

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

December 16, 2020



# Agenda

1. Follow Up on Questions from September 23<sup>rd</sup> meeting
2. ST ATC Project Timeline
3. Completed ST ATC Improvements
4. In-flight ST ATC Improvements
5. Proposed ST ATC Improvement
6. Wrap up
7. Appendix – ATC Formulas (NERC Time Horizon)

# Questions from September 23<sup>rd</sup> Meeting

1. Does BPA plan to add Satsop Injection path to the long-term market?
  - Not at this time; BPA plans to continue managing Satsop as a subgrid check in the long-term market
  
2. Why is the Satsop TRM 450 MW with only 200 MW of firm capacity?
  - The 450 MW TRM is primarily needed to account for certain combinations of local load, system topology and Grays Harbor Energy (GHE) output
  - System cannot serve peak winter/peak summer loads under certain studied outage conditions when GHE (or any new Satsop generation) output is high
  - TRM protects for firm load levels of Grays Harbor PUD (GHPUD), uncertainty of outage conditions on BPA/GHPUD facilities, and any existing GHE firm rights

# Questions from September 23<sup>rd</sup> Meeting (cont.)

## 3. What are the limiting factors for Satsop Injection?

- Satsop Injection is limited by GHPUD 115kV elements between Satsop 230 and the 'Main Grid' (Paul 500)
- These elements are sensitive to local loads, local generation (GHE) and system topology (outage conditions)
- New Transmission Service Requests, Generation Interconnection Requests and Lines and Loads Interconnection Requests seeking service at/near Satsop will exacerbate and complicate performance of these elements

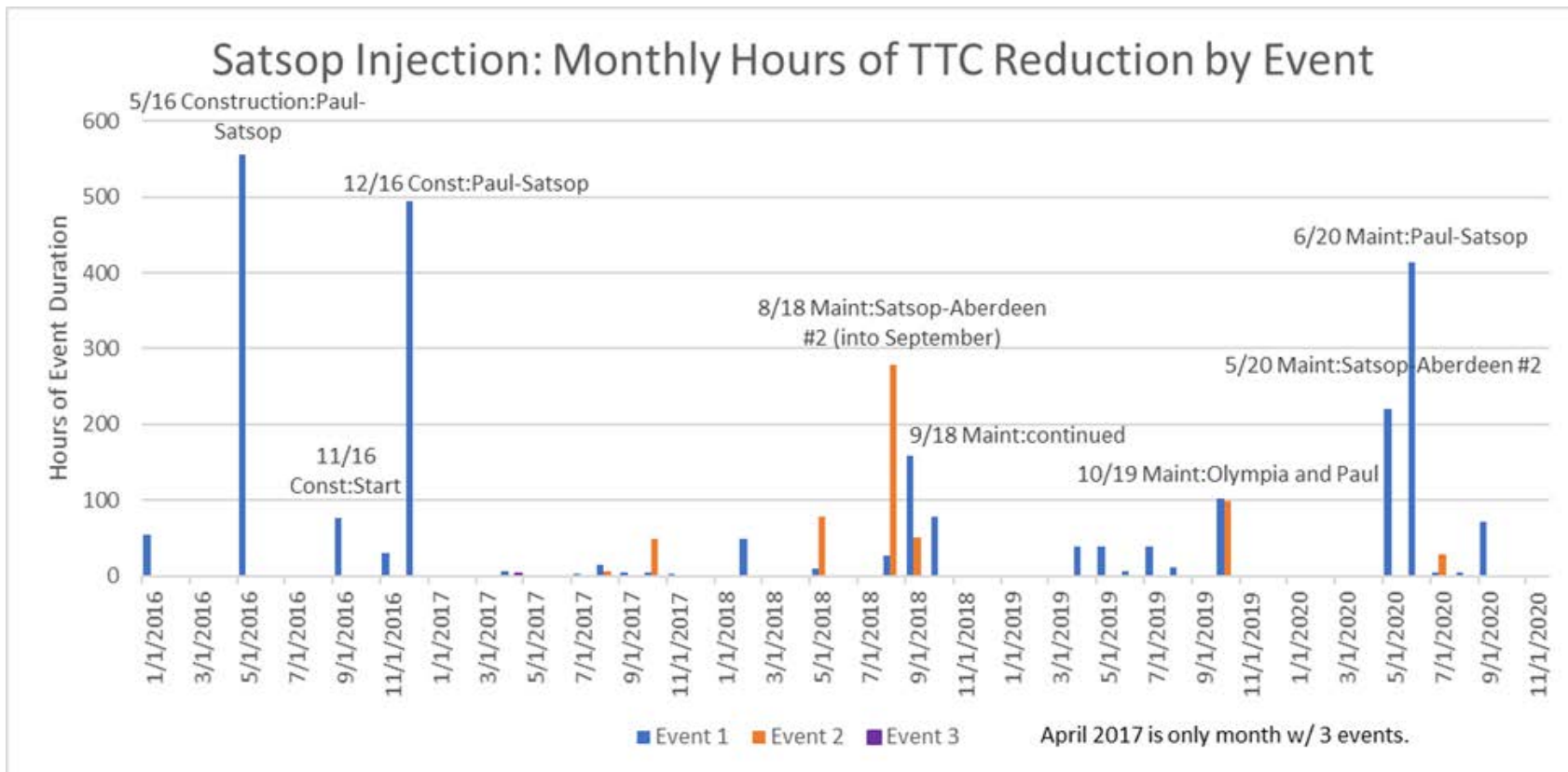
## 4. For how long does BPA plan to implement TRM on the Satsop path?

