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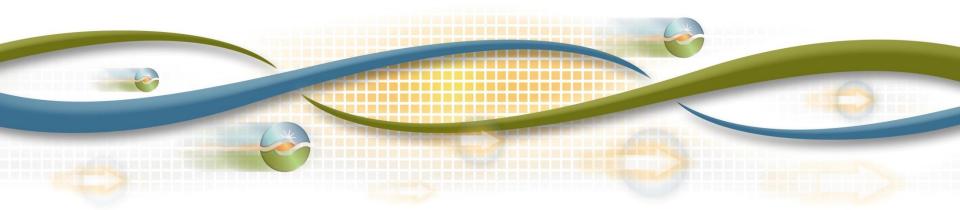


Western Electricity Market Forum

Update on Market Activities in the West

August 4, 2017

Stacey Crowley, VP, Regional and Federal Affairs



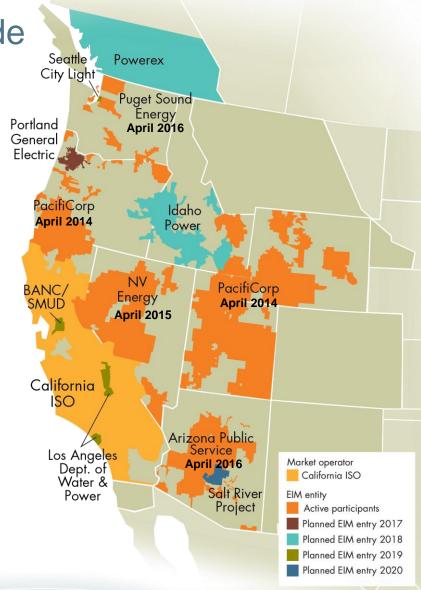
Key topics for today's discussion

- Status update on western Energy Imbalance Market
- ISO governance including EIM
- ISO stakeholder process
- Current proposal on regional ISO governance



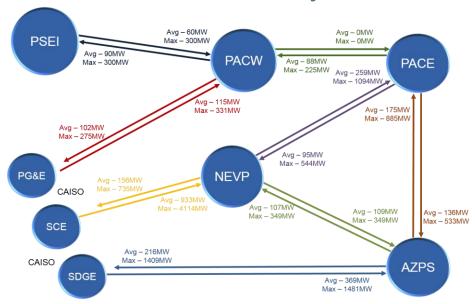
Western EIM is providing substantial benefits West-wide

- Leverages geographical diversity of loads and resources in the market footprint
- Dispatches most efficient, lowcost resources automatically
- Facilitates use of renewable energy resources
- Enhances reliability with more visibility into larger system





EIM provides critical access to resources across the region on a 5-minute basis for system reliability



ВАА	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1st Qtr	2nd Qtr	Total
	2014	2015	2015	2015	2015	2016	2016	2016	2016	2017	2017	Total
APS									5.98	5.23	8.13	19.34
CAISO	1.23	1.44	2.46	3.48	5.28	6.35	7.89	5.44	8.67	9.50	15.49	67.23
NVE	-	-	-	-	0.84	1.7	5.2	5.6	3.07	3.50	4.62	24.53
PAC	4.73	3.82	7.72	8.52	6.17	10.85	10.51	15.12	8.99	11.47	8.81	96.71
PSE									1.56	1.40	2.47	5.43
Total	5.97	5.26	10.18	12	12.29	18.9	23.6	26.16	28.27	31.10	39.52	213.24



EIM governance allows for robust stakeholder input in public forum

EIM Governing Body seated June 28, 2016 – the EIM governing body
was designed by regional stakeholders to give entities throughout
the west a voice in decision-making on EIM matters.



