



Heat Maps

Customer Discussion
September 15, 2020



BPA's 2018–2023

STRATEGIC GOALS

Delivering on our public responsibilities through a commercially successful business

#1

**STRENGTHEN
FINANCIAL HEALTH**

#3

**PROVIDE
COMPETITIVE POWER
PRODUCTS & SERVICES**

#2

**MODERNIZE
ASSETS &
SYSTEM OPERATIONS**

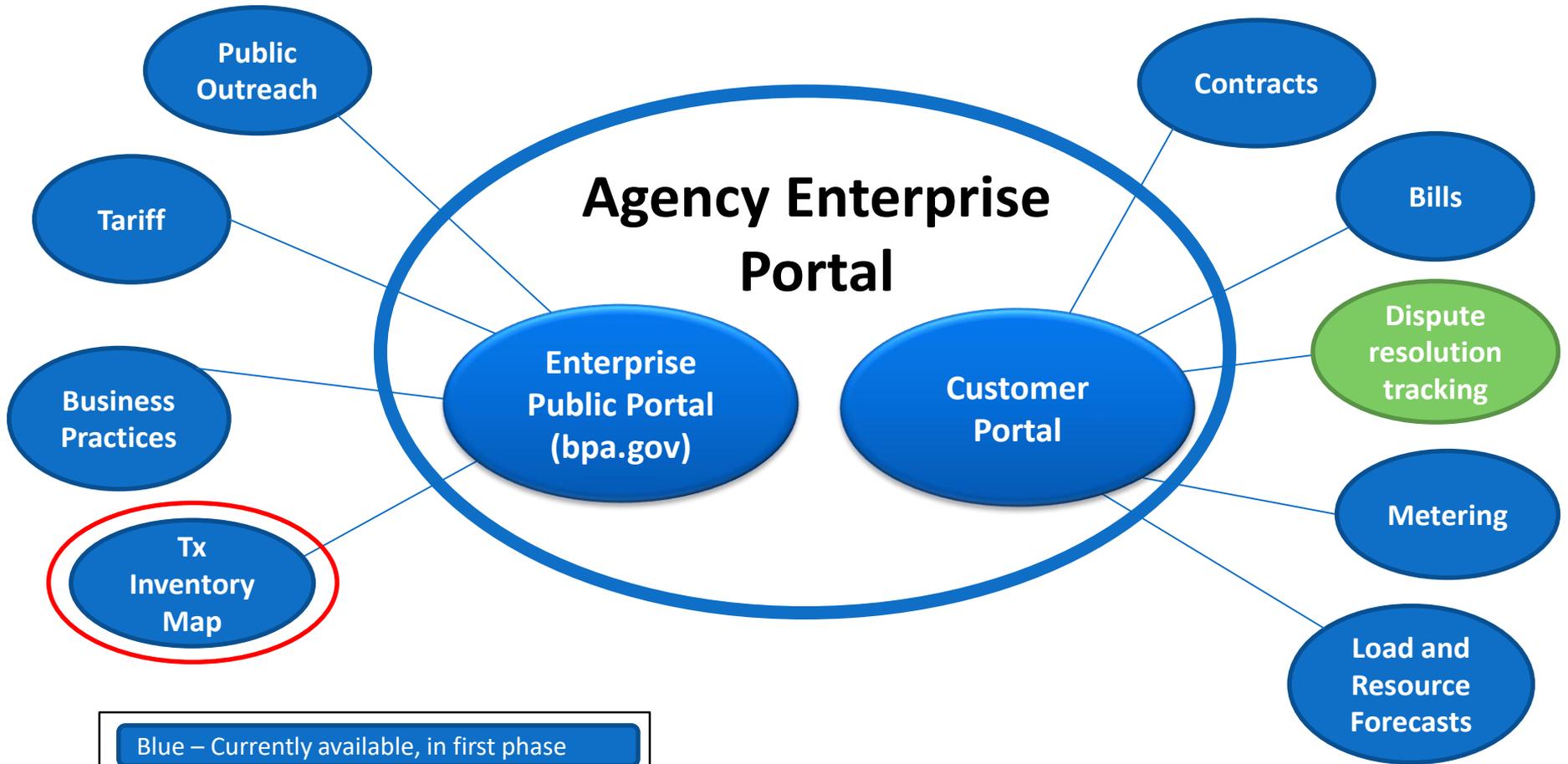
#4

**MEET TRANSMISSION
CUSTOMER NEEDS
EFFICIENTLY & RESPONSIVELY**

Agenda

- Agency Enterprise Portal Update
- Load Interconnection Capability Map
- Commercial Transmission Inventory Map

