

# PSCo Decision to Join the EIM

EIM Regional Issues Forum – 3/11/2020  
Jason Smith, Sr. Mgr. Market Operations



# About Xcel Energy

Serving eight states

- 3.6 million electricity customers
- 2 million natural gas customers

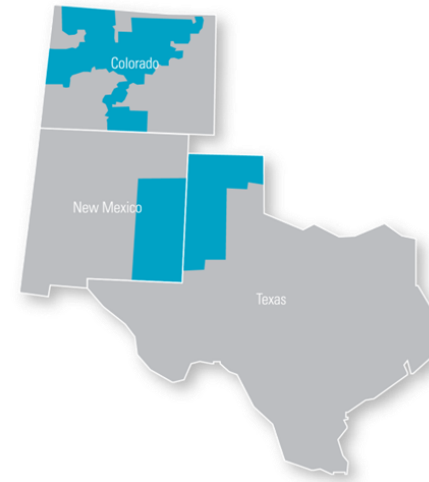
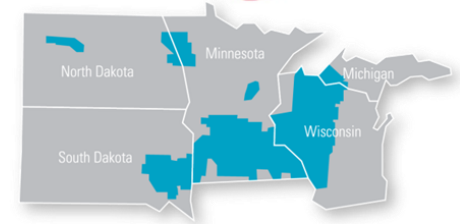
## Nationally recognized leader:

- Wind energy
- Energy efficiency
- Carbon emissions reductions
- Innovative technology

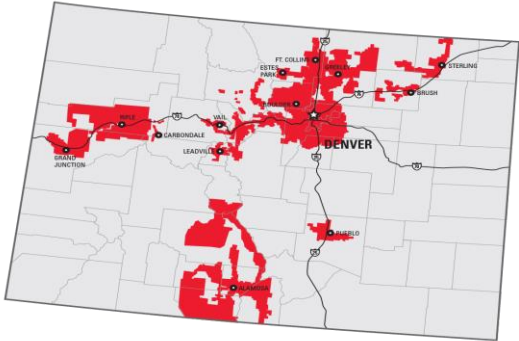
Northern States Power (NSP) – MISO

Southwestern Public Service (SPS) – SPP

Public Service Co. of Colorado (PSCo) – WECC Bi-lateral Mkt



# Public Service Co. of Colorado Business/Region/Market



**Electric – Retail**  
1.5 million customers  
29 million MWh

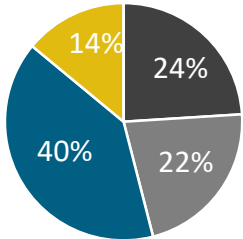
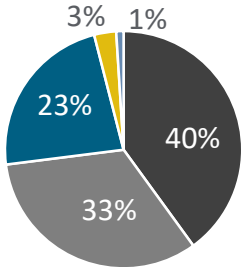
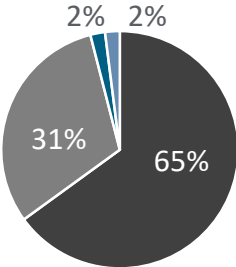
**Natural Gas - Retail**  
1.4 million customers  
138 million MMBtu

