A. TOs will provide PJM with any information related to concerns, operating procedures, or special conditions for each of the TO's systems that PJM should consider related to the analysis to be performed for the RTEP.

B. TOs will discuss the accuracy of PJM's load flow representation for each of the TO's systems including the impact of using the present representation for each of the TO's underlying systems.

C. TOs will identify system needs which are currently not identified by published transmission plans but could be included for consideration during the RTEP analysis.

D. TOs will provide the names, addresses, telephone numbers, FAX number, and email address for personnel identified to interact with PJM on matters dealing with the RTEP process.

E. TOs will provide a confidentiality statement regarding all information released to the TO by PJM during the course of the RTEP process.

F. TOs will provide information on new loads or changing loads that will impact the transmission plan.

I. PJM will include available information from neighboring TOs / Regional Transmission Operators, gained in the course of interregional planning activities, related to plans in other regions which may impact the PJM RTEP.

II. RTEP Analysis General Assumptions:

A. PJM System Models will be drawn from the PJM and applicable regional reliability council (Reliability*First* and SERC) central planning database which includes transmission plans consistent with the most recent FERC 715 Report and most recent Regional EIA-411 Reports.

B. LSE capacity models are to be based on the most recent Regional EIA-411 Reports.

C. GIC capacity plans will be modeled as described in Procedures III and IV.

D. When the PJM load in the RTEP model exceeds the sum of the available in-service generation plus generation with an executed ISA, PJM will model new generation to accommodate additional load growth by including queued generation that has received an Impact Study.

E. PJM Load Forecasts are to be based on the most recent LAS Report.

F. Power Flow models for world load, capacity, and topology will be based on the most recent Eastern Reliability Assessment Group (ERAG) power flow base cases.

G. Generation outage rates will be based on the most recent generator unavailability data available to PJM. Estimates, based on historical outage rates for similar in-service units, will be used for all generating units in the neighboring regions and for all future PJM units.

H. Firm sales to, and firm purchases from, regions external to PJM will be modeled consistent with the provisions for the ~~ERAG base~~ interchange schedule as outlined in section H.1.2 of Attachment H to this manual.

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In addition to single contingencies, PJM planning criteria requires that the PJM system withstand certain common mode outages. These outages include line faults coupled with a stuck breaker, double circuit towerline outages, faulted circuit breakers and bus faults. PJM uses a procedure very similar to the generator deliverability procedure to study common mode outages. The list below highlights the other details of the common mode outage procedure that differ from the generator deliverability procedure.

In addition to the modeling of capacity resource requests, all existing energy resources and energy resource requests queued ahead of the unit under study are set at 0 MW but available to be turned on. The energy resource request under study is also set at 0 MW but available to be turned on. Energy resource requests queued after the unit under study are not modeled.

A 50/50 DC loading is used instead of an 80/20 DC loading, i.e., the expected availability of the selected units is close to but not less than 50%.

The offline resources can contribute as a Facility Loading Adder. However, only non-intermittent energy resources that exist or have an ISA can contribute as a Facility Loading Adder in such a manner that they back off the loading on the flowgate under study.

For all voltage levels, a 10% distribution factor is used instead of a 5% distribution factor to select the 50/50 generators.

Addendum 3: Transmission Service Study Procedures

For the evaluation of Transmission Service impacts during generation deliverability testing and common mode outage testing, different thresholds have been developed to allow contribution to impacted facilities due to the relative proximity of the source of the service in relation to the PJM footprint. During testing of transmission service seeking to import energy into PJM, in order to determine the contribution from the transmission service, PJM shall use a 3% distribution factor or 3% rating cutoff to select the service which shall be allowed to contribute to flowgates under study. During testing of transmission service seeking to export energy from PJM, in order to determine the contribution from the transmission service, PJM shall use a 3% distribution factor or 3% rating cutoff to select the service which shall be allowed to contribute to flowgates under study when that flowgate impacts a facility outside of PJM's footprint and shall maintain all thresholds for impacts to PJM facilities consistent with the requirements listed outside this addendum 3.

Impacts of the flow from transmission service reservations shall be compared to constraints identified in the capacity import limit procedure (Section G.11 PJM Capacity Import Limit Calculation Procedure). The total impacts of any transmission service, which impacts a constraint identified in the CIL study at greater than the thresholds identified above, shall have the full impact of the service added to the loading of the applicable facility in determining the final facility loading.

