



BPA Transmission Service Options for Delivery to PGE

Oregon Public Utility Commission

October 31, 2019

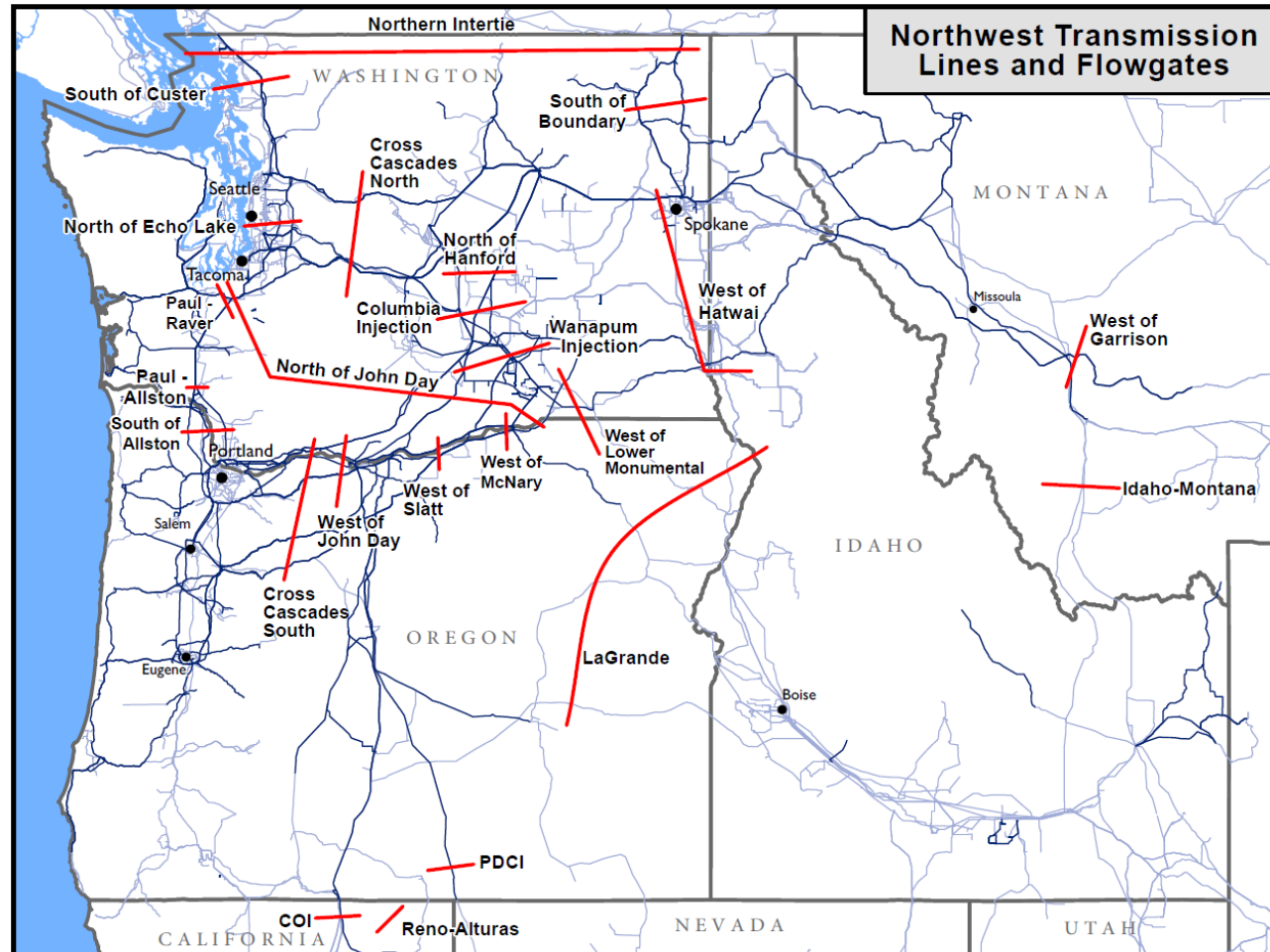


Transmission Request Evaluation

- BPA provides wholesale transmission service in accordance with its Open Access Transmission Tariff (OATT) and supporting Business Practices
- BPA's process for evaluating and responding to transmission service requests (TSRs) largely mirrors the method defined by the Federal Energy Regulatory Commission's *pro forma* tariff
 - BPA has 30-day response requirement to notify a requesting customer whether BPA can provide requested service without requiring a study (section 17.5)
 - If the existing system cannot enable the TSR, BPA is obligated to offer to study and identify plans of service to upgrade the transmission system (sections 13.5, 15.4, 19 and 32 of its OATT)

