

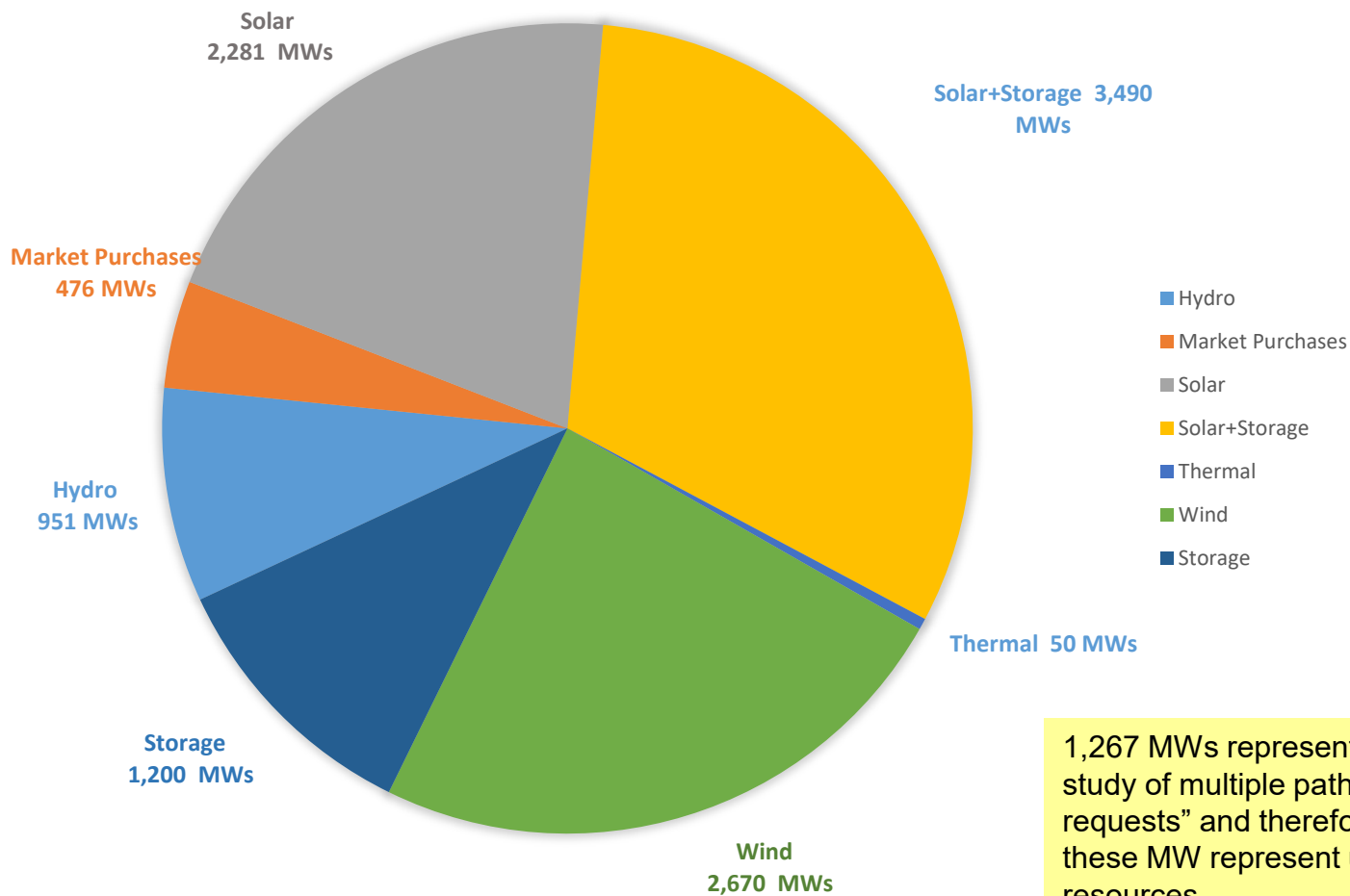
# TSR Study and Expansion Process (TSEP)

