPPD | LES WAPA Firm Delivery | 56.0 |
| NPPD | LES WAPA Firm Peaking Delivery | 54.0 |
| OPPD | WAPA/OPPD #363404- Intraregional | 82.0 |
| OPPD | WAPA/OPPD Product K Agree- Intraregional | 0.0 |
| OPPD | LOAD (WAPA/OPPD) - Intraregional | 22.0 |
| LES | Laramie River Station | 182.0 |
| SUNF | WAPA/SUNF #286879- Intraregional | 7.0 |
| XEL | | 375.0 |
| MP | | 250.0 |
| WPS | | 500.0 |
| XEL | | 4.0 |
| GRE | | 172.0 |
| **Total** | | **3192 MW** |
| | **Total Net Interchange** | **2,489 MW** |

Notes:

1. Positive interchange indicates an export
2. Negative interchange indicates an import

**Midwest ISO**

MIDWEST ISO BALANCING AUTHORITY ("Midwest ISO")
AREA INTERCHANGE
Areas in the case that make up the Midwest ISO: 28
EIPC 2020 Summer Future Year Study

Midwest ISO Balancing Authority Area Scheduled Imports/Contract Purchases:

| MISO Area | Other Area | Comments | Purchases |
|---|---|---|---|
| ALTE | CE | 76672473, PJM 403520.2 | -140 MW |
| ALTW | CE | PJM 340493, 340502, 502025 | -264 MW |
| ALTW | WAPA | WAPA/ALTW (CIPCO) #233579 | -12 MW |
| AMIL | AECI | Mt. Pleasant #1180678 | -4 MW |
| AMIL | EEI | Ameren share EEI CTG's | -70 MW |
| AMIL | EEI | Ameren CTG's in EEI (3x55 MW) | -165 MW |
| AMIL | EEI | GF Ameren Share Joppa | -1000 MW |
| AMIL | LGEE | IMEA-Trimble 1 | -62 MW |
| AMIL | LGEE | IMEA-Trimble 2 | -89 MW |
| AMMO | AECI | City of Rolla, Entitlements | -54 MW |
| AMMO | ENTERGY | 392740 (White Bluff - AMRN) | -160 MW |
| CIN | NYISO | | -7 MW |
| CWLD | KACY | (Kansas) BPU | -20 MW |
| CWLD | KAPL | KCPL | -20 MW |
| CWLD | SWPA | Fulton-Hydro. | -3 MW |
| CWLD | SWPA | Fulton-Sikston. | -11 MW |
| CWLD | SWPA | Sikston Only. | -66 MW |
| DEM | AEP | Buckeye | -73 MW |
| DEM | AEP | CCD-Conesville | -312 MW |
| DEM | DAY | Killen | -198 MW |
| DEM | DAY | Stuart 1-4 | -912 MW |
| DEM | OVEC | Surplus | -180 MW |
| FE | AEP | CPP/AMPO/Gorsuch | -10 MW |
| FE | AEP | AMPO-Belleville | -38 MW |
| FE | AEP | CPP/AMPO/AMPGS (Virtual) | -80 MW |
| FE | AEP | AMPO-Gorsuch | -132 MW |
| FE | AEP | Buckeye-OE | -213 MW |
| FE | AEP | AMPO-Virtual (AMPGS) | -440 MW |
| FE | NYPP | AMPO-NYPA | -83 MW |
| FE | OVEC | Surplus | -230 MW |
| GRE | BEPC | Supplemental Power | -367 MW |
| GRE | DPC | | -172 MW |
| GRE | WAPA | WAPA/GRE #233481 | -3 MW |
| GRE | WAPA | WAPA/GRE #233493 | -86 MW |

| MISO Area | Other Area | Comments | Purchases |
|---|---|---|---|
| HE | AEP | VIRTUAL | -1000 MW |
| MEC | BEPC | Basin Allocation to CBPC | -50 MW |
| MEC | CE | MEC Share of QCNS | -449 MW |
| MEC | WAPA | WAPA/MEC (Atlantic) #287697 | -8 MW |
| MEC | WAPA | WAPA Allocation to CBPC #233581 | -20 MW |
| METC | AEP | AMPO-Virtual (AMPGS) (CONS) | -152 MW |
| MGE | CE | 72765702 Kendall, PJM 412941.22 | -50 MW |
| MP | MH | Term Sheet | -250 MW |
| NIPS | AEP | NIPS-Virtual | -200 MW |
| SIGE | OVEC | Surplus | -30 MW |
| SIPC | TVA | (SEPA) | -28 MW |
| WEC | CE | 76743102 WPPI | -10 MW |
| WEC | CE | 72850702 WPPI (Kendall) | -25 MW |
| WEC | CE | 72850706 WPPI (Kendall) | -25 MW |
| WEC | CE | 75285088 WPPI | -30 MW |
| WEC | CE | PJM #276594.6 | -90 MW |
| WPS | MH | 76703671 in study status | -500 MW |
| XEL | DPC | Remote generation | -4 MW |
| XEL | MH | #76703494 | -375 MW |
| XEL | OPPD | CMMPA purchase from NC2 | -3 MW |
| XEL | OPPD | CMMPA purchase from NC2 | -11 MW |
| | | Total Purchases | -8986 MW |

Midwest ISO Balancing Authority Area Scheduled Exports/Contract Sales:

| MISO Area | Other Area | Comments | Sales |
|---|---|---|---|
| AMIL | AEP | Amp-Ohio | 117 MW |
| AMIL | AP | Amp-Ohio | 1 MW |
| AMIL | CE | Clinton Generation | 1045 MW |
| AMIL | CE | St. Charles-IMEA | 90 MW |
| AMIL | CE | Winnetka | 43 MW |
| AMIL | CE | Rock Falls | 25 MW |
| AMIL | DAY | Amp-Ohio | 66 MW |
| AMIL | LGEE | KMPA | 128 MW |
| DEM | AEP | CCD-Zimmer | 330 MW |
| DEM | AEP | CCD-Beckjord | 52 MW |
| DEM | AEP | WVPA-AKSTEEL | 37 MW |
| DEM | DAY | Zimmer | 365 MW |
| DEM | DAY | Beckjord 6 | 207 MW |
| DEM | DAY | East Bend 2 | 186 MW |
| DEM | DAY | Miami Fort 7 | 180 MW |
| DEM | DAY | Miami Fort 8 | 180 MW |
| DEM | LGEE | KMPA | 100 MW |

| MISO Area | Other Area | Comments | Sales |
|---|---|---|---|
| DEM | LGEE | HE-Bridgeport | 6 MW |
| HE | AEP | HE-Drewersburg, HE-Hunstville on AEP | 10 MW |
| HE | AEP | Lynn MP, Winchester MP, Modoc MP | 6 MW |
| MEC | BEPC | Basin Share of Wisdom CT #2 | 40 MW |
| MEC | BEPC | NIPCO Share of Neal 4 | 31 MW |
| MEC | LES | CB3 to LES | 50 MW |
| MEC | LES | CB4 to LES | 50 MW |
| MEC | NWPS | NWPS Share of Neal 4 | 55 MW |
| MEC | WAPA | Harlan (WAPA) Share of Louisa | 6 MW |
| MP | MPC | MPC Share Young 2 | 227 MW |
| OTP | MRES | BIG STONE II | 99 MW |
| OTP | NWPS | Big Stone Generation | 110 MW |
| OTP | NWPS | Coyote Generation | 40 MW |
| SIGE | AEP | Cannelton | 20 MW |
| SIGE | DAY | Cannelton | 10 MW |
| WPS | DPC | 75439243 Weston 4 | 150 MW |
| WPS | DPC | 76288610 Weston 4 | 14 MW |
| | | Total Sales | 4076 MW |

**Total Net Interchange** **-4,911 MW**

Notes:

1. Positive interchange indicates a sale (export)
2. Negative interchange indicates a purchase (import)

**Municipal Electric Authority of Georgia (Included as part of Southern Companies)**

**New Brunswick System Operator**

New Brunswick's interchange information is included as part of ISO New England's data sheet.