C.8 Long-Term Deliverability Analysis

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G.11 PJM Capacity Import Limit Calculation Procedure

Introduction

a. The purpose of PJM Capacity Import Limit Calculation Procedure is to establish the amount of power that can be reliably transferred to PJM from defined regions external to PJM.

b. The PJM Capacity Import Limit reflects the maximum amount of external capacity that can be granted long term firm transmission service into PJM and cleared in the PJM capacity market auctions.

2. General Procedures and Assumptions

a. The system power flow model will be based on the latest summer peak RPM base case.

b. The base case will reflect the amount of confirmed Network External Designated Transmission Service, OATT FERC filed grandfathered transmission agreements and requested exemptions to the Capacity Import Limit.

c. The PJM dispatch will reflect a PJM generation deficiency situation independent of the defined regions external to PJM. Thus, non-PJM regions are operating normally and are assumed to be able to supply PJM with power up to the lower of the Capacity Import Limit or the limit of their available reserves. Load in PJM and all external regions will be modeled at a 50/50 load level and load in PJM will further be reduced by the forecasted energy efficiency. The amount of reserves considered available from any adjacent non-PJM area may be adjusted to reflect historical data.

d. For thermal analyses, all Eastern Interconnection BES facilities (100 kV and above) will be monitored. All PJM internal BES single contingency events and selected non-PJM BES contingency events will be considered.

e. For voltage analyses, all PJM BES facility voltage magnitude and drop limits will be monitored and selected non-PJM BES facility voltage limits will be observed. In addition, any part of the Eastern Interconnection that would experience voltage collapse will be evaluated. The voltage analyses are subject to all PJM internal BES single contingency events and selected non-PJM BES contingency events.

f. The following operating procedures will be employed as necessary.

i. Adjustments of Phase Angle Regulators (PARS which PJM or PJM member companies control (within existing agreements for emergency operation)

ii. The activation of any approved PJM or PJM member company operating procedure (procedure descriptions are available in Manual 3.)

g. Redispatch and implementation of load management schemes will not be considered as part of this study.

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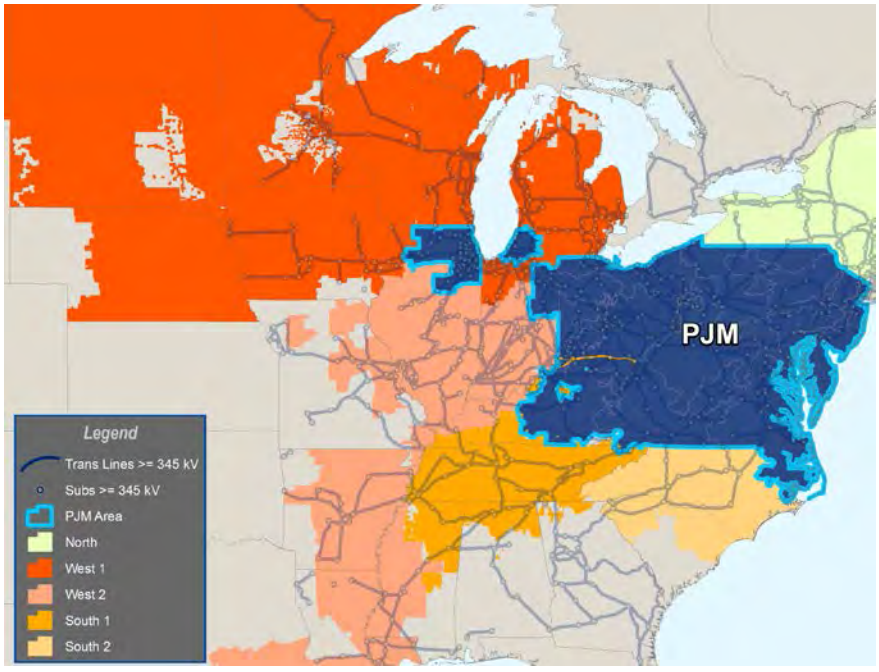
3. Methodology

   a. The external supply will come from those regions within the Eastern Interconnection that are considered as part of the PJM Reserve Requirement Study. These external supply regions will be divided into five zones for the purpose of determining both a simultaneous import limit and five directional non-simultaneous import limits. During the simulation of the simultaneous limit, the amount of power from each source zone will be optimized. The five zones are

      i. Northern Zone: NYISO & ISO NE
      ii. Western Tier 1 Zone: MISO East, MISO West & OVEC
      iii. Western Tier 2 Zone: MISO Central & MISO South
      iv. Southern Tier 1 Zone: TVA & LGEE
      v. Southern Tier 2 Zone: VACAR (non-PJM)

These zones may be periodically modified based on changing system patterns or historical operational data.



