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

September 23, 2020
Objectives

1. ST ATC Project Timeline
2. Completed ST ATC Improvements
3. In-flight ST ATC Improvements
4. Proposed ST ATC Improvement
5. Wrap up
6. Appendix – ATC Formulas (NERC Time Horizon)
## Short-Term ATC Project Timeline

### Interim CER modeling fix, implementation of Satsop Injection ATC Path
- **FY20 Q2** Jan-Mar
- **FY20 Q3** Apr-Jun
- **FY20 Q4** Jul-Sep
- **FY21 Q1** Oct-Dec
- **FY21 Q2** Jan-Mar
- **FY21 Q3** Apr-Jun
- **FY21 Q4** Jul-Sep

### Monthly Nov. through Feb. base ETC studies, finish path changes, improve weighted PTDFs

### Transparent and accurate ST ATC

### Semi-annual Short-Term ATC Meetings

#### Improvements to Weighted PTDFs
- **Partially Completed**
  - TBD

#### Path changes

- Fix Canadian Entitlement Return Modeling
- Develop metrics for ST ATC
- Transition to monthly power flow Existing Transmission Commitment studies
- Optimize adjustments of capacity in the short-term market
- Review study assumptions

For Discussion Purposes Only.
Completed ST ATC Improvements

1. BPA has recently completed the following ST ATC improvements:
   
   a. Implementation of an interim fix to the modeling of the Canadian Entitlement Return (CER) in the base Existing Transmission Commitment (ETC) studies
   
   b. Implementation of the Satsop Injection ATC Path and congestion management tools
Completed ST ATC Improvement #1

Description: Implementation of an interim fix to the modeling of the CER in the base ETC studies

1. Fix consisted of additional short-term firm ETC adjustments to firm ST ATC across North of Echo Lake, Cross Cascades North, Cross Cascades South, North of Hanford S>N and West of John Day

2. Months impacted were September/October 2020 and March through October 2021

3. Fix was implemented on August 19, 2020 and a customer webinar on the issue and solution was held on August 20, 2020

Completed ST ATC Improvement #2

Description: Implementation of the Satsop Injection ATC Path and congestion management tools

1. Satsop Injection was implemented as a 1:1 ATC Path
2. BPA also implemented a Transmission Reliability Margin (TRM) and congestion management tools across this path
3. The ATC Path and TRM were implemented on September 16, 2020
4. The congestion management tools were implemented on July 8, 2020
5. BPA is calculating and posting ST ATC for this path in the 0 – 13 month NERC horizon and managing congestion as needed
6. New TSRs are being evaluated for impacts across this path, and require ST ATC if they impact this path

7. Further details are available in BPA’s ATCID and TRMID documents posted to BPA’s ATC Methodology page at https://www.bpa.gov/transmission/Doing%20Business/ATCMeth ology/Pages/default.aspx
BPA ST ATC Paths

Actual Flow v. TTC - SATSOP

- **TTC**
- **Actual Flow**

**Actual Flow Data Recording Start**: 8/13/2020

**TTC Data Recording Start**: 8/26/2020

**Graph Details**:
- **MW** on the y-axis
- **Aug-2020** to **Sep-2020** on the x-axis

*For Discussion Purposes Only.*
In-flight ST ATC Improvements

1. BPA is currently working on several in-flight ST ATC improvements
   a. Transition from Winter seasonal heavy load base ETC study to monthly heavy load base ETC studies for November 2020 through March 2021
   b. Retirement of the North of John Day ATC Path
   c. Improvements to the weighted BPAPower and BPAPUNSCHD Power Transfer Distribution Factors (PTDFs)

2. Some details have already been shared on these improvements in prior meetings and BPA has additional details to share today
In-flight ST ATC Improvement #1

Description: Transition from Winter seasonal heavy load base ETC study to monthly heavy load base ETC studies for November 2020 through March 2021

1. Monthly studies enable BPA to use monthly load and generation forecasts for our Balancing Authority (versus seasonal peaks) and allow for more timely updates to system topology and generation energizations

2. November 2020 through February 2021 heavy load base ETC values will be incorporated into BPA’s ST ATC in late October 2020

3. March 2021 heavy load base ETC values will be incorporated into BPA’s ST ATC in late February 2021 (along with the April and May 2021 ETC values)

   a. March heavy load base ETC study will be performed using the WECC Winter seasonal case and BPA’s winter base ETC scenarios
In-flight ST ATC Improvement #1 (cont.)