**New York ISO (NYISO)**

**ERAG MULTIREGIONAL MODELING WORKING GROUP (ERAG MMWG)**
**INTERCHANGE DATA FOR 2009 SERIES LOAD FLOW BASE CASES**

**NYISO Area 102**

| REGION | From Area # | From Area Name | To Area # | To Area Name | Comments | Firm | *2020SUM* |
|---|---|---|---|---|---|---|---|
| NPCC | 102 | NYISO | 225 | PJM | NJ Co-ops | x | 17.0 |
| NPCC | 102 | NYISO | 225 | PJM | PA Co-ops | x | 50.0 |
| NPCC | 102 | NYISO | 225 | PJM | Neptune HVDC | | -660.0 |
| NPCC | 102 | NYISO | 225 | PJM | VFT | | -300.0 |
| NPCC | 102 | NYISO | 225 | PJM | RECO Supply | x | -545.0 |
| | 102 | NYISO | 225 | PJM | Subtotal | | -1438.0 |
| NPCC | 102 | NYISO | 226 | PENELEC | Net PJM-NYSEG NYSEG al | | -750.0 |
| NPCC | 102 | NYISO | 226 | PENELEC | PENELEC | x | -36.0 |
| | 102 | NYISO | 226 | PENELEC | Subtotal | | -786.0 |
| NPCC | 102 | NYISO | 237 | RECO | RECO Load | x | 545.0 |
| NPCC | 102 | NYISO | 202 | FE | | x | 83.0 |
| NPCC | 102 | NYISO | 205 | AEP | | x | 18.0 |
| NPCC | 102 | NYISO | 208 | CIN | | x | 7.0 |
| NPCC | 102 | NYISO | 209 | DPL | | x | 2.3 |
| NPCC | 102 | NYISO | 101 | ISO-NE | | x | 81.0 |
| NPCC | 103 | NYISO | 102 | ISO-NE | Cross Sound Cable | | -330.0 |
| NPCC | 102 | NYISO | 104 | TE | | | -1200.0 |
| NPCC | 102 | NYISO | 107 | CORNWALL | | | 0.0 |
| | **102** | **NYISO** | | | **NET SCHEDULE** | | **-3017.7** |

**PJM Interconnection**

| From Area | To Area | Interchange | Firm? | Comment |
|---|---|---|---|---|
| AEP | NYISO | -18.0 | x | AMPO-NYPA |
| AEP | OVEC | -1229.0 | x | Surplus |
| AEP | HE | -10.0 | x | HE-D&H Load |
| AEP | HE | -6.0 | x | HE-L&W&M Load |
| AEP | HE | 1000.0 | | Virtual |
| AEP | DEM | 73.0 | x | Buckeye |
| AEP | DEM | -37.0 | x | WVPA-AKSTEEL |
| AEP | DEM | 312.0 | x | CCD-Conesville |
| AEP | DEM | -52.0 | x | CCD-Beckjord |
| AEP | DEM | -330.0 | x | CCD-Zimmer |
| AEP | DEM | 0.0 | | Virtual |
| AEP | SIGE | 0.0 | | Virtual |
| AEP | SIGE | -20.0 | x | Cannelton |
| AEP | NIPS | 200.0 | | NIPS-Virtual |
| AEP | METC | 152.0 | | AMPO-Virtual (AMPGS) (CONS) |
| AEP | EKPC | 0.0 | | Peaking |
| AEP | CPLE | 100.0 | x | NCEMC-1 |
| AEP | CPLE | 100.0 | x | NCEMC-2 |
| AEP | AMIL | -117.0 | x | AMPO-Prairie State |
| AEP | LGEE | -66.0 | x | IMPA-Trimble-1 |
| AEP | LGEE | -94.0 | x | IMPA-Trimble-2 |
| AEP | AEPW | 250.0 | x | Merger |
| AP | AMIL | -1.0 | x | Amp-Ohio |
| AP | OVEC | -70.0 | x | Surplus |
| CE | ALTW | 65.0 | x | PJM#502025 |
| CE | ALTW | 149.0 | x | PJM#340502 |
| CE | ALTW | 50.0 | x | PJM#340493 |
| CE | AMIL | -90.0 | | St. Charles |
| CE | AMIL | -43.0 | | Winnetka |
| CE | AMIL | -25.0 | | Rock Falls |
| CE | AMIL | -1045.0 | | Clinton Output |
| CE | WEC | 0.0 | x | PJM #276592.5 |
| CE | WEC | 90.0 | x | PJM #276594.6 |
| CE | ALTE | 140.0 | x | PJM 403520.2 |
| CE | MGE | 50.0 | x | PJM 412941.22 |
| CE | MEC | 449.0 | x | 25% Quad Cities |

| | | | | |
|---|---|---|---|---|
| CE | GRE | 0.0 | x | PJM 847949 |
| DAY | OVEC | -98.0 | x | Surplus |
| DAY | DEM | -207.0 | x | Beckjord 6 |
| DAY | DEM | -180.0 | x | Miami Fort 7 |
| DAY | DEM | -180.0 | x | Miami Fort 8 |
| DAY | DEM | -186.0 | x | East Bend 2 |
| DAY | DEM | -365.0 | x | Zimmer |
| DAY | DEM | 912.0 | x | Stuart 1-4 |
| DAY | DEM | 198.0 | x | Killen |
| DAY | NYPP | -2.3 | x | AMPO-NYPA |
| DAY | AMIL | -66.0 | x | Amp-Ohio |
| DAY | SIPC | 0.0 | x | AMPO-Smithland (SERC) |
| DAY | SIGE | -9.5 | x | AMPO-Cannelton |
| DVP | CPLE | -182.0 | x | NCEMPA |
| DVP | CPLE | 95.0 | x | SEPA-KERR |
| DVP | CPLE | -10.0 | x | Littleton |
| DVP | DUKE | -100.0 | x | NCEMC |
| FE | OVEC | -230.0 | x | Surplus |
| FE | SIGE | -45.7 | x | AMPO-Cannelton |
| FE | AMIL | -112.1 | x | AMPO-Praire State |
| FE | DEM | 0.0 | x | AMPO-Barclays |
| FE | DEM | 0.0 | x | Integrys Purchase |
| FE | DEM | 0.0 | x | AMPO-Barclays |
| FE | ITC | -296.0 | x | Sumpter |
| FE | NYPP | -83.0 | x | AMPO-NYPA |
| PENELEC | NYISO | 750.0 | | Net MAAC-NYCA |
| PENELEC | NYISO | 36.0 | x | NYSEG al PENELEC |
| PJM | NYISO | -17.0 | x | NJ Co-ops |
| PJM | NYISO | -50.0 | x | PA Co-ops |
| PJM | NYISO | 545.0 | x | RECO Supply |
| PJM | NYISO | 660.0 | x | Neptune |
| PJM | NYISO | 300.0 | x | VFT |
| PJM | CPLE | -47.0 | x | (PJM-Cravenwood) |
| RECO | NYISO | -545.0 | x | RECO Load |
| Total Net Interchange: | | 411.4 | | |

**PowerSouth Energy Cooperative**

POWERSOUTH PLANNING AUTHORITY ("PPA") AREA INTERCHANGE
Area (s) in the case that make up the PPA: 350
EIPC 2020 Summer Future Year Study

PowerSouth Planning Authority Area Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| SEPA | Sales to PowerSouth | -100 MW |
| SEPA | Preferred Customers | -99 MW |
| SEPA | Sales to SMEPA | -68 MW |
| SOCO | Plant Miller | -114 MW |
| MEAG | PowerSouth Purchase | -125 MW |
| SOCO | Purchase from SH LFG | -5 MW |
| SOCO | Purchase from Yellow Pine | -30 MW |
| Total | | - 541 MW |

PowerSouth Planning Authority Area Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| SOCO | PowerSouth load on SOCO + Losses | 1174 MW |
| SMEPA | SEPA – PS - SMEPA | 68 MW |
| Total | | 1242 MW |

Total Net Interchange 701 MW

Notes:
1. Positive interchange indicates an export
2. Negative interchange indicates an import

**Progress Energy Carolinas**

Progress Energy Carolinas East (CPLE) Balancing Authority Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| CPLW | Transfer | -150 MW |
| Duke | Broad River | -850 MW |
| Duke | NCEMC/CNS | -105 MW |
| Duke | NCEMC#2 | -100 MW |
| Duke | PEC-Rowan | -150 MW |
| DVP | SEPA-Kerr | -95 MW |
| AEP | NCEMC | -100 MW |
| AEP | NCEMC#2 | -100 MW |
| **Total** | | **- 1,650 MW** |

Progress Energy Carolinas East (CPLE) Balancing Authority Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| Duke | NCEMC | 150 MW |
| Duke | NCEMC/Anson | 60 MW |
| DVP | NCEMPA | 182 MW |
| DVP | Littleton | 10 MW |
| PJM | Cravenwood | 47MW |
| **Total** | | **449 MW** |
| **Total Net Interchange- CPLE** | | **-1,201 MW** |

Progress Energy Carolinas West (CPLW) Balancing Authority Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| TVA | SEPA | -1 MW |
| **Total** | | **-1 MW** |

Progress Energy Carolinas West (CPLW) Balancing Authority Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| CPLE | Transfer | 150 MW |
| **Total** | | **150 MW** |
| **Total Net Interchange- CPLW** | | **149 MW** |

Notes:

1. Positive interchange indicates an export
2. Negative interchange indicates an import

**Progress Energy Florida**

Progress Energy Florida (PEF) Balancing Authority Scheduled Imports/Contract Purchases:

| | | | |
|---|---|---|---|
| Southern | PEF | Firm | -424 MW |
| FRCC | PEF | Firm (Intra-FRCC) | -3464 MW |
| **Total** | | | **- 3,888 MW** |

Progress Energy Florida (PEF) Balancing Authority Scheduled Exports/Contract Sales:

| | |
|---|---|
| **Total** | **0 MW** |
| **Total Net Interchange-PEF** | **-3,888 MW** |

Notes:
1. Positive interchange indicates an export
2. Negative interchange indicates an import

**Santee Cooper**

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY
DETAILED INTERCHANGE
EIPC 2020 Summer Future Year Study

SCPSA Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| SCE&G | VC Summer | -1,370 MW |
| SEPA | Russell | -212 MW |
| SEPA | Thurmond | -63 MW |
| **Total** | | **- 1,645 MW** |