Agency Enterprise Portal (AEP) - Areas of Content



Blue – Currently available, in first phase
Green – May be added at a later phase
* Examples of content posted on EPP and CP.
For Discussion Purposes Only

Agency Enterprise Portal

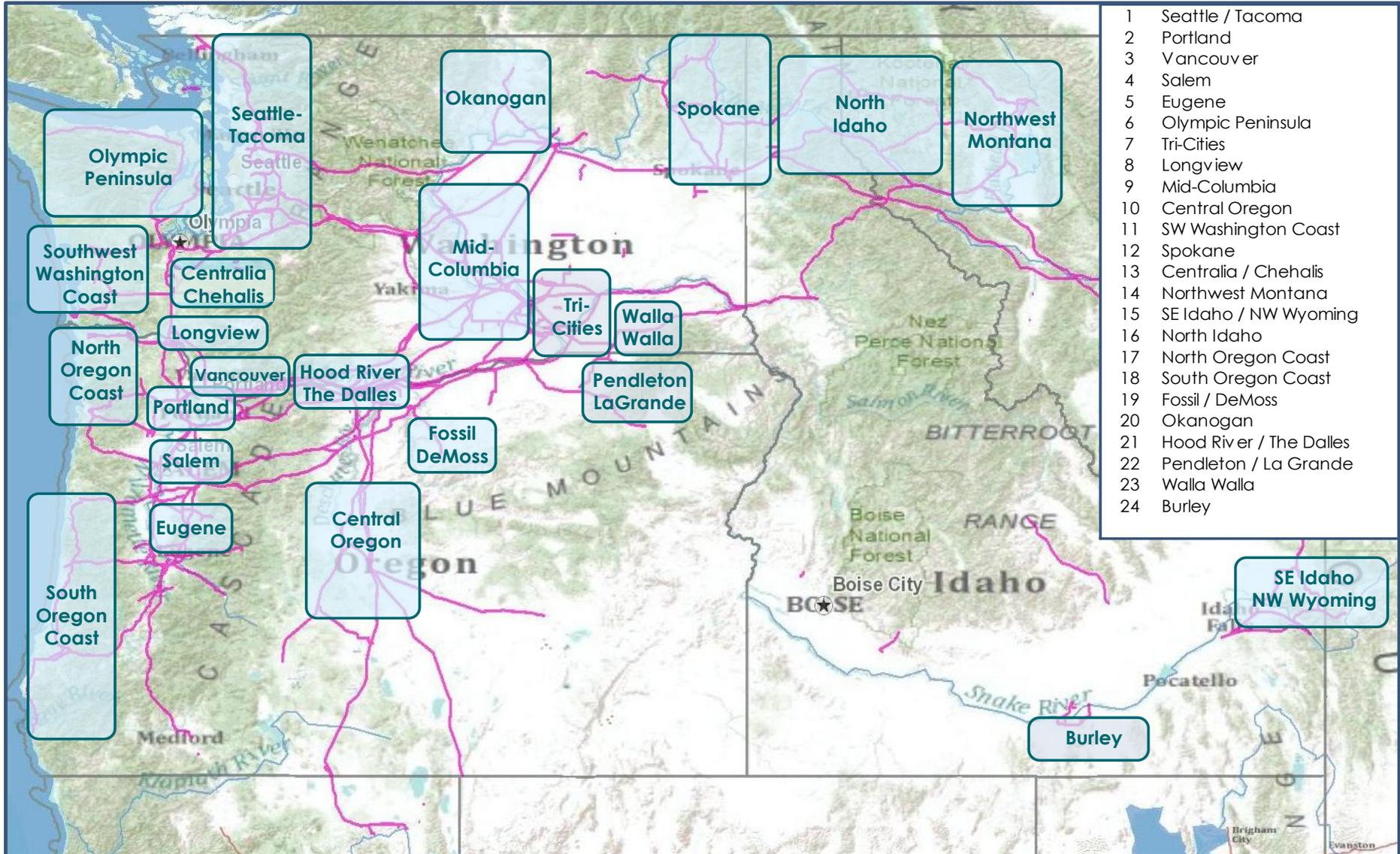
- A new modern digital customer experience when accessing public and customer-specific information on BPA's website.
- The first phase of updates will go live in 2021 with additional improvements planned in future phases.



Load Interconnection Capability Maps



System Assessments



Deep Dive Information – On Demand

What is a Deep Dive?

