

Interim Hourly Firm AFC Project

■ Agenda

1. Introduction - Background
2. Current State
3. Future State Vision
4. Interim Hourly Firm AFC Project
 - a. Operational need
 - b. Process Changes
 - c. Timing
5. Out of Scope Issues
6. Customer Comment Process
7. Q&A

Hourly Firm On The Network

Current State

- Sell Hourly Firm & Non-Firm to ATC limits on MOD-29 paths (Paths other than flowgates)
 - SOLs in commercial systems updated in PS & RT
 - Congestion is mitigated before-the-hour when necessary
- Sell unlimited Hourly Firm & Non-Firm on MOD-30 paths (Network Flowgates)
 - PTDFs updated once daily in commercial systems
 - PTDFs updated in Ops whenever model changes
 - SOLs updated in commercial systems in PS
 - SOLs updated in Ops whenever model changes
 - Flowgate Impacts are calculated by existing commercial systems
 - HF & HNF TSRs go thru ATC & AFC analysis (same as D/W/M). Today, not denied for lack of AFC
 - “Stop Hourly Sales” function available to be used when critical Op’s emergencies exist
 - Congestion is not mitigated before-the-hour (except NOEL pilot)
 - For NOEL pilot, prior to hour congestion implemented based on “predicted flow”

Total TTC/TFC information Posted on the Hourly TTC Path Limits or Outage Summary

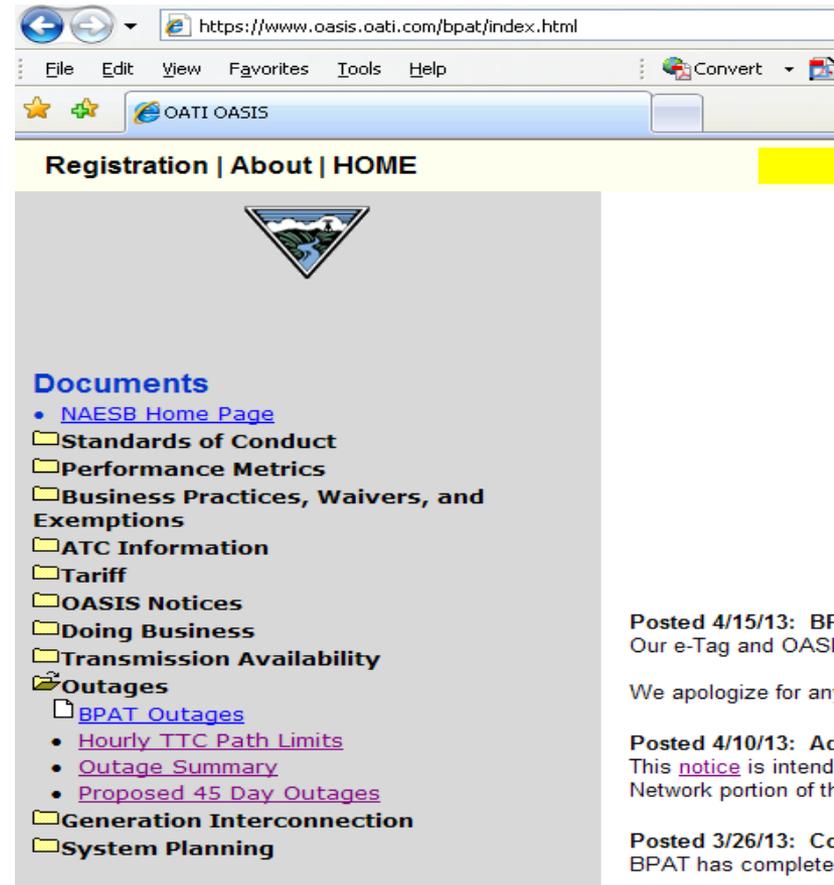
Use either link below to view:

- Hourly TTC Path Limits
- or
- Outage Summary

<http://www.oasis.oati.com/bpat/index.html>

http://transmission.bpa.gov/tx_availability

An OATi OASIS Certificate is not required to view this information



The screenshot shows a web browser window with the URL <https://www.oasis.oati.com/bpat/index.html>. The browser's address bar and menu bar are visible. The website header includes navigation links: **Registration | About | HOME**. Below the header is a logo featuring a mountain and water. The main content area is titled **Documents** and contains a list of folders and links:

- [NAESB Home Page](#)
- Standards of Conduct
- Performance Metrics
- Business Practices, Waivers, and Exemptions
- ATC Information
- Tariff
- OASIS Notices
- Doing Business
- Transmission Availability
- **Outages**
 - [BPAT Outages](#)
 - [Hourly TTC Path Limits](#)
 - [Outage Summary](#)
 - [Proposed 45 Day Outages](#)
- Generation Interconnection
- System Planning

On the right side of the page, there are three news items:

- Posted 4/15/13:** BF Our e-Tag and OASIS
- We apologize for any
- Posted 4/10/13:** Ad This [notice](#) is intend Network portion of th
- Posted 3/26/13:** Co BPAT has complete

Hourly TTC Path Limits

- Graphs can be viewed in Daily or 14 day format
- <http://www.oasis.oati.com/cgi-bin/webplus.dll?script=/woa/woa-outage-ttc-hourly-display.wml&Provider=BPAT>

BPAT Hourly TTC Path Limits Path:

BPAT Hourly TTC Path Lim

For today forward, click on the TTC value to see the associ
All times are

Path	Date	HE01	HE02	HE03	HE04	HE05	HE06	HE07	HE08	HE09	HE10
AC_N>S	4/18/2013	4200	4200	4200	4200	4200	4200				
AC_S>N	4/18/2013	2450	2450	2450	2450	2450	2450				
C-CASC_N	4/18/2013	8150	8150	8150	8150	8150	8150				
C-CASC_S	4/18/2013	5840	5840	5840	5840	5840	5840				
CLMBIA_N>S	4/18/2013	920	920	920	920	920	920				
DC_N>S	4/18/2013	2990	2990	2990	2990	2990	2990				
DC_S>N	4/18/2013	975	975	975	975	975	975				
ID-NW_E>W	4/18/2013	2260	2260	2260	2260	2260	2260				
ID-NW_W>E	4/18/2013	1150	1150	1150	1150	1150	1150				
JDWIND_GEN	4/18/2013	1200	1200	1200	1200	1200	1200				
LAGR_E>W	4/18/2013	363	363	363	363	363	363				
LAGR_W>E	4/18/2013	300	300	300	300	300	300				
MI_E>W	4/18/2013	1930	1930	1930	1930	1930	1930				
MONR_ECOL	4/18/2013	1500	1500	1500	1500	1500	1500				
N_ECOL_S>N	4/18/2013	2746	2746	2746	2746	2746	2746				
NI_EAST_N>S	4/18/2013	400	400	400	400	400	400				
NI_EAST_S>N	4/18/2013	350	350	350	350	350	350				
NI_WEST_N>S	4/18/2013	1700	1700	1700	1700	1700	1700				
NI_WEST_S>N	4/18/2013	1500	1500	1500	1500	1500	1500				
NOHANF	4/18/2013	4530	4530	4530	4530	4530	4530				
NOHANF_S>N	4/18/2013	2761	2761	2761	2761	2761	2761				
NOJDAY	4/18/2013	6942	6942	6942	6942	6942	6942				
PAUL_ALSN	4/18/2013	2635	2635	2635	2635	2635	2635				
RATS_N>S	4/18/2013	300	300	300	300	300	300				
RATS_S>N	4/18/2013	300	300	300	300	300	300				
RAVR_PAUL	4/18/2013	1270	1270	1270	1270	1270	1270				
ROCKCK_GEN	4/18/2013	1200	1200	1200	1200	1200	1200				
SBNDRY_N>S	4/18/2013	1350	1350	1350	1350	1350	1350				1350
SCSTER_N>S	4/18/2013	1828	1828	1828	1828	1828	1828				1828
SOALS	4/18/2013	800	800	800	800	800	800				800
SOALSN_S>N	4/18/2013	145	145	145	145	145	145				145
W_LOMO_E>W	4/18/2013	3750	3750	3750	3750	3750	3750				3750
WANAPM_N>S	4/18/2013	605	605	605	605	605	605				605
WOGARR_E>W	4/18/2013	2000	2000	2000	2000	2000	2000				2000
WOGARR_W>E	4/18/2013	1350	1350	1350	1350	1350	1350				1350
WOH_E>W	4/18/2013	4275	4275	4275	4275	4275	4275				4275
WOJD_E>W	4/18/2013	3750	3750	3750	3750	3750	3750				3750
WOMCNY	4/18/2013	4500	4500	4500	4500	4500	4500				4500
WOSLATT	4/18/2013	4065	4065	4065	4065	4065	4065				4065