BPA's Paths/Flowgates

- BPA manages 18 internal network flowgates, in addition to its external interties/interchanges
- In addition to managed constraints on the bulk grid network, new requests are also screened for local sub-grid area reliability limitations
 - Constraints generally associated with Receipt or Delivery Points at lower voltage levels
- Consequently, a large proportion of new long-term requests are identified as requiring a System Impact Study



GIS Analyst: RLW Map Production Date: 6/23/2015

BPA's Cluster Study Process

- Once BPA determines a study is required, Sections 19 and 32 apply
 - System Impact Study (SIS)
 - Facilities Study (FS)
- BPA has historically (since 2008) relied on a 'cluster study', aggregating all eligible requests and combining the SIS and FS into a single study
 - BPA strives to complete the cluster study in 120 days
 - The customer always has the option to request to be studied on an individual basis
- Study results include:
 - Costs of any directly assignable facilities that will be charged to the customer;
 - Customer's estimated pro rata share of network upgrade costs;
 - Estimated time to complete the network upgrades;
 - For the first time, BPA's 2020 Cluster Study will also evaluate Conditional Firm service options for TSRs where indicated by study participants
- BPA performed a cluster study in 2008, 2009, 2010, 2013, 2016, 2019 and is currently preparing for the 2020 cluster study

Elements of BPA's TSR Study and Expansion Process

Phase 1: Pre-Study

Pre-study:

- Customer TSR submittal and ATC assessment;
- Period between close of last TSR deadline and next TSR deadline for Cluster Study participation (typically June-May)
- \$ - TSR deposit and processing fee

Phase 2: Cluster Study

Cluster Study:

- BPA tenders Study Agreements following TSR deadline;
- BPA commences and completes study (120-day study period);
- Results: preliminary plan of service scope, cost, and schedule;
- \$ - Customer's pro rata share of costs by MW

Phase 3: Preliminary Engineering

Preliminary Engineering and Scoping:

- Refinement of cost and scope of Cluster Study results;
- Estimation of Environmental Review scope and costs;
- \$ - Customer's pro rata share of costs by MW

Phase 4: Environmental Review

Environmental Review:

- Required NEPA review of environmental impacts based on identified plan of service
- Includes Record of Decision on proposed action, and whether to build the project;
- \$ - Customer's pro rata share of costs by MW

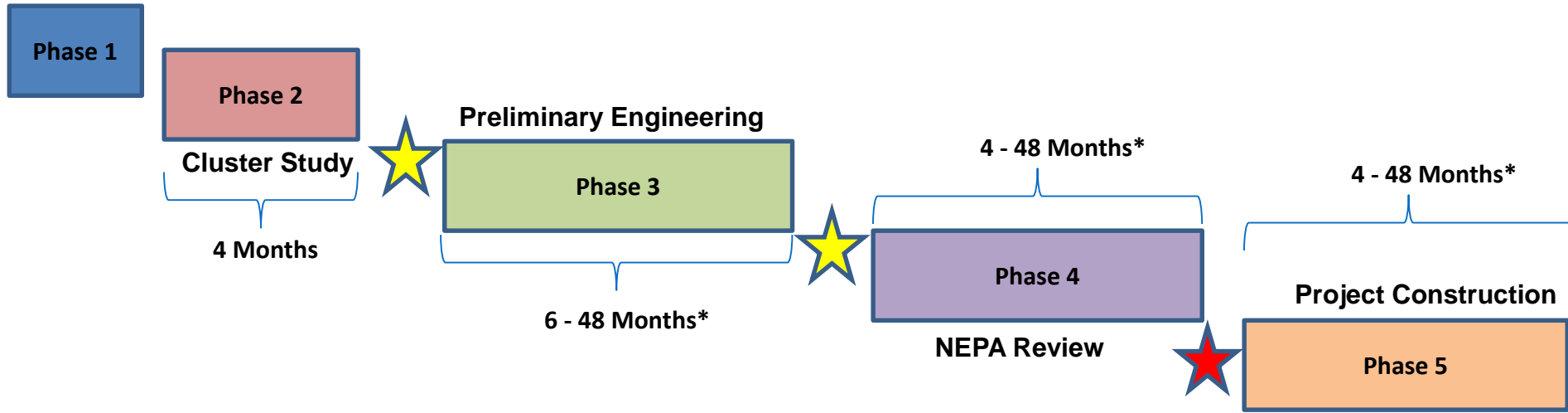
Phase 5: Project Construction

Project Construction:

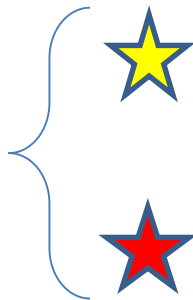
- Construction and Energization of identified transmission project;
- \$ - Customer secures its pro rata MW share of construction costs (letter of credit, etc.)

TSEP Overview – Sequence and Order

Pre-Cluster Study



At each of these points BPA refreshes project-specific information so customers can make informed business decisions.



Informational Financial Guidance - Prior to the commencement of a next phase, BPA will provide customers with informational analysis on updated rate impacts and non-binding information on whether service might be provided at rolled-in rates

Formal determination of rate treatment (rolled-in or incremental) - Prior to the construction decision, BPA will perform formal rate analysis and determination of whether service can be provided at rolled-in rate based on best available information. BPA offers the Customer a Service Agreement for the requested service.

***Estimated range; actual timelines vary based on project scope or environmental impacts**

Recent Requests to PGE's System

The majority of BPA's recent requests have originated east of the Cascades, seeking delivery to Portland metro load (as well as the Puget Sound area and Southern Interties)

Primary Delivery Points (Sinks)

Requests to Deliver to the Portland metro area

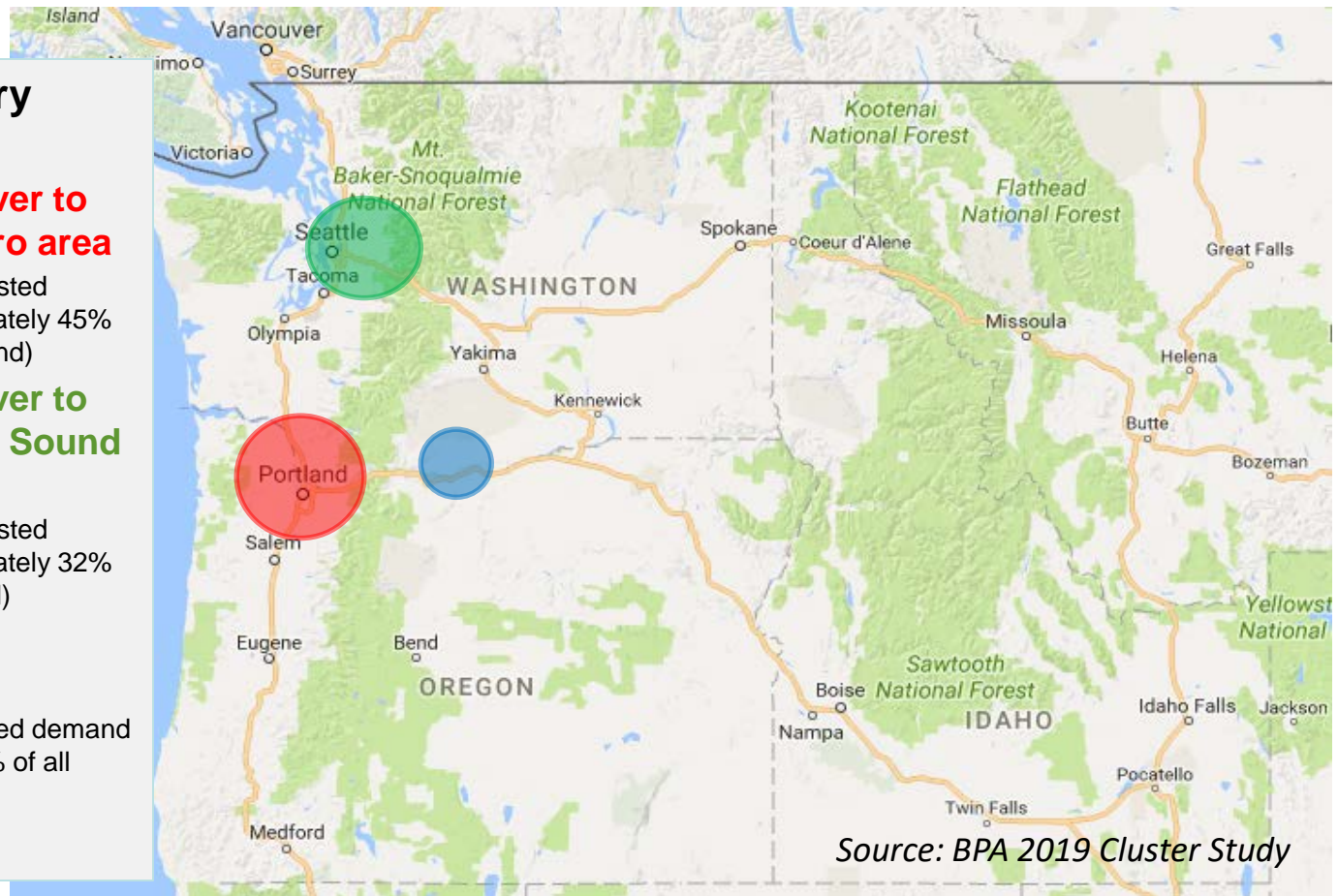
- 1,778 MW of requested demand (approximately 45% of all studied demand)