SCPSA Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| SCE&G | Charleston Navy | 15 MW |
| SCE&G | Woodland Hills | 16 MW |
| SCE&G | NHEC | 19 MW |
| **Total** | | **50 MW** |

**Total Net Interchange** **-1,595 MW**

Notes:
1. Positive interchange indicates an export
2. Negative interchange indicates an import

**South Carolina Electric & Gas**

SCE&G BALANCING AUTHORITY ("SCE&G") AREA INTERCHANGE
Area(s) in the case that make up SCE&G: 343
EIPC 2020 Summer Future Year Study

SCE&G Balancing Authority Area Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| SEPA | Thurmond Dam | -22 MW |
| SCPSA | Charleston Navy | -15 MW |
| SCPSA | Woodland Hills Load on SCE&G | -16 MW |
| SCPSA | NHEC Load on SCE&G | -19 MW |
| **Total** | | **- 72 MW** |

SCE&G Balancing Authority Area Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| SCPSA | VC Summer #1, #2, #3 | 1370 MW |
| **Total** | | **1,370 MW** |

**Total Net Interchange** **1,298 MW**

Notes:
1. Positive interchange indicates an export
2. Negative interchange indicates an import

**Southern Company**

SOUTHERN BALANCING AUTHORITY ("SBA") AREA INTERCHANGE
Area (s) in the case that make up the SBA: 346
EIPC 2020 Summer Future Year Study

Southern Balancing Authority Area Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| SEPA | Hartwell Dam | -280 MW |
| SEPA | Russell Dam | -258 MW |
| SEPA | Thurmond Dam | -143 MW |
| TVA | TVA Load on Southern | -187 MW |
| PowerSouth | PowerSouth Load on Southern | -1174 MW |
| SMEPA | SMEPA Load on Southern | -158 MW |
| **Total** | | **- 2,200 MW** |

Southern Balancing Authority Area Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| Duke | City of Seneca | 31 MW |
| TVA | Southern Load on TVA | 139 MW |
| PowerSouth | SEPA Sales to PowerSouth | 100 MW |
| PowerSouth | SEPA Sales to SMEPA via PowerSouth | 68 MW |
| PowerSouth | SEPA Preferred Customers | 99 MW |
| PowerSouth | Plant Miller Ownership | 114 MW |
| PowerSouth | PowerSouth Purchase from SH LFG | 5 MW |
| PowerSouth | PowerSouth Purchase from MEAG | 125 MW |
| PowerSouth | PowerSouth Purchase from GTC | 30 MW |
| SMEPA | SMEPA Purchase | 152 MW |
| FPL | Sum of Point to Point Transactions | 930 MW |
| FPL | Scherer #4 Ownership | 649 MW |
| FPL | GTC to FPL | 13 MW |
| FPC | Sum of Point to Point Transactions | 424 MW |
| JEA | Sum of Point to Point Transactions | 206 MW |
| JEA | Scherer #4 Ownership | 201 MW |
| **Total** | | **3,286 MW** |

**Total Net Interchange** **1,086 MW**

Notes:

2. Positive interchange indicates an export
3. Negative interchange indicates an import

**Southwest Power Pool**

## ERAG MULTIREGIONAL MODELING WORKING GROUP (ERAG MMWG)

### INTERCHANGE DATA FOR 2009 SERIES LOAD FLOW BASE CASES

### SPP Area 500 - 599

| REGION | From Area # | From Area Name | To Area # | To Area Name | Comments | Firm | TRID | *2020SUM* |
|---|---|---|---|---|---|---|---|---|
| SPP | 502 | CELE | 503 | LAFA | 50% JOU #263191, 263187;SPP,CLEC,263191,6MW;SPP,SWPA,181561,6MW;SPP,CLEC,263187,246MW | X | | 246.0 |
| SPP | 502 | CELE | 503 | LAFA | 50% JOU #263191, 263187;SPP,CLEC,263191,6MW;SPP,SWPA,181561,6MW;SPP,CLEC,263187,246MW | X | | 6.0 |
| SPP | 502 | CELE | 503 | LAFA | SPP,CLEC,72616388,100MW | X | | 100.0 |
| | | | | | Subtotal | | | 352.0 |
| SPP | 502 | CELE | 504 | LEPA | 20% JOU #245446;SPP,CLEC,245446,67MW | X | | 105.0 |
| SPP | 502 | CELE | 504 | LEPA | ALEX #245446;SPP,CLEC,245446,67MW | X | | -56.0 |
| SPP | 502 | CELE | 504 | LEPA | ALEX #224152;SPP,CLEC,224152,6MW;SPP,SWPA,?,? | X | | 0.0 |
| | | | | | Subtotal | | | 49.0 |
| SPP | 502 | CELE | 332 | LAGN | 2007 RFP BC2; J1062;EES,CLEC,70865596,100MW | X | | 0.0 |
| SPP | 502 | CELE | 332 | LAGN | 2007 RFP BC2;EES,CLEC,70875885,100MW | | | 0.0 |
| SPP | 502 | CELE | 351 | EES | Toledo Bend; | X | | -20.0 |
| SPP | 502 | CELE | 351 | EES | 2007 RFP SRW Cogen;EES,CLEC,70865593,50MW | X | | 0.0 |
| SPP | 502 | CELE | 351 | EES | Richard losses; | X | | 1.0 |
| SPP | 502 | CELE | 351 | EES | ; | X | | 0.0 |
| SPP | 502 | CELE | 351 | EES | CLELCO load; | X | | 0.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | Subtotal | | -19.0 |
| SPP | 502 | CELE | 520 | AEPW | 50% JOU #68009;SPP,CLEC,68009,325MW;SPP,CSWS,78779,325MW | X | 325.0 |
| SPP | 502 | CELE | 520 | AEPW | MARTIN ;SPP,CSWS,334542,10MW | X | 0.0 |
| SPP | 502 | CELE | 520 | AEPW | ACADIA #380718, 380717;SPP,CLEC,380717,153MW;SPP,CLEC,380718,102MW | X | 0.0 |
| | | | | | Subtotal | | 325.0 |
| | 502 | CELE | | | **NET SCHEDULE** | | **707.0** |
| SPP | 503 | LAFA | 502 | CELE | JOU;SPP,CLEC,263191,6MW;SPP,SWPA,181561,6MW;SPP,CLEC,263187,246MW | X | -246.0 |
| SPP | 503 | LAFA | 502 | CELE | JOU;SPP,CLEC,263191,6MW;SPP,SWPA,181561,6MW;SPP,CLEC,263187,246MW | X | -6.0 |
| SPP | 503 | LAFA | 502 | CELE | 72616388 | X | -100.0 |
| SPP | 503 | LAFA | 504 | LEPA | ;SPP,CLEC,263191,6MW;SPP,SWPA,181561,6MW;SPP,CLEC,263187,246MW | X | 0.0 |
| SPP | 503 | LAFA | 515 | SWPA | ;SPP,SPA,322102,19MW;SPP,SPA,336921,19MW;SPP,SPA,323653,6MW | X | -18.0 |
| | 503 | LAFA | | | **NET SCHEDULE** | | **-370.0** |
| SPP | 504 | LEPA | 503 | LAFA | 50% JOU #263191, 263187;SPP,CLEC,263191,6MW;SPP,SWPA,181561,6MW;SPP,CLEC,263187,246MW | X | 0.0 |
| SPP | 504 | LEPA | 502 | CELE | 20% JOU #245446;SPP,CLEC,245446,67MW | X | -105.0 |
| SPP | 504 | LEPA | 502 | CELE | ALEX #245446;SPP,CLEC,245446,67MW | X | 56.0 |
| SPP | 504 | LEPA | 502 | CELE | ALEX #224152;SPP,CLEC,224152,6MW;SPP,SWPA,?,? | X | 0.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 504 | LEPA | 502 | CELE | Subtotal | | -49.0 |
| SPP | 504 | LEPA | 332 | LAGN | ; | X | 3.0 |
| SPP | 504 | LEPA | 351 | EES | ; | X | -12.0 |
| SPP | 504 | LEPA | 515 | SWPA | ; | X | -6.0 |
| | | | | | Subtotal | | -15.0 |
| SPP | 504 | LEPA | | | **NET SCHEDULE** | | **-64.0** |
| SPP | 515 | SWPA | 330 | AECI | ; | X | 538.0 |
| SPP | 515 | SWPA | 330 | AECI | ; | X | -13.0 |
| | | | | | Subtotal | | 525.0 |
| SPP | 515 | SWPA | 351 | EES | (SWPA load - Augasta);SPP,SPA,225770,4MW | X | 3.0 |
| SPP | 515 | SWPA | 351 | EES | (SWPA load - Thayer in EN);SPP,SPA,125522,3MW | X | 4.0 |
| SPP | 515 | SWPA | 351 | EES | (SWPA load - Hydro reciepts);GR | X | 100.0 |
| SPP | 515 | SWPA | 351 | EES | (OASIS# 966987, Jonesboro load served from ISES, ends 1/2003);EES,EES,1024198,168MW;SPP,SPA,119227,251MW | X | -163.0 |
| SPP | 515 | SWPA | 351 | EES | (OASIS# 966982, Jonesboro load served from Whitebluff, ends 1/2003);EES,EES,1024194,83MW;SPP,SPA,119227,251MW | X | -81.0 |
| SPP | 515 | SWPA | 351 | EES | Plum Point;(OASIS# 137528, Highland(Ash Flat) load, ends 1/2006) (old) | X | 0.0 |
| SPP | 515 | SWPA | 351 | EES | (OASIS# 759196, Blakeley, ends 1/2021);SPP,SPA,118372,143MW | X | -75.0 |
| SPP | 515 | SWPA | 351 | EES | (OASIS# 759196, DeGray, ends 1/2021);SPP,SPA,118372,143MW | X | -68.0 |
| SPP | 515 | SWPA | 351 | EES | (EN load - Norfork, Glencoe & Buford in SWPA);SPP,SPA,108985,98MW;SPP,SPA,225769,13MW | X | -85.0 |
| SPP | 515 | SWPA | 351 | EES | 73884558 Plum - SPA | | -40.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | Subtotal | | -405.0 |
| SPP | 515 | SWPA | 333 | CWLD | Sikston Only. Path is through Amren.;SPP,SPA,119231,125MW | X | 66.0 |
| SPP | 515 | SWPA | 333 | CWLD | Fulton-Hydro. Path is through Associated;SPP,SPA,119231,125MW | X | 3.0 |
| SPP | 515 | SWPA | 333 | CWLD | Fulton-Sikston. Path is through Amren.;SPP,SPA,119231,125MW | X | 11.0 |
| | 515 | SWPA | 333 | CWLD | Subtotal | | 80.0 |
| SPP | 515 | SWPA | 356 | AMRN | UE (80);SPP,SPA,119231,125MW | X | 0.0 |
| SPP | 515 | SWPA | 503 | LAFA | Path is through AEPW & CELE;SPP,SPA,119231,125MW | X | 18.0 |
| SPP | 515 | SWPA | 504 | LEPA | Path is through Entergy;SPP,SPA,322102,19MW;SPP,SPA,336921,19MW | X | 6.0 |
| SPP | 515 | SWPA | 332 | LAGN | Path is through Entergy;SPP,SPA,233047,91MW | X | 83.0 |
| SPP | 515 | SWPA | 338 | DERS | New area; | X | 5.0 |
| SPP | 515 | SWPA | 520 | AEPW | ;SPP,CSWS,324174,102MW;SPP,SPA,110862,102MW;SPP,CSWS,79036,40MW;SPP,SPA,110832,39MW;SPP,CSWS,79158,23MW;SPP,SPA,110834,2MW;SPP,SPA,110853,18MW;SPP,SPA,110860,2MW;SPP,SPA,110844,1MW;SPP,CSWS,?,?;SPP,SPA,110839,89MW | X | 253.0 |
| SPP | 515 | SWPA | 523 | GRRD | ;SPP,GRDA,181246,45MW;SPP,SPA,121295,45MW;SPP,GRDA,181248,60MW;SPP,SPA,115841,60MW | X | -97.0 |
| SPP | 515 | SWPA | 524 | OKGE | ;SPP,OKGE,460742,32MW;SPP,SPA,110830,32MW | X | 18.0 |
| SPP | 515 | SWPA | 525 | WFEC | ;SPP,SPA,110823,260MW;SPP,WFEC,168948,26 | X | 260.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | 0MW | | |
| SPP | 515 | SWPA | 525 | WFEC | Anthony Peaking & supplemental;SPP,SPA,631417,1MW | X | -8.0 |
| SPP | 515 | SWPA | 525 | WFEC | ;SPP,SPA,110825,19MW | X | 0.0 |
| SPP | 515 | SWPA | 525 | WFEC | ;SPP,WFEC,168950,11MW ?? | X | -5.0 |
| | | | | | Subtotal | | 247.0 |
| SPP | 515 | SWPA | 527 | OMPA | Path is through AEPW & OKGE;SPP,SPA,314301,78MW | X | 111.0 |
| SPP | 515 | SWPA | 536 | WERE | Kaw Valley REA;SPP,SWPP,467767,1MW;SPP,SWPP,467770,1MW | X | 1.0 |
| SPP | 515 | SWPA | 536 | WERE | Nemaha-Marshall;SPP.SPA,345384,1MW | X | 1.0 |
