



# SB 589

## Overview of Regional Transmission Organizations (RTOs)

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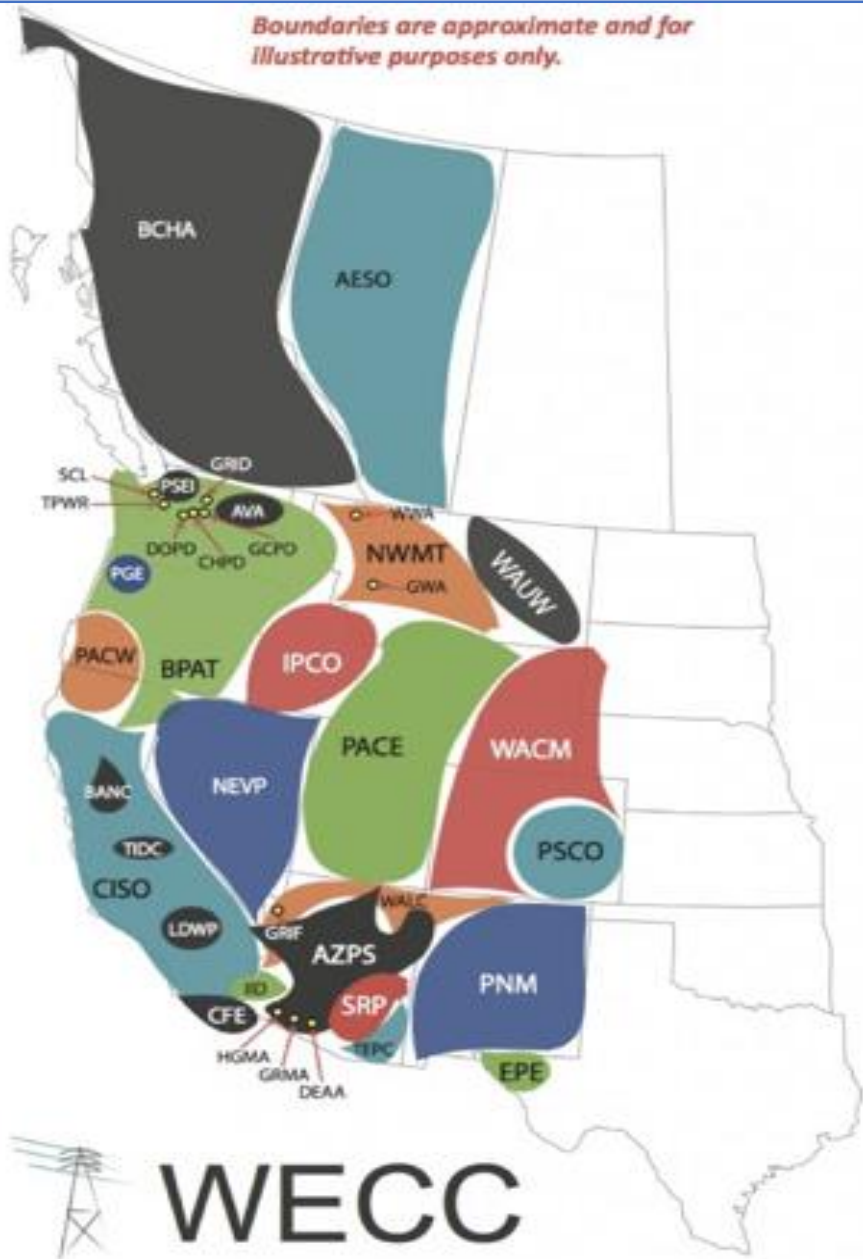
Northwest & Intermountain Power Producers Coalition (NIPPC)

# What is an RTO?

A non-profit wholesale electricity market and transmission operator

- Authorized in 1996 by federal energy regulators
- Today, manage two-thirds of U.S. power sales
- Key functions:
  - Ensure “non-discriminatory access” to the grid
  - Operate auction-based markets for energy
  - Plan regional transmission and reliability needs