**2018 Financials**  
Net Income  
Assets  
ROE  
Equity Ratio

**GAAP & Ongoing**  
\$552 million  
\$17.3 billion  
9.10%  
54.3%

- Coal
- Natural Gas
- Wind
- Solar
- Hydro

### System Energy Mix



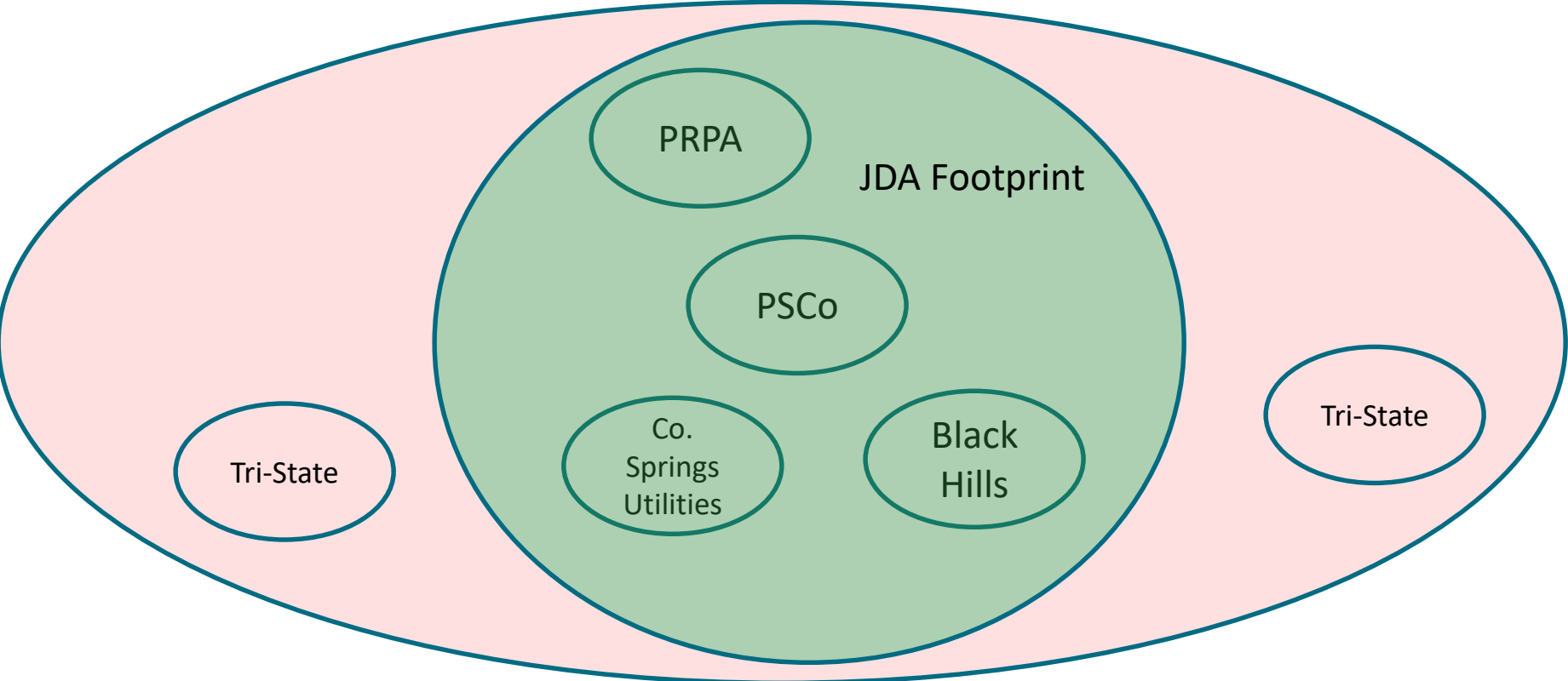