| SPP | 515 | SWPA | 536 | WERE | KEPCO's load in WERE, 5MW redirect after June '05;SPP,SPA,110870,100MW,SPP,EDE,545588,100MW;SPP,EMDE | X | 100.0 |
| SPP | 515 | SWPA | 536 | WERE | KMEA - Chanute;SPP,SPA,125514,9MW | X | 2.0 |
| SPP | 515 | SWPA | 536 | WERE | KMEA - Iola;SPP,SPA,125515,2MW | X | 2.0 |
| SPP | 515 | SWPA | 536 | WERE | KMEA - Mulvane;SPP,SPA,125514,9MW | X | 1.0 |
| SPP | 515 | SWPA | 536 | WERE | KMEA - Neodesha;SPP,SPA,125514,9MW | X | 1.0 |
| SPP | 515 | SWPA | 536 | WERE | KMEA - Wellington;SPP,SPA,125514,9MW | X | 3.0 |
| SPP | 515 | SWPA | 536 | WERE | KMEA - Winfield;SPP,SPA,125514,9MW | X | 2.0 |
| SPP | 515 | SWPA | 536 | WERE | KMEA - Winfield;SPP,SPA,125514,9MW | X | 7.0 |
| | | | | | Subtotal | | 120.0 |
| SPP | 515 | SWPA | 539 | WEPL | ; | X | 0.0 |
| SPP | 515 | SWPA | 541 | KACP | ;SPP,SWPP,345018,3MW | X | 5.0 |
| SPP | 515 | SWPA | 542 | KACY | Hydro to EDE to KCPL to | | 38.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | KACY;SPP,KCPL,70817,39MW | | |
| SPP | 515 | SWPA | 546 | SPRM | PEAKING;SPP,SPA,118316,55MW;SPP,SPA,118364,125MW | X | 50.0 |
| SPP | 515 | SWPA | 546 | SPRM | NIXA;SPP,SPA,118363,70MW ?? | X | -78.0 |
| | | | | | Subtotal | | -28.0 |
| | 515 | SWPA | | | **NET SCHEDULE** | | **979.0** |
| SPP | 520 | AEPW | 330 | AECI | KAMO;SPP,GRDA,469674,105MW ? | X | -55.0 |
| SPP | 520 | AEPW | 205 | AEPE | ; | X | -250.0 |
| SPP | 520 | AEPW | 332 | LAGN | ;SPP,CSWS,79037,100MW | X | -100.0 |
| SPP | 520 | AEPW | 337 | PUPP | ;SPP,CSWS,79037,100MW | X | 0.0 |
| SPP | 520 | AEPW | 502 | CELE | 50% JOU #68009;SPP,CLEC,68009,325MW;SPP,CSWS,78779,325MW | X | -325.0 |
| SPP | 520 | AEPW | 502 | CELE | MARTIN ;SPP,CSWS,334542,10MW | X | 0.0 |
| SPP | 520 | AEPW | 502 | CELE | ACADIA #380718, 380717;SPP,CLEC,380717,153MW;SPP,CLEC,380718,102MW | X | 0.0 |
| | | | | | Subtotal | | -325.0 |
| SPP | 520 | AEPW | 351 | EES | AEPW Load on EES; | X | 5.0 |
| SPP | 520 | AEPW | 351 | EES | ETEC Load 1; | X | -30.0 |
| SPP | 520 | AEPW | 351 | EES | ETEC Load 2; | X | 50.0 |
| SPP | 520 | AEPW | 351 | EES | AECC Schedule; | X | 0.0 |
| SPP | 520 | AEPW | 351 | EES | ISES; | x | 0.0 |
| SPP | 520 | AEPW | 351 | EES | EPI Resources; | x | 0.0 |
| SPP | 520 | AEPW | 351 | EES | City of Prescott; | x | 0.0 |
| | | | | | Subtotal | | 25.0 |
| SPP | 520 | AEPW | 998 | ERCOT (North) | ;SPP,CSWS,343411,80MW;SPP,CSWS,513653,108MW;SPP,CSWS,513659,32MW | X | -220.0 |
| SPP | 520 | AEPW | 998 | ERCOT (East) | ;SPP,CSWS,343411,80MW;SPP,CSWS,513653,108MW;SPP,CSWS,513659,32MW | X | 50.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 520 | AEPW | 998 | ERCOT (East) | OMPA portion of New north tie;SPP,CSWS,343411,80MW;SPP,CSWS,513653,108MW;SPP,CSWS,513659,32MW | X | 0.0 |
| SPP | 520 | AEPW | 524 | OKGE | ;SPP,CSWS,272408,10MW | X | 0.0 |
| SPP | 520 | AEPW | 524 | OKGE | ; | | 0.0 |
| SPP | 520 | AEPW | 527 | OMPA | ;SPP,CSWS,343413,16MW; CSWS,343415,25MW ?? | X | 158.0 |
| SPP | 520 | AEPW | 515 | SWPA | ;SPP,CSWS,324174,102MW;SPP,SPA,110862,102MW;SPP,CSWS,79036,40MW;SPP,SPA,110832,39MW;SPP,CSWS,79158,23MW;SPP,SPA,110834,2MW;SPP,SPA,110853,18MW;SPP,SPA,110860,2MW;SPP,SPA,110844,1MW;SPP,CSWS,?,?;SPP,SPA,110839,89MW | X | -253.0 |
| SPP | 520 | AEPW | 525 | WFEC | ;SPP,WFEC,168954,50MW | X | -56.0 |
| SPP | 520 | AEPW | 526 | SPS | ;SPP,SPS,631456,7MW; SPP,SPS,631457,6MW | X | -9.0 |
| SPP | 520 | AEPW | 526 | SPS | ;SPP,CSWS,974790,50MW;SPP,CSWS,974791,50MW;SPP,CSWS,974793,50MW;SPP,CSWS,974797,50MW | X | 0.0 |
| | 520 | AEPW | | | **NET SCHEDULE** | | **-1035.0** |
| SPP | 523 | GRRD | 515 | SWPA | ;SPP,GRDA,181246,45MW;SPP,SPA,121295,45MW;SPP,GRDA,181248,60MW;SPP,SPA,115841,60MW | | 97.0 |
| SPP | 523 | GRRD | 524 | OKGE | Redbud Generation; | | -300.0 |
| SPP | 523 | GRRD | 525 | WFEC | | X | 100.0 |
| SPP | 523 | GRRD | 527 | OMPA | ;SPP,OKGE,460343,25MW | | 75.0 |
| SPP | 523 | GRRD | 536 | WERE | MIDW - GRDA; | | 5.0 |
| SPP | 523 | GRRD | 536 | WERE | KMEA T1;SPP,SWPP,560383,5MW | | 3.0 |
| SPP | 523 | GRRD | 536 | WERE | KMEA T2;SPP,SWPP,560385,20MW | | 20.0 |
| SPP | 523 | GRRD | 541 | KACP | KMEA;SPP,SWPP,16395 | | 15.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | 8,15MW | | |
| SPP | 523 | GRRD | 546 | SPRM | ; | | 0.0 |
| SPP | 523 | GRRD | 330 | AECI | KAMO;SPP,GRDA,424406,198MW | | 182.0 |
| SPP | 523 | GRRD | 330 | AECI | Rolla; | | 0.0 |
| | 523 | GRRD | | | **NET SCHEDULE** | | **197.0** |
| SPP | 524 | OKGE | 515 | SWPA | ;SPP,OKGE,460742,32MW;SPP,SPA,110830,32MW | X | -18.0 |
| SPP | 524 | OKGE | 520 | AEPW | PSOK;SPP,CSWS,272408,10MW | X | 0.0 |
| SPP | 524 | OKGE | 520 | AEPW | ; | | 0.0 |
| SPP | 524 | OKGE | 523 | GRRD | Redbud Generation; | | 300.0 |
| SPP | 524 | OKGE | 525 | WFEC | ;SPP,WFEC,LOAD | X | -12.0 |
| SPP | 524 | OKGE | 351 | EES | MDEA; | X | 0.0 |
| SPP | 524 | OKGE | 351 | EES | MDEA; | X | 0.0 |
| SPP | 524 | OKGE | 536 | WERE | Spring Creek; | X | 225.0 |
| SPP | 524 | OKGE | 527 | OMPA | ; | X | 283.0 |
| | 524 | OKGE | | | **NET SCHEDULE** | | **778.0** |
| SPP | 525 | WFEC | 515 | SWPA | PURCHASE;SPP,SPA,110823,260MW;SPP,WFEC,168948,260MW | X | -260.0 |
| SPP | 525 | WFEC | 515 | SWPA | LOAD;SPP,WFEC,168950,11MW ?? | X | 8.0 |
| SPP | 525 | WFEC | 515 | SWPA | ;SPP,SPA,110825,19MW | X | 0.0 |
| SPP | 525 | WFEC | 515 | SWPA | ;SPP,WFEC,168950,11MW ?? | X | 5.0 |
| SPP | 525 | WFEC | 520 | AEPW | ;SPP,WFEC,168954,50MW | X | 56.0 |
| SPP | 525 | WFEC | 523 | GRRD | | X | -100.0 |
| SPP | 525 | WFEC | 524 | OKGE | SPP,WFEC,168954,50MW | X | 12.0 |
| | | | | | Subtotal | | -279.0 |
| | 525 | WFEC | | | **NET SCHEDULE** | | **-279.0** |
| SPP | 526 | SPS | 999 | WECC | SPS,SWPP,750447,50MW;;SPS,SWPP,750448,17MW;;SPS,SWPP,750453,30MW;;SPS,SWPP,750458,50MW;;SPS,SWPP,750459,18MW | X | 0.0 |
| SPP | 526 | SPS | 999 | WECC | SPS,SWPP,320900,50MW | X | 0.0 |
| SPP | 526 | SPS | 999 | WECC | SPS,LAMAR,1256070,210MW | X | 0.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 526 | SPS | 999 | WECC | SPS,LAMAR,1256074,210MW | X | -105.0 |
| SPP | 526 | SPS | 999 | WECC | SPS,LAMAR,#1089911,2MW | X | 2.0 |
| | | | | | Subtotal | | -103.0 |
| SPP | 526 | SPS | 520 | AEPW | LOAD;SPS(GS),AEPW,631456,7MW;;SPS(GS),AEPW,631457,6MW | X | 9.0 |
| SPP | 526 | SPS | 520 | AEPW | ;SPS,AEPW,974790,50MW;;SPS,AEPW,9747941,50MW;;SPS,AEPW,974793,50MW;;SPS,AEPW,974797,50MW | X | 0.0 |
| | 526 | SPS | | | **NET SCHEDULE** | | **-94.0** |
| SPP | 527 | OMPA | 515 | SWPA | ;SPP,SPA,314301,78MW | X | -111.0 |
| SPP | 527 | OMPA | 520 | AEPW | ;SPP,CSWS,343413,16MW;SPP,CSWS,343415,25MW ?? | X | -158.0 |
| SPP | 527 | OMPA | 523 | GRRD | ;SPP,OKGE,460343,25MW | X | -75.0 |
