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

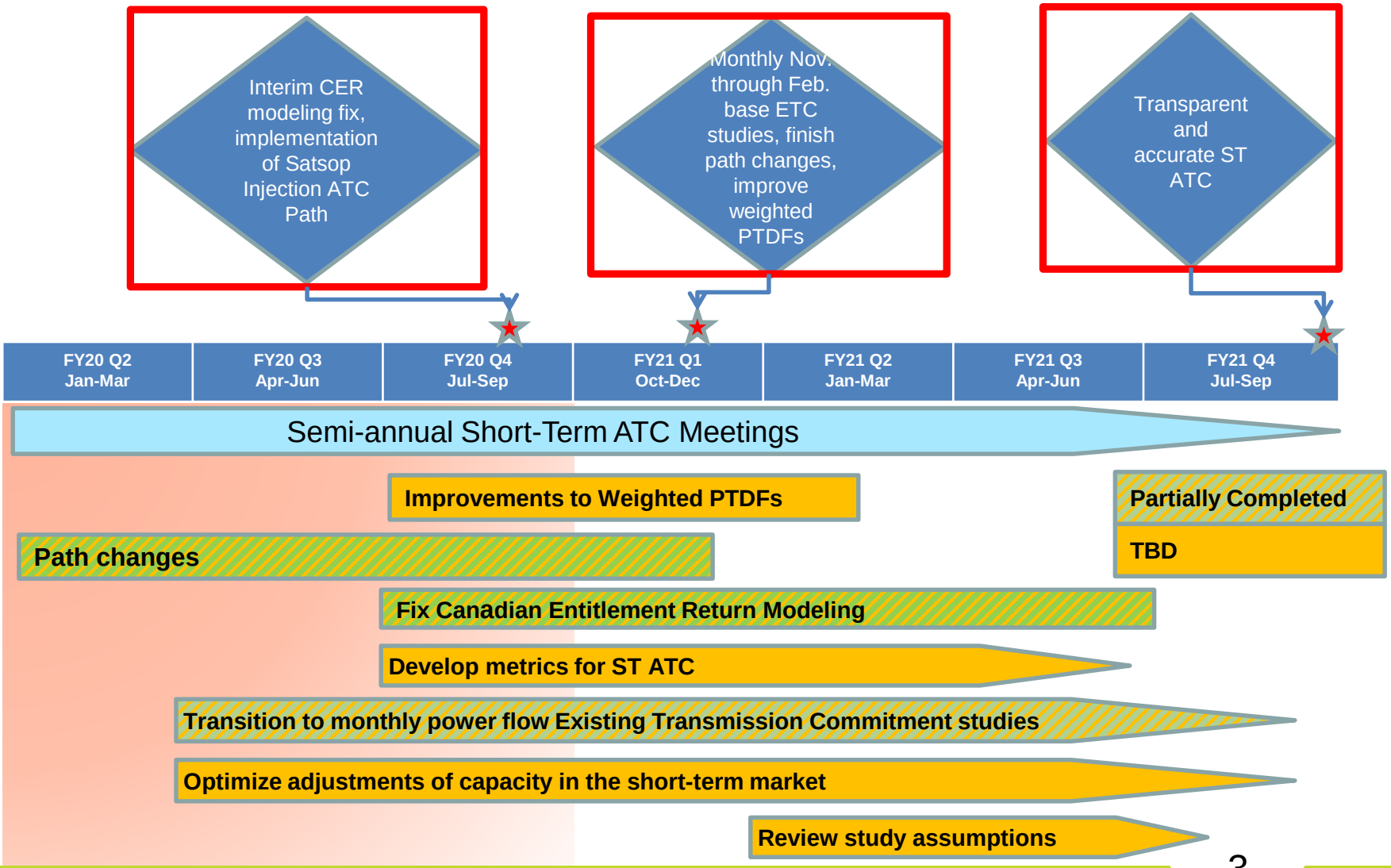
September 23, 2020

For Discussion Purposes Only.