Chair Douglas Howe



Vice-Chair Valerie Fong



Carl Linvill



John Prescott



Kristine Schmidt

- Body of State Regulators comprised of one commissioner from each of the state public utilities commissions in which a utility participates or plans to participate in the EIM
- Regional Issues Forum a public vehicle organized by ten self-selected sector liaisons that facilitate input and participation from respective sectors on EIMrelated issues

Body of State Regulators utilizing staff support to develop advisory opinions where appropriate

AZ Doug Little*, Commissioner (*Vice Chair of BOSR) CA Michael Picker, President California Public Utility Commission ID Kristine Raper, Commissioner Idaho Public Utilities Commission NV Ann Pongracz, Commissioner Nevada Public Utility Commission OR Lisa Hardie, Chairman Oregon Public Utility Commission UT Jordan White, Commissioner Utah Public Service Commission WA Ann Rendahl*, Commissioner Washington Utilities & Transportation (*Chair of BOSR) WY Bill Russell, Commissioner Wyoming Public Service Commission			
ID Kristine Raper, Commissioner Idaho Public Utilities Commission NV Ann Pongracz, Commissioner Nevada Public Utility Commission OR Lisa Hardie, Chairman Oregon Public Utility Commission UT Jordan White, Commissioner Utah Public Service Commission WA Ann Rendahl*, Commissioner Washington Utilities & Transportation Commission	AZ	•	Arizona Corporation Commission
NV Ann Pongracz, Commissioner Nevada Public Utility Commission OR Lisa Hardie, Chairman Oregon Public Utility Commission UT Jordan White, Commissioner Utah Public Service Commission WA Ann Rendahl*, Commissioner Washington Utilities & Transportation (*Chair of BOSR)	CA	Michael Picker, President	California Public Utility Commission
OR Lisa Hardie, Chairman Oregon Public Utility Commission UT Jordan White, Commissioner Utah Public Service Commission WA Ann Rendahl*, Commissioner Washington Utilities & Transportation (*Chair of BOSR) Commission	ID	Kristine Raper, Commissioner	Idaho Public Utilities Commission
UT Jordan White, Commissioner Utah Public Service Commission WA Ann Rendahl*, Commissioner Washington Utilities & Transportation (*Chair of BOSR) Commission	NV	Ann Pongracz, Commissioner	Nevada Public Utility Commission
WA Ann Rendahl*, Commissioner Washington Utilities & Transportation (*Chair of BOSR) Commission	OR	Lisa Hardie, Chairman	Oregon Public Utility Commission
(*Chair of BOSR) Commission	UT	Jordan White, Commissioner	Utah Public Service Commission
WY Bill Russell, Commissioner Wyoming Public Service Commission	WA	•	·
	WY	Bill Russell, Commissioner	Wyoming Public Service Commission

Information found at Western Interstate Energy Board website http://westernenergyboard.org/eim-bosr/eim-bosr-meetings/



Regional Issues Forum have scheduled their next meeting in Seattle on September 7

Sector Representatives

Independent Power Producers and Power Marketers	Robert Kahn (NIPPC)Ryan Leonard (Avangrid Renewables)
Neighboring Adjacent Balancing Authority Areas	Therese Hampton (PGP)Suzanne Cooper (BPA)
Public Interest Groups and Consumer Advocates	 Cameron Yourkowski (Renewable Northwest) Cheryl Murray (Utah Office of Consumer Services)
Publicly Owned Utilities	Tony Braun (Braun Legal)Clay McArthur (Deseret Power)
Transmission Owning Utilities	Pam Sporborg (Portland General)Matt LeCar (PG&E)



Stakeholder input is essential to ISO planning and design, building trust through engagement and transparency



- Consistent collaboration with state regulatory agencies
- Ample opportunity for stakeholder input into market design, implementation and infrastructure planning activities.
- Public process shapes the market design and policies through a series of proposals, meetings and stakeholder comments.