- Focused analysis on an area
- Determine availability for new interconnections
- Communication to customer

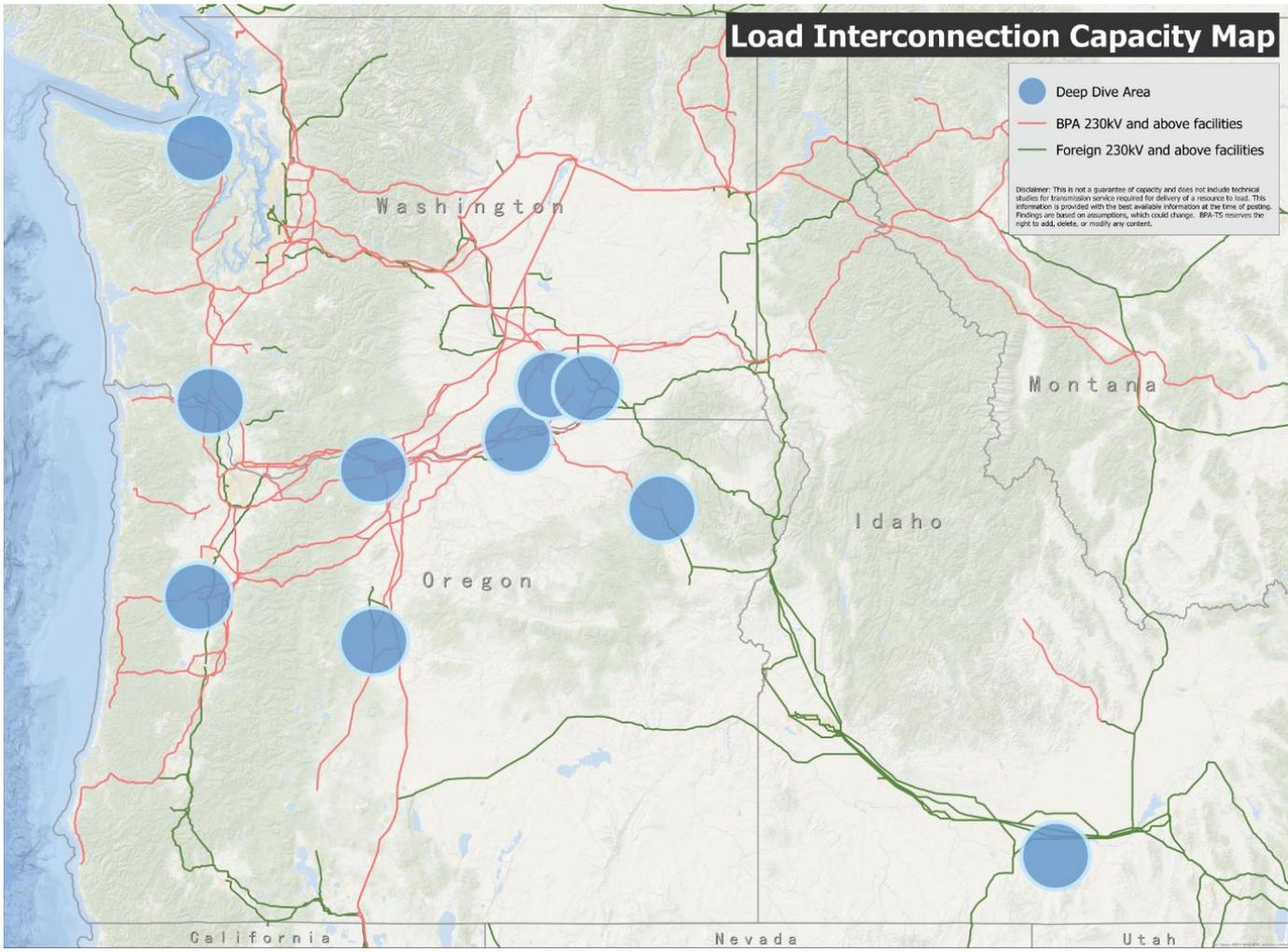
Deep Dive analysis includes:

- Load analysis: historical and forecasted
- Review of past projects completed and future projects planned
- Completed interconnection studies, annual system assessments and any additional studies
- Powerflow studies to identify existing system limits and then testing the performance of potential or future projects.
- Presenting the information to the customer

Load Interconnection Capability

- Provides access to on-demand area capability information to economic development boards and customers
- Transmission Planning has completed 13 deep dives to date
- Future: More granular, utility customer specific capability information in the Enterprise (Customer) Portal.