Outage Summary

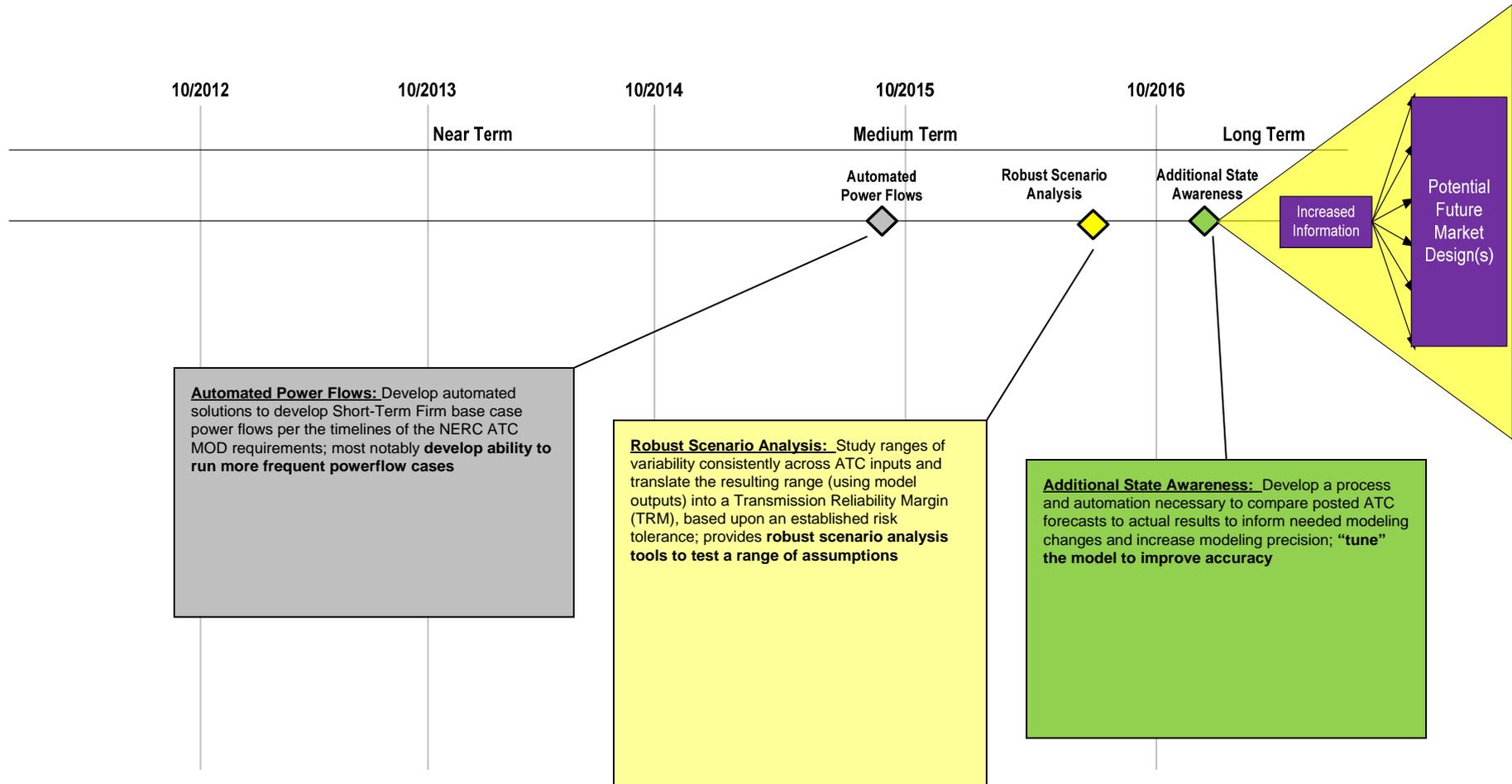
- Lists outages, seasonal limits and path ratings for long-term paths/flowgates
- <http://www.oasis.oati.com/cgi-bin/webplus.dll?script=/woa/woa-outage-ttc-reports-display.wml&Provider=BPAT> =/woa/woa-outage-ttc-reports-display.wml&Provider=BPAT