- Satsop TRM is required indefinitely, unless the variables of GHE firm rights, GHPUD future loads, or GHPUD/BPA topology states change

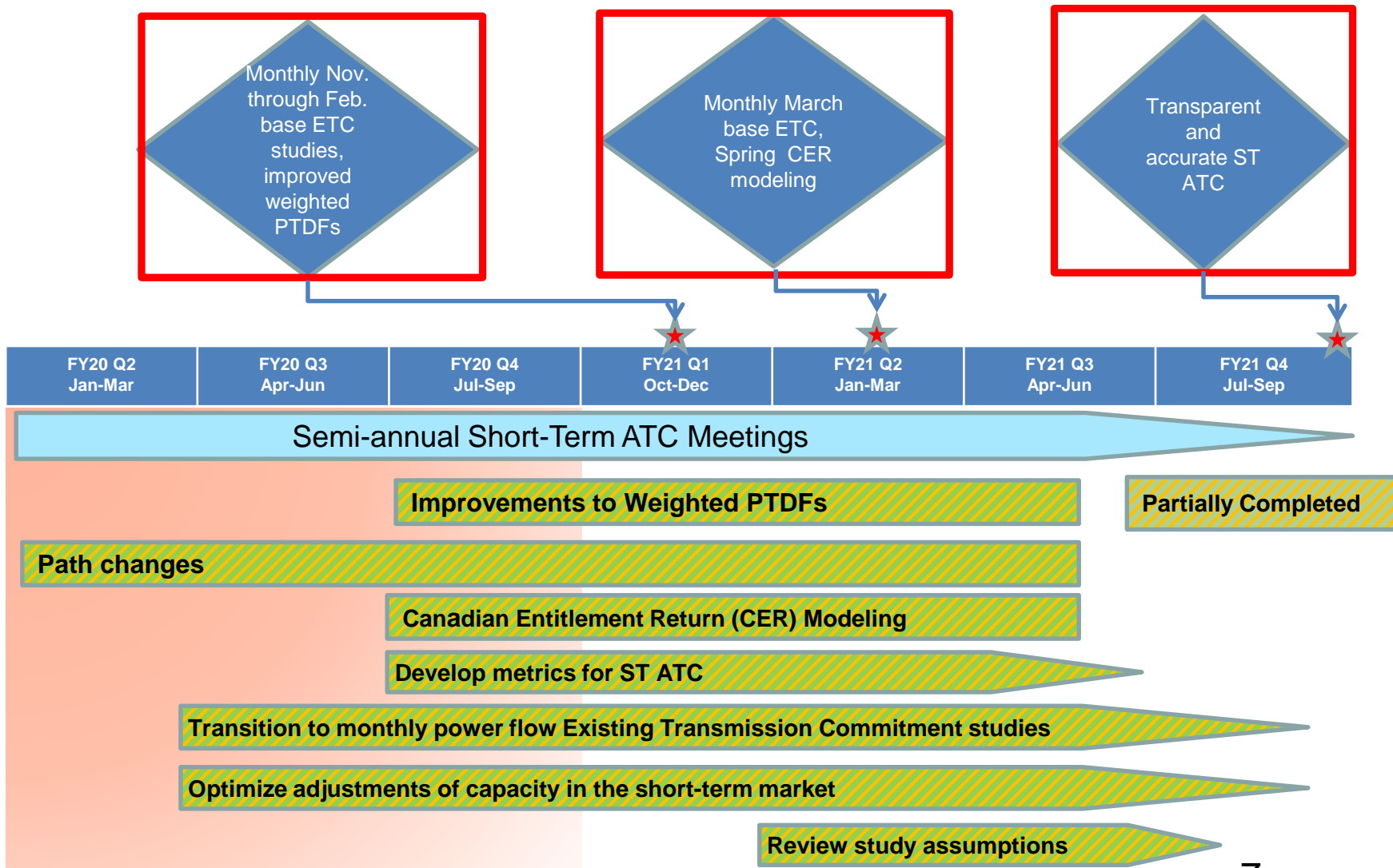
# Questions from September 23<sup>rd</sup> Meeting (cont.)