Requests to Deliver to the Seattle/Puget Sound area

- 1,298 MW of requested demand (approximately 32% of all study demand)

Deliveries to Big Eddy/John Day

- 565 MW of requested demand (approximately 14% of all study demand)

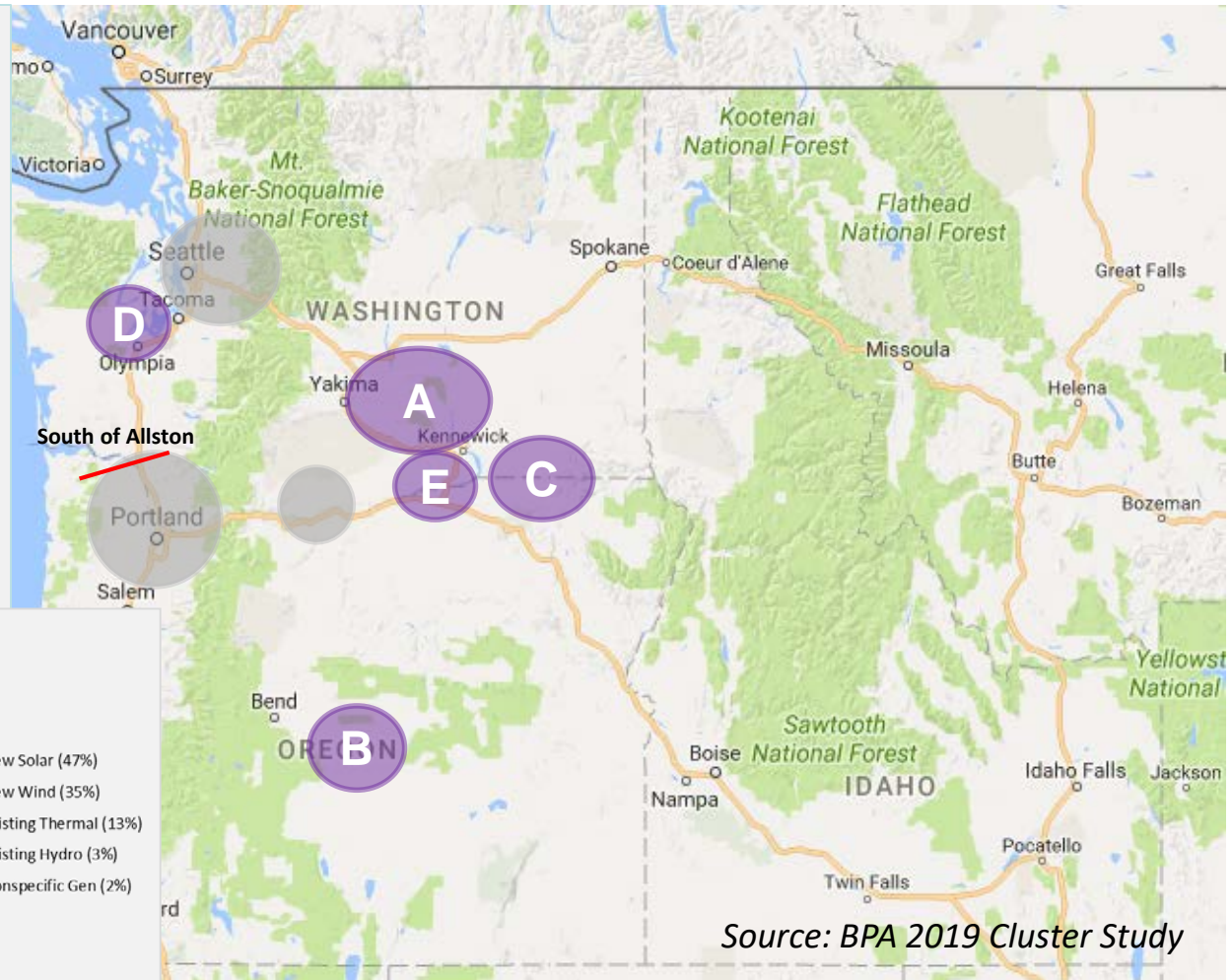


Recent Requests to PGE's System (cont.)

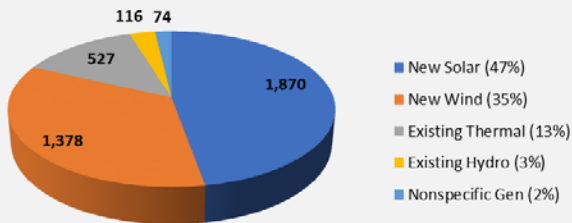
Primary Resource Locations

1. Generation Zones

- A. Tri-Cities (1,025 MW – 26%)
- B. Central Oregon (750 MW – 20%)
- C. Boardman/McNary (768 MW – 19%)
- D. Olympic Peninsula (600 MW – 15%)
-All existing resources (Gray's Harbor, Tacoma resources)
- E. Columbia River Gorge (527 MW – 13%)



