Short-Term Available Transfer Capability (ST ATC) Project Update

April 12, 2023

Pre-decisional. For Discussion Purposes Only.

Agenda

1. In-flight ST ATC Improvements
2. Proposed ST ATC Improvements
3. Wrap up
4. Appendix – ATC Formulas (NERC Time Horizon)

In-flight
ST ATC Improvements
(previously discussed in earlier meetings)

In-flight ST ATC Improvement #1

Description: Account for the shared ownership of the Cross Cascades North path in the base Existing Transmission Commitment (ETC) studies for this path

1. The Cross Cascades North path definition includes both BPA-owned lines and a Puget Sound Energy-owned line
2. BPA is party to a shared allocation agreement covering Total Transfer Capability (TTC) across this path and allocates TTC in accordance with this agreement
3. Beginning with November 2022, BPA started to account for the shared ownership of this path within the base ETC studies as well
    a. BPA is accomplishing this by only modeling the BPA-owned lines in the Cross Cascades North path definition used in the base ETC studies

In-flight ST ATC Improvement #1 (cont.)

4. BPA is phasing in this change as the monthly base ETC studies are updated
    a. The November through February monthly base ETC studies were updated with this change and implemented to OASIS on October 19th, 2022
    b. The March through May monthly base ETC studies were updated with this change and implemented to OASIS on February 15th, 2023
    c. The June through October monthly base ETC studies will be updated with this change and implemented to OASIS on May 17th, 2023, at which point this change will be fully completed

In-flight ST ATC Improvement #2

Description: Update generation data for the Headwater federal hydro projects in the heavy load base ETC cases

1. BPA is updating the Headwater project generation data in BPA's heavy load base ETC cases
   a. The Headwater projects are Libby, Hungry Horse, Dworshak, and Albeni Falls
2. BPA will be using the 90th percentile rate case generation values for these projects, as this data already exists and this methodology allows for a repeatable process to update these values
3. BPA is phasing in the change with monthly base ETC study updates
   a. BPA will begin implementing this change with the June through October monthly base ETC studies, which will be released to OASIS on May 17th, 2023
   b. It will take BPA to mid-February 2024 to fully incorporate this change into all the monthly base ETC studies

In-flight ST ATC Improvement #3

Description: Add the North of Grizzly (GRZN) ATC path to manage the transmission system in the Central Oregon area

1. In order to manage load growth and congestion in Central Oregon, BPA is adding an ATC path and congestion management tools in this area
2. This path, called North of Grizzly (GRZN), will allow BPA to conduct curtailments in central Oregon with more precision, and will provide a benefit to the system as load growth and new generation resources are brought on-line in the region

In-flight ST ATC Improvement #3 (cont.)

3. North of Grizzly path details:
   a. Path includes the lines of Buckley-Grizzly #1 500-kV, John Day-Grizzly #1 & #2 500-kV, and Maupin-Redmond #1 230-kV
   b. Path is being added in both the NERC time horizon (0-13 months) and the Planning time period (beyond 13 months)
   c. Path is flow-based
   d. The implementation of this path will not change the customer interface or scheduling practices on the flow-based or 1:1 paths (no new scheduling points)

In-flight ST ATC Improvement #3 (cont.)

4. BPA will add the North of Grizzly path to OASIS on May 17th, 2023, and will manage the path starting June 1st, 2023
5. ATC impacts upon path addition to OASIS on May 17th:
    a. BPA will calculate and post ATC for the path for the NERC time horizon (0-13 months) and the Planning time period (beyond 13 months) for June 1st, 2023 and beyond
    b. Customers will also see ST ATC values for the path in OASIS for May 17th to June 1st, 2023, even though the path will not be managed until June 1st , 2023
    c. The ST ATC values for May 17th to June 1st will be adjusted upwards so new Transmission Service Requests (TSRs) that span these dates are not refused due to a lack of ATC on this path during the May 17th to June 1st time frame
    d. Once the path is added to OASIS, any portion of any TSR requiring service for June 1st and beyond will require ST and/or long-term ATC across this path
    e. Long-term ATC will be calculated and posted until October 1st, 2023, when BPA transitions to a new study process for long-term service on its flow-based paths

In-flight ST ATC Improvement #3 (cont.)

6. Additional impacts:
   a. BPA will manage congestion across this path starting on June 1st, 2023
   b. BPA will update the ATC Implementation Document, constraint maps, and other customer tools posted to Acquiring Transmission - Bonneville Power Administration (bpa.gov)

In-flight ST ATC Improvement #4

Description: Add the North of Pearl ATC path to manage the transmission system in the Portland metro area

1. In order to manage reliability concerns driven by load growth and new TSRs in the Portland metro area, BPA is adding congestion management tools and an ATC path in this area
2. North of Pearl path details:
   a. Path includes the lines of Pearl-Keeler #1 500-kV (BPA-owned), McLoughlin-Sherwood-Pearl Tap #1 230-kV (BPA/PGE jointly owned), and Pearl-Sherwood #1 & #2 230-kV (BPA/PGE jointly owned)
   b. Path is being added in both the NERC time horizon (0-13 months) and the Planning time period (beyond 13 months)
   c. Path is flow-based
   d. The implementation of this path will not change the customer interface or scheduling practices on the flow-based or 1:1 paths (no new scheduling points)

In-flight ST ATC Improvement #4 (cont.)