5. How does the planned retirement of 670 MW Centralia plant by the end of 2020 in the area affect:
  - i. the decision to implement TRM on the Satsop Path
  - ii. how TRM is implemented on the Satsop Path
  - iii. the ATC on the Satsop Path?
- The status of the Centralia plant has no impact on the Satsop Injection TRM and therefore no impact on the Satsop ATC

# Satsop Injection: Hours Reduced TTC



# Short-Term ATC Project Timeline



# Completed ST ATC Improvements





# Completed ST ATC Improvement #1

Description: Transitioned from one Winter seasonal heavy load base Existing Transmission Commitment (ETC) study to monthly heavy load base ETC studies for November through February

1. Monthly studies enable BPA to use monthly load and generation forecasts for our Balancing Authority (versus seasonal peaks)
2. Monthly studies also allow for more timely updates to system topology and generation energizations
3. Change was implemented on October 21<sup>st</sup>, 2020

# Completed ST ATC Improvement #2

Description: Improved the inputs for the calculation of the weighted Power Transfer Distribution Factors (PTDFs) for the BPA Power Point of Receipt (POR) and BPAPUNSCHD Point of Delivery (POD)

1. BPA now uses the generation and load profiles from individual monthly ETC cases to calculate the weighed PTDFs for each individual month
  - a. Previously, the generation and load profile from a single ETC case was used to calculate these PTDFs for the entire season
2. Weighted PTDFs now better represent the time period that ETC is being calculated for, resulting in improved ST ATC accuracy
3. Change was implemented on October 21<sup>st</sup>, 2020

# In-flight ST ATC Improvements

(previously discussed in earlier meetings)



# In-flight ST ATC Improvement #1

Description: Transition of March heavy load base ETC from an average of January and May to a monthly granularity

1. March heavy load base ETC values will be incorporated into BPA’s ST ATC in mid-February 2021 (along with April & May 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
2. The table below illustrates BPA’s transition to monthly heavy load ETC cases:

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

# In-flight ST ATC Improvement #2

Description: Retirement of 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. BPA is following the process to remove this path from the WECC Path Rating Catalog
  - a. This process has been started but it will take several months to complete
  - b. BPA will coordinate the retirement of the North of John Day path in both the short-term and long-term markets with this process
  - c. Until the path is retired, all current processes remain unchanged
3. Implementation date is unknown at this time

# In-flight ST ATC Improvement #3

Description: Implementation of permanent modeling solution for the Canadian Entitlement Return (CER) in Spring and Summer ETC cases

1. BPA's analysis determined that BPA's CER PTDF adjustments in the Spring and Summer months are not adequately encumbering capacity for the assumption of CER being delivered to Canada
2. ST ATC team is working on replacing the CER PTDF adjustments with an additional power flow base ETC study scenario for the April through October months
  - a. The additional scenario will replace the CER PTDF adjustments for the Spring and Summer months (there are no CER PTDF adjustments in the Winter months, as BPA already performs a power flow scenario assuming that CER is being delivered to Canada).

