PAAC – PowerGEM AFC / ATC Calculator

PAAC is software for calculating NERC MOD 30-compliant Available Flowgate Capability (AFC) and path Available Transfer Capability (ATC) values. It is a key part of the electricity transaction management system that coordinates existing schedules and future reservations within the bounds of the grid capability and established business rules. These rules handle uncertainties, TRM and CBM margins, historical allotments and other inter-regional coordination agreements. Calculated values are ready for OASIS posting for all standard time horizons and products.

PAAC Viewer is the user-friendly interface to study and document PAAC calculations

PowerGEM TARA Automated Model Builder (AMB) or alternative processes can be used for seamless input of dynamically varying data

Calculations use anticipated flowgate flow and transfer distribution factor information derived from continually updated power flow representations. PAAC computes commercially significant AFC/ATC values for OASIS posting by applying various business rules to network models with past and present reservations applied, guided by the Congestion Management Process (CMP) seams coordination protocols adopted by several RTO/ISO's. A variety of dynamically varied, time dependent data specifying changes to network models, such as varying load, generation, and transmission outages information, as well as OASIS reservations are provided to PAAC via a seamless link with PowerGEM's TARA AMB software or alternative data flow processes. Other required data include more static inputs, such as OASIS postable path parameters and rating information, reservation positive impact and counter-flow rules, Points of Receipt and Delivery (POR/POD), initial contract path limits, and path sourcing/sinking assumptions. PAAC output includes current OASIS reservation information, calculated AFCs for flowgates in adjacent areas, and other CMP information. Data retrieval, checking, and calculations are normally an automated process, performed hourly.

PAAC computes native network load (NNL) allocations based on NNL historical impacts, enforces the available share of flowgate capability (ASTFC) limitations, and provides support for calculations and sharing of unused ASTFC, as specified by CMP. PAAC is also used for evaluating newly submitted Transmission Service Requests (TSR's). ATC calculations for a newly received TSR are performed "on the fly". Once a new reservation is approved, PAAC will update existing transaction files and AFC values so that the subsequent TSR will be evaluated with respect to an updated set of models.

PAAC can be used for NNL allocations and TSR evaluations

The PAAC Viewer is a user-friendly Excel-based interface that is used to study and document PAAC calculations in a more interactive manner. The PAAC Viewer aids the ATC engineer in 'breaking down' the components of the flowgate ATC calculations and running various 'what if' scenarios. Every aspect of the analytical process can be examined to aid in reviewing, validating and documenting process results, assumptions, and parameters. The user can also produce charts depicting AFC and/or ATC changes over time.

In summary, the key aspects of PAAC are:

- ✓ Computationally intensive engine that calculates ATC/AFC values ready for OASIS posting
- ✓ Ability to calculate NNL allocations
- ✓ Dynamically updates models to accommodate newly approved reservations
- ✓ Seamless data input interface to PowerGEM automated model builder (AMB) or other processes
- ✓ User friendly interface to document, validate, and review every step of the analytical process

PowerGEM / PAAC Software