Western Electricity System Integration Workshop

2022 Integrated Energy Policy Report Update

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Independent Power in the West

State	Capacity (MW) Independent	Capacity (MW) Total	Capacity (MW) Independent share of total	Generation (MWh) Independent	Generation (MWh) Total	Generation (MWh) Independent share of total	Retail sales (MWh) Retail choice	Retail sales (MWh) Total	Retail sales (MWh) Choice share of total	Retail sales (MWh) Choice relative to IOU total
AZ	6,266	27,115		17,687,645	109,305,057					
CO	6,238	17,632		15,234,718	54,115,011					
ID	1,746	5,213		6,407,976	17,686,135					
MT	2,625	5,866		12,006,027	23,353,290		2,919,615	14,584,179	20%	43%
NM	3,444	9,098		12,656,277	34,075,584					
NV	3,777	12,103		13,178,930	40,424,745		5,069,698	38,233,899	13%	17%
OR	5,747	16,739		18,946,216	63,624,782		2,778,443	51,019,313	5%	9%
UT	1,812	9,263		4,561,088	37,087,309					
WA	3,791	30,669		15,461,742	116,114,468		2,220,372	86,706,144	3%	7%
WY	1,746	9,599		5,317,789	42,010,989					
TOTAL	**37,192**	**143,297**	**26%**	**121,458,408**	**537,797,370**	**23%**	***12,988,128***	***190,543,535***	***7%***	***13%***
CA	**49,629**	**78,055**	**64%**	**125,192,083**	**193,083,537**	**65%**	**76,743,262**	**247,249,865**	**31%**	**71%**

Source: Form EIA-861 data (operating year 2020) – *details and caveats about data available on slide 5 (addendum)*

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RTO Menu of Options

	Profile	Transmission Functions				Wholesale Energy Market Functions				Other
	ISO/ RTO	Service Provider	Balancing Authority	Reliability Coordinator	Planner	Real-Time Market Admin.	Day-Ahead Market Admin.	Ancillary Services Market Admin.	Centralized Capacity Market Admin.	Demand Response
California ISO	ISO	✓	✓	✓	✓	✓	✓	✓		✓
ISO New England	RTO	✓	✓	✓	✓	✓	✓	✓	✓	✓
Midcontinent ISO	RTO	✓	✓	✓	✓	✓	✓	✓	✓	✓
New York ISO	ISO	✓	✓	✓	✓	✓	✓	✓	✓	✓
PJM	RTO	✓	✓	✓	✓	✓	✓	✓	✓	✓
Southwest Power Pool	RTO	✓	✓	✓	✓	✓	✓	✓		✓
ERCOT	ISO	✓	✓	✓	✓	✓	✓	✓		✓

Source: National Energy Technology Lab, *Power Market Primers*, 2019

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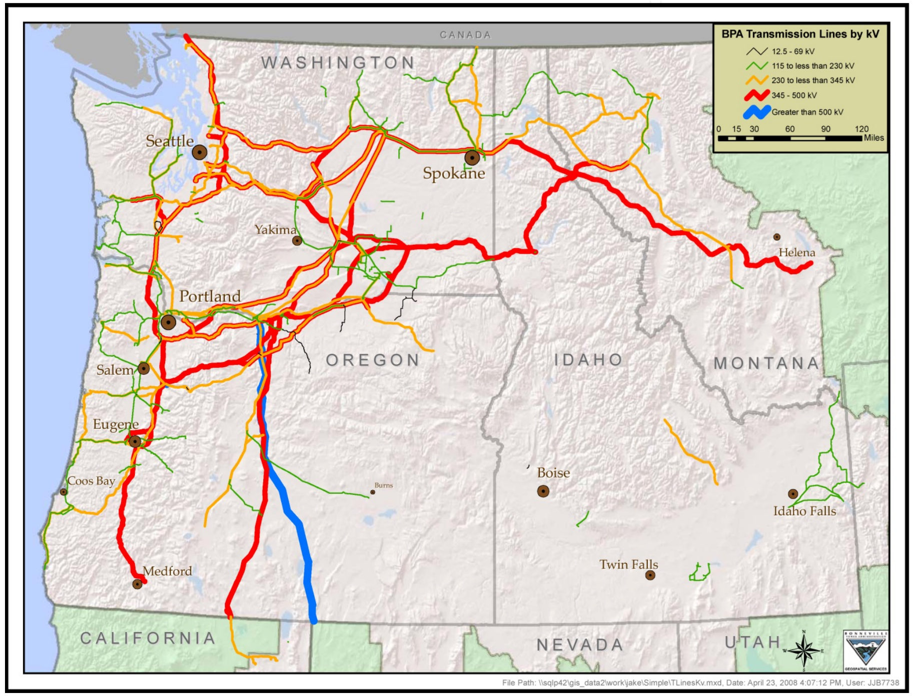
Transmission and Markets



Source: DOE Quadrennial Energy Review, Transmission Background Presentation

"Bonneville has been working to address growing constraints on transmission paths and a dramatic increase in the number of new loads and new generation resources seeking to connect to Bonneville's system. Bonneville's generation interconnection queue is growing at a staggering rate, leading to increasingly complex interconnection studies. In addition, Bonneville's recent cluster studies have included an unprecedented level of requests for new transmission service not previously seen."

Source: BPA Provider of Choice Concept Paper (July 2022)

"The 2022 Cluster Study was BPA's largest yet, with 144 transmission service requests studied, comprised of 11,118 MW. Solar, storage and wind projects made up the bulk of requests, as study participants mostly seek to move renewable energy from east of the Cascades and the Mid-Columbia area to Portland and Seattle.

"Renewable mandates such as Oregon House Bill 2021 and Washington's Clean Energy Transformation Act drove the influx of requests from new generation developers. The resource mix in the 2022 study included a dramatic increase in the amount of solar combined with battery storage. This year also saw a prominent arrival of offshore wind requests amounting to 2,200 MW."

Source: BPA News Release (August 2022)

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Addendum: data details

Notes on slide 2 data ("Independent Power in the West"):

1. "Capacity" is net summer nameplate capacity; "independent" includes IPPs and CHPs.
2. "Generation" is net generation, excluding interstate transfers; "independent" includes IPPs and CHPs.
3. Western total excludes parts of Nebraska, South Dakota, and Texas that are within the Western Interconnection, as well as Canada, Baja California, and transfers at the Eastern Interconnection DC interties.
4. Capacity ownership by IPPs includes generators in a merchant function and generators under fixed-term PPAs with long-term off-takers.
5. EIA-861 data self-reported by market participants has not been cross-checked against state or other databases.
6. Generation and retail sales data do not include distributed generation.
7. California "retail choice" sales include community choice aggregation, direct access (energy-only), and direct full service IPP sales to consumers.
8. "Utility" retail sales include IOUs, publicly owned utilities, joint action agencies, BPA and WAPA, and cooperatives.
9. Non-California retail sales totals include only the four Western states with retail choice programs.
10. "Retail choice" sales do not include "green tariff" program sales in which retail customers may elect to purchase clean energy sourced from third-party generators as a bundled service via a vertically integrated utility.

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