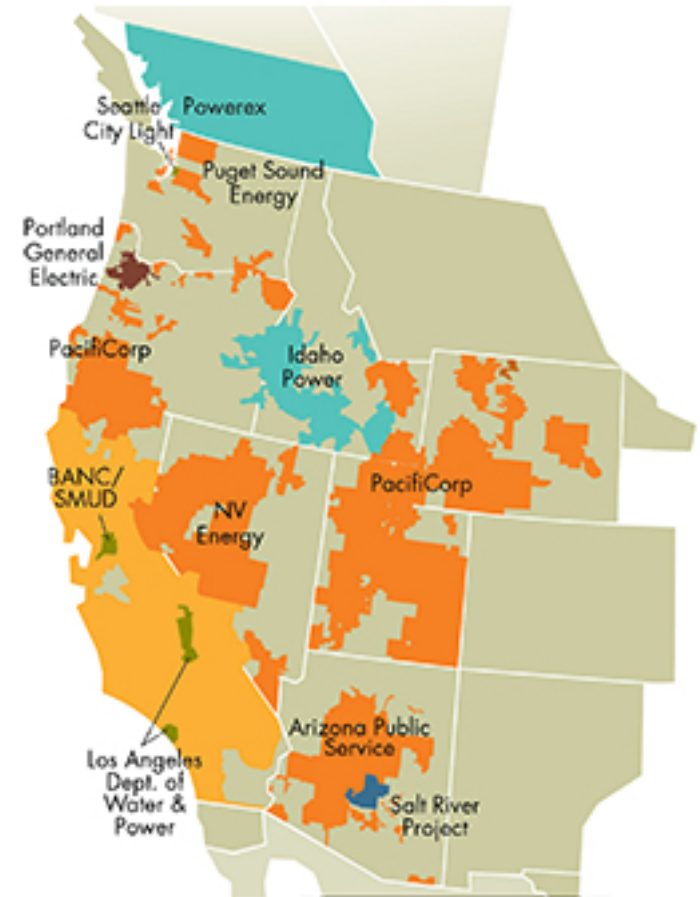


# The Western Energy Imbalance Market

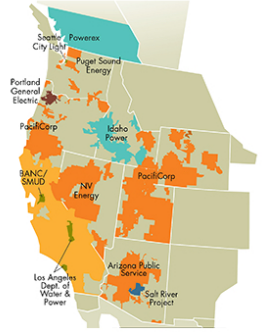
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DOUG HOWE, CHAIR,  
WESTERN ENERGY IMBALANCE MARKET  
JANUARY 10, 2018



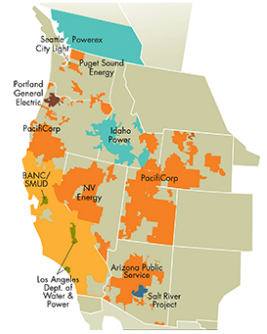
# Topics for Discussion

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- What is the Western EIM?
- Governance of the Western EIM?
- The Differences Between RTO and Western EIM
- Financial Benefits of the Western EIM

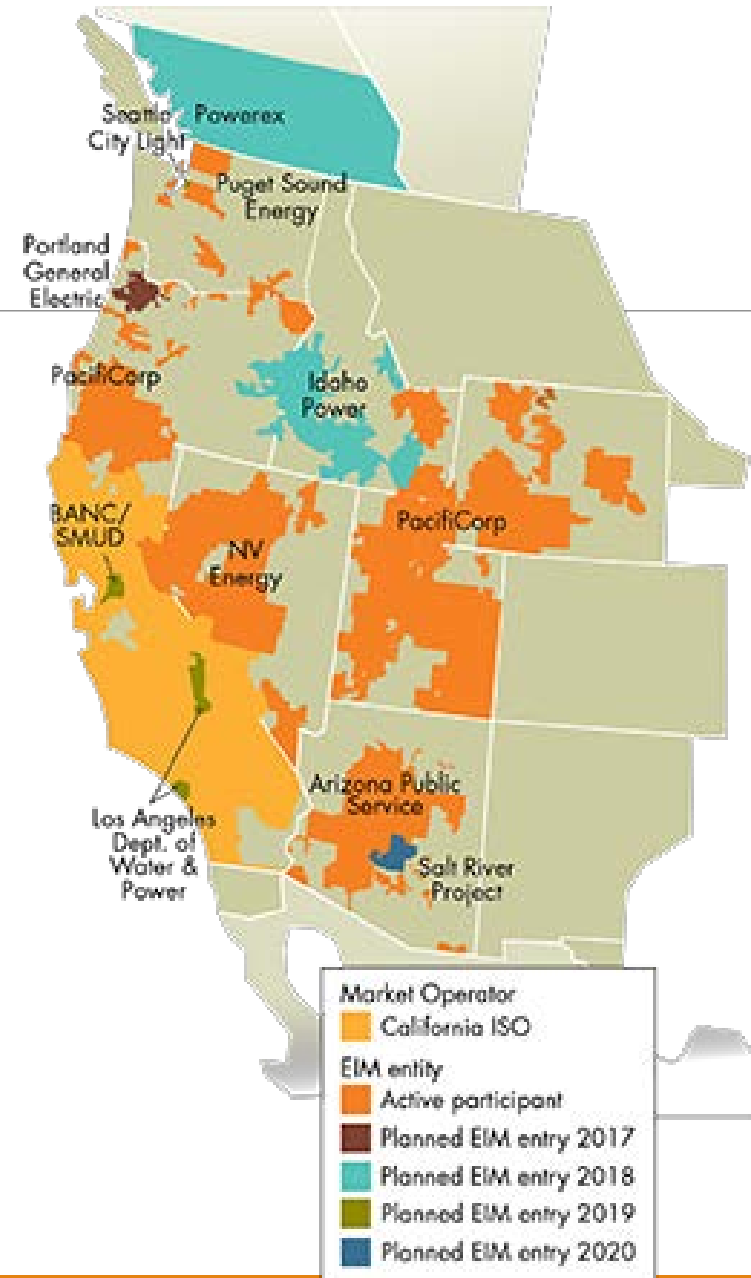
# What is the Western EIM?