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



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
4. Slide deck is available on the ATC Methodology page at https://www.bpa.gov/transmission/Doing%20Business/ATCMethodology/Documents/082020-CER-ST-ATC-customer-webinar.pdf

Completed ST ATC Improvement #2

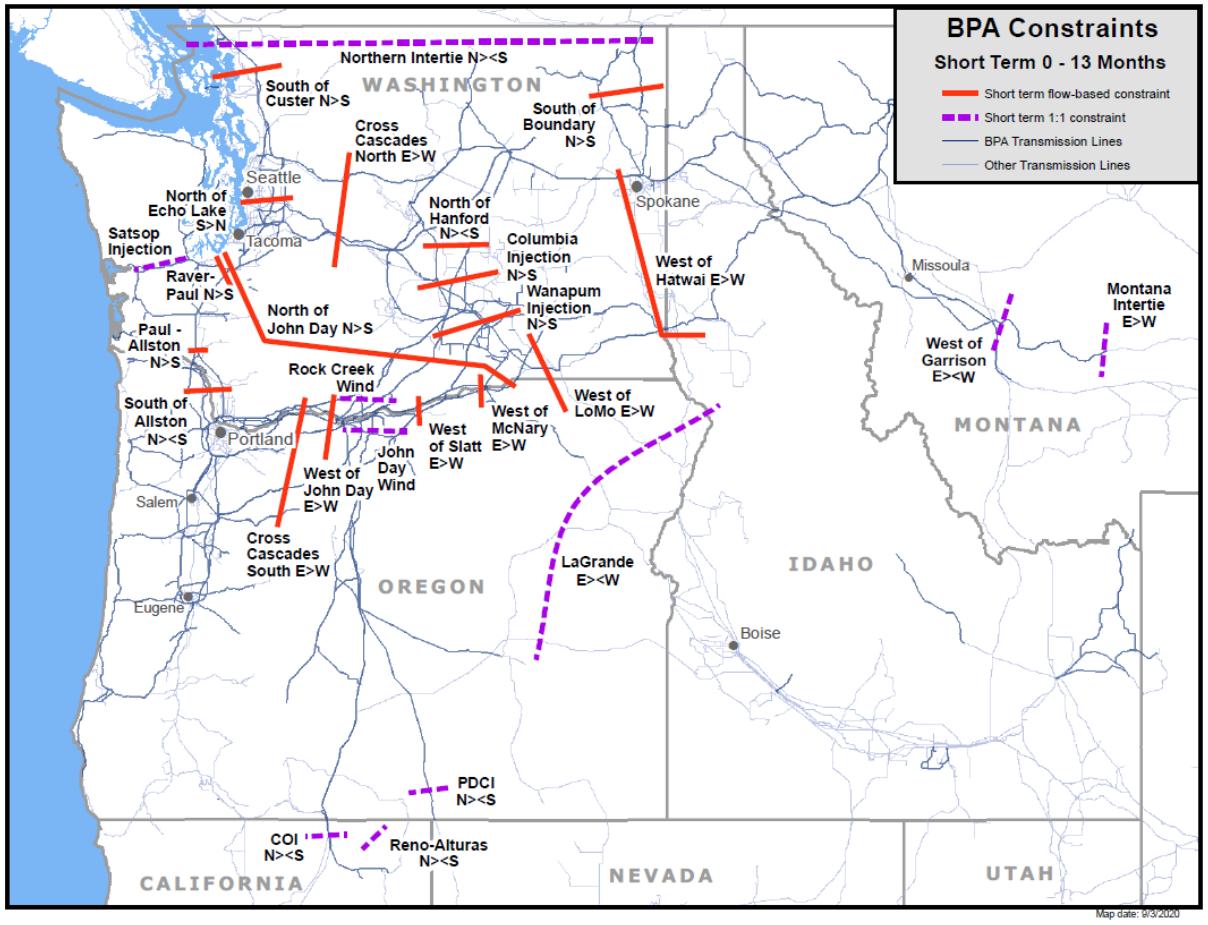
Description: Implementation of the Satsop Injection ATC Path and congestion management tools