## 2022 Cluster Study Results

December 15, 2022



# Types of Resources

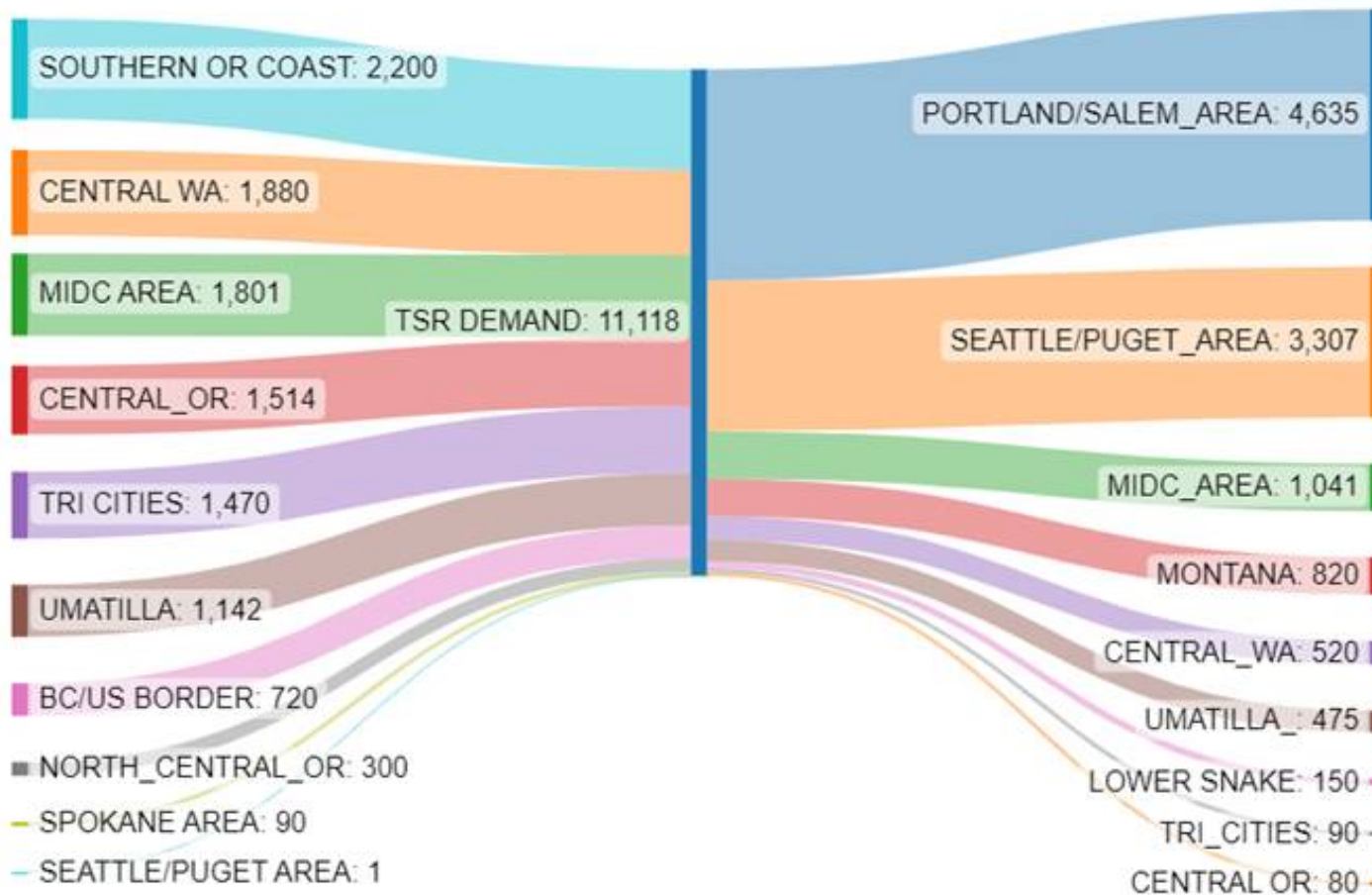


1,267 MWs represent requests for study of multiple paths “duplicative requests” and therefore not all of these MW represent unique resources

# TSR Demand by Geographic Region

Source Area

Sink Area



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# Study Results Summary

Awardable without Upgrades (11 TSRs for 1,046 MWs)	Require BPA Upgrades (59 TSRs for 3,161 MWs)	Require BPA Upgrades + Third Party Mitigation (74 TSRs for 6,911 MWs)
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Conditional Firm Eligibility (96 TSRs for 5,967 MWs)