3. BPA anticipates that the new path will be implemented in Fall 2023
4. Impacts upon path implementation:
    a. BPA will calculate and post ATC to OASIS for this new path for the NERC time horizon (0-13 months); BPA anticipates that ATC for the Planning time period (beyond 13 months) will no longer be calculated or posted when this path is implemented
    b. New TSRs will require ST ATC, as posted to OASIS, and long-term ATC, via the new study process that will be effective October 1st, 2023, across this path
    c. BPA will manage congestion across this path
    d. BPA will update the ATC Implementation Document, constraint map, and other customer tools posted to Acquiring Transmission - Bonneville Power Administration (bpa.gov)
5. BPA will communicate additional details about the implementation timeline as they are known

In-flight ST ATC Improvement #5

Description: Determine how to manage the transmission system in the Goldendale area

1. BPA is seeing new transmission service requests due to new generation in this area
2. BPA is still working to evaluate the best option to manage the transmission system in the Goldendale area
    a. BPA is preliminarily referring to this area as South of Knight
3. BPA will continue discussions with customers and/or owners of facilities regarding the Goldendale area after we complete more analysis
4. There is no implementation date at this time

In-flight ST ATC Improvement #6

Description: Development of ST ATC metrics

1. BPA is continuing to work on ST ATC metrics development
2. The current focus is on a report to identify large ST ATC swings
   a. Report will allow BPA to identify the drivers of large ST ATC swings (e.g. there has been a TTC de-rate versus a system issue)
3. BPA has made progress on a basic version of the report – we are hoping to utilize the report to monitor ST ATC swings during our system update on May 17th, 2023
4. Once the basic report is operationalized, more work will be required so that BPA can utilize the report to monitor ST ATC changes on a more frequent basis

Proposed
ST ATC Improvements

Proposed ST ATC Improvement #1

Description: Align the path definitions used to calculate Power Transfer Distribution Factors (PTDFs) and the base ETCs for the Cross Cascades North, Columbia Injection and Wanapum Injection paths

1. Current state:
   a. The path definitions for Cross Cascades North, Columbia Injection and Wanapum Injection include lines that are not owned by BPA
   b. BPA calculates base ETCs for these paths by only modeling the lines owned by BPA in the powerflow studies, as BPA only sells transmission on the BPA-owned lines
   c. However, BPA calculates PTDFs for Cross Cascade North, Columbia Injection and Wanapum Injection by using the full path definition, including the lines not owned by BPA

Proposed ST ATC Improvement #1 (cont.)

2. Future state:
   a. BPA will only model the BPA-owned lines when calculating PTDFs for Cross Cascades North, Columbia Injection, and Wanapum Injection
   b. This will align the path definitions used to calculate PTDFs and base ETCs for these paths
   c. The Cross Cascades North PTDFs for the the long-term market are already being calculated using only the BPA-owned lines, so this change aligns the ST and long-term PTDF calculations (Columbia Injection and Wanapum Injection are only used in the ST market)
3. Impacts:
   a. Customers will not see an obvious difference from this change, as the change impacts the nuances of how the PTDFs are calculated
   b. BPA will update the ATC Implementation Document and other impacted customer tools posted to Acquiring Transmission - Bonneville Power Administration (bpa.gov) after implementation of this change
4. Implementation date: OASIS system update in May 17th, 2023

Proposed ST ATC Improvement #2

Description: Update the methodology used to balance generation and load in the heavy load base ETC cases

1. Currently, if there is more generation than load plus committed exports in the heavy load base ETC cases, BPA reduces all excess generation pro rata, except for the stressed Federal Columbia River Power System zone
2. In reality, generation is not reduced pro rata, but rather economically, with the higher cost resources being reduced first
3. BPA would like to update the methodology used to balance generation and load in the heavy load base ETC cases to better align with reality

Proposed ST ATC Improvement #2 (cont.)

4. BPA will be exploring a balancing methodology where generation is grouped by fuel type, and reduced by these groupings, until generation and load is balanced in the cases
5. BPA needs some time to develop this proposal; development work will occur after the summer base ETC cases are released to OASIS on May 17th, 2023
6. BPA will engage customers on the new proposal and take comments
7. Implementation date: BPA hopes to implement a new methodology for balancing generation and load starting with the Winter base ETC cases, which will be released to OASIS in mid-October 2023

Wrap up

- BPA will continue to work on the in-flight and proposed ST ATC changes and will update its ATCID prior to implementation of any changes
  - BPA will communicate additional information and/or implementation dates via Tech Forum
- Comments on today's update are due by Wednesday, April 26th, 2023
- Please send Questions/Comments to techforum@bpa.gov, with a copy to your Account Executive

Appendix – ATC Formulas (NERC Time Horizon)

The firm ATC formula is:

$$\mathbf{ATC_F = TTC - ETC_F - CBM - TRM + Postbacks_F + Counterflows_F}$$

The non-firm ATC formula is:

$$\mathbf{ATC_{NF} = TTC - ETC_F - ETC_{NF} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}}$$

Where:

ATC is the firm Available Transfer Capability for the ATC Path for that period.

TTC is the Total Transfer Capability of the ATC Path for that period.

ETC is the sum of existing firm commitments for the ATC Path during that period.

CBM is the Capacity Benefit Margin for the ATC Path during that period.

TRM is the Transmission Reliability Margin for the ATC Path during that period.

TRM_U is the Transmission Reliability Margin that has not been released for sale as non-firm capacity

Postbacks are changes to firm Available Transfer Capability due to a change in the use of Transmission Service for that period, as defined in Business Practices.

Counterflows are adjustments to firm Available Transfer Capability as determined by the Transmission Service Provider and specified in their ATCID.

F subscript refers to Firm; **NF subscript** refers to Non-Firm; **S subscript** refers to Scheduled