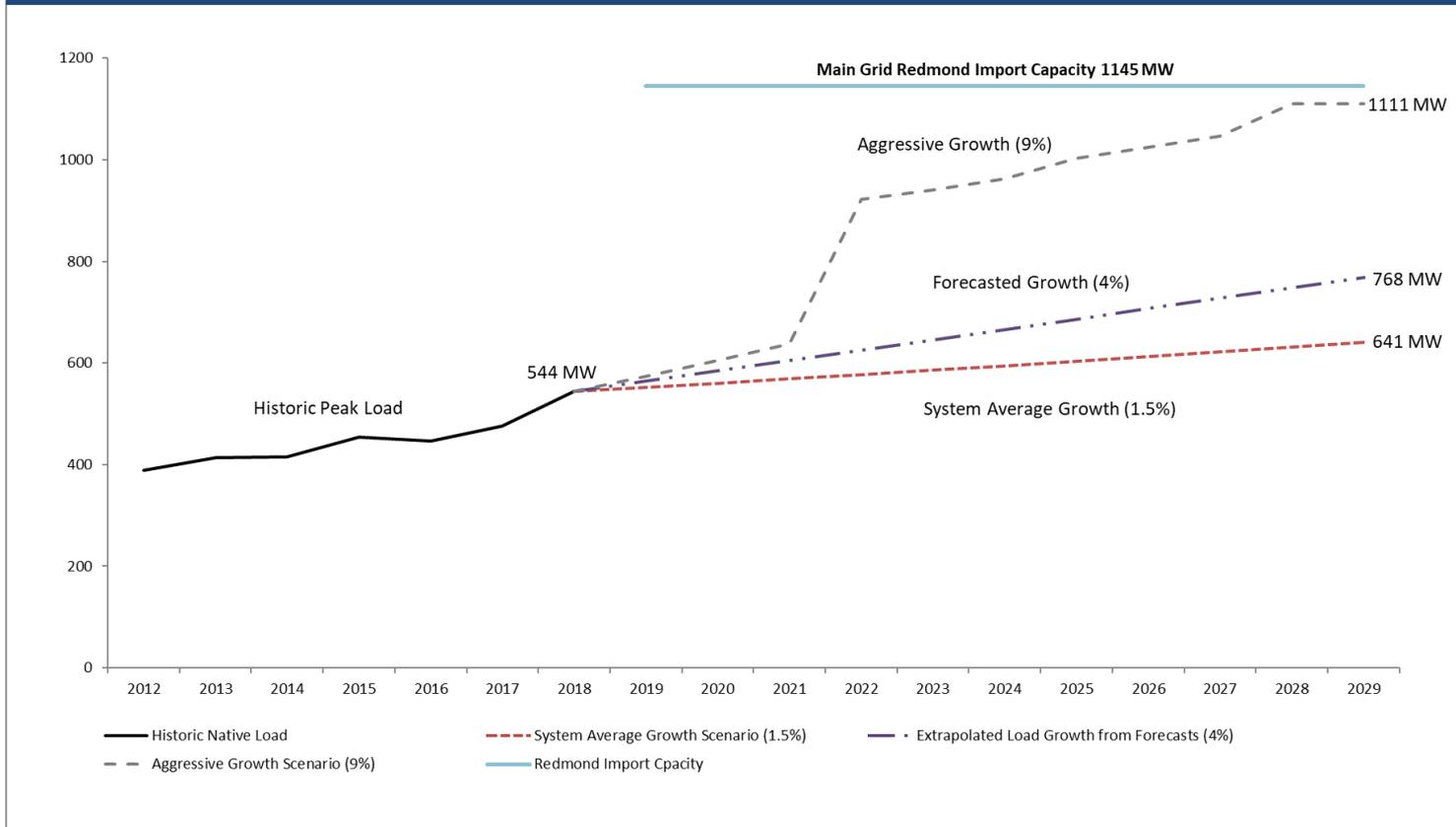
Area Deep Dives



Sample Information

As of 12/3/19
Subject to Change

Redmond Import Summer Limits





Commercial Transmission Inventory Map Pilot

Customer Discussion
September 15, 2020



Today's Tools and Reports

- Customer Tools and Reports.
 - <https://www.bpa.gov/transmission/Reports/TransmissionAvailability/Pages/default.aspx>
 - ★ Long-Term Availability Transfer Capability
 - ★ [ATC, AFC and Conditional Firm Inventory](#)
 - ★ [AFC/ATC Less Pending Queued Request Inventory](#)
 - [Contract Points List](#)
 - [Long-Term Pending Queue](#)
 - ★ [Long-Term Original PTDF Calculator](#)
 - [Long-Term Redirect PTDF Calculator](#)
 - [Long-Term Power Transfer Distribution Factors \(PTDF\) Table](#)
 - [Transmission Reservation & Available Transfer Capability \(ATC\) Analysis Request](#)