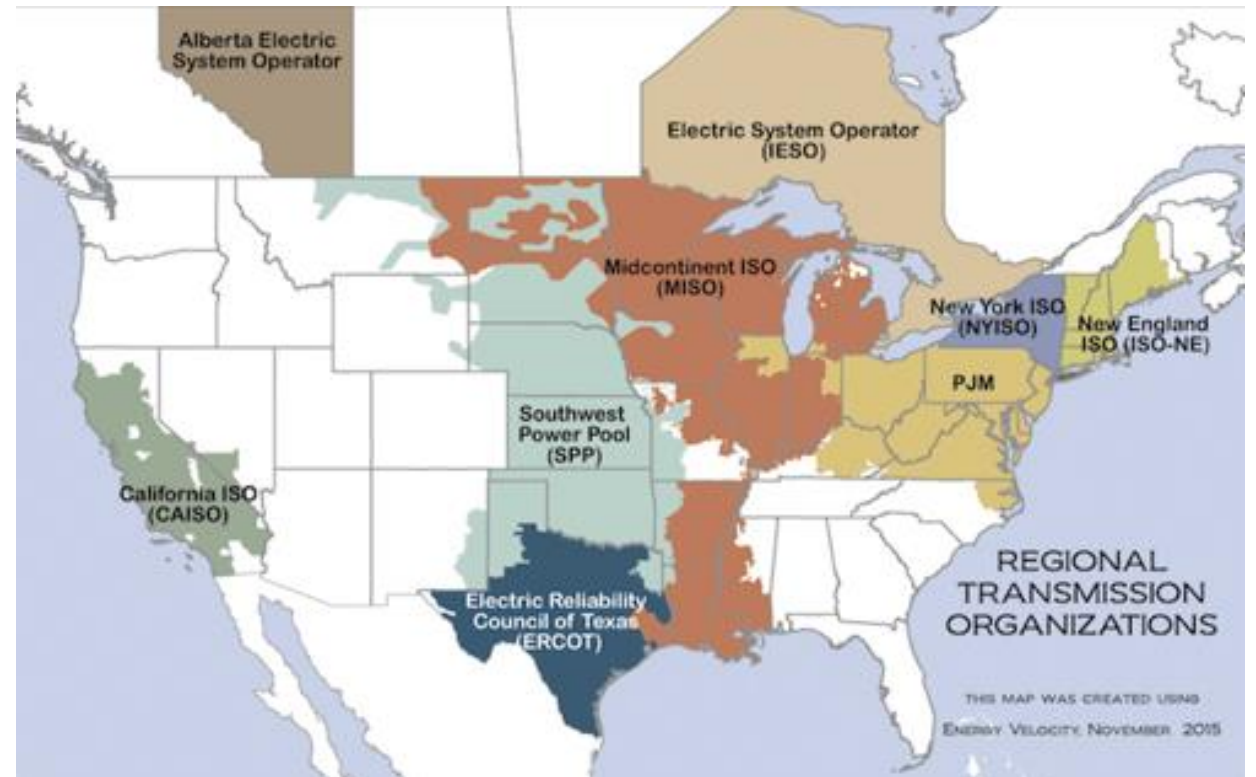
Boundaries are approximate and for illustrative purposes only.



Source: Western Electricity Coordinating Council

## Benefits of RTOs

- ✓ Lower costs to consumers
- ✓ Lower costs to decarbonize
- ✓ More efficient transmission
- ✓ Minimal wind and solar curtailment
- ✓ Support for regional resource adequacy



# 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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ISO New England	RTO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Midcontinent ISO	RTO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New York ISO	ISO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PJM	RTO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Southwest Power Pool	RTO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ERCOT	ISO	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

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

# What difference does it make?

- Illustrative example:* corporate procurement of a new wind farm in PJM (Mid-Atlantic RTO) versus Pacific Northwest**

	PJM	PNW	Comment
Approximate Cap. Factor	35%	35%	
Levelized Cost of Energy	<b>\$40.00</b>	<b>\$40.00</b>	Total amount needed for 15-years.
Capacity Revenue	<b>-\$5.21</b>	\$0.00	\$ paid by PJM per EGPS capacity market wind modeling.
Basis	\$0.50	\$0.00	Typical price difference from node to hub in PJM. NA in PNW.
Transmission and Integration	\$1.00	<b>\$12.00</b>	Various PJM costs. BPA transmission and integration charges.
Other Costs/Revenue	<b>-\$3.71</b>	<b>\$12.00</b>	
Required PPA Price	<b>\$36.29</b>	<b>\$52.00</b>	Price required for intermittent power at market hub.
		<b>-\$15.71</b>	Cost premium required for PNW deal.

Source: Energy GPS, Tim Belden, 2020