- ❑ Western Energy Imbalance Market.
  - ❑ Imbalance: The difference between what the balancing area authority(BAA) forecasted for load and supply in an upcoming hour and what the load and supply actually turned out to be in that hour.
- ❑ Why would they differ?
  - ❑ Forced outages in generation, transmission or distribution systems.
  - ❑ Weather – especially with large and growing fleets of solar and wind generation.
- ❑ What is the “market”.
  - ❑ Realtime 5-minute and 15-minute markets
  - ❑ BAA’s that have less load than forecasted can sell excess supply
  - ❑ BAA’s that have more load than forecasted can buy from other BAA’s

# Who Are the Members?

- ❑ The California Independent System Operator (CAISO) is the operator of the Western EIM.
- ❑ Current functional BAAs: CAISO, Pacificorp, Arizona Public Service, Puget Sound Energy, Nevada Energy, Portland General Electric
- ❑ PowerEx (BC Hydro), Idaho Power to join in 2018.
- ❑ LADWP, SMUD/BANC to join in 2019.
- ❑ SRP to join in 2020.
- ❑ CENACE, PNM studying entry cost-benefit.



# Western EIM Governance

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## CAISO Board of Governors

Nominated by Governor of California, confirmed by state senate.

Primary authority over:

- Tariff changes affecting CAISO only (e.g. transmission rates, day-ahead market, ancillary services)
- Budgets (EIM fees an exception)
- Management personnel

WEIM Governing Body primary authority issues placed on the consent agenda.

“Delegated Authority”



Hybrid authority over:

- Tariff changes affecting both EIM and CAISO. Non-separable. (e.g. EIM fee changes).

## WEIM Governing Body

Nominated by committee, confirmed by governing body. In place since July 2016

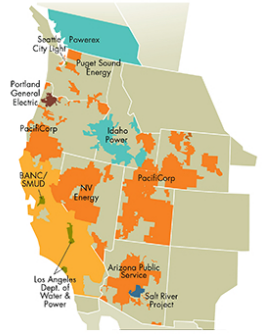
Primary authority over:

- Tariff changes affecting or caused by existence of EIM (e.g. transmission rates, day-ahead market, ancillary services, GHG rules).

Advisory authority over:

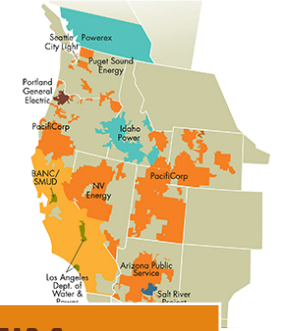
- Changes affecting the EIM but not caused by the existence of the EIM.
- Charter changes to the EIM

# Governance of the Western EIM: Primary Authority



- ❑ Western EIM Governing Body meets at least 4, but typically 7 times per year at various cities in the Western EIM footprint.
- ❑ **Body of State Regulators (BOSR)** comprised of one member utility regulator from each state in the Western EIM footprint. Current Chair – Jordan White, UPSC. Current Vice-Chair – Ann Rendahl WUTC.
- ❑ **Regional Issues Forum (RIF)** comprised of self-selected members in 10 sectors which provide input to the Governing Body on various issues relevant to the EIM market.
- ❑ **Department of Market Monitoring (DMM)** part of, but independent from, the CAISO management. Responsible for ongoing monitoring of and enforcement of market rules.
- ❑ **Market Surveillance Committee (MSC)** comprised of three international experts in electricity markets, to which certain market structure questions/issues are referred.

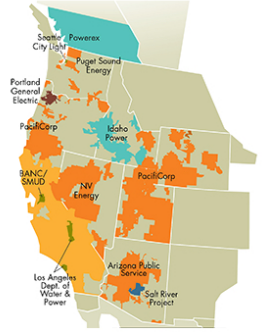
# Differences between RTO and Western EIM



Function	RTO	EIM
Complete operational and administrative control of the transmission system	Yes	No
Administrator of the OASIS tariff and section 205 authority for transmission rates	Yes	No
Facilitates a congestion management system based on markets	Yes	Yes
Provides access to ancillary services (including imbalance markets)	Yes	Only imbalance energy currently
Provides market monitoring	Yes	Yes
Responsible for transmission planning and expansion	Yes	No
Governance independent from any market participants	Yes	Yes
May operate other markets, such as Day-Ahead, Capacity, Ancillary services, RC	Yes	Not currently

# Benefits of the Western EIM

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- ❑ Gross benefits in 3Q17 are \$40.6 million. These benefits accrued by then-current members CAISO, PAC, NVE, APS and PSE. Largest shares of savings in 3Q17 went to PAC and APS.
- ❑ Total gross benefits since commencement are \$255 million. Savings will accelerate as new members join.
- ❑ Reduced dependency on flex ramping reserves in all WEIM BAAs. Reduced reserves ~450 MW downward and ~ 500 MW upward.
- ❑ GHG benefit due to avoided RE curtailment ~ 215 MTE CO2.