BPA's Objectives

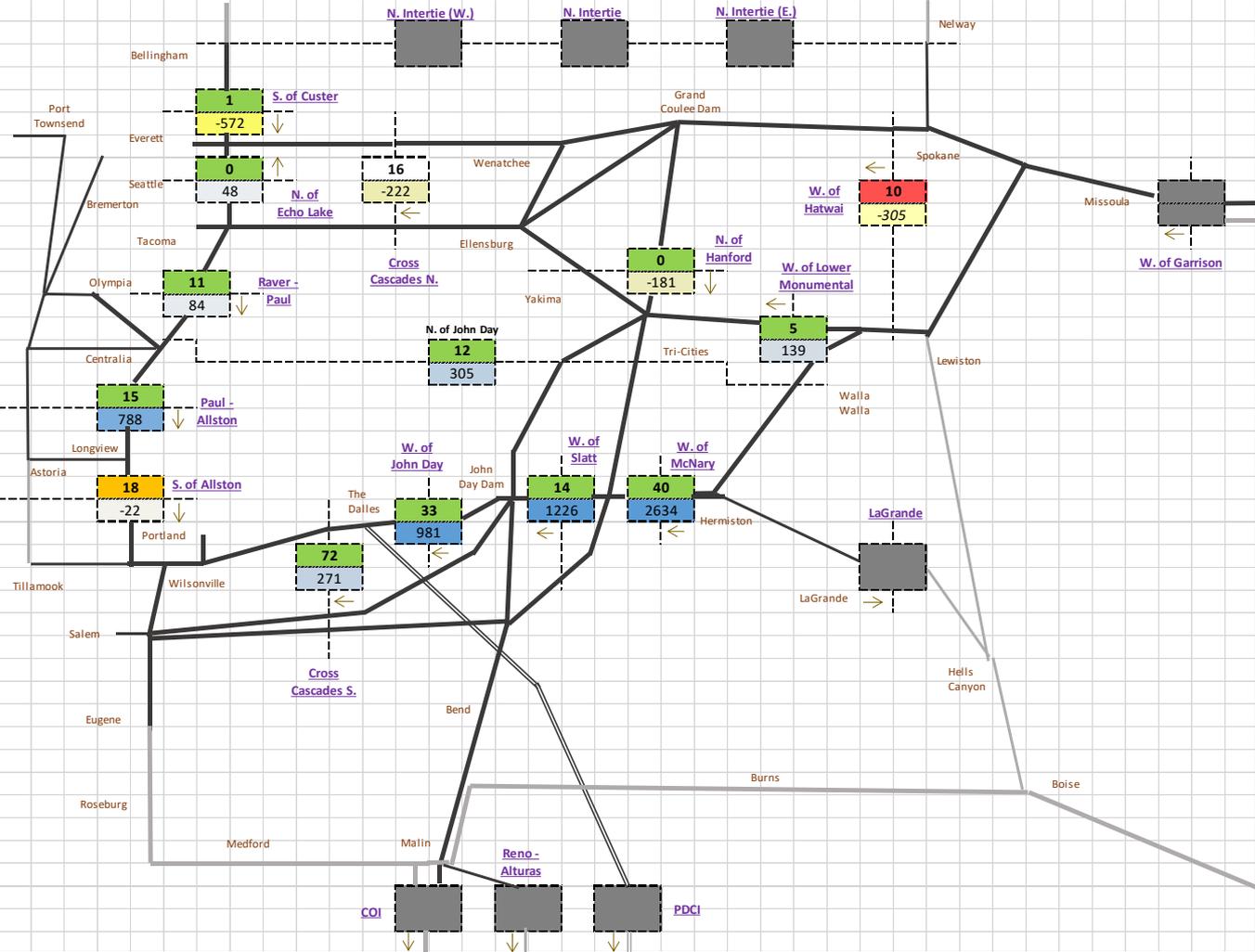
- Provide customers with a more intuitive inventory tool that will:
 - Inform customers about the potential impact their request may have on the transmission system.
 - Provide customers with preliminary flowgate information about the transmission systems ability to fulfil their long-term firm request.
 - Assist customers with making a decision to submit a formal request for service.
 - Help customers identify the potential need to request a study for Conditional Firm service.
 - Provide insight that a request may be sent to cluster study.