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

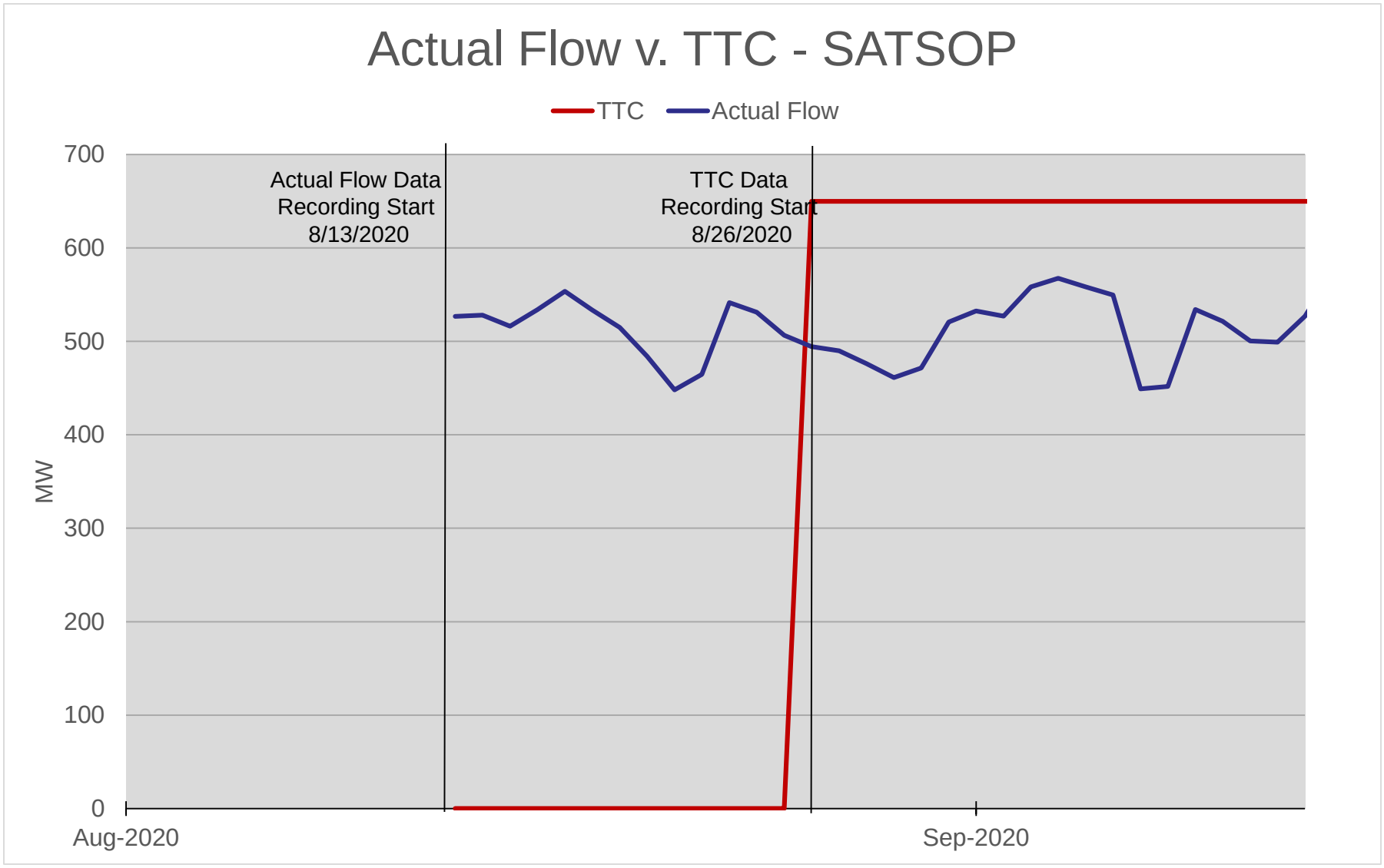
Completed ST ATC Improvement #2 (cont.)

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/ATCMethodology/Pages/default.aspx

BPA ST ATC Paths



https://www.bpa.gov/transmission/Doing%20Business/ATCMethodology/Documents/BPA-Constraints-Short-Term09162020.pdf



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:

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

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:

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

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