BPAT Outage Summary Path:

N_ECOL_S>N Outages (Last Updated, 2013-04-18 14:28:42 P)

Outage ID	Start	Stop	MW Limit	Priority	Last Updated	
210358	2013-02-13 14:00 PS	2013-05-01 00:00 PD	1503	Short-Term Seasonal Default	2013-03-25 14:01:24 PD	N ECOL All Lines in Service
	2013-05-01 00:00 PD	2014-06-01 00:00 PD	1503			
	2014-06-01 00:00 PD	2014-07-01 00:00 PD	1503			
212402	2013-04-15 00:00 PD	2013-04-22 00:00 PD	2746	Estimated Known Limit	2013-03-26 08:42:07 PD	SCSTER & N ECOL estimated limits - 4/15/2013 - 4/21/2013
212574	2013-04-24 07:00 PD	2013-04-24 08:00 PD	2623	Studied	2013-04-12 11:14:47 PD	BPA-Monroe-Custer 2 500kV Line; CHPD-Rocky Reach-Maple V; Joseph 3 345kV Line; Bothell 1 230kV line; 345/230kV Bank 5; ;
	2013-04-24 08:00 PD	2013-04-24 09:00 PD	2640			
	2013-04-24 09:00 PD	2013-04-24 10:00 PD	2636			
	2013-04-24 10:00 PD	2013-04-24 11:00 PD	2633			
	2013-04-24 11:00 PD	2013-04-24 12:00 PD	2629			
	2013-04-24 12:00 PD	2013-04-24 13:00 PD	2601			
	2013-04-24 13:00 PD	2013-04-24 14:00 PD	2592			
	2013-04-24 14:00 PD	2013-04-24 15:00 PD	2560			
	2013-04-24 15:00 PD	2013-04-24 16:00 PD	2554			
	2013-04-24 16:00 PD	2013-04-24 17:00 PD	2547			
	2013-04-24 17:00 PD	2013-04-24 18:00 PD	2554			
2013-04-24 18:00 PD	2013-04-24 19:00 PD	2560				
212577	2013-04-25 07:00 PD	2013-04-25 08:00 PD	2643	Studied	2013-04-12 10:10:11 PD	BPA-Monroe-Custer 2 500kV Line; CHPD-Rocky Reach-Maple V; Joseph 4 345kV Line; 345/230kV Bank 6; and 230/115kV Bank 3
	2013-04-25 08:00 PD	2013-04-25 09:00 PD	2666			
	2013-04-25 09:00 PD	2013-04-25 10:00 PD	2665			

Future State Vision



Interim Hourly Firm AFC Project

- Goal: to manage Hourly Firm sales on the network flowgates according to the calculated Firm AFC limits

