



Development of the WEIM – Western Energy Imbalance Market

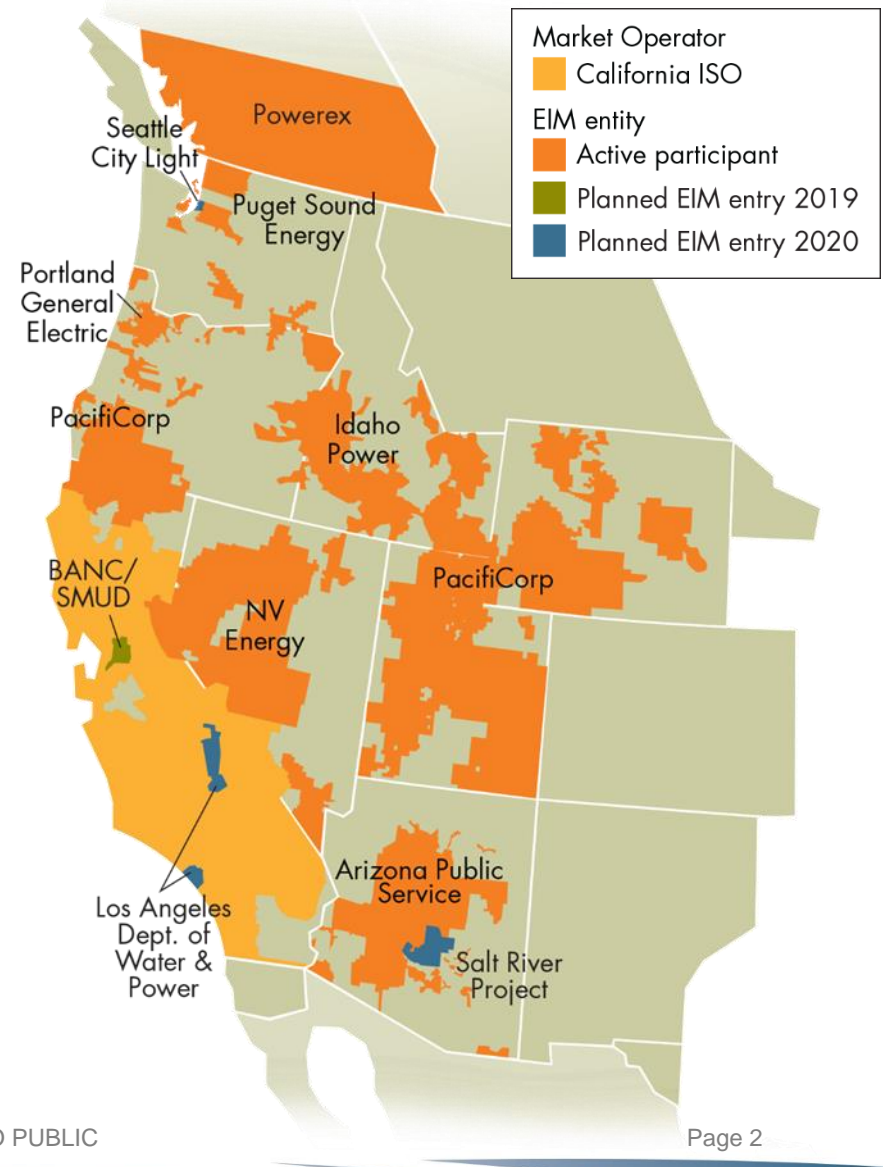
Session 3

Cross-border Energy and Capacity Trading

Mark Rothleder – VP Market Quality and Renewable Integration
August 20, 2018

The Western Energy Imbalance Market

- Idaho and Powerex started full financial participation on April 4, 2018
- BANC/SMUD is scheduled for activation in April of 2019
- Seattle City Light, LADWP, and Salt River Project are scheduled for activation in April of 2020