Mitigation cannot be completed within the requested service term  
(6 TSRs for 461 MWs)

MWs that cannot advance because of cumulative demand.  
(1,267 MWs)

# TSRs Advancing in TSEP

Status	MWs	TSR
Accepted Firm Offer/Encumbrance	605	4
Declined Firm Offer	441	8
Signed/Funded PEA	5,200	63
Withdrew TSR/Declined PEA	4,377	62
Requested Reassessment CFS Offer	500	9
Requested Bridge CFS Offer	2,515	39

# New Path Projects

<u>BPA Paths</u>	<u>New 2022 TSEP CS Projects</u>	<u>Direct Costs</u>	<u>Estimated Energization</u>	<u>3rd Party Impact</u>	<u>TSRs Affected</u>	<u>TSR MWs Enabled</u>
<b>South of Allston</b>	Ross-Rivergate 230 kV rebuild	<b>\$109,260,000</b>	<b>2030</b>	PGE*	35 TSRs	3,570 MW
<b>South of Custer</b>	New South of Custer WS-RAS Algorithm: DLL CUST-BHAM 230 & CUST-MURR 230, trigger BCH GD ckt#2	<b>\$922,000</b>	<b>2028</b>	BCH*	3 TSRs	300 MW
<b>Raver-Paul</b>	Chehalis to Cowlitz Tap 230 kV Rebuild	<b>\$35,385,000</b>	<b>2028</b>	n/a	16 TSRs	1,790 MW
<b>Cross Cascades North</b>	Schultz-Raver #3 & #4 500kV reconductor, Schultz-Raver #4 500 kV series cap upgrade (phase 2); Olympia 230 kV +350/-300 MVAR SVC; Paul 500 kV 221 MVAR shunt cap	<b>\$196,093,000</b>	<b>2030</b>	n/a	31 TSRs	3,140 MW
<b>Cross Cascades South</b>	Big Eddy-Chemawa 500 kV re-build & reconfiguration	<b>\$233,004,000</b>	<b>2030</b>	n/a	40 TSRs	3,920 MW

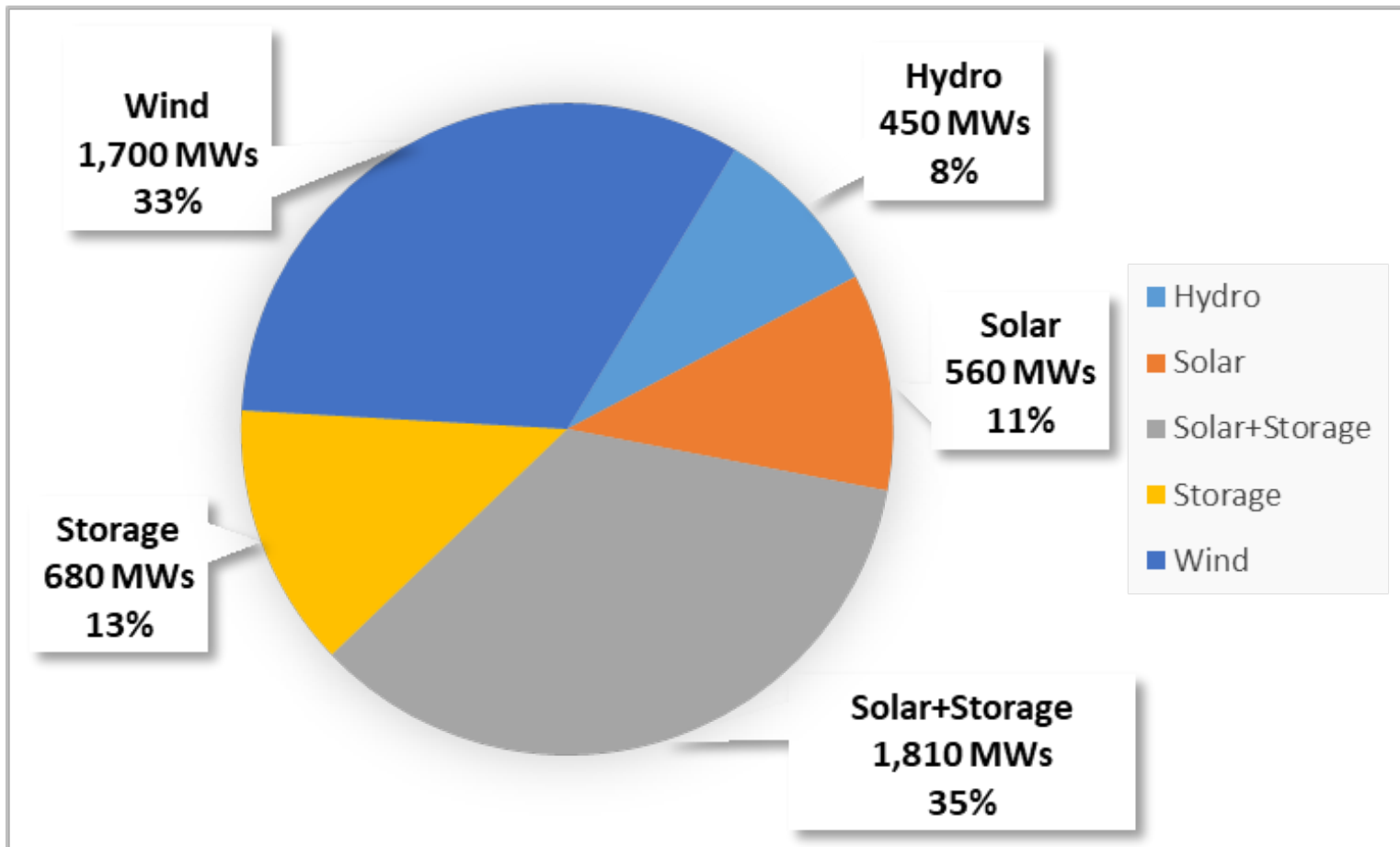
\*Non-BPA scope – estimates and schedule to be determined by third party