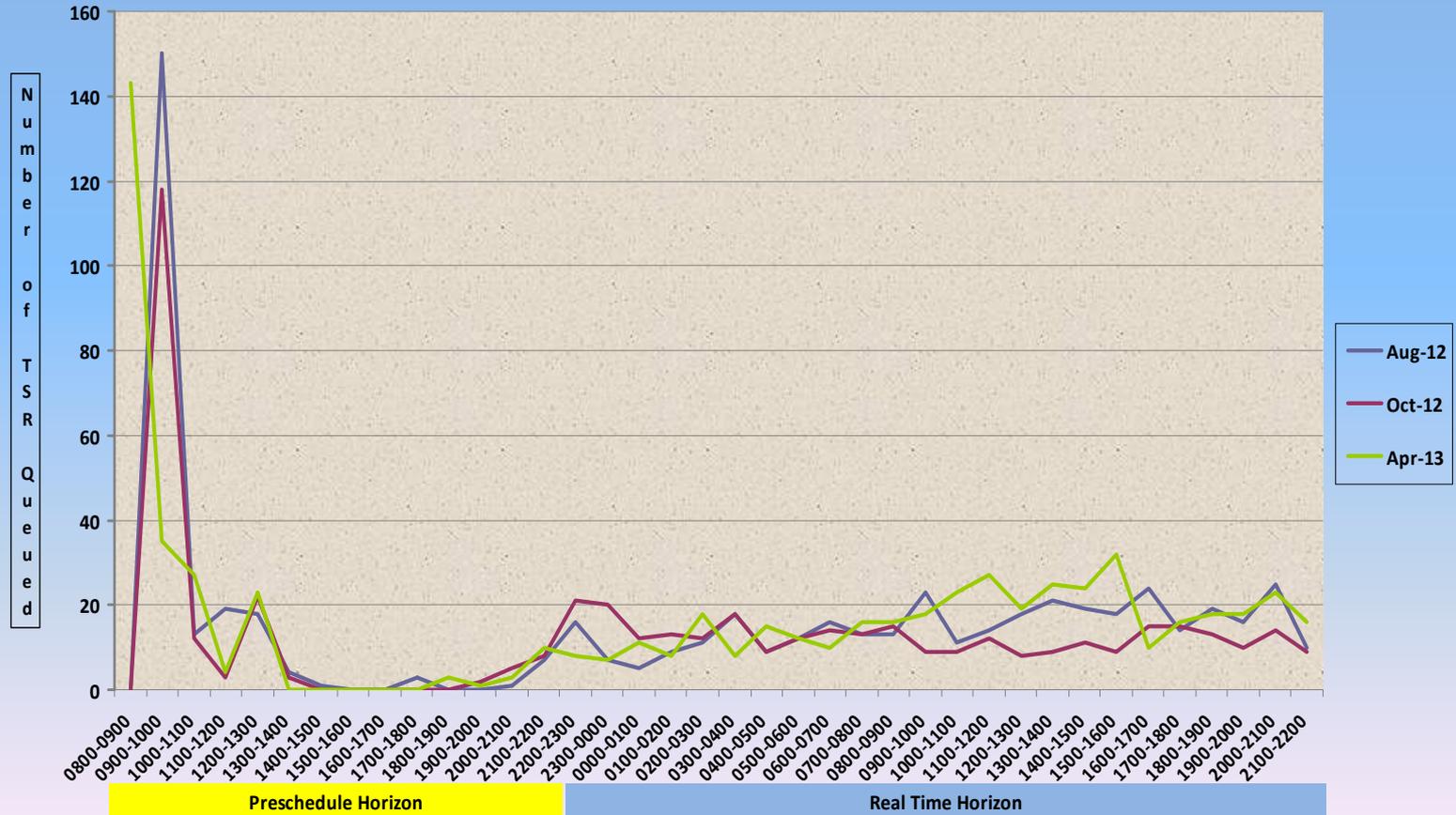
Operational Need

- May 2010, curtailment event that cut into firm transmission service on the West of Cascades North flowgate.
 - As part of a West of Cascades North (WOCN) Lessons Learned report we committed to developing an hourly ATC Methodology to regulate hourly network sales.
 - A July 2011 status report for the WOCN Lessons Learned effort, we published notice that establishment of BPA's hourly ATC Methodology would be phased in and full implementation would take several years.
- Since 2010, we've had
 - July 2011-- firm curtailment event on the Raver Paul flowgate
 - 2012 -- four firm curtailment events:
 - two on West of McNary
 - two on North of Hanford (S>N)
 - Others

Operational Issues

- Problems caused by allowing unlimited hourly firm sales on network flowgates:
 - Increases the potential for real-time Firm curtailments.
 - Customers with long-term firm contracts are curtailed pro rata with customers who purchase hourly firm transmission as late as prior to the delivery hour – fairness issue.

Hourly Firm TSR Queued for Start Time Next Day (Preschedule) or Current Day (Real Time)



Dispatch Tools

- The current tools available to manage flowgate congestion include:
 - A. Preventive measures:
 - Daily, weekly, monthly and yearly AFC values are used to regulate sales for those periods
 - Next hour curtailment pilot for the North of Echo Lake flowgate is used to keep schedules under the SOLs
 - Stop Hourly Sales tool allows dispatch to stop all new sales of hourly firm and non-firm on a particular flowgates if operational conditions warrant.
 - B. Detective measures:
 - Flow forecasts for next hour up to three hours out (currently used to trigger next hour curtailments for the North of Echo Lake flowgate only).
 - Dispatch monitoring displays show actual flow for each flowgate compared to the SOLs.
 - C. Corrective:
 - Implement flowgate curtailments for expected and in-hour SOL exceedences
 - other mitigation actions prescribed as in individual flowgate Dispatcher Standing Orders
- With all of the above tools we still implement firm curtailments. Therefore this project is investigating an additional pro active measure, regulating hourly firm sales.