Pilot – Commercial Transmission Inventory Map

			Zone	kV	Owner Name
Evaluated Source:	LAGRAND230		Southeast Washington	Portland Area	Bonneville Power Admin
Evaluated Sink:	PEARL230		Portland Area	230	Bonneville Power Admin
Request MW:	100				
PTDF #:	40621	40824			
Flowgate	Source	Sink	% Impact	MW Impact	Result
CROSS CASCADES NORTH E>W	-0.1582	-0.3190	16.1%	16.1	Potential CF
CROSS CASCADES SOUTH E>W	0.0935	-0.6233	71.7%	71.7	Potential LTF
NORTH OF HANFORD N>S	-0.5403	-0.4832	-5.7%	0.0	Potential LTF
NORTH OF JOHN DAY N>S	-0.6408	-0.7603	12.0%	12.0	Potential LTF
PAUL TO ALLSTON N>S	-0.1201	-0.2652	14.5%	14.5	Potential LTF
RAVER TO PAUL N>S	-0.0955	-0.2103	11.5%	11.5	Potential LTF
SOUTH OF ALLSTON N>S	-0.1483	-0.3266	17.8%	17.8	Potential CF
WEST OF JOHN DAY E>W	0.1236	-0.2059	33.0%	33.0	Potential LTF
WEST OF SLATT E>W	-0.0014	-0.1424	14.1%	14.1	Potential LTF
WEST OF LOWER MONUMENTAL E>W	-0.0103	-0.0652	5.5%	5.5	Potential LTF
SOUTH OF CUSTER N>S	0.0103	-0.0039	1.4%	1.4	Potential LTF
NORTH OF ECHO LAKE S>N	0.0251	0.0385	-1.3%	0.0	Potential LTF
WEST OF MCNARY E>W	0.2789	-0.1250	40.4%	40.4	Potential LTF
WEST OF HATWAI E>W	0.1444	0.0430	10.1%	10.1	Cluster Study Likely

Prototype – The “Map”

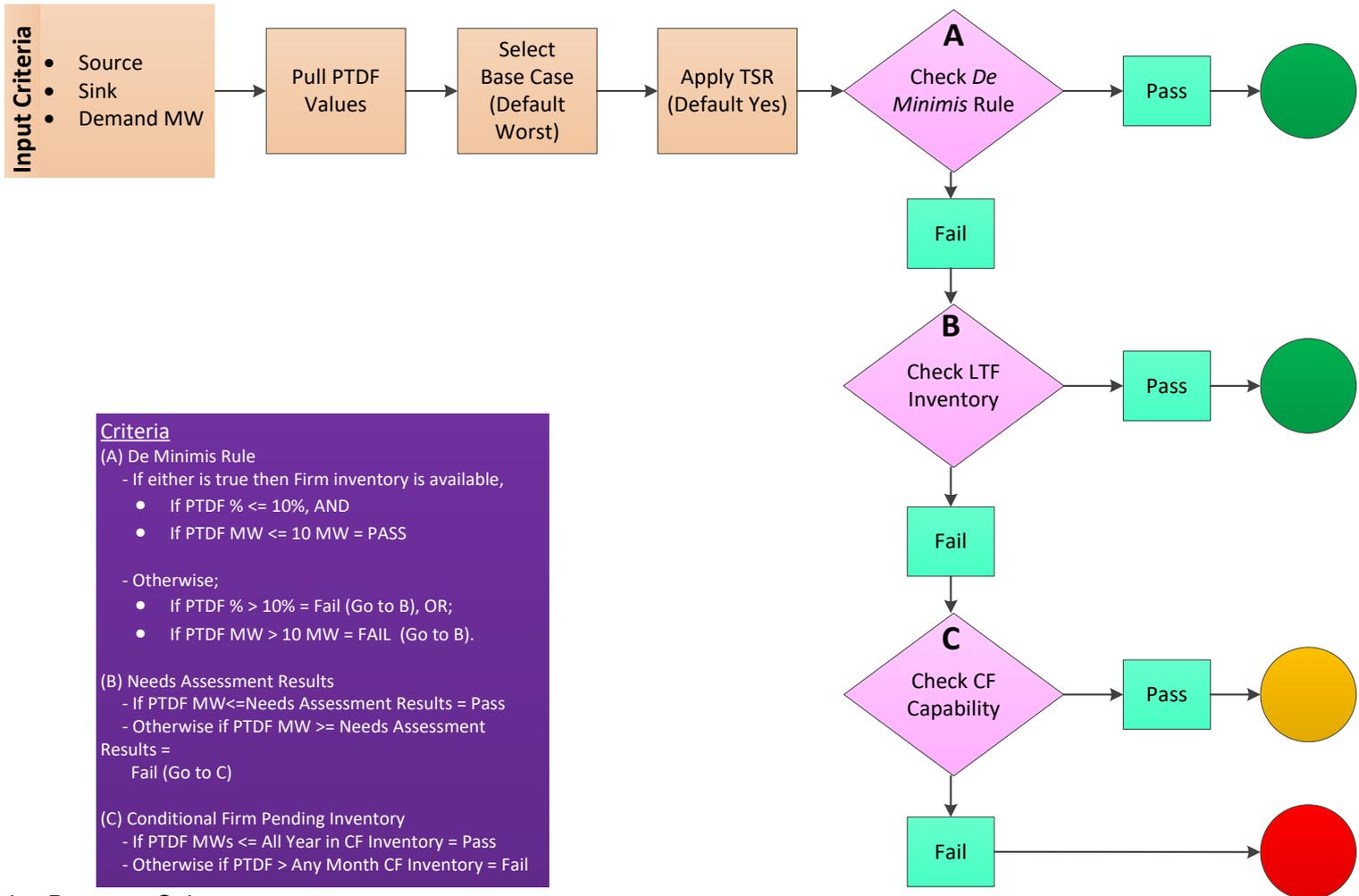
Flow Scenario: Worst Case MW Impact: Yes Source: LAGRAN230 Sink: PEARL230 MW: 100



