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

June 23, 2021

Pre-decisional. For Discussion Purposes Only.

Agenda

1. ST ATC Grid Mod Project Status
2. ST ATC Grid Mod Project Timeline
3. Completed ST ATC Improvements
4. In-flight ST ATC Improvements
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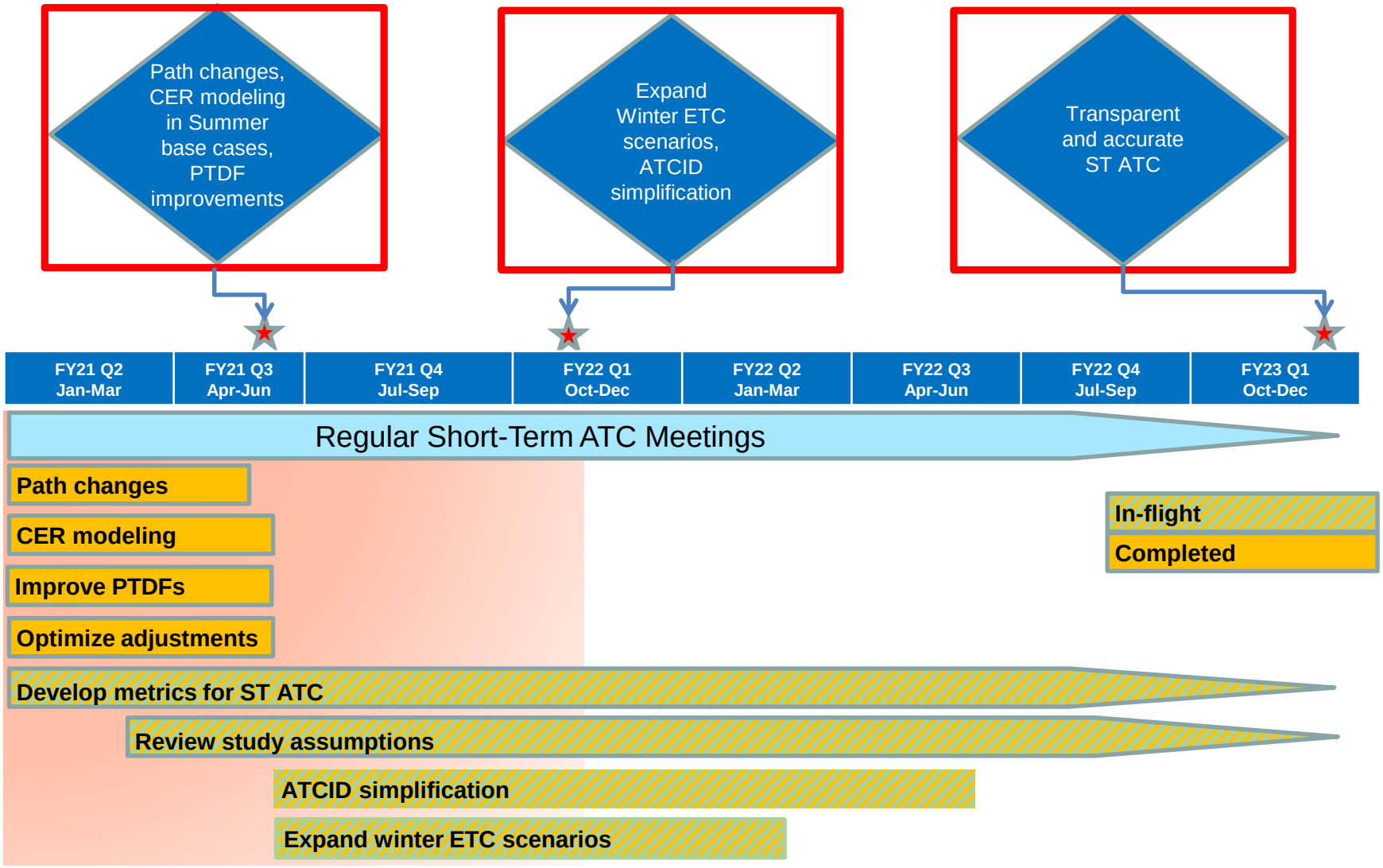
ST ATC Grid Mod Project Status

1. BPA originally identified September 30, 2021 as the target date for the completion of the ST ATC Grid Mod project
2. At the start of the effort, the ST ATC team identified the improvements and bodies of work within the scope of the project
3. Many improvements have already been delivered, but there are several outstanding work streams in-flight
    a. There is significant work left surrounding the development of ST ATC metrics, including metrics that have dependencies on other Grid Mod projects
    b. There are additional process and automation enhancements to base Existing Transmission Commitment (ETC) studies the team would like to implement
    c. The ATC Implementation Document (ATCID) needs to be streamlined for transparency and clarity

ST ATC Grid Mod Project Status (cont.)

