PJM Algorithms for AFC and ATC Calculations

Firm AFC Calculation

When calculating Firm AFC for a Flowgate for a specified period, PJM uses the following algorithm:

$$AFC_F = TFC - ETCF_i - CBM_i - TRM_i + Postbacks_{Fi} + Counterflows_{Fi}$$

> Where,
> AFC_F is the firm Available Flowgate Capability for the Flowgate for that period.
>
> TFC is the Total Flowgate Capability of the Flowgate equivalent to Total Transfer Capability (TTC).
>
> ETC_{Fi} is the sum of the impacts of existing firm transmission commitments for the flowgate during that period.
>
> CBM_i is the impact of the Capacity Benefit Margin on the flowgate during that period.
>
> TRM_i is the impact of the Transmission Reliability Margin on the flowgate during that period.
>
> $Postbacks_{Fi}$ are changes to firm AFC due to a change in the use of firm transmission service for that period.
>
> $Counterflows_{Fi}$ are adjustments to firm AFC as determined by the transmission service provider and specified in their ATCID.

Non-Firm AFC Calculation

When calculating non-firm AFC for a Flowgate for a specified period, PJM uses the following algorithm:

> $$AFC_{NF} = TFC - ETC_{Fi} - ETC_{NFi} - CBM_{Si} - TRM_{Ui} + Postbacks_{NFi} + Counterflows$$
>
> Where:
> ATC_{NF} is the non-firm Available Flowgate Capability for the ATC Path for that period.

TFC is the Total Flowgate Capability of the flowgate.

ETC_{Fi} is the sum of the impacts of existing firm transmission commitments for the flowgate during that period.

$ETCN_{Fi}$ is the sum of the impacts of existing non-firm Transmission commitments for the flowgate during that period.

CBM_{Si} is the impact of any schedules during that period using Capacity Benefit Margin.

TRM_{Ui} is the impact on the Flowgate of the Transmission Reliability Margin that has not been released (unreleased) for sale as non-firm capacity by the Transmission Service Provider during that period.

$Postbacks_{NF}$ are changes to non-firm Available Flowgate Capability due to a change in the use of Non-Firm Transmission Service for that period.

$Counterflows_{NF}$ are adjustments to non-firm AFC as determined by the Transmission Service Provider.

AFC to ATC Conversion

When converting Flowgate AFCs to ATCs (and TFCs to TTCs) for ATC Paths, PJM uses the following algorithm:

$$TC = \min(P)$$
$$P = \{PTC1, PTC2,\ldots PTCn\}$$
$$PTC_n = \frac{FC_n}{DF_{np}}$$

Where,

TC is the Transfer Capability (either 'Available' or 'Total').

P is the set of partial Transfer Capabilities (either available or total) for all "impacted" flowgates honored by the Transmission Service Provider; a flowgate is considered "impacted" by a path if the Distribution Factor for that path is greater than 3% on an OTDF Flowgate or PTDF Flowgate.

PJM Algorithms for AFC and ATC Calculations

PTC_n is the partial Transfer Capability (either 'Available' or 'Total') for a path relative to a flowgate n.

FC_n is the Flowgate Capability ('Available' or 'Total') of a flowgate n.

DF_{np} is the distribution factor for Flowgate n relative to path p.