# New Subgrid Projects

<u>BPA Subgrids</u>	<u>New 2022 TSEP CS Projects</u>	<u>Direct Costs</u>	<u>Estimated Energization</u>	<u>3rd Party Impact</u>	<u>TSRs Affected</u>	<u>TSR MWs Enabled</u>
<b>C.OR--230 kV</b>	Bonanza 230 kV station additions; New Bonanza 500/230 kV new transformer bank	\$44,750,000	2033	PAC, PGE ("Intertie Facilities")	8 TSRs	800 MW
	PAC Chiloquin-K.Falls-Dixonville 230 kV Valley line limiter	n/a	n/a	PAC*		
<b>C.OR--500 kV</b>	Grizzly-Captain Jack 500 kV re-sag (100C MOT); Bonanza 500kV station additions; New Bonanza-Captain Jack 500 kV circuit with Series Compensation at Sand Springs, Fort Rock & Sycan; Communications Equipment	\$337,480,000	2033	PAC, PGE ("Intertie Facilities")	8 TSRs	800 MW
<b>Portland--Pearl-Keeler</b>	PGE North of Sherwood 230kV limiter	n/a	n/a	PGE*	41 TSRs	4,010 MW
<b>S.OR Coast</b>	Alvey-Rogue-Fairview-500 kV (ARF500); Santiam 230 kV series BSB; Chemawa-Santiam 230 kV rebuild	\$903,659,000	2033	n/a	12 TSRs	1,600 MW
	PGE Santiam-Bethel 230 kV rebuild/reconductor	n/a	n/a	PGE*		
<b>South of Rock Creek (Changed to South of Knight)</b>	Rock Creek-John Day 500 kV rebuild	\$38,727,000	2028	n/a	14 TSRs	630 MW