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b. PJM will scale the load uniformly down at a constant power factor in the external supply zone(s) and scale PJM generation (MW) down uniformly to simulate the power imported from external resources.

c. In order to exclude transmission facilities from the monitored list which are not significantly affected by the increase in import power from the external resources, PJM will employ an outage transfer distribution factor cutoff of 3% based on the external zone(s) supplying the resources.

d. The aggregate power transfer into PJM, at the point where any increase in this MW transfer would result in a reliability criteria violation, less the applicable PJM Capacity Benefit Margin (CBM) will be defined as the simultaneous PJM Capacity Import Limit.

e. Similar approach will be employed to determine the maximum power transfer from any one of the five defined zones into PJM. For determining the non-simultaneous limits, a portion of the CBM will be allocated to each of the five directional transfer paths in proportion to the ratio of their transfer amount divided by the simultaneous Capacity Import Limit plus the PJM CBM.

4. Transmission Service Study Procedures

a. RTEP baseline and interconnection studies will be performed to ensure that the PJM Capacity Import Limit test is sufficient to import all external capacity committed to PJM and CBM.

b. Each year loadings on critical flowgates that occur when PJM is importing all external capacity commitments and CBM will be developed from the summer peak RPM base case.

c. As part of the baseline study, upgrades will be developed for overloaded facilities within the PJM footprint. Transmission Owners outside PJM will be notified of any overloaded facilities in their area.

d. As part of the transmission service studies, an evaluation of the incremental loading on the top limiting flowgates from the baseline study will be performed.

i. New overloads created by transmission service requests will require upgrades in order to grant service.

ii. Existing overloads outside the PJM footprint identified as part of the baseline study will also require upgrades before additional transmission service that impacts the overload facilities can be granted.

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Attachment H: Power System Modeling Data

Interim Updates and Communication of Significant Modeling Updates

In the event that PJM makes a major update to the RTEP analysis models outside of the annual model update window, PJM will notify PJM Transmission Owners of the modeling update through the Transmission Expansion Advisory Committee (TEAC) meetings. Also,

PJM will notify neighboring entities that PJM determines may be impacted. In addition to the notification, PJM will make the updated affected models available upon request.

Generation Owner Requirements:

- Specific information regarding generator capability per MOD 10 and MOD 12

H.1.2 Load Flow Modeling Requirements

In addition to the guidelines set forth by NERC and the ERAG MMWG procedural manual, PJM uses several specific procedures in establishing the base case so that it represents the best starting point for the annual RTEP analysis.

Generator step-up transformers

Generator models should represent the physical plant lay-out to the extent possible, explicitly modeling generator step-up transformers (GSUs) and Station Service loads (aka Auxiliary loads). This applies to units above 20 MW and connected to the BES system, consistent with BES requirements. Plants consisting of multiple units aggregating to 75 MW or more also require explicit representation of GSUs and station service loads.

Modeling of Outages

Known outages of Generation or Transmission Facilities with a duration of at least six months will be included under those system peak or off-peak conditions in the appropriate base case model. PJM may not model these outages in every case that is used for RTEP analysis, but will select appropriate scenarios to asses these changes. Additionally PJM will analyze a subset of maintenance outages submitted through eDart under those system peak or off-peak conditions.

Interchange

The PJM net interchange in the summer peak case is determined by the firm interchanges that are represented in the PJM OASIS system. That interchange, in the summer peak case, shall be represented as 100% of the confirmed firm import and export reservations with the import and export reservations, which back off overloads, ramped down to a percentage consistent with the peak historical usage, to reduce the counterflow for confirmed service, for generation deliverability and common mode outage testing purposes. That ramping down of the export reservations shall not be allowed to decrease below the quantity of MWs which is associated with firm internal or external load commitments. Reservations associated with individual generation units, or group of units at a facility, shall be used in representing the interchange. PJM shall also include import transfers to represent the capacity benefit margin (CBM) in the interchange, the distribution of the CBM shall be determined during initial base case testing, to preserve the total capability of the CBM along PJM's border. The interchange in light load cases follows the light load criteria as defined in the Light Load Reliability Analysis in section 2.3.10 of this manual.

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