Legend	
ABC	Flowgate name
—	BPA lines (AC, DC)
- - -	Other utility lines (AC, DC)
0	Flow estimate of TSR
0	Inventory estimate for flowgate
←	Flow Direction
City	Approximate Location
Placeholder	Placeholder (inactive)
Impact Check Score	
Green	Pass (Inventory may be available or de minimis flow)
Yellow	Fail, but CF may be available
Red	Fail, and CF not available
Available Inventory Ranking	
Dark Blue	Max Inventory Available
Light Blue	Zero Inventory Available
Yellow	Inventory Unavailable

The Basic Logic

Commercial Transmission Inventory Evaluation Map – Flowgate Check



- Input Criteria**
- Source
 - Sink
 - Demand MW

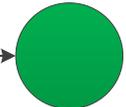
Pull PTDF Values

Select Base Case
(Default Worst)

Apply TSR
(Default Yes)

A
Check De Minimis Rule

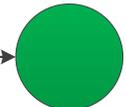
Pass



Fail

B
Check LTF Inventory

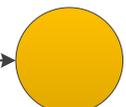
Pass



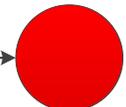
Fail

C
Check CF Capability

Pass



Fail



Criteria

(A) De Minimis Rule

- If either is true then Firm inventory is available,
 - If PTDF % <= 10%, AND
 - If PTDF MW <= 10 MW = PASS
- Otherwise;
 - If PTDF % > 10% = Fail (Go to B), OR;
 - If PTDF MW > 10 MW = FAIL (Go to B).

(B) Needs Assessment Results

- If PTDF MW <= Needs Assessment Results = Pass
- Otherwise if PTDF MW >= Needs Assessment Results = Fail (Go to C)

(C) Conditional Firm Pending Inventory

- If PTDF MWs <= All Year in CF Inventory = Pass
- Otherwise if PTDF > Any Month CF Inventory = Fail

Inventory in the Map

- Long-term Firm Inventory
 - Is a flow based estimate of the amount of available inventory.
 - It is power flow inventory from the last completed Needs Assessment, in support of the TSEP Cluster Study.
 - The available inventory accounts for firm transmission rights, bridge conditional firm, and queued TSRs previously studied as part of a Cluster Study and waiting for energization of a plan of service.
 - It does not account for TSRs in the queue that have not participated in a completed Cluster Study.
 - A negative number is a lack of inventory due to the impact of higher queued requests.
- BPA's Conditional Firm Inventory is derived from the analysis of actual historical flows against TTCs during constrained periods.

Disclaimers

- The results are based on information provided by the user at the time of the assessment and are for information purposes only.
- BPA is not responsible for any decisions made by the user based on the information provided by the Map.
- Results may vary due a variety of factors including but not limited to: changes in system topology, changes in the long-term queue, sub-grid constraints, and actual points used to evaluate a TSR at time of submittal.
- The information provided at the time of assessment is subject to change without notice.
- The map cannot be used to accurately calculate impacts of Short-Term Firm TSRs or requirements for Generation Interconnection.