Hourly Firm AFC Limits On The Network System and Process Impacts if Adopted

■ BPAT Impacts:

- AFC validation enabled for the HF products
- MOD-30 path SOLs updated in commercial systems in RT
 - Has workload impacts
 - May require system development
- Flowgate PTDFs updated in RT whenever system model changes
 - New PTDFs are calculated in iCRS every 5 minutes based on line outages and real-time generation.
 - OATi has capability to update PTDFs in webTrans every 15 minutes
 - Requires coordination with OATi and analysis of OATi process modifications

■ Customer Impacts:

- Seek to update preschedule SOLs (TTCs) in OASIS or Webpage
- Hourly Firm requests would be denied if Hourly Firm AFC is unavailable
- Hourly Non-Firm will not be limited

Process Changes

- Activate the Hourly Firm validation in webTrans
- Update Hourly Firm AFC components more frequently:
 - SOLs
 - PTDFs

Activate Hourly Firm Validation

- Setting in webTrans
- No code changes
- For all flowgates

Updated SOLs

- SOL ranges are set up to 2 weeks before preschedule
- SOLs are based on forecast conditions and TTCs may be set at the low range to reflect extreme conditions
- SOLs may be updated at Dispatch request in response to unforeseen system conditions
- Considering update options

Updated PTDFs

- Currently published to webTrans once a day
- Currently iCRS calculates PTDFs every 5 minutes
- Could update webTrans every 15 minutes (subject to webTrans limitations)
- Update frequency is a setting in iCRS
- No code changes

Timing

- Operations would like to have capability to limit hourly firm sales in place by the beginning of the Fall outage window, September 2013
- Implementation subject to addressing system requirements, process and procedural changes, staff availability and training, and testing

Out of Scope Issues

Hourly Firm AFC v. Hourly Non-firm AFC

- Project is limited to exploring regulating Hourly Firm AFC
- Hourly Firm AFC is curtailed on the same basis as daily, weekly, monthly and yearly (long-term) firm transmission service
- We are not proposing to regulate hourly non-firm sales.

De-linking the Interim Hourly Process from the Competition Process

- We do not intend the Interim Hourly Firm AFC project and process for managing firm hourly sales to be tied to whether or not BPA provides Competition and Preemption in the hourly market.
- The process for determining whether or not to provide Hourly Competition and Preemption has different business drivers, timelines, and customer engagements than the Interim Hourly Firm AFC project.
- We need experience with the Competition and Pre-emption initiative and the Interim Hourly Firm AFC project initiative and expect revisions and improvements to each those processes and procedures before they are merged.

Separate Paths –Future State

- Efforts to develop future state vision, will continue in parallel to better refine ATC values, incorporate more updated inputs, and run more frequent calculations.
 - This project is not expected until October 2016
- Limiting Hourly Firm Sales project is an interim measure needed now to get BPA closer to proactive congestion management.
- Both initiatives will stay closely tied out throughout their individual development and implementation.

Reservation v. Scheduling Limits

- The Interim Hourly AFC Project will limit
 - Hourly firm reservations on network flowgates
 - Currently we have hourly firm and non-firm reservation limits on MOD 029 paths
- Next-Hour Curtailment pilot for the North of Echo Lake Flowgate
 - Tests a methodology for limiting schedules on network flowgates.
 - The next hour curtailment methodology could later be expanded to all network flowgates

Next Steps

Where We Are

- We have talked about limiting hourly firm sales on the network for a long time and we can no longer put it off. The operational need has become great enough that we cannot wait until the hourly AFC calculation inputs are analyzed and fine-tuned to our satisfaction.
- As a result we are proceeding to investigate an interim hourly firm AFC to limit hourly firm sales on the network and decide whether to proceed.
- We understand there will be market impacts and that regulating hourly firm sales on the network may have impacts that we have not yet considered.
- We want to engage you in discussions regarding how this may affect you.
- We would like to hear from you what impacts this may have to the way you do business with us and other concerns you may have.

Customer Comments

- Customer Comments --Please email any comments and concerns to techforum@bpa.gov. This is a secure website so your comments cannot be seen by others outside BPA and BPA will not issue responses to your comments.

Interim Hourly Firm AFC Project

- Questions?