



## PORTSfuture Comparison on RTOs in USA and Canada September 2020

Goal: To illustrate volume comparison for grid loads/electricity use between various RTOs compared to others in the nation and in Canada.

PJM/MISO interconnection at PORTS advantage in terms of load capacity and/or volume/use being "greater than or as good as" compared to other such entities in the US and Canada.

Name of RTO	Coverage area	Population covered	Grid load capacity average Per day or per yr or however it is reported	Electricity used/distributed per annum (average)	Forecasted Daily Peaks	Other
PJM	DE, IL, IN, KY, MD, MI, NJ, NC, OH, PA, TN, VA, WV 	65 million people	185,378 MW/day		9/3: 128 GW	2019 Fuel Mix: 36.6% Gas 33.9% Nuclear 23.8% Coal 0.1% Oil 2.9% Wind 1.3% Water 0.5% Waste 0.3% Solar 0.3% Methane 0.2% Wood
MISO		242 million			9/3: 94,276 MW	66,000 miles of transmission lines
New York ISO	NY	19.8 million	41,341 MW/day	119,234 (GWh)	9/3: 24,557 MW	
ISO New England	CT, ME, MA, NH, RI, VT	14.8 million	30,265 MW/day	119,159 gigawatt-hours (GWh) in 2019	9/2: 15,823 9/3: 18,600 MV	
ERC of Texas	TX About 90%	26 million	64000 MW/day	384,000 GW (2019) 371,000 GW (2018) 356,000 GW (2017) 351,000 GW (2016)		46,500 miles of transmission lines

				356,500 GW (average)		
California ISO	CA, NV	80% of CA and small portion of NV: About 32 million people	44,556 MW/day		9/3: 36,235 MW  9/4: 40,107 MW	26,000 circuit miles of transmission lines
Southwest Power Pool	AK, IA, KS, LA, MN, MS, MT, NE, NM, ND, OK, SD, TX, WY 546,000 sq. mi.	19 million	90,466 MW		Coincident peak load (8/19/19): 50,662 MW  9/4: 35,622 MW	68,272 miles of transmission lines  40.9% natural gas 26% coal 24.9% wind 3.8% hydro 2.3% nuclear 1.7% fuel oil 0.2% solar 0.1% other
New Brunswick System Operator	New Brunswick, Nova Scotia, Prince Edward Island, portion of NE Maine 73,400 sq km		3,790 MW	18146 GW (2019/20)  16559 GW (2018/19)  16661 GW (2018/17)  16399 GW (2016/17)  16941 GW (average)		6849 km transmission lines (4255 mi)
Ontario Independent System Operator	Ontario	4.9 million	38,603 MW	138.99 TWh (2019) 147.6 TWh (2018) 144.3 TWh (2017) 150.35 TWh (2016)	9/3: 19,408 MW	30,000 km transmission lines (18,641 mi) Nuclear: 34% Gas/Oil: 29% Hydro: 23%

				145.31 TWh (average)		Wind: 12% Biofuel: <1% Solar: 1%
Alberta Electric Systems Operator	Alberta 660,000 km <sup>2</sup>	194 market participants	16,532 MW		Seasonal peak: 11,698 MW	26,000 km transmission lines (16,155 mi) Coal: 35% Cogeneration: 31% Combined Cycle: 11% Wind: 11% Simple Cycle: 5% Hydroelectric: 5% Other: 3%

See Map Below



“Ten Regional Transmission Organizations (RTOs) operate bulk electric power systems across much of North America. RTOs are independent, membership-based, non-profit organizations that ensure reliability and optimize supply and demand bids for wholesale electric power. In 2009, U.S. RTOs managed 60% of the power supplied to [load-serving entities](#). In other parts of the country, electricity systems are operated by individual utilities or utility holding companies.

RTOs first developed in the 1990's to accommodate the Federal Energy Regulatory Commission's (FERC) policy to encourage competitive generation through requiring open access to transmission. In the Northeast, the RTOs evolved from power pools that had coordinated utility operations for many decades. Elsewhere (the Midwest, California and Texas), RTOs grew up to meet both State and federal policies on competitive generation and open transmission access.

RTOs have many different types of members:

- Independent generators, transmission companies and load-serving entities,
- Integrated utilities that combine generation, transmission and distribution functions, and
- Other entities such as power marketers and energy traders.

RTOs dispatch power by feeding both day-ahead and real-time bids from both generators and load-serving entities into complex optimization software, along with other information like unit characteristics. They post voluminous price data for thousands of locations on the system at time intervals as short as five minutes.

Those interested in more information about RTOs can follow the links below to RTOs' websites and look at the FERC daily summaries of RTO day-ahead and real-time prices.”

Source: <https://www.eia.gov/todayinenergy/detail.php?id=790>

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