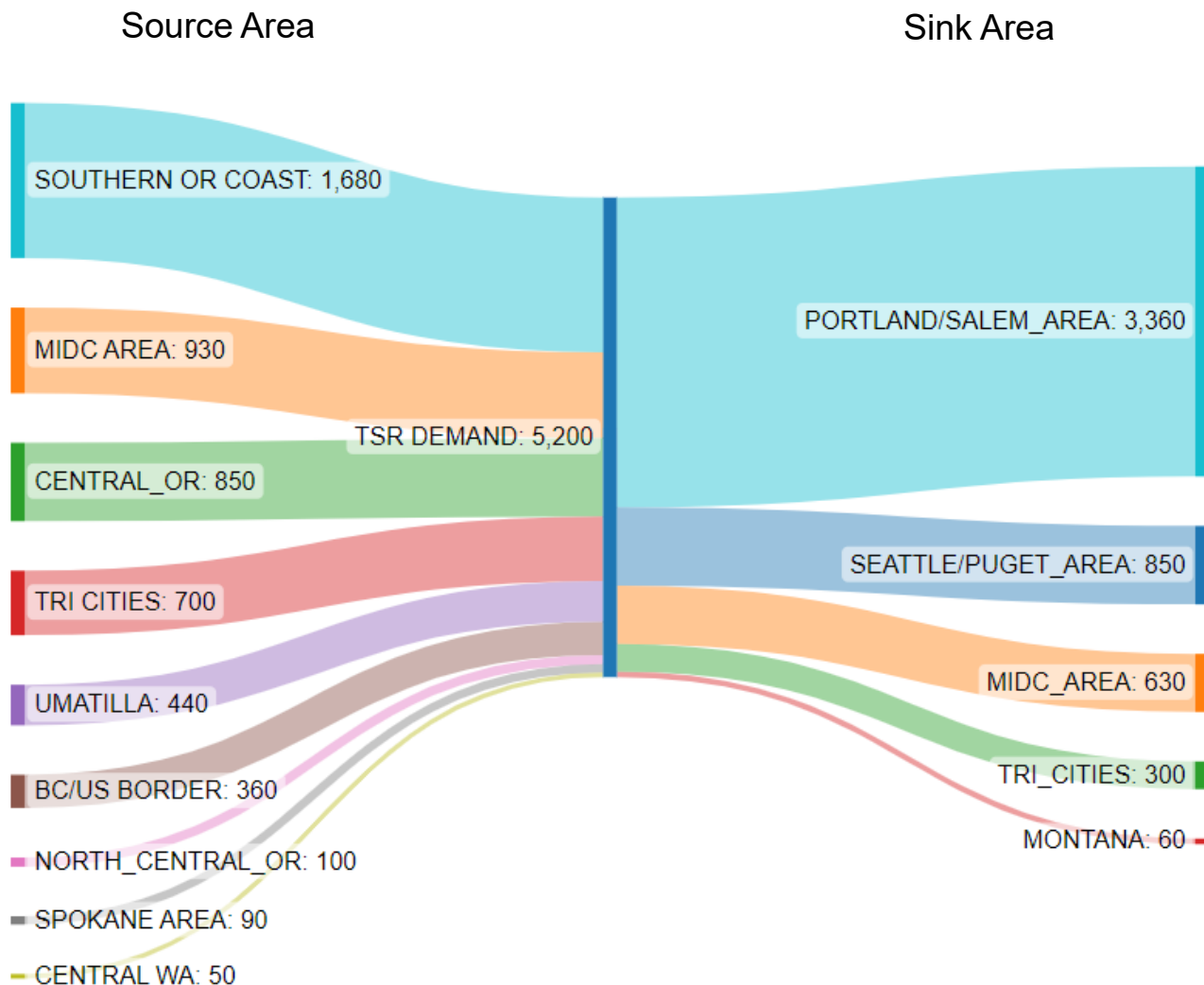
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# Types of Resources Advancing





# TSR Demand by Geographic Region



# Conditional Firm Service

- BPA has moved from an inventory methodology to flow based study methodology.
  - Allows BPA to do more focused analysis of CFS capability for each area of the system.
  - Number of hours vary depending on CFS path study findings (X – Y hours)
  - Studied system capability for areas for which BPA previously had no inventory posted (Northern Intertie N>S and West of Garrison W>E)

# Conditional Firm Service

- Majority of CFS offers in 2022 (about 80%) are system conditions ONLY. This is due to:
  - Decision pending re: whether to use existing, modified, or new path to manage constraint in the Knight/Wautoma area if relevant CFS accepted
  - Proposed new path needed in the Portland area – coordinating with PGE
  - Northern Intertie N>S and West of Garrison W>E - use patterns are heavily driven by commercial transactions (more variable than load driven paths)
- Expect to continue to see these types of limitations in future studies

# 2023 Cluster Study

- BPA has finalized data exhibit validation.
- BPA does not have a final tally of participation quantity but it is safe to say this will be the largest TSEP ever.
  - Current estimate of participation is over 19,000 MWs.