Customer's Next Step

Customer Decisions

BPA Process

Results to Customer

Reevaluate

What-If

TSR

PTDF-Based Evaluation

PTDF- Based Evaluation

Study- Based Analysis

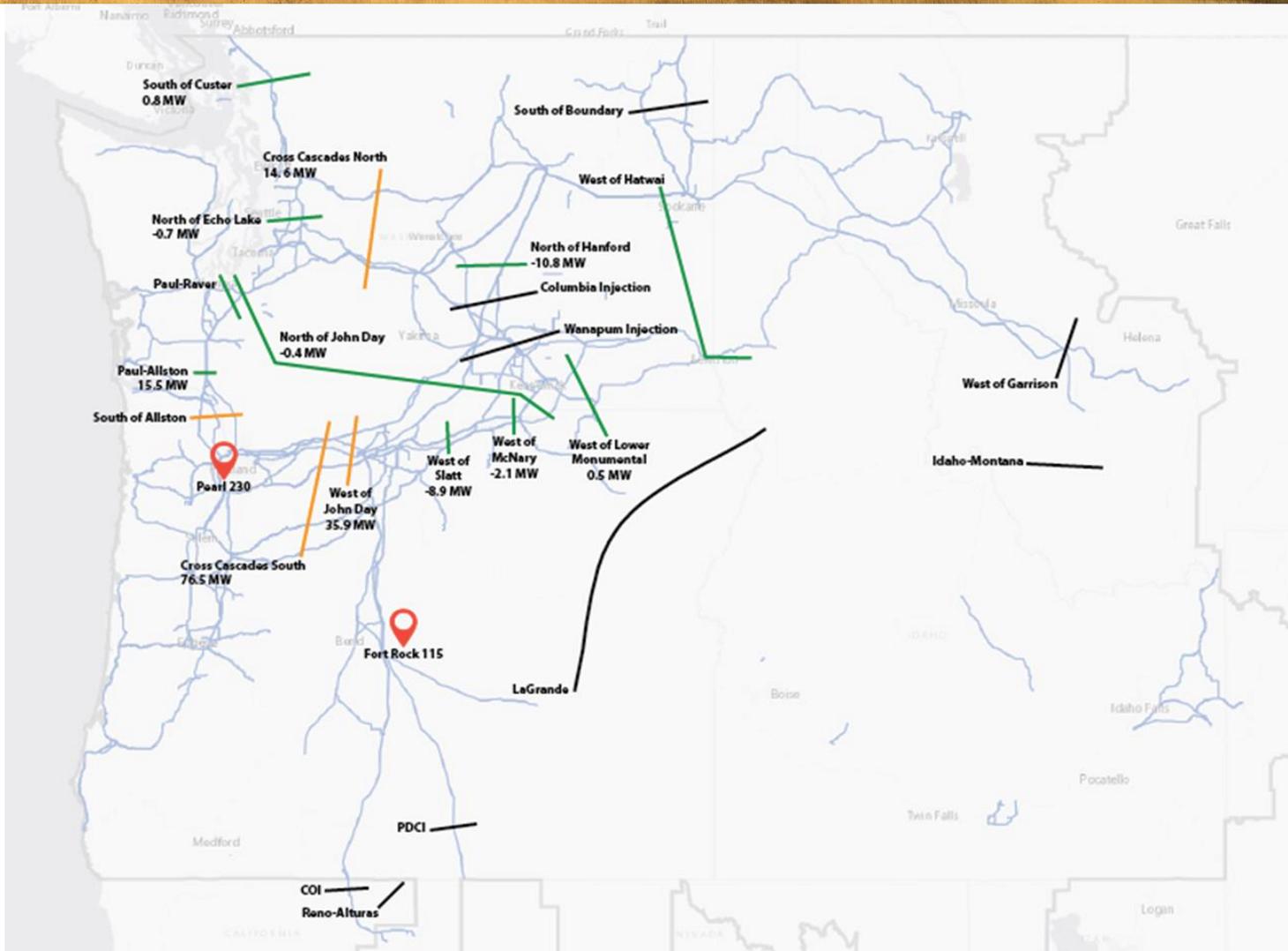
Sub-Grid Assessment

Findings Report

Offer Service

Recommend Cluster Study

Concept for Transmission Inventory



Links Live September 15

- **Load Interconnection Capability Map:**
<https://www.bpa.gov/transmission/Doing%20Business/Interconnection/LoadInterconnectionCapability/Pages/default.aspx>
- **Commercial Inventory Map:**
<https://www.bpa.gov/transmission/Reports/TransmissionAvailability/Documents/tx-inventory-map.xlsx>
 - **Instructions:**
<https://www.bpa.gov/transmission/Reports/TransmissionAvailability/Documents/tx-inventory-map-instruc.docx>

Additional Comments & Feedback

- Load Interconnection Capability Map
 - interconnection@bpa.gov
 - Subject Load Interconnection Capability Map
- Commercial Inventory Map
 - tblresdesk@bpa.gov
 - Subject Commercial Inventory Map