| SPP | 527 | OMPA | 524 | OKGE | ;SPP,OKGE,442716,56MW;SPP,OKGE,442717,100MW;SPP,OKGE,442720,56MW | X | -283.0 |
| SPP | 527 | OMPA | 536 | WERE | ;SPP,OKGE,460354,51MW | X | 0.0 |
| | 527 | OMPA | | | **NET SCHEDULE** | | **-627.0** |
| SPP | 531 | MIDW | 536 | WERE | KPL - P;SPP,WERE,393997,125MW | X | -135.0 |
| SPP | 531 | MIDW | 536 | WERE | KGE - PPA;SPP,WERE,272409,61MW | X | 0.0 |
| SPP | 531 | MIDW | 536 | WERE | KPL - WP;SPP,WERE,575926,40MW | X | 0.0 |
| SPP | 531 | MIDW | 536 | WERE | KGE - WPPA;SPP,WERE,575927,30MW | X | 0.0 |
| SPP | 531 | MIDW | 536 | WERE | Peaking; | X | 0.0 |
| SPP | 531 | MIDW | 536 | WERE | SYSTEM Participation; | X | -120.0 |
| SPP | 531 | MIDW | 536 | WERE | KEPCo Load in MIDW; | X | -3.0 |
| | | | | | Subtotal | | -258.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 531 | MIDW | 534 | SUNC | DELIVERY - WAPA to MIDW;SPP,MIDW,256528,25MW ?? | X | -2.0 |
| SPP | 531 | MIDW | 534 | SUNC | DELIVERY - SUNC-Holcomb; | | 0.0 |
| SPP | 531 | MIDW | 534 | SUNC | SH Wind to SUNC; | | 6.0 |
| | | | | | Subtotal | | 4.0 |
| SPP | 531 | MIDW | 523 | GRDA | ; | X | -5.0 |
| SPP | 531 | MIDW | 541 | KCPL | ; | X | 0.0 |
| SPP | 531 | MIDW | 542 | KACY | SH Wind to BPU; | X | 3.0 |
| | 531 | MIDW | | | **NET SCHEDULE** | | **-256.0** |
| SPP | 534 | SUNC | 531 | MIDW | DELIVERY;SPP,MIDW,256528,25MW ?? | X | 2.0 |
| SPP | 534 | SUNC | 531 | MIDW | PURCHASE; | no | 0.0 |
| SPP | 534 | SUNC | 531 | MIDW | SH Wind to SUNC; | | -6.0 |
| | | | | | Subtotal | | -4.0 |
| | 534 | SUNC | 536 | WERE | Central Plains | X | 11.0 |
| | | | | | Subtotal | | 11.0 |
| SPP | 534 | SUNC | 539 | WERE | HOLCOMB UNIT PARTICIPATION;SPP,WEPL,533671,38MW ?? | X | 0.0 |
| SPP | 534 | SUNC | 539 | WERE | SECI to MKEC or MKEC to SECI; | X | 215.0 |
| SPP | 534 | SUNC | 539 | WERE | GARDEN CITY TURBINES; | X | 0.0 |
| SPP | 534 | SUNC | 539 | WERE | KEPCO;SPP,WEPL,515539,34MW ?? | X | 0.0 |
| | | | | | Subtotal | | 215.0 |
| SPP | 534 | SUNC | 640 | NPPD | DELIVERY; | X | -37.0 |
| | | | | | Subtotal | | -37.0 |
| SPP | 534 | SUNC | 652 | WAPA | ; | X | -7.0 |
| | | | | | Subtotal | | -7.0 |
| | 534 | SUNC | | | **NET SCHEDULE** | | **178.0** |
| SPP | 536 | WERE | 515 | SWPA | Kaw Valley REA;SPP-WR 75089 | X | -1.0 |
| SPP | 536 | WERE | 515 | SWPA | Nemaha Marshal REA;SPP-SWPP 503917 | X | -1.0 |
| SPP | 536 | WERE | 515 | SWPA | KEPCO's load in WERE, 5MW redirect after June '05;SPP-SWPP 895074 | X | -100.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 536 | WERE | 515 | SWPA | Chanute (KEMA/WRGS);SPP-SWPP 467755 | X | -2.0 |
| SPP | 536 | WERE | 515 | SWPA | Iola (KMEA/WRGS);SPP-SWPP 883781 | X | -2.0 |
| SPP | 536 | WERE | 515 | SWPA | Mulvane (KMEA/WRGS);SPP-SWPP 881847 | X | -1.0 |
| SPP | 536 | WERE | 515 | SWPA | Neodesha (KMEA/KPP);SPP-SWPP 467770 | X | -1.0 |
| SPP | 536 | WERE | 515 | SWPA | Wellington (KMEA/KPP);SPP-SWPP 467773 | X | -3.0 |
| SPP | 536 | WERE | 515 | SWPA | Winfield (KMEA/KPP);SPP-SWPP 467777 | X | -2.0 |
| SPP | 536 | WERE | 515 | SWPA | Winfield (KMEA/KPP);SPP-SWPP 467777 | X | -7.0 |
| | | | | | Subtotal | | -120.0 |
| SPP | 536 | WERE | 330 | AECI | AECI-KGE-KPL;SPP,SWPP,432676,60MW;SPP,SWPP,434140,20MW;SPP,SWPP,434147,20MW | X | -40.0 |
| SPP | 536 | WERE | 523 | GRRD | City of Girard;1055293 | X | -3.0 |
| SPP | 536 | WERE | 523 | GRRD | KMEA T2;SPP,SWPP,560385,20MW | X | -20.0 |
| SPP | 536 | WERE | 527 | OMPA | ;SPP,OKGE,460354,51MW | X | 0.0 |
| SPP | 536 | WERE | 524 | OKGE | JO:OneOK Spring Creek;partial ownership of OneOK | X | -225.0 |
| | 536 | WERE | 534 | SUNC | Central Plains | | -11.0 |
| SPP | 536 | WERE | 531 | MIDW | KPL - P;SPP,WERE,393997,125MW | X | 135.0 |
| SPP | 536 | WERE | 531 | MIDW | KGE - PPA;SPP,WERE,272409,61MW | X | 0.0 |
| SPP | 536 | WERE | 531 | MIDW | KPL - WP;SPP,WERE,575926,40MW | | 0.0 |
| SPP | 536 | WERE | 531 | MIDW | KGE - WPPA;SPP,WERE,575927,30MW | | 0.0 |
| SPP | 536 | WERE | 531 | MIDW | WESTAR OTHER;SPP,WERE,575564,17 | | 0.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 536 | WERE | 531 | MIDW | SYSTEM Participation; | | 120.0 |
| SPP | 536 | WERE | 531 | MIDW | KEPCo Load in MIDW; | | 3.0 |
| | | | | | Subtotal | | 258.0 |
| SPP | 536 | WERE | 539 | WEPL | KPL-JEC Co-owner power minus losses based on 100% of co-owner share of output.;SPP,WERE,75100,90MW;SPP,WERE,179934,14MW;SPP,WERE,577935,5MW ?? | X | 0.0 |
| SPP | 536 | WERE | 539 | WEPL | KPL-WAPA power for Lindsborg; | X | -2.0 |
| SPP | 536 | WERE | 539 | WEPL | WERE to KEPCo Aquila-N load;SPP,WERE,WEPL,40MW | | 5.0 |
| | 536 | WERE | 539 | WEPL | Flat Ridge | | -11.0 |
| | 536 | WERE | 539 | WEPL | Meridian Way | | -11.0 |
| | | | | | Subtotal | | -19.0 |
| SPP | 536 | WERE | 540 | MIPU | KPL-JEC Co-owner power minus losses based on 100% of co-owner share of output.;SPP,WERE,75099,90MW | X | 166.0 |
| SPP | 536 | WERE | 541 | KACP | KPL load at Spring Hill; | X | 0.0 |
| SPP | 536 | WERE | 541 | KACP | KGE-Wolf Ck. Co-owner power. Unit refueling in April 2002.; | X | 566.0 |
| SPP | 536 | WERE | 541 | KACP | KGE-La Cygne Unit 1 Co-owner power.; | X | -372.0 |
| SPP | 536 | WERE | 541 | KACP | KGE-La Cygne Unit 2 Co-owner power.; | X | -330.0 |
| SPP | 536 | WERE | 541 | KACP | WERE load at Ridgeview; | X | 0.0 |
| SPP | 536 | WERE | 541 | KACP | KCPL's Augusta in WERE;IATAN | X | -30.0 |
| | | | | | Subtotal | | -166.0 |
| SPP | 536 | WERE | 542 | KACY | Fredonia (KMEA/WRGS from Nearman);SPP-SWPP 883783 | X | -3.0 |
| SPP | 536 | WERE | 542 | KACY | Mulvane (KMEA/WRGS from Nearman);SPP-SWPP 883647 | X | -3.0 |
| SPP | 536 | WERE | 542 | KACY | Neodesha (KMEA/KPP from Nearman);SPP-SWPP385632 | X | -4.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 536 | WERE | 542 | KACY | Winfield (KMEA/KPP from Nearman);SPP-SWPP 409265 | X | -13.0 |
| | | | | | Subtotal | | -23.0 |
| SPP | 536 | WERE | 544 | EMDE | JEC Partcipation;SPP,SWPP,344550,162MW;SPP,WERE,75098,162MW;SPP,WR,381430,165MW | X | 0.0 |
| SPP | 536 | WERE | 544 | EMDE | State Line;SPP,SWPP,126958,200MW | X | -200.0 |
| | | | | | Subtotal | | -200.0 |
| | 536 | WERE | | | **NET SCHEDULE** | | **-403.0** |
| SPP | 539 | MKEC | 515 | SWPA | KEPCO AND KMEA WAPA POWER; SWPA-EMDE-WERE-WEPL; | X | 0.0 |
| SPP | 539 | MKEC | 534 | SUNC | HOLCOMB UNIT PARTICIPATION;SPP,WEPL,533671,38MW ?? | X | 0.0 |
| SPP | 539 | MKEC | 534 | SUNC | CITY OF SUBLETTE; | X | -215.0 |
| SPP | 539 | MKEC | 534 | SUNC | GARDEN CITY TURBINES; | X | 0.0 |
| SPP | 539 | MKEC | 534 | SUNC | KEPCO;SPP,WEPL,515539,34MW ?? | X | 0.0 |
| | | | | | Subtotal | | -215.0 |
| SPP | 539 | MKEC | 536 | WERE | OWNERSHIP SHARE OF JEFFREY ENERGY CENTER;SPP,WERE,75100,90MW;SPP,WERE,179934,14MW;SPP,WERE,577935,5MW ?? | X | 0.0 |