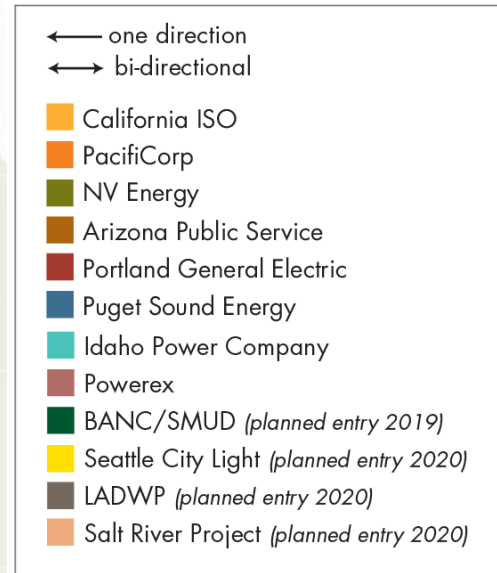
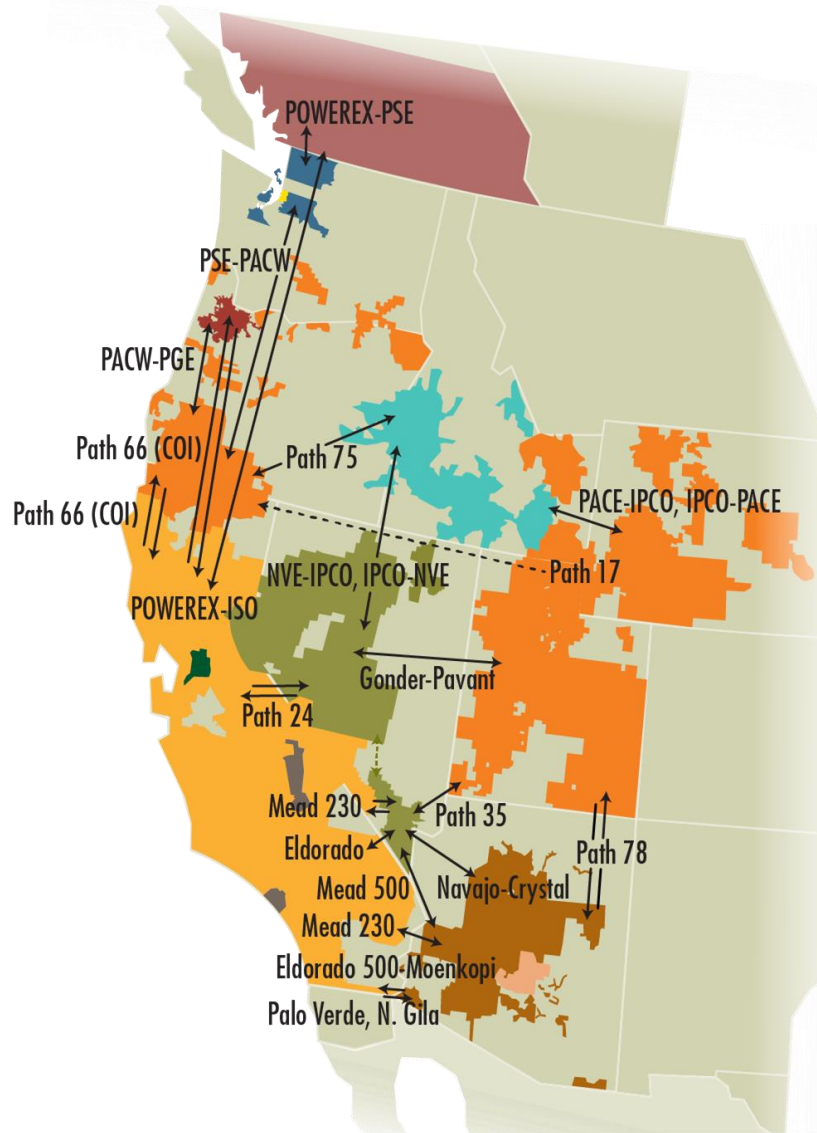


