

# NorthWestern<sup>®</sup> Energy

*Delivering a Bright Future*

## Western Energy Imbalance Market Update

Presented by Joe Stimatz

July 15, 2020



- NorthWestern will be joining the EIM on April 1, 2021
- Flexible generation resources are needed to participate in EIM
- After joining EIM, NorthWestern will need to continue to add flexible generation to meet the balancing requirements as more renewables are added to our system

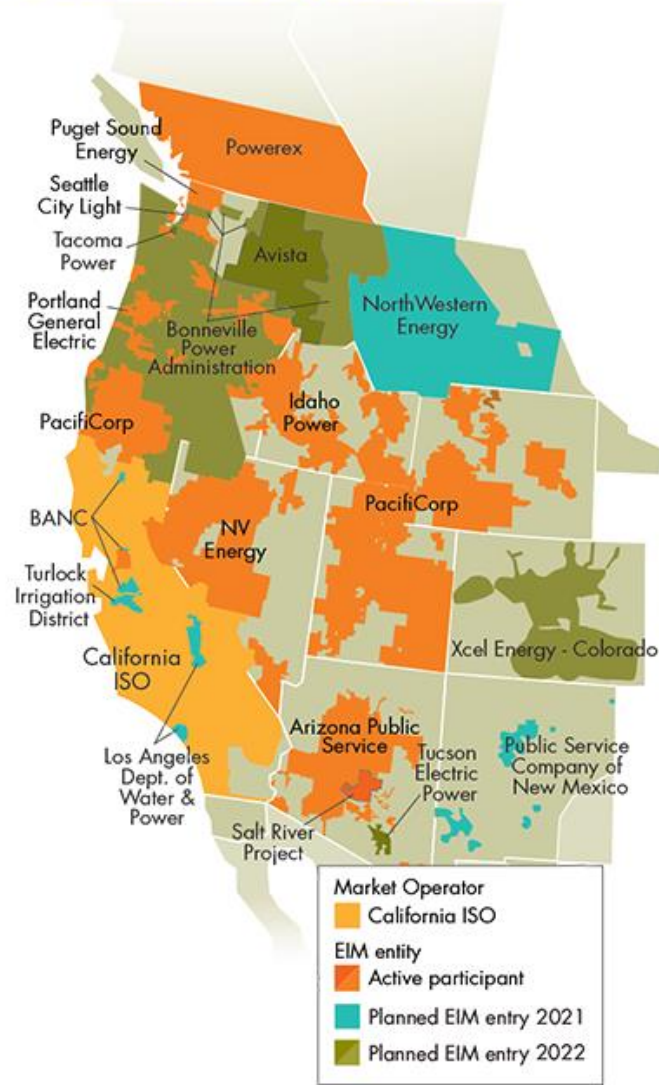


# Western Energy Imbalance Market (EIM)

- Current members
  - CAISO
  - PacifiCorp
  - NV Energy
  - Arizona Public Service
  - Portland General Electric
  - Puget Sound Energy
  - Idaho Power
  - Powerex
  - BANC
  - Seattle City Light
  - Salt River Project
- Planned members
  - **NorthWestern Energy (2021)**
  - Public Service of New Mexico (2021)
  - LADWP (2021)
  - Turlock Irrigation District (2021)
  - Bonneville Power Administration (2022)
  - Avista (2022)
  - Tacoma Power (2022)
  - Tucson Electric (2022)
  - Xcel Energy – Colorado (2022)