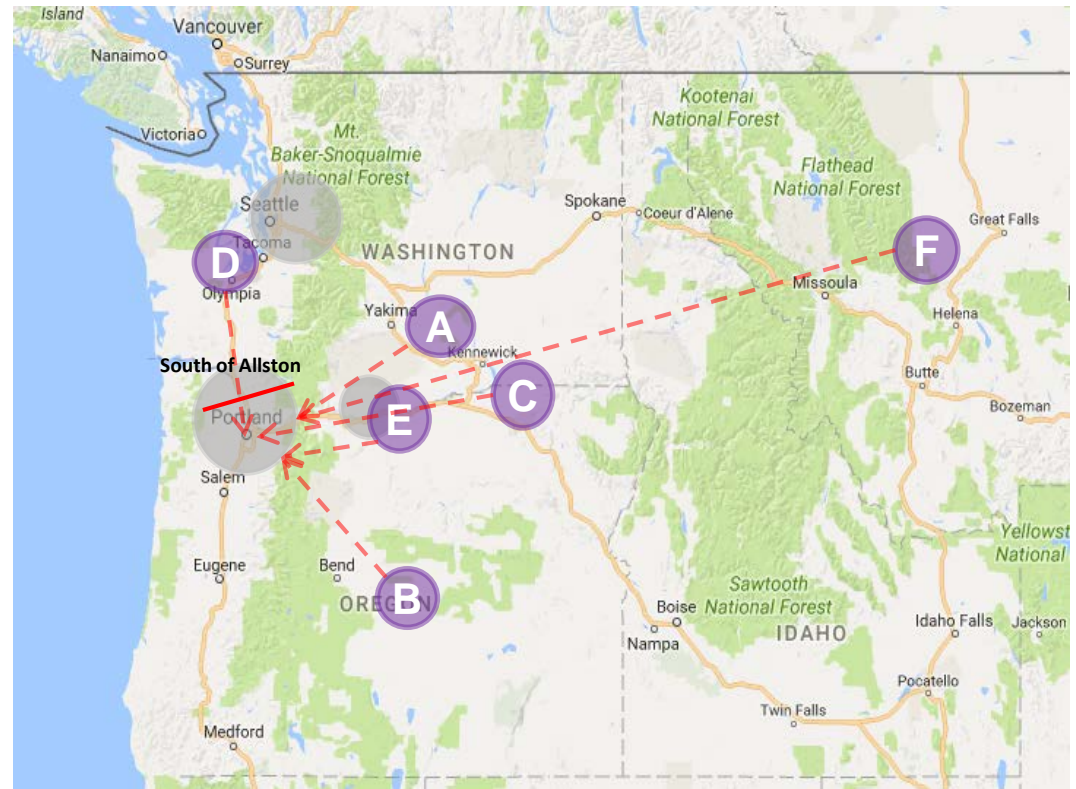
Resource Composition



South of Allston and Portland Metro Area

South of Allston impacts of a 100-MW transaction to Portland Metro Area (Pearl 230) from common generation zones:

Generation Zone	SOA Impact
A. Tri-Cities	~20 MW
B. Central Oregon	~12 MW
C. Boardman/McNary	~18 MW
D. Olympic Peninsula	~66 MW
E. Columbia River Gorge	~16 MW
F. Montana	~27 MW



Very few Northwest generation locations will have zero impacts to the South of Allston flowgate, assuming delivery to PGE (based on current system topology)

BPA South of Allston Capacity

- Recent activities related to South of Allston ATC:
 - In Fall of 2018, BPA updated certain assumptions in its Long-term ATC methodology
 - Resulted in additional capacity on BPA's share of the SOA flowgate
 - Allowed BPA to 'firm-up' all previously-studied (2016 and previous cluster studies) transmission requests only needing SOA
 - 2019 Cluster Study identified the Schultz-Wautoma series capacitor as contingent facility necessary to enable incremental TSRs
 - Would provide sufficient ATC to accommodate all 2019 Cluster Study TSRs
 - BPA has committed to completing this non-wire solution at embedded transmission rates on behalf of its transmission customers
 - The 2019 Cluster Study identified an estimated energization date of Fall of 2023
- Many requests have been withdrawn since completion of 2019 Cluster Study – probable that Schultz-Wautoma series capacitor will again be identified in the 2020 Cluster Study
 - BPA continues to analyze future reinforcement options that will provide additional capacity beyond the Schultz-Wautoma series capacitor
- Because of the lack of LT ATC on the South of Allston flowgate, BPA has offered Conditional Firm Service as a bridge to upgrades, or as a stand-alone service if the Customer does not want to support upgrades (called 'Reassessment')

Conditional Firm Transmission Service

Conditional Firm Transmission Service