Transmission is the backbone of cooperation

Path	Estimated Max Capacity (MW)
Path 24 (west to east)	100
Path 24 (east to west)	35-90
Eldorado	797
Path 35 (west to east)	580
Path 35 (east to west)	538
Gonder-Pavant	130
PACW to PGE	320
Path 66 (ISO to PGE)	627
Path 66 (PGE to ISO)	296
Path 66 (ISO to PACW)	331
Path 66 (PACW to ISO)	432
Path 17	0-400* **
PSE to PACW	300
Eldorado 500-Moenkopi	732
Palo Verde, N. Gila	3,151
Path 78 (PACE to APS)	625
Path 78 (APS to PACE)	660
Navajo-Crystal	522
Mead 500	349
Mead 230 (APS <-> ISO)	236
Mead 230 (ISO to NVE)	3,443
Mead 230 (NVE to ISO)	3,476
IPCO to PACW (Path 75)	1,500
PACW to IPCO (Path 75)	400-510
PACE to IPCO	2,557
IPCO to PACE	1,550
NVE to IPCO	262
IPCO to NVE	390-478
Powerex <-> PSE	150
Powerex <-> ISO	150

* Is an optional path available for PACE-PACW EIM transfers and the capacity is a subset of PACE-IPCO/IPCO-PACE and Path 75 capacity.

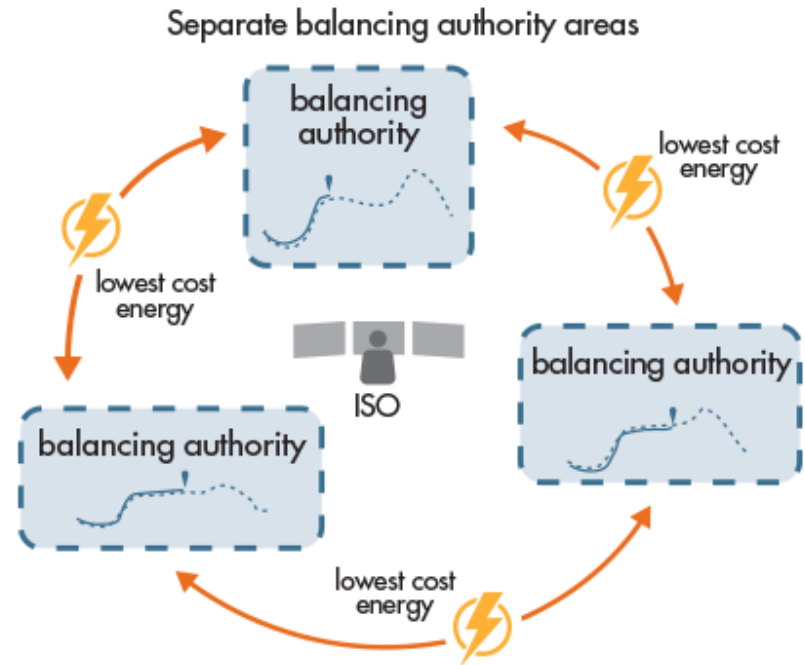
** When in use, the available capacity on PACE-IPCO/IPCO-PACE and Path 75 will be subsequently reduced by the used amount on Path 17, and not double counted.