Approximately 90% of regional load is within the EIM footprint

Active and pending participants

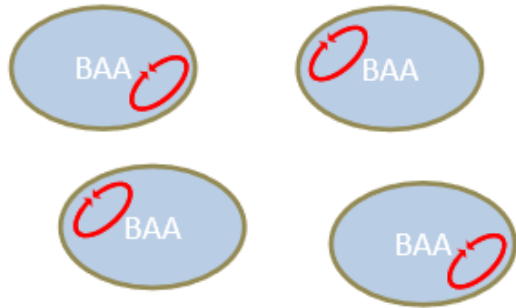




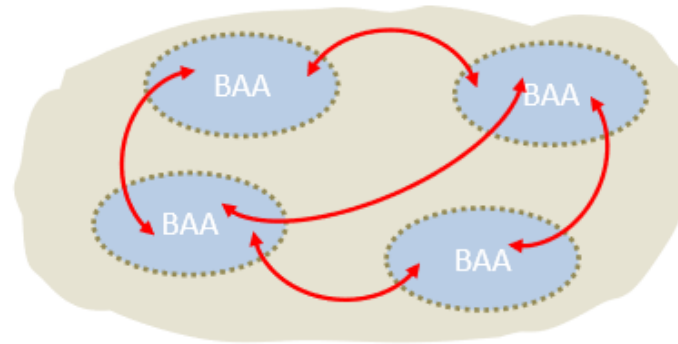
- An intra-hour centralized energy market used to economically and securely dispatch participating resources to efficiently balance supply, transfers between participating Balancing Authority Areas (EIM Entity BAAs), and load across the market's footprint (EIM Area).
  - EIM is an “organized” rather than “bilateral” market.
  - Its priority is to serve load at the lowest achievable variable cost (Economic Dispatch).
  - It does so while simultaneously ensuring generation and transmission limitations are respected (Security Constrained).



**Without** EIM:  
Each BA must balance loads and resources within its borders.



**With** EIM:  
The market dispatches resources across BAAs to balance demand



- EIM Benefits**
- Reduce costs by serving imbalance and load from most economic resources
  - Enhances reliability by improving system visibility and responsiveness to planned and unplanned events
  - Results in more efficient dispatch of resources within/between BAAs
  - Leverages geographical diversity of loads and resources in the market footprint
  - Congestion Management



- EIM is not a Regional Transmission Organization (“RTO”) or Independent System Operator (“ISO”). In EIM, Balancing Authorities such as NorthWestern retain their responsibility for reliability.
- EIM is not a capacity market. Each EIM Entity must demonstrate each hour that it has adequate flexible resources to meet its own balancing needs.

- EIM is part of a larger trend toward regional cooperation
  - Northwest Power Pool Resource Adequacy initiative
  - Consolidation of transmission planning
  - Extended Day-Ahead Market (“EDAM”) initiative
- Concerns about market liquidity if we did not join
  - NorthWestern is too small to exist outside a market if all our peers are in
- Financial Benefit
  - Diversity of load and renewable generation across the footprint allows more efficient dispatch
  - More efficient dispatch of generating resources saves customers money
    - 2016 cost and benefit studies showed positive benefits for NorthWestern’s customers
    - Overall gross benefits to date for existing EIM members over \$900 million



# Resource Sufficiency and Resource Adequacy

- Resource Sufficiency is closely related to Resource Adequacy
  - Resource Adequacy ensures that there is enough generation capacity to meet the peak load requirements of the system on a long-term basis
  - Resource Sufficiency ensures that there are enough of the right type of resources available in the next hour to meet the balancing requirements of the system
- In EIM, the market performs a group of Resource Sufficiency Tests each hour
  - Purpose is to confirm that the EIM Entity is not “leaning” on other market participants
    - “Leaning” means relying on the capacity that is paid for by customers of other utilities rather than developing and paying for capacity yourself
    - Utilities would not participate in EIM without strong rules to prevent leaning
    - NorthWestern must continue to invest in resources that provide flexible capacity in order to meet this requirement





- **Balancing Test**
  - Ensures that each Entity is balanced prior to the hour
  - Compares base schedules with the hourly demand forecast
- **Bid Capacity Test**
  - Comparison of bid range vs. demand forecast plus historical intertie deviations
- **Flexible Ramping Sufficiency Test**
  - Ensures that each Entity has enough ramping resources to meet upward and downward ramping needs
- **Feasibility Test**
  - Power Flow feasibility



# NorthWestern's Implementation Timeline

