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 is calculated annually and is used to confirm that import capability into the PJM system is sufficient to support the PJM Capacity Benefit Margin (CBM) as well as confirmed Long Term Firm Transmission Service.

c. Thermal and voltage limitations identified during the course of the study will be considered in analysis of New Transmission Service Requests.

2. General Procedures and Assumptions

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

b. The base case will contain all confirmed Long Term Firm Transmission Service for the study period as identified on the PJM OASIS.

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.

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.
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.