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

3. BPA will be incorporating the additional scenario into the April and May base ETC studies for release to OASIS in February of 2021
4. The scenario will then be incorporated into the June through October base ETC studies for release to OASIS in May 2021

# In-flight ST ATC Improvement #4

Description: Development of ST ATC metrics

1. BPA is working on the next steps of the ST ATC metrics effort at this time
2. Team is identifying the data needed to answer the questions presented to customers at the September 23<sup>rd</sup> meeting
3. Team is also working on identifying where the needed data is currently located



# Proposed ST ATC Improvements



# Proposed ST ATC Improvement #1

Description: Expand winter base ETC studies to include CER off scenario

1. BPA would like to expand the winter base ETC studies to study an assumption of the CER not being delivered to Canada
  - a. These additional studies are being proposed due to the usage changes that BPA is seeing on its system in the winter months
  - b. This scenario is already being run in the Spring and Summer seasons
2. The additional scenario would be applied to the current scenarios stressing the Federal hydro zones and toggling the wind on/off
3. This change would further improve how BPA is applying the suite of scenarios across all seasons and accounting for the firm obligations that BPA has sold across its system

# Proposed ST ATC Improvement #1 (cont.)

4. BPA would implement these changes when winter base ETCs are incorporated into the OASIS system (October 2021 and February 2022)

# Proposed ST ATC Improvement #2

Description: Further improve the inputs for the calculation of the weighted PTDF for the BPAPower POR

1. BPA would like to further improve the accuracy of its weighted PTDF for the BPAPower POR
2. Current process: BPA calculates this weighted PTDF for all of BPA's flow-based paths by using the generation profile from a single monthly base ETC scenario
3. Proposed process: BPA would like to calculate this weighted PTDFs by using the generation profile from the monthly base ETC scenario that stresses each individual flow-based path

# Proposed ST ATC Improvement #2 (cont.)

4. Benefits of change
  - a. Weighted PTDF will better represent the stress scenario that ETC is being calculated for
  - b. Improved accuracy of the resulting ST ATC
5. Anticipated implementation date: May 2021

# Proposed ST ATC Improvement #3

Description: Modify the light load ETC base case schedule

1. BPA uses WECC's seasonal light load cases to calculate the base ETC for the West of Hatwai path
2. WECC has not issued a Spring 2021 light load case
  - a. WECC cases provide BPA with load and generation information for entities inside and outside of BPA's Balancing Authority
  - b. BPA needs this information to properly run the light load base ETC study
  - c. Since WECC has not issued a Spring 2021 light load case, BPA will not be performing a Spring light load base ETC study

# Proposed ST ATC Improvement #3 (cont.)

3. BPA instead proposes running the Summer light load base ETC study in Winter 2020 - 2021
  - a. BPA would like to use the highest ETC from either the Winter or Summer light load base ETC studies as the Spring base ETC for West of Hatwai
  - b. BPA considers April and May to be the Spring months
  - c. Prior long-term studies have shown that Spring is a limiting season for the West of Hatwai path, which is why BPA would want to set the Spring base ETC across this path with the maximum ETC value from either the Winter or Summer ETC studies
4. BPA is continuing to evaluate what makes sense for the light load ETC cases going forward
5. Anticipated implementation date is February 2021

# Proposed ST ATC Improvement #4

Description: Update generation data for the Willamette Valley projects

1. BPA is working to update the Willamette Valley project generation data used in the base ETC cases
  - a. The Willamette Valley projects are Big Cliff, Cougar, Detroit, Dexter, Foster, Green Peter, Hills Creek, Lookout Point, and Lost Creek
2. Updated generation data will better reflect the assumptions for the time periods that BPA is studying
  - a. Team's goal is to establish a process so that this generation data is automatically refreshed at the time that BPA is performing its base ETC studies for each season
3. Anticipated implementation date: To be determined, based on how quickly team can pull together updated generation values



# 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 the new ST ATC proposed improvements discussed today are due by January 8, 2021
- Please send Questions/Comments to [techforum@bpa.gov](mailto: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<sub>U</sub>** 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