| SPP | 539 | MKEC | 536 | WERE | CITY OF LINDSBORG; | X | 2.0 |
| SPP | 539 | MKEC | 536 | WERE | WR(Wolf Ck)-WEPL(KEPCo);SPP,WERE,?,40MW | X | -5.0 |
| | 539 | MKEC | 536 | WERE | Meridian Way | X | 11.0 |
| | 539 | MKEC | 536 | WERE | Flat Ridge | X | 11.0 |
| | | | | | Subtotal | | 19.0 |
| SPP | 539 | MKEC | 540 | MIPU | SJLP(GCWE); | X | 0.0 |
| SPP | 539 | MKEC | 540 | MIPU | MIPU (GCWE); | X | 0.0 |
| | | | | | Subtotal | | 0.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 539 | MKEC | 541 | KACP | GPE WIND; | X | 38.0 |
| | 539 | MKEC | 544 | EMDE | Meridian Way | X | 31.0 |
| | 539 | MKEC | | | **NET SCHEDULE** | | **-127.0** |
| SPP | 540 | MIPU | 536 | WERE | OWNERSHIP SHARE OF JEFFREY ENERGY CENTER;SPP,WERE,75099,90MW | X | -166.0 |
| SPP | 540 | MIPU | 541 | KACP | KCPL LOAD AT DUNCAN ROAD; | X | 0.0 |
| SPP | 540 | MIPU-STJO | 541 | KACP | IATAN 1;SPP,KCPL,445606,200MW ?? | | -127.0 |
| SPP | 540 | MIPU | 541 | KACP | IATAN 2; | | -153.0 |
| SPP | 540 | MIPU | 541 | KACP | NW; | | -150.0 |
| | | | | | Subtotal | | -430.0 |
| SPP | 540 | MIPU-STJO | 640 | NPPD | ; | x | 0.0 |
| SPP | 540 | MIPU-STJO | 640 | NPPD | ; | x | 0.0 |
| SPP | 540 | MIPU | 542 | KACY | ;SPP,KACY,479115,5MW;SPP,KACY,485219,5MW;SPP,KACY,557498,5 | X | 0.0 |
| SPP | 540 | MIPU | 539 | WEPL | MIPU SUNC CAPACITY MAPPF; | X | 0.0 |
| SPP | 540 | MIPU | 539 | WEPL | OWNERSHIP SHARE OF GCWE; | X | 0.0 |
| | | | | | Subtotal | | 0.0 |
| SPP | 540 | MIPU | 351 | AMRN | ODESSA/HARRISONVILLE; | X | 0.0 |
| SPP | 540 | MIPU | 351 | AECI | ODESSA/HARRISONVILLE; | X | 0.0 |
| SPP | 540 | MIPU | 351 | AECI | EES-AECI-MIPU; | | 0.0 |
| SPP | 540 | MIPU | 351 | EES | ODESSA/HARRISONVILLE;EES1286978,1286979,1286981,1286982,1286983 | X | -75.0 |
| | 540 | MIPU | 351 | EES | ODESSA/HARRISONVILLE;EES1286978,1286979,1286981,1286982,1286983 | X | -75.0 |
| SPP | 540 | MIPU | 351 | EES | ODESSA/HARRISONVILLE;EES1286978,1286979,1286981,1286982,1286983 | X | -75.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 540 | MIPU | 351 | EES | ODESSA/HARRISONVILLE;EES1286978,1286979,1286981,1286982,1286983 | X | -75.0 |
| | 540 | MIPU | | | **NET SCHEDULE** | | **-896.0** |
| SPP | 541 | KACP | 330 | AECI | ;SPP,KCPL,70734,150MW | X | 0.0 |
| SPP | 541 | KACP | 333 | CWLD | ;KACP | X | 20.0 |
| SPP | 541 | KACP | 515 | SWPA | T/S;SPP,SWPP,345018,3MW | X | -5.0 |
| SPP | 541 | KACP | 523 | GRRD | KMEA;SPP,SWPP,163958,15MW | X | -15.0 |
| SPP | 541 | KACP | 531 | MIDW | ; | X | 0.0 |
| SPP | 541 | KACP | 536 | WERE | KPL load at Spring Hill; | X | 0.0 |
| SPP | 541 | KACP | 536 | WERE | KGE-Wolf Ck. Co-owner power. Unit refueling in April 2002.; | X | -566.0 |
| SPP | 541 | KACP | 536 | WERE | KGE-La Cygne Unit 1 Co-owner power.; | X | 372.0 |
| SPP | 541 | KACP | 536 | WERE | KGE-La Cygne Unit 2 Co-owner power.; | X | 330.0 |
| SPP | 541 | KACP | 536 | WERE | WERE load at Ridgeview; | X | 0.0 |
| SPP | 541 | KACP | 536 | WERE | IATAN 2 - 30MW TO KEPCO (was formerly KCPL's Augusta in WERE); | X | 30.0 |
| | | | | | Subtotal | | 166.0 |
| SPP | 541 | KACP | 539 | WEPL | GPEWIND; | X | -38.0 |
| | | | | | Subtotal | | -38.0 |
| SPP | 541 | KACP | 540 | MIPU | KCPL LOAD AT DUNCAN ROAD; | X | 0.0 |
| SPP | 541 | KACP | 540 | MIPU | IATAN 1;SPP,KCPL,445606,200MW ?? | X | 127.0 |
| SPP | 541 | KACP | 540 | MIPU | IATAN 2; | X | 153.0 |
| SPP | 541 | KACP | 540 | MIPU | NW; | X | 150.0 |
| | | | | | Subtotal | | 430.0 |
| SPP | 541 | KACP | 542 | KACY | Participation power sales to Kansans Municipal Energy Agency Nearman participation cities.;SPP,KCPL,70773,3MW;SPP,KCPL,70774,2MW;SPP,KCPL,70775,3 | X | -15.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | MW;SPP,KCPL,70776,10 MW | | |
| | | | | | Subtotal | | -15.0 |
| SPP | 541 | KACP | 544 | EMDE | IATAN 1;SPP,KCPL,1603,80MW ;SPP,EDE,526697,80MW | X | 85.0 |
| SPP | 541 | KACP | 544 | EMDE | IATAN 2; | X | 102.0 |
| | | | | | Subtotal | | 187.0 |
| SPP | 541 | KACP | 545 | INDN | CAPACITY;SPP,KCPL,1 10144,90MW | X | 0.0 |
| SPP | 541 | KACP | 545 | INDN | IATAN 2; | X | 50.0 |
| | | | | | Subtotal | | 50.0 |
| SPP | 541 | KACP | 546 | SPRM | CAPACITY;SPP,SWPP,2 60967,51MW | X | 0.0 |
| | | | | | Subtotal | | 0.0 |
| | 541 | KACP | | | **NET SCHEDULE** | | **780.0** |
| SPP | 542 | KACY | 333 | CWLD | Participation power sales to Columbia Missouri Nearman participation.;SPP,KCPL, 171,20MW | X | 20.0 |
| SPP | 542 | KACY | 515 | SWPA | Hydro to EDE to KCPL to KACY;SPP,KCPL,70817, 39MW | | -38.0 |
| SPP | 542 | KACY | 531 | MIDW | SH Wind to BPU; | X | -3.0 |
| SPP | 542 | KACY | 536 | WERE | Fredonia (KMEA/WRGS from Nearman);SPP-SWPP 883783 | X | 3.0 |
| SPP | 542 | KACY | 536 | WERE | Mulvane (KMEA/WRGS from Nearman);SPP-SWPP 883647 | X | 3.0 |
| SPP | 542 | KACY | 536 | WERE | Neodesha (KMEA/KPP from Nearman);SPP-SWPP385632 | X | 4.0 |
| SPP | 542 | KACY | 536 | WERE | Winfield (KMEA/KPP from Nearman);SPP-SWPP 409265 | X | 13.0 |
| SPP | 542 | KACY | 540 | MIPU | `;SPP,KACY,479115,5M W;SPP,KACY,485219,5M W;SPP,KACY,557498,5M W | X | 0.0 |
| SPP | 542 | KACY | 541 | KACP | Participation power sales to Kansans Municipal Energy Agency Nearman participation cities.;SPP,KCPL,70773, | X | 15.0 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | 3MW;SPP,KCPL,70774,2 MW;SPP,KCPL,70775,3 MW;SPP,KCPL,70776,10 MW | | |
| | 542 | KACY | | | **NET SCHEDULE** | | **17.0** |
| SPP | 544 | EMDE | 351 | EES | ;SPP,ENTR,????,100MW ,PLUM POINT,100MW | X | -100.0 |
| | | | | | Subtotal | | -100.0 |
| SPP | 544 | EMDE | 536 | WERE | ;SPP,SWPP,344550,162 MW;SPP,WERE,75098,1 62MW;SPP,WR,381430, 165MW | X | 0.0 |
| SPP | 544 | EMDE | 536 | WERE | ;SPP,SWPP,126958,200 MW | X | 200.0 |
| | | | | | Subtotal | | 200.0 |
| | 544 | EMDE | 539 | MKEC | Meridian Way | X | -31.0 |
| | | | | | Subtotal | | -31.0 |
| SPP | 544 | EMDE | 541 | KACP | IATAN 1 CAPACITY;SPP,KCPL,1 603,80MW;SPP,EDE,526 697,80MW | X | -85.0 |
| SPP | 544 | EMDE | 541 | KACP | IATAN 2 CAPACITY;SPP,KCPL,1 603,80MW;SPP,EDE,526 697,80MW | X | -102.0 |
| | | | | | Subtotal | | -187.0 |
| | 544 | EMDE | | | **NET SCHEDULE** | | **-118.0** |
| SPP | 545 | INDN | 541 | KACP | ;SPP,KCPL,872510,90M W | X | 0.0 |
| SPP | 545 | INDN | 541 | KACP | IATAN;SPP,KCPL,10337 91,50MW | X | -50.0 |
| SPP | 545 | INDN | 645 | OPPD | Nebraska City 2;SPP,OPPD,624705,55 MW | X | -50.0 |
| SPP | 545 | INDN | 645 | OPPD | Nebraska City 2;SPP,OPPD,624705,55 MW | X | -6.0 |
| SPP | 545 | INDN | 645 | OPPD | Nebraska City 2;SPP,OPPD,624705,55 MW | X | -1.0 |