4. In the past, BPA incorporated the heavy load base ETC values for March into its ST ATC in late October; April and May values were incorporated in late March
   a. However, with the transition to monthly ETC studies, BPA needs to shift the timeline to better distribute the study work throughout the year

5. The table below illustrates BPA’s transition to monthly heavy load ETC cases:

<table>
<thead>
<tr>
<th>POSTED TO OASIS</th>
<th>HEAVY ETC BASE CASE STUDIES PERFORMED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to Mar-20</td>
<td>SPRING SUMMER WINTER</td>
</tr>
<tr>
<td>Mar-20</td>
<td>APR MAY SUMMER WINTER</td>
</tr>
<tr>
<td>May-20</td>
<td>APR MAY JUN JUL AUG SEP OCT WINTER</td>
</tr>
<tr>
<td>Oct-20</td>
<td>APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB 50-50 50-50 May/Jan</td>
</tr>
<tr>
<td>Feb-21</td>
<td>APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR</td>
</tr>
</tbody>
</table>

6. BPA will evaluate whether to transition to monthly light load ETC cases after the heavy load cases are transitioned to a monthly granularity
In-flight ST ATC Improvement #2

Description: Retirement of the North of John Day ATC Path

1. BPA has completed an analysis of the North of John Day ATC Path and determined that this path can be retired in both the long-term and short-term markets without impacting system reliability.

2. When this work is completed:
   a. BPA will no longer calculate either long-term or short-term ATC for this path.
   b. BPA will no longer post the path in OASIS.
   c. Transmission Service Requests will not require long-term or short-term ATC across this path.

3. Anticipated implementation date is Fall 2020.
In-flight ST ATC Improvement #3

Description: Improvements to the weighted BPAPower and BPAPUNSCHD PTDFs

1. BPA is working on increasing the accuracy of its weighted BPAPower and BPAPUNSCHD PTDFs

2. Increase in accuracy will be achieved by transitioning from seasonal to monthly generation and load profiles for the weighted PTDFs
   a. This will allow the weighted PTDFs to better represent the time period that ETC is being calculated for

3. Anticipated implementation date is Fall 2020
Proposed ST ATC Improvement

1. BPA has one new ST ATC improvement to discuss with customers today
   a. Implement permanent fix for CER modeling in Spring and Summer ETC cases
Proposed ST ATC Improvement #1

Description: Implement permanent fix for CER modeling in Spring and Summer ETC cases

1. BPA’s current CER PTDF adjustments in the Spring and Summer months are not adequately encumbering capacity for the assumption of CER being delivered to Canada

   a. At the August 20, 2020 webinar, staff presented results of their analysis that compared the results of an additional scenario in the monthly power flow ETC cases for April through October with the PTDF adjustment

   b. BPA implemented an interim fix of additional adjustments to compensate for this discrepancy, but a permanent fix is needed
Proposed ST ATC Improvement #1 (cont.)

2. The ST ATC team would like to permanently replace the CER PTDF adjustments with an additional power flow base ETC study scenario for the April through October months
   a. The additional scenario will be applied to the current scenarios stressing the Federal hydro zones and toggling the wind on/off

3. Once this scenario is incorporated into the base ETC studies for each month, the CER PTDF adjustment for that month would be discontinued

4. This change will enable BPA to more accurately account for the firm obligations that BPA has sold across its system, to mitigate risk of firm curtailments, and to mitigate operational risk associated with over-selling firm capacity
Proposed ST ATC Improvement #1 (cont.)

5. BPA would like to implement the additional scenario for the April and May 2021 base ETC studies in late February 2021 (CER PTDF adjustment for March through May would be discontinued at this time)

6. BPA would like to implement the additional scenario for the June through October 2021 studies in late May 2021 (CER PTDF adjustment for June through October would be discontinued at this time)
Wrap up

1. 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
   a. BPA will communicate additional information and/or implementation dates via Tech Forum

2. Comments on the new ST ATC proposed improvements discussed today are due in 2 weeks – comments will close October 7th, 2020
   a. BPA will review comments and reply by October 21st, 2020

3. 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:

\[ \text{ATC}_F = \text{TTC} - \text{ETC}_F - \text{CBM} - \text{TRM} + \text{Postbacks}_F + \text{Counterflows}_F \]

The non-firm ATC formula is:

\[ \text{ATC}_{NF} = \text{TTC} - \text{ETC}_F - \text{ETC}_{NF} - \text{CBM}_S - \text{TRM}_U + \text{Postbacks}_{NF} + \text{Counterflows}_{NF} \]

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.