Background:

In Order No. 890, FERC adopted a requirement for Transmission Service Providers (TSP) to offer Conditional Firm Service (CFS) to address what they called the “all or nothing” problem associated with requesting long-term firm (LTF) transmission service (Order No. 890 ¶925).

- Example #1 - Transmission lines are often “sold out” on a firm basis but have physical capacity available in all but a small percentage of the year during peak loads.
 - 8760 hrs. year of firm service = long-term firm service
 - 8750 hrs. year of firm service = short-term firm service
- Example #2 – Generation developers may require long-term firm service to secure financing for new project.
- CFS enables a TSP to maximize the LT use of the transmission system.

Conditional Firm Transmission Service

What is Conditional Firm Transmission Service?

CFS is a form of Long-Term Firm (LTF) Transmission Service that is subject to one of two types of “conditional curtailment” (customer cannot have both in a CF agreement):

1. Contract-specified **Number of Hours** per year during which conditional curtailment may occur.
 - e.g. 400 hrs. per year
2. Contract-specified **System Conditions**
 - e.g. limiting transmission elements = transmission line, substation or flowgate

Conditional Firm Transmission Service

Conditional Firm Attributes

- CFS can be Deferred, Redirected, Resold, and Transferred just like any other firm contract.
- CFS contracts have the same Rollover rights as LTF Firm (5-year term).
- CFS is charged at the LTF PTP transmission rate with no adjustment/credit for conditional curtailment(s).
- CFS has priority to Short-Term Firm (STF) in queue order before it is offered to the ST market for sale.
 - BPA utilizes OATI's Conditional Curtailment Option (CCO) software to manage CFS reservations.
 - CCO automatically assigns STF (Monthly, Weekly, Daily, Hourly) to both System Conditions and Number of Hours (e.g. firm-up) before it's released to the market.