As of 10/31/2019

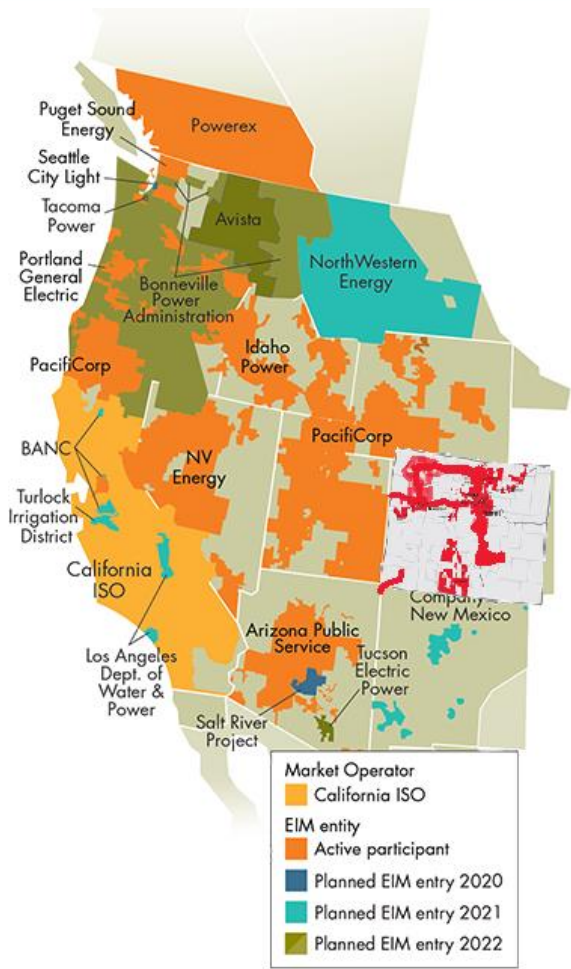
2005

2018

2027E

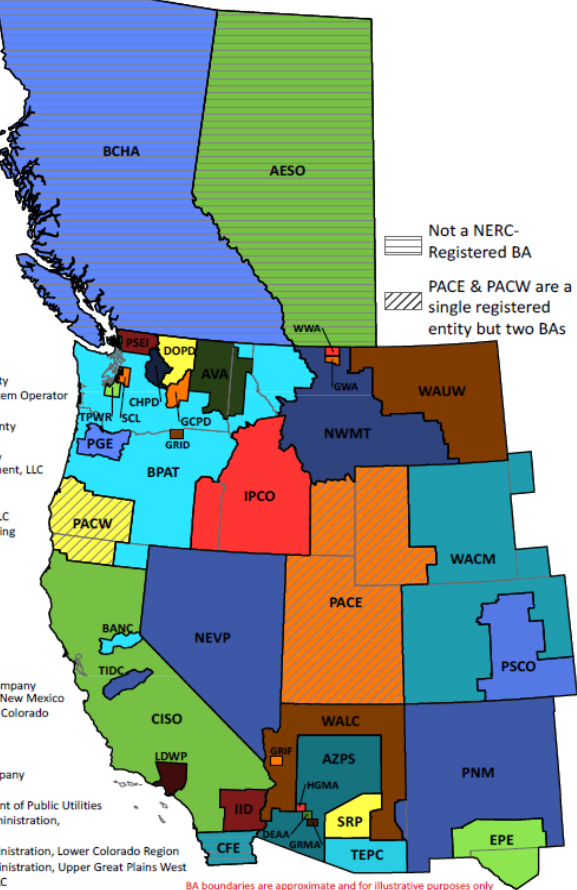
# PSCO Balancing Authority





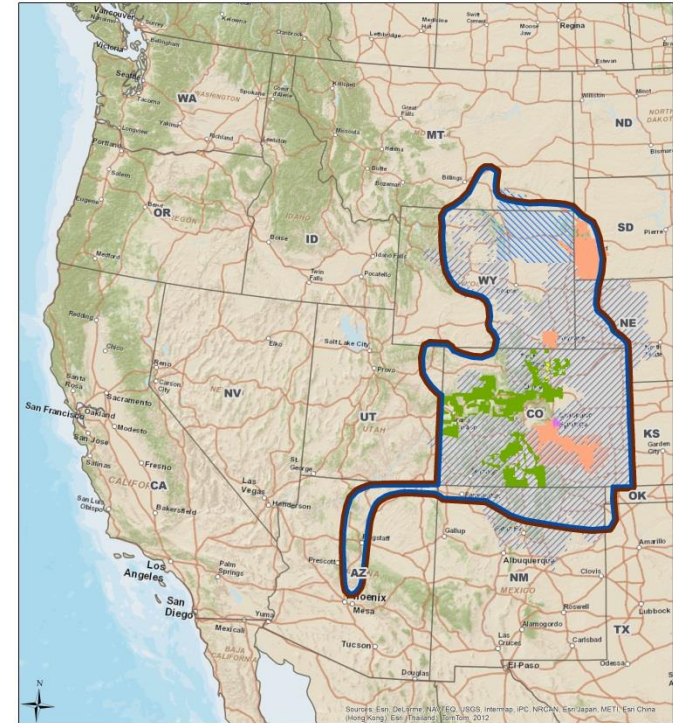
Western Interconnection Balancing Authorities  
January 5, 2017