4. BPA has decided to extend ST ATC as a Grid Mod project to allow for this in-flight work to be completed
5. We now plan to conclude the ST ATC Grid Mod project by end of calendar year 2022
6. BPA sees ST ATC as a continuous improvement effort and anticipates that there will be on-going improvements to ST ATC as a part of core workload beyond the end of this Grid Mod project

Short-Term ATC Project Timeline



Completed
ST ATC Improvements

Completed ST ATC Improvement #1

Description: Retirement of North of John Day (NOJD) ATC Path

1. BPA has retired the North of John Day ATC Path in both the long-term and short-term markets
2. BPA is no longer calculating either short-term or long-term ATC for NOJD
   a. New requests for service are no longer being evaluated for ATC across NOJD
   b. BPA is not monitoring NOJD for reliability purposes
3. Retirement of NOJD took place on May 12th, 2021

Completed ST ATC Improvement #2

Description: Implementation of permanent modeling solution for the Canadian Entitlement Return (CER) in ***summer*** ETC cases

1. BPA has discontinued the CER Power Transfer Distribution Factor (PTDF) adjustments for June through October
2. The adjustments are no longer needed as BPA has added an additional power flow study scenario that models the CER being returned to Canada for the June through October base ETC studies
3. Changes for the months of June through October were implemented on May 19th, 2021

Completed ST ATC Improvement #3

Description: Optimization of the inputs for the calculation of the weighted PTDF for the BPAPower Point of Receipt

1. Historically, BPA calculated this weighted PTDF for all of BPA's flow-based paths by using the generation profile from a single monthly base ETC stress scenario
2. BPA is now calculating this weighted PTDF by using the generation profile from the monthly base ETC stress scenario optimized for each individual flow-based path
3. Since the BPAPower weighted PTDF is optimized for the stress scenario that ETC is being calculated for per path, the ST ATC accuracy for each path has been improved

Completed ST ATC Improvement #3 (cont.)

4. In April and May of 2021, customers contacted BPA and inquired about ATC Paths that were showing zero or near zero ST ATC for the spring and summer months
   a. Upon looking at the root cause of these unexpected ST ATC values, BPA determined that the disconnect between the stress scenario used to set base ETC and the stress scenario used to calculate the BPAPower PTDF was the cause of the observed ST ATC values
   b. BPA implemented several short-term adjustments to fix this issue, until the permanent improvement to the calculation of the BPAPower PTDF could be implemented.
5. The enhancement to the BPAPower PTDF was implemented on May 19th, 2021

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

In-flight ST ATC Improvement #1

Description: Update generation data for the Willamette Valley projects

1. Willamette Valley projects include Big Cliff, Cougar, Detroit, Dexter, Foster, Green Peter, Hills Creek, Lookout Point, and Lost Creek
2. BPA is transitioning to a monthly fleet-aggregate lower 10th percentile of Heavy Load Hour block generation forecast from the planning period of record for these projects
    a. This forecast method replaces the seasonal values from the low water year of 2001 previously used in the heavy load base ETC cases
3. This is a needed accuracy improvement, as BPA has had a static, seasonal generation assumption for these projects and need to transition to a repeatable, monthly forecast method

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

4. Updates for the summer heavy load base ETC cases were implemented to OASIS on May 19th, 2021
    a. Overall, it will take BPA to mid-February 2022 to fully transition heavy load base ETC cases for the NERC horizon (0 to 13 months) to this new forecast method

In-flight ST ATC Improvement #2

Description: Expand ***winter*** heavy load base ETC studies to include the CER off scenario

1. BPA is expanding the scenarios used in the winter heavy load base ETC studies to include the assumption that the CER is not being delivered to Canada
    a. This scenario expansion is driven by usage changes that BPA is seeing on its system in the winter months
    b. These scenarios are already included in the spring/summer base ETC studies
    c. The additional winter scenarios will be applied to the current cases stressing the Federal hydro zones and toggling the wind on/off
    d. This change will further improve how BPA applies the suite of scenarios across all seasons and accounts for the firm obligations sold across our system
2. Changes will be implemented when winter base ETCs are incorporated into OASIS (October 2021 and February 2022)

In-flight ST ATC Improvement #3

Description: Development of ST ATC metrics

1. BPA is continuing work on ST ATC metrics
2. Team is continuing to identify the data needed to answer the questions presented to customers at the September 23, 2020 meeting, as well as where the data is currently located
3. The base ETC data structure has been established and the team is ready to migrate its base ETC data into our central database
    a. Next milestone is to complete building reports which will facilitate the analysis of the data
4. The team is continuing to look at the Total Transfer Capability data already in the database and finalizing a proposal on how to perform the evaluations of that data

In-flight ST ATC Improvement #4

Description: ATCID streamlining

1. BPA is continuing to streamline its ATCID
2. Effort is being driven by BPA's goal of a transparent ATC methodology, and by BPA's challenge of keeping the current ACTID updated as required by NERC ATC MOD-001, Requirement 3
3. BPA has identified three areas of improvement for our ATCID:
   a. Consolidate the separate sections on the 1:1 ATC and Flow-Based ATC Paths into one, as there are minimal differences in the ATC calculations between these paths within our OATI system
   b. Review the content within the document and eliminate any unnecessary information that is remaining from BPA's use of MOD-030
   c. Attempt to streamline/simplify the document overall, with a specific focus on the sections that detail BPA's firm and non-firm ATC calculations

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

4. BPA will implement improvements in stages and will meet with customers to go over changes in advance of their implementation
5. Improvement timelines are going to be driven by a mitigation plan that BPA has opened with WECC on MOD-001, Requirement 3
6. The ATCID needs to be brought into a more transparent and easier to maintain format by May 15th, 2022, which corresponds to the completion date for our MOD-001, Requirement 3 mitigation plan

Additional Changes to the ST ATC Project

1. The ST ATC team has been holding ST ATC customer meetings approximately once per quarter to date
2. This frequency has worked well as we've had numerous improvements and changes to communicate
3. Since the improvements are now mostly in-flight and since we've covered them in multiple meetings, we would like to reduce the formal ST ATC project, customer updates to twice a year
    a. ST ATC project updates would occur in October 2021, May 2022 and October 2022
    b. We will supplement these updates with additional meetings on the ATCID streamlining effort, and any other targeted ST ATC efforts as needed (i.e. metrics)
4. Any concerns with this approach?

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 today‘s update are due by July 9th, 2021
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:

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

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