Conditional Firm Transmission Service

- Firmed-up CFS is curtailed pro-rata at NERC priority 7.
- CFS that is not firmed-up is curtailed pro-rata at NERC priority 6.

NERC Transmission Service Reservation Priorities

Transmission Service Reservation Priorities		
Priority	Acronym	Name
0	NX	Next-hour Market Service
1	NS	Service over secondary receipt and delivery points
2	NH	Hourly Service
3	ND	Daily Service
4	NW	Weekly Service
5	NM	Monthly Service
6	NN	Network Integration Transmission Service from sources not designated as network resources
7	F	Firm Point-to-Point Transmission
	FN	Network Integration Transmission Service from Designated Resources

Conditional Firm Transmission Service

Requesting a Conditional Firm Study

Customer must first request LTF PTP service; if BPA cannot award that service, the Customer has the following two options for requesting a CFS study:

1. Customer may request to be studied for CFS prior to participating in an Individual System Impact Study or Cluster Study by entering a comment into the Customer Comments field of the TSR on OASIS.
 - Customer may request Number of Hours, System Conditions, or both.
 - Specific to Number of Hours - Customer may identify a maximum number of curtailable hours per year it is willing to accept (i.e. limit).
2. Customer may request to be studied for CFS as part of an Individual System Impact Study or Cluster Study.
 - Customer may elect Number of Hours, System Conditions, or both in the study agreement.
 - Specific to Number of Hours - Customer may identify a maximum number of curtailable hours per year it is willing to accept (i.e. limit).

Conditional Firm Transmission Service

Conditional Firm Offer(s)

1. Customer who requests a CFS study prior to a Individual Study or Cluster Study may receive an offer once the CFS study is complete.
 - If the customer requested both Number of Hours and System Conditions and BPA determines it can reliably offer both types of CFS, only one offer can be accepted.
 - TSR will only be eligible for Reassessment CFS (will be covered on slide 21)
 - Customer may decline the CFS offer(s) and remain in the transmission queue.
 - If the Reassessment offer is declined, the TSR will not be eligible for CFS at a later time.

2. BPA will offer CFS after the Individual Study or Cluster Study is complete.
 - If the customer requested both Number of Hours and System Conditions and BPA determines it can reliably offer both types of CFS, only one offer can be accepted.
 - TSR will be eligible for both Bridge and Reassessment CFS (will be covered on slides 20 & 21)
 - Customer may decline the CFS offer(s) and the TSR will remain in the transmission queue only if the customer participates in the necessary transmission upgrades to enable LTF.

Conditional Firm Transmission Service

General Eligibility Criteria

BPA does not guarantee that it will offer CFS at the conclusion of a study.

- The CFS must not jeopardize transmission system reliability.
- The CFS must not degrade existing LTF service.
- There must be sufficient CFS Inventory or capability on the parts of the transmission system impacted by the Customer's TSR.

Conditional Firm Transmission Service

Conditional Firm Inventory Updated: (10/23/19)

PATH NAME	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
South of Allston N>S	297	297	297	297	297	297	297	297	297	297
Cross Cascades North E>W	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815
West of Lomo E>W	814	814	814	814	814	814	814	814	814	814
Cross Cascades South E>W	1850	1850	1850	1850	1850	1850	1850	1850	1850	1850
North of Hanford N>S	1453	1453	1453	1453	1453	1453	1453	1453	1453	1453
North of John Day N>S	1036	1036	1036	1036	1036	1036	1036	1036	1036	1036
Paul-Allston N>S	678	678	678	678	678	678	678	678	678	678
Raver-Paul N>S	341	341	341	341	341	341	341	341	341	341
West of McNary E>W	1446	1446	1446	1446	1446	1446	1446	1446	1446	1446
West of Slatt E>W	1649	1649	1649	1649	1649	1649	1649	1649	1649	1649
West of John Day E>W	1762	1762	1762	1762	1762	1762	1762	1762	1762	1762
South of Custer N>S	993	993	993	993	993	993	993	993	993	993
North of Echo Lake S>N	0	0	0	0	0	0	0	0	0	0

- CFS Inventory is calculated based on 5-minute flowgate data
- 97% of unused capacity during the most constrained season

Conditional Firm Transmission Service

Bridge Conditional Firm

Customers that agree to support the construction of new transmission facilities, Conditional Firm Service will be available as a Bridge until such time as those facilities are constructed and the relevant conditions must be specified in the initial service agreement and are not subject to change (Order No. 890 ¶915).