| | 545 | INDN | | | **NET SCHEDULE** | | **-107.0** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 546 | SPRM | 515 | SWPA | PEAKING;SPP,SPA,118316,55MW;SPP,SPA,118364,125MW | X | -50.0 |
| SPP | 546 | SPRM | 515 | SWPA | NIXA;SPP,SPA,118363,70MW ?? | X | 78.0 |
| | | | | | Subtotal | | 28.0 |
| SPP | 546 | SPRM | 523 | GRRD | ; | X | 0.0 |
| SPP | 546 | SPRM | 541 | KACP | ;SPP,SWPP,260967,51MW | X | 0.0 |
| | | | | | Subtotal | | 0.0 |
| | 546 | SPRM | | | **NET SCHEDULE** | | **28.0** |
| SPP | 640 | MEAN | 534 | SUNC | MEAN WAPA-RMR Contract to Western Kansas, DELIVERY | X | 37.00 |
| SPP | 640 | NPPD | 540 | MIPU-STJO | NPPD SJPL GGS Participation | X | 0.00 |
| SPP | 640 | NPPD | 540 | MIPU-STJO | NPPD MPS Cooper Participation | X | 0.00 |
| SPP | 640 | NPPD | 635 | MEC | NPPD MEC Cooper Participation | X | 150.00 |
| SPP | 640 | NPPD | 645 | OPPD | NPPD load in OPPD BA | X | 10.00 |
| SPP | 640 | NPPD | 645 | OPPD | OPPD load in NPPD BA | X | -2.00 |
| SPP | 640 | GRIS | 645 | OPPD | GRIS NC2 Participation | X | -34.00 |
| SPP | 640 | NPPD | 645 | OPPD | NPPD NC2 Participation | X | -162.00 |
| SPP | 640 | MEAN | 645 | OPPD | NCU WEC2 Participation | X | 10.00 |
| SPP | 640 | NPPD | 645 | OPPD | OPPD Ainsworth Wind Participation | X | 2.00 |
| SPP | 640 | NPPD | 645 | OPPD | OPPD Elkhorn Ridge Participation | X | 5.00 |
| SPP | 640 | NPPD | 650 | LES | LES GGS Participation | X | 102.00 |
| SPP | 640 | NPPD | 650 | LES | LES Sheldon Station Participation | X | 68.00 |
| SPP | 640 | NPPD | 650 | LES | LES WAPA Firm | X | 56.00 |
| SPP | 640 | NPPD | 650 | LES | LES WAPA Firm Peaking | X | 54.00 |
| SPP | 640 | NPPD | 650 | LES | LES LRS Participation Re-Sale to MEAN | X | -10.00 |
| SPP | 640 | NPPD | 650 | LES | LES Elkhorn Ridge Wind Participation | X | 1.00 |
| SPP | 640 | NPPD | 652 | WAPA | WAPA LAP | X | -4.00 |
| SPP | 640 | NPPD | 652 | WAPA | WAPA Firm / Peaking | X | -436.00 |
| SPP | 640 | NPPD | 652 | WAPA | WAPA Loup | X | -15.00 |
| SPP | 640 | NPPD | 652 | WAPA | HCPD Cooper Participation | X | 0.00 |
| SPP | 640 | GRIS | 652 | WAPA | GRIS WAPA Delivery | X | -9.00 |
| SPP | 640 | NPPD | 652 | WAPA | NPPD Loads in WAPA BA (Reduction of WAPA Firm) | X | 4.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 640 | NPPD | 652 | WAPA | WAPA Loads in NPPD BA | X | -89.00 |
| SPP | 640 | NPPD | 652 | BEPC | BEPC Load (TSGT & Rushmore) in NPPD BA | X | -353.00 |
| SPP | 640 | MEAN | 652 | BEPC | MEAN Re-Sale of Cooper Participation to TSGT | X | 0.00 |
| SPP | 640 | MEAN | 652 | HCPD | HCPD WEC2 Participation | X | 61.00 |
| SPP | 640 | NPPD | 652 | WAPA | WAPA Sidney DC Tie Schedule | X | 20.00 |
| SPP | 640 | NPPD | 652 | WAPA | LES WAPA Firm Delivery | X | -56.00 |
| SPP | 640 | NPPD | 652 | WAPA | LES WAPA Firm Peaking Delivery | X | -54.00 |
| | 640 | NPPD | | | **NET SCHEDULE** | | **-644.00** |
| SPP | 645 | OPPD | 330 | AECI | MJMEUC NC2 Participation | X | 50.00 |
| SPP | 645 | OPPD | 330 | AECI | MJMEUC NC2 Participation | X | 7.00 |
| SPP | 645 | OPPD | 545 | INDN | INDN NC2 Participation | X | 50.00 |
| SPP | 645 | OPPD | 545 | INDN | INDN NC2 Participation | X | 6.00 |
| SPP | 645 | OPPD | 545 | INDN | INDN NC2 Participation | X | 1.00 |
| SPP | 645 | OPPD | 652 | WAPA | WAPA load in OPPD BA | X | -22.00 |
| SPP | 645 | OPPD | 652 | WAPA | | X | -82.00 |
| SPP | 645 | OPPD | 652 | WAPA | Product K Agreement | X | 0.00 |
| SPP | 645 | OPPD | 600 | XEL-NSP | CMMPA NC2 Participation | X | 15.00 |
| SPP | 645 | OPPD | 640 | NPPD | NPPD load in OPPD BA | X | -10.00 |
| SPP | 645 | OPPD | 640 | NPPD | OPPD load in NPPD BA | X | 2.00 |
| SPP | 645 | OPPD | 640 | NPPD | GRIS NC2 Participation | X | 34.00 |
| SPP | 645 | OPPD | 640 | NPPD | NPPD NC2 Participation | X | 162.00 |
| SPP | 645 | OPPD | 640 | NPPD | NCU WEC2 Participation | X | -10.00 |
| SPP | 645 | OPPD | 640 | NPPD | OPPD Ainsworth Wind Participation | X | -2.00 |
| SPP | 645 | OPPD | 640 | NPPD | OPPD Elkhorn Ridge Participation | X | -5.00 |
| | 645 | OPPD | | | **NET SCHEDULE** | | **196.00** |
| SPP | 650 | LES | 635 | MEC | WS3 to LES (shared generation) | X | -50.00 |
| SPP | 650 | LES | 635 | MEC | WS3 to LES (shared generation) | X | -50.00 |
| SPP | 650 | LES | 640 | NPPD | Gentelman Station Participation | X | -102.00 |
| SPP | 650 | LES | 640 | NPPD | Sheldon Station Participation | X | -68.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SPP | 650 | LES | 640 | NPPD | WAPA Firm | X | -56.00 |
| SPP | 650 | LES | 640 | NPPD | WAPA Firm Peaking | X | -54.00 |
| SPP | 650 | LES | 640 | NPPD | LRS Re-Sale to MEAN | X | 10.00 |
| SPP | 650 | LES | 640 | NPPD | Elkhorn Ridge Wind Participation | X | -1.00 |
| SPP | 650 | LES | 652 | WAPA | Laramie River Station (shared generation) | X | -182.00 |
| | 650 | LES | | | **NET SCHEDULE** | | **-553.00** |
| SPP | 998 | ERCOT | 520 | AEPW | SPP,CSWS,343411,80MW;SPP,CSWS,513653,108MW;SPP,CSWS,513659,32MW (EAST) | X | -50.0 |
| SPP | 998 | ERCOT | 520 | AEPW | SPP,CSWS,343411,80MW;SPP,CSWS,513653,108MW;SPP,CSWS,513659,32MW (EAST) | X | 0.0 |
| SPP | 998 | ERCOT | 520 | AEPW | SPP,CSWS,343411,80MW;SPP,CSWS,513653,108MW;SPP,CSWS,513659,32MW (NORTH) | X | 220.0 |
| | 998 | ERCOT | | | **NET SCHEDULE** | | **170.0** |
| SPP | 999 | WECC | 526 | SPS | EPE-EDDY COUNTY;SPS,SWPP,750447,50MW;;SPS,SWPP,750448,17MW;;SPS,SWPP,750453,30MW;;SPS,SWPP,750458,50MW;;SPS,SWPP,750459,18MW | X | 0.0 |
| SPP | 999 | WECC | 526 | SPS | PNM-BLACKWATER;SPS,SWPP,320900,50MW | X | 0.0 |
| SPP | 999 | WECC | 526 | SPS | SPS,LAMAR,1256070,210MW | X | 0.0 |
| | 999 | WECC | 526 | SPS | SPS,LAMAR,1256074,210MW | X | 105.0 |
| SPP | 999 | WECC | 526 | SPS | LOAD;SPS,LAMAR,????,2MW | X | -2.0 |
| | 999 | WECC | | | **NET SCHEDULE** | | **103.0** |

Eastern Interconnection Planning Collaborative

**Tennessee Valley Authority**

TVA BALANCING AUTHORITY AREA INTERCHANGE
Area (s) in the case that make up the TVA BA: 347
EIPC 2020 Summer Future Year Study

TVA Balancing Authority Area Scheduled Imports/Contract Purchases:

| | | |
|---|---|---|
| SOCO | SOCO Load | -139 MW |
| **Total :** | | **-139 MW** |

TVA Balancing Authority Area Scheduled Exports/Contract Sales:

| | | |
|---|---|---|
| CPLW | SEPA | 1 MW |
| SOCO | TVA Load | 187 MW |
| LGEE | SEPA | 62 MW |
| LGEE | TVA Load | 110 MW |
| BREC | SEPA | 190 MW |
| EKPC | SEPA | 100 MW |
| SIPC | SEPA | 28 MW |
| SMEPA | SEPA | 51 MW |
| EES | TVA Load | 30 MW |
| EES | SEPA to MEAM | 19 MW |
| EES | SEPA to MDEA | 11 MW |
| **Total :** | | **789 MW** |

**Total Net Interchange** **650 MW**

Notes:
1. Positive interchange indicates an export
2. Negative interchange indicates an import