Technical Bulletin

2010-05-01

OASIS ATC Postings

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I.   Background:

The California ISO posts an Available Transmission Capacity (ATC) value for each transmission interface on its OASIS in the Transmission reports section. This data is posted in accordance with the CAISO Tariff, Appendix L.

Following the implementation of the new markets, the ISO has reviewed the ATC postings and identified possible improvements to the calculation process and results. The ISO implemented these improvements on a going-forward basis and completed the process of recalculating the historic ATC values and reposting them on the OASIS site. This technical bulletin provides details about the repostings.

This technical bulletin also provides details regarding current factors impacting the ATC calculations. The ATC calculation is complex in nature, as the inputs include data from both the physical capacity perspective and from the market available perspective. In order to calculate the ATC values, the Transmission reports receive data from four different systems which post at different times.

Implementation of the market scheduling limit (MSL) concept in the market full network model adds to the complexity of the calculation. Another factor is that many Existing Transmission Contracts (ETC) and Transmission Ownership Rights (TOR) contracts are scheduled into Scheduling Infrastructure Business Rules (SIBR) as a chain. These chains link several ETC/TOR transmission rights together, and can be associated with multiple MSLs.

OASIS Impacted Reports:
-Current Transmission Usage
-Transmission Interface Usage (DAM and HASP)
-Market Available Transmission Capacity (DAM and HASP)

II.   Reposting of ATC data

A number of patches have been applied to the OASIS site which impacted historical postings. As a result, all ATC data has been recalculated and reposted to the OASIS site. The details on the reposting of OASIS data are detailed in the following Market Notices:
  * March 30, 2010: http://www.caiso.com/2769/27697701b3f0.html
  * April 15, 2010: http://www.caiso.com/2779/2779850458d30.html
  * April 30, 2010: http://www.caiso.com/2788/2788aa0e4fa40.html

III.   Assumptions regarding OASIS ATC and Shadow Price postings

From discussions with stakeholders, the ISO understands that some OASIS users may be assuming the following:

A. If ATC on OASIS = zero, then user expects a shadow price to be calculated for that same market and associated Intertie Constraint (ITC) or transmission interface.
B. If ATC on OASIS is greater than zero, then the user expects no shadow price to be calculated for that same market and associated ITC or transmission interface.

Section IV below discusses scenarios where these assumptions are not valid.

Users should refer to the Shadow Price Corrections Reports at http://www.caiso.com/246b/246b942228790.html, to validate the posted OASIS Shadow Prices.

The ISO is not aware of issues regarding the accuracy of the posting of Shadow Prices to OASIS, or to the Shadow Price Corrections Reports.

IV.   Circumstances in which an ATC posting could vary from the assumptions identified Section III.

1.) If there is a failure of an hour-ahead scheduling process (HASP) run, the "Scheduled Net Energy from Imports/Exports" value will not reflect the practice for Market Disruption under such circumstances to fall back to the day-ahead results.

   In such case the OASIS users should reference the DAM result posting for proper "Scheduled Net Energy from Imports/Exports" values.

2.) The HASP posting for ATC and Shadow Prices are hourly average values of the HASP run for the four relevant 15-minute intervals within the HASP binding hour. There could be binding constraints for some HASP intervals and not others.

   In this case, the ATC could be non-zero and a Shadow Price could be posted for the corresponding HASP hour. This observation is more likely on interfaces that have dynamic transfers.

3.) Under certain operating conditions, ISO operators may adjust transmission limits, in order to correctly align transmission limits with the observed physical flows. This could influence the amount of energy that is allowed to be scheduled on a transmission interface. The adjusted (sometimes termed "conformed") value will not be reflected in the OASIS posting. This information is available after the fact in the Market Performance reports.

4.) PATH15_BG and PATH26_BG post hourly OTC values are based upon anticipated Remedial Action Scheme (RAS) and forecasted system conditions. Each hourly entry is covered by a global outage note for forecasted values that are affected by RAS.

5.) When compensating injections are active in HASP, the "Scheduled Net Energy from Imports/Exports" value for transmission interfaces (excluding ITC's and MSL's) will reflect the effect of compensating injections.

V.   Enhancements to Improve Limitations in OASIS functionality.

1.) If ETC/TOR schedules are cut in the DAM or HASP, the "Unused TR Capacity" value will not reflect those cuts. That value is an input into calculating the ATC value.

ISO action: Enhancement is in the design stage and will include real-time feed from the market systems.

2.) Some ETC/TOR contracts are associated with multiple MSL's, and are not properly reflected in the calculation of the "Unused TR Capacity" value. That value is in input into calculating the ATC value.

ISO action: Enhancement is in the design stage and will reflect the impacted MSL.

3.) The "AS from Imports" value includes regulation down schedules, which impact the ATC value in the import direction in OASIS but in fact only affects the ATC in the export direction.

ISO action: Enhancement is in the design stage and will exclude the regulation down schedules in the import direction but rather are properly reflected in ATC in the export direction.

4.) OASIS does not release ETC/TOR capacity as "New Firm Use" in the HASP and as a result of the ETC/TOR scheduling capability does not extend beyond HASP timeline, which impacts the ATC value.

ISO action: Enhancement is in the design stage to better calculate HASP transmission reservation values.

5.) Treatment of Dynamic Transfers. There are resource-specific system resources that have the capability to be scheduled on multiple ITC's. Currently there is no mechanism for OASIS to detect when a resource-specific system resource is scheduled on its alternate path, as opposed to the default/primary path. This

condition impacts the "Scheduled Net Energy from Imports/Exports" value and ATC calculation.

ISO action: Enhancement is in the development stage to resolve this issue.

6.) The market optimization process is a result of an iterative process that calculates an AC power flow that passes linearized values such as shift-factor to be used in the dispatch optimization. For BG's and MSL's that are not associated with an ITC, OASIS currently utilizes a final calculated flow from the AC power flow iteration and not the linearized calculated flow from the market optimization iteration. As a result, the final market cleared flow for posting the "Scheduled Net Energy from Imports/Exports" value may differ some from the final market optimization result

ISO action: Enhancement is in the development stage that will result in OASIS utilizing the final optimized cleared value.

VI.   Next Steps

ISO is addressing issues discussed in the technical bulletin as follows:

- For all items listed in Section V an enhancement is in progress. The ISO will modify the OASIS Functionality List (http://www.caiso.com/235f/235fcbd556310.html) as updates to those efforts are available.
- When enhancements are deployed to the OASIS site, Market Notices will be issued to advise market participants of the change 10 days in advance of deploying the change.