Attributes of Bridge CFS

- TSR retains its position in BPA's LT transmission queue.
- The Number of Hours or System Conditions defined in the CFS service agreement are not subject to change.
- Upon completion of the necessary transmission system upgrades Bridge CFS will convert to LTF, or;
- If LTF capacity becomes available that can permanently remove conditional curtailment, the CFS will convert to LTF.

Conditional Firm Transmission Service

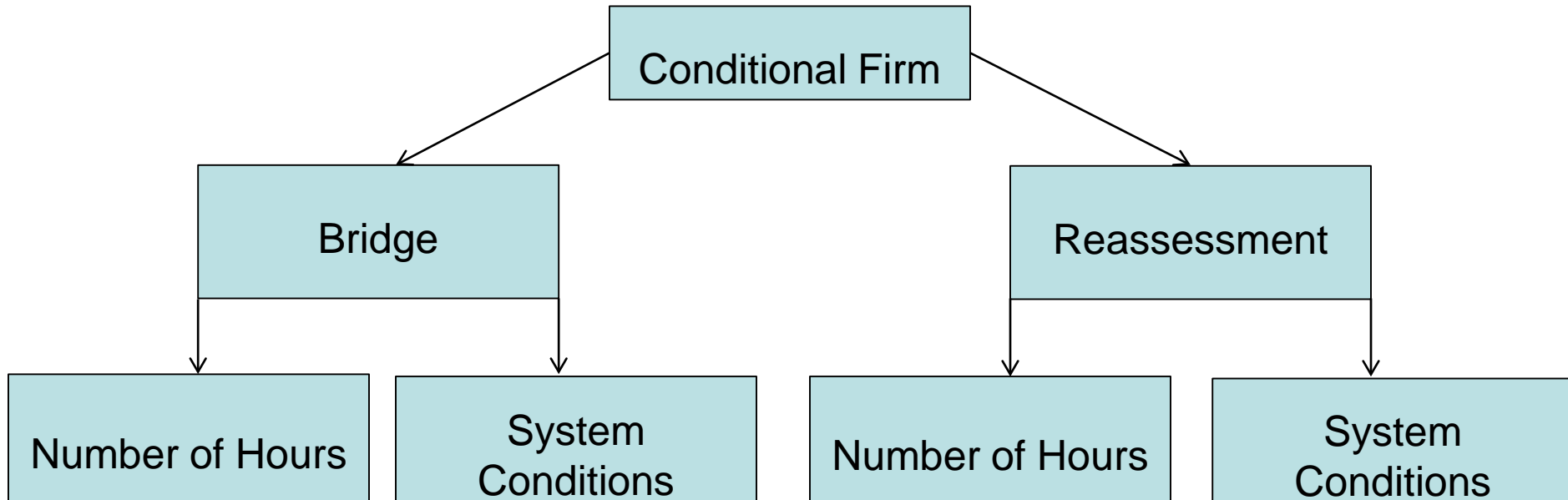
Reassessment Conditional Firm

For customers that do not agree to support the construction of new facilities, the transmission provider will be able to re-evaluate the conditions under which services are provided every two years.(Order No. 890 ¶915).

Attributes of Reassessment

- The Number of Hours or System Conditions in the Customer's CFS agreement may be reassessed every two years.
- The reassessment study may include revaluating all constraints and conditions, associated with all Flowgates, Interties, and External Interconnections impacted by the reservation.
 - If reassessment results in a change to the Number of Hours or System Conditions in the Customer's CFS agreement, the customer may terminate service.
 - BPA may terminate the CFS if it can no longer be offered reliably.
- TSR does not retain its position in BPA's LT transmission queue.
- Reassessment is not eligible for permanent firm-up (i.e. will not convert to LTF).

Conditional Firm Transmission Service



Questions?