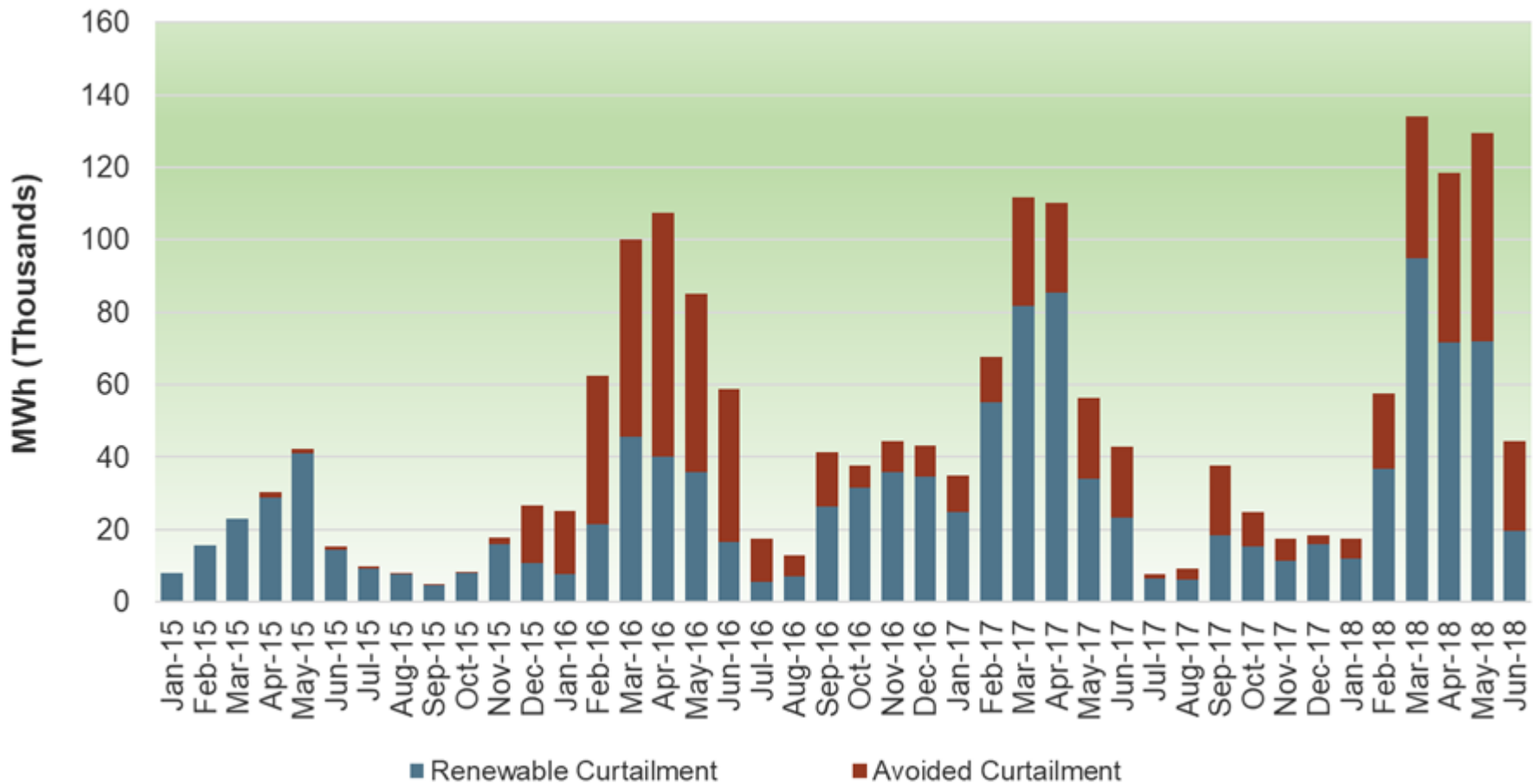
Current April 2018

EIM provides an easily-scalable extension of real-time market to the broader region

- Builds on existing market: automated dispatch minimizes cost, facilitates renewables, resolves imbalance & avoids congestion
- Situational awareness enhances reliability
- Easily scalable, low-cost, low risk, no exit fees, voluntary option for new participants
- Preserves BAA autonomy, including compliance, balancing, and reserve obligations



Western EIM provides better utilization of renewable resource and helps avoid curtailment



EIM Governance

EIM Governing Body (GB)

- Five independent (non-stakeholder) members
- Delegated authority over EIM-related market rules
- Selected by stakeholder nominating committee, confirmed by EIM Governing Body
- Provides western entities a decision-making voice

EIM Body of State Regulators (BOSR)

- Advise EIM Governing body and ISO Board on matters of interest
- Currently eight state officials from EIM states
- Provides a state regulatory perspective

Regional Issues Forum (RIF)

- Public vehicle for discussion of EIM-related issues, including impacts to neighboring balancing authority areas
- Organized by ten self-selected sector liaisons
- May produce opinions for EIM governing body or ISO Board of Governors

EIM Governing Body Members

Current members include:



Valerie Fong,
Chair



Carl Linvill,
Vice-Chair



Travis Kavulla



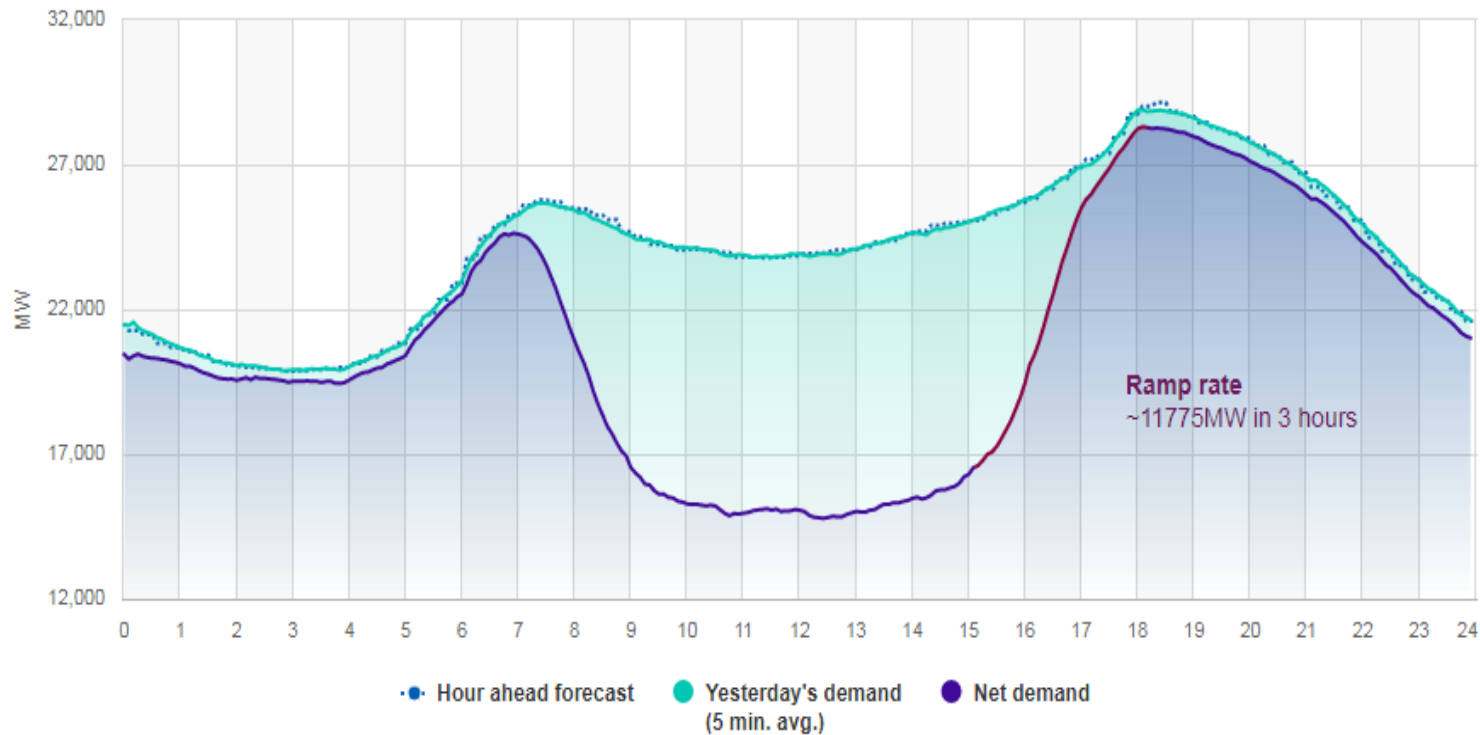
John Prescott



Kristine Schmidt

Next Meeting – August 22, 2018 in Denver

Day Ahead Market enhancements



- 15-minute scheduling granularity in Day Ahead Market
- Day-ahead flexible ramping product

Extended Day Ahead Market for EIM

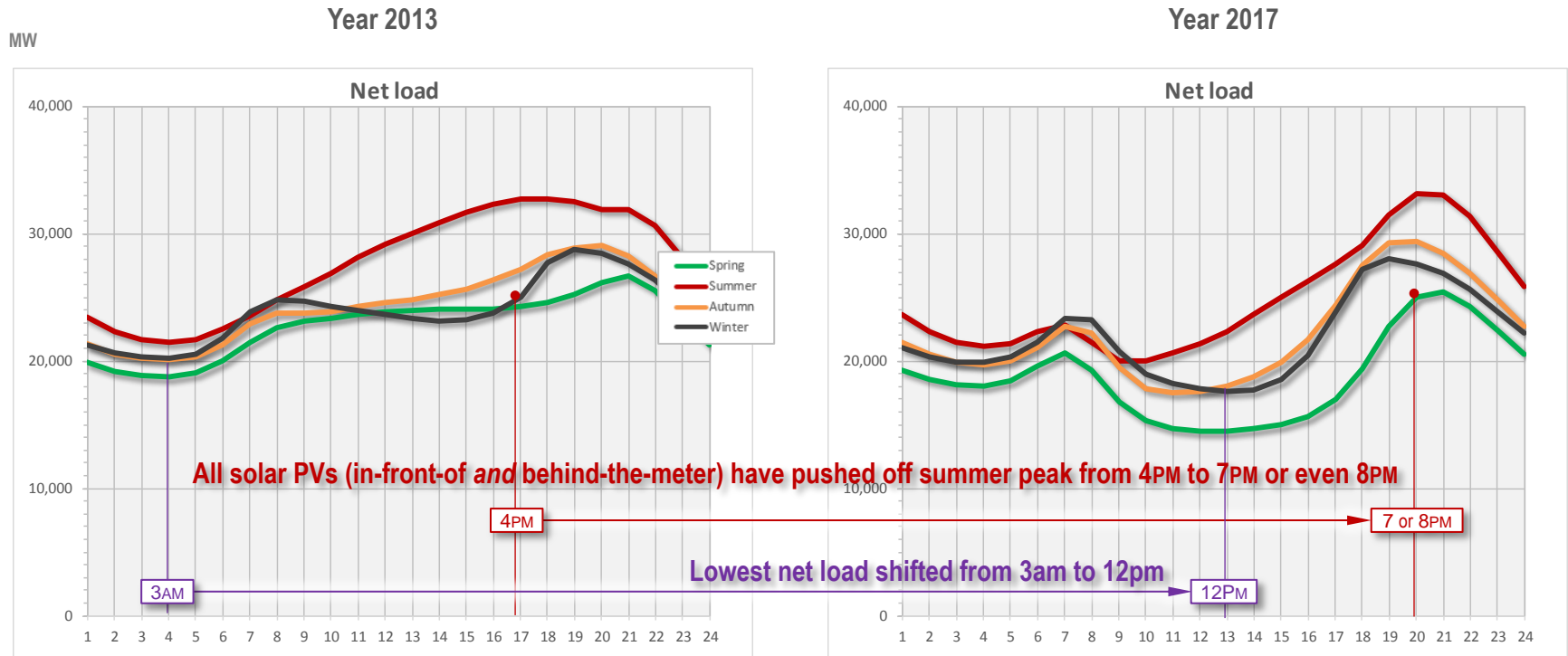
Key benefits:

- Allows EIM participants to take advantage of day-ahead market enhancements
- Day-ahead unit commitment and scheduling across larger footprint improves market efficiency and more effectively integrates renewables

Key Elements:

- Voluntary participation, easy entry, no exit fees
- Harmonizes with bi-lateral market and OATT transmission availability
- Gross benefits expected to be significant
- Ensures resource sufficiency, while Balancing Authority Area maintains autonomy regarding resource and transmission investment
- Engage stakeholders on governance structure to reflect enhanced market participation

CAISO changes in seasonal net load shapes and timing



When California net load peaks at 7 or 8PM, it is already 8 to 9PM Mountain Time

Note: Hours are in Pacific Time

Updates on EIM and Regionalism

- Energy Imbalance Market
 - Continues to grow, 2/3 of WECC load will participate by 2020
- Regionalism
 - AB 813: Provides a pathway for the ISO to become a regional grid organization with an independent board passed both committees
- Reliability Coordinator
 - CAISO will be RC of Record by July 1, 2019 for ISO BAA
 - Continuous engagement with Peak, NERC, WECC and neighboring BAAs to ensure a smooth transition

EIM resources



- EIM Computer-based training at:
<https://www.westerneim.com/Pages/Resources.aspx>
- EIM Quarterly benefits reports at:
<https://www.westerneim.com/Pages/About/QuarterlyBenefits.aspx>