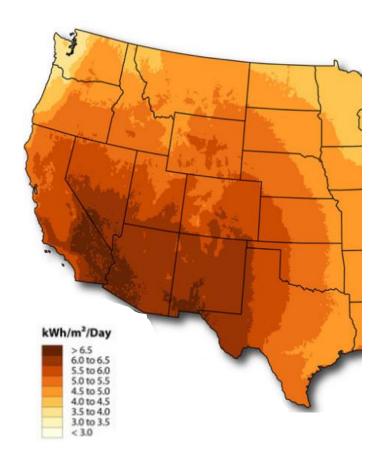
Economic benefits and efficient use of resources increase with a regional market.

Full Participation Benefits

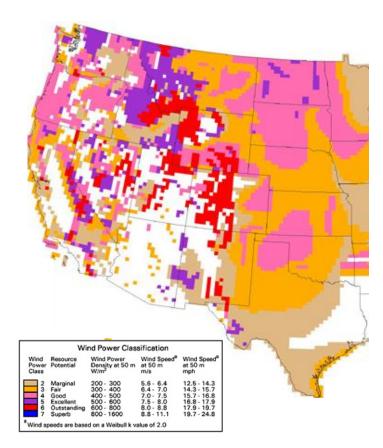
- Increases development of renewable generation in the region
- Optimizes what power plants are turned on ahead of time
- Increases development of new transmission to enhance reliability, lower costs, and achieve policy objectives
- Improves reliability by providing greater visibility and load/resource diversity across the region

- State-of-the art technology that balances supply and demand every five minutes
- Dispatches the use of the lowest cost generation available in real-time

=nergy Imbalance Market Benefits Solar and wind resources are abundant and provide beneficial geographic diversity in a western regional market.



Solar Resources - NREL

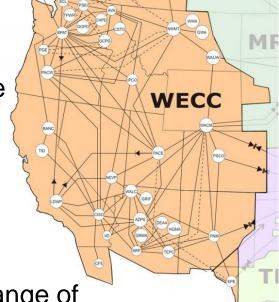


Wind Resources - NREL

A successful regional market will require collaboration and engagement from a broad set of stakeholders

Activities include:

- Interest from utilities to explore regional market
- California statute change to amend governance
- Revisit key market design processes (resource adequacy, transmission cost allocation, stakeholder processes)
- Approval by state or local regulatory bodies
- Approval by FERC on changes to tariffs for a range of market process issues
- Design development, testing, market simulation, and readiness assessment before launching regional market



State and stakeholder engagement on governance principles started with western EIM

- Research and discussions with other multi-state Independent System Operators provided useful models
- On-going discussions with energy advisors, regulatory commissioners and other state agencies provides forum for finding areas of agreement
- Several stakeholder groups produced papers on governance principles
- CEC has solicited comments on governance issues associated with a regional market: http://www.energy.ca.gov/sb350/regional_grid/documents/index.html
- Proposal to transition to new ISO Board nominated and selected by regional representatives

Preserving state authority is key principle driving proposed regional governance design.

Other key principles:

- Current ISO Board of Governors transition to new ISO Board nominated and selected by regional representatives
- Western States Committee authority over certain aspects of transmission cost allocation and regional resource adequacy structure, approve slate of Board members
- EIM Governing Body authority over EIM matters
- State and sector representatives further develops details of governance
- Provide stakeholders with transparent and accessible process for participation

EIM versus regional ISO governance – key distinctions

- EIM Governing Body has *delegated* authority from the ISO Board of Governors over EIM-related market rules
 - The governing board for a regional ISO will have primary authority over *all* market rules and ISO functions
- EIM Governing Body was seated on June 28, 2016
 - Regional ISO governance is dependent on change to CA statute and interest from utilities
- Both governing bodies will be regionally diverse; not Californiacentric
- Continuation or modification to the EIM Governing Body following establishment of a regional ISO is yet to be determined

Regional market online resources

NEW western EIM website

https://www.westerneim.com/pages/default.aspx

Regional Energy Market webpage

http://www.caiso.com/informed/Pages/RegionalEnergyMarket/BenefitsofaRegionalEnergyMarket.aspx

Stakeholder Processes webpage

http://www.caiso.com/informed/Pages/StakeholderProcesses/ Default.aspx

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Thank you

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