- AESO - Alberta Electric System Operator
- AVA - Avista Corporation
- AZPS - Arizona Public Service Company
- BANC - Balancing Authority of Northern California
- BCHA - British Columbia Hydro Authority
- BPAT - Bonneville Power Administration-Transmission
- CFE - Comision Federal de Electricidad
- CHPD - PUD No. 1 of Chelan County
- CISO - California Independent System Operator
- DEAA - Arlington Valley, LLC
- DOPD - PUD No. 1 of Douglas County
- EPE - El Paso Electric Company
- GCPD - PUD No. 2 of Grant County
- GRID - Gridforce Energy Management, LLC
- GRIF - Griffith Energy, LLC
- GRMA - Gila River Power, LP
- GWA - NaturEner Power Watch, LLC
- HGMA - New Harquahala Generating Company, LLC
- IID - Imperial Irrigation District
- IPCO - Idaho Power Company
- LDWP - Los Angeles Department of Water and Power
- NEVP - Nevada Power Company
- NWMT - NorthWestern Energy
- PACE - PacifiCorp East
- PACW - PacifiCorp West
- PGE - Portland General Electric Company
- PNM - Public Service Company of New Mexico
- PSCO - Public Service Company of Colorado
- PSEL - Puget Sound Energy
- SCL - Seattle City Light
- SRP - Salt River Project
- TEPC - Tucson Electric Power Company
- TIDC - Turlock Irrigation District
- TPWR - City of Tacoma, Department of Public Utilities
- WACM - Western Area Power Administration, Colorado-Missouri Region
- WALC - Western Area Power Administration, Lower Colorado Region
- WAUW - Wester Area Power Administration, Upper Great Plains West
- WWA - NaturEner Wind Watch, LLC



# Our path ...

- Mountain West Transmission Group
  - 2017-2018
  - Full RTO Proposal (RT+DAM, AS, Planning, etc.)
  - SPP Administered
  - Integrated with SPP East
  - Xcel/PSCo withdrew April 2018

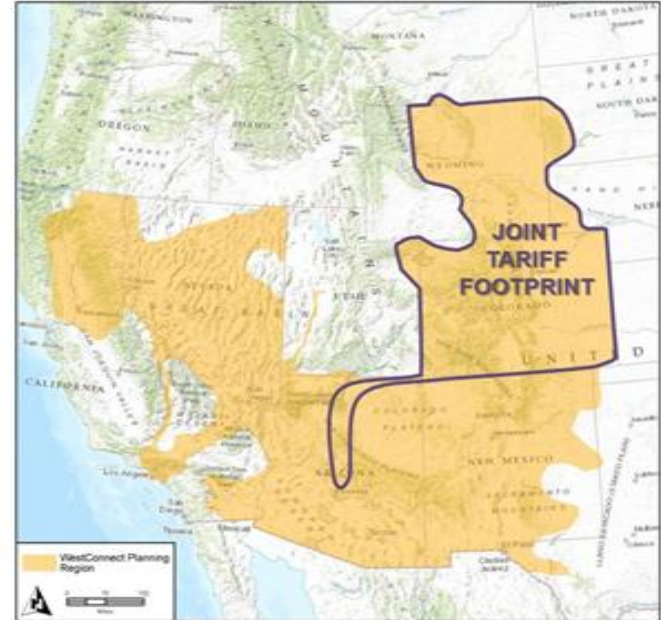


Mountain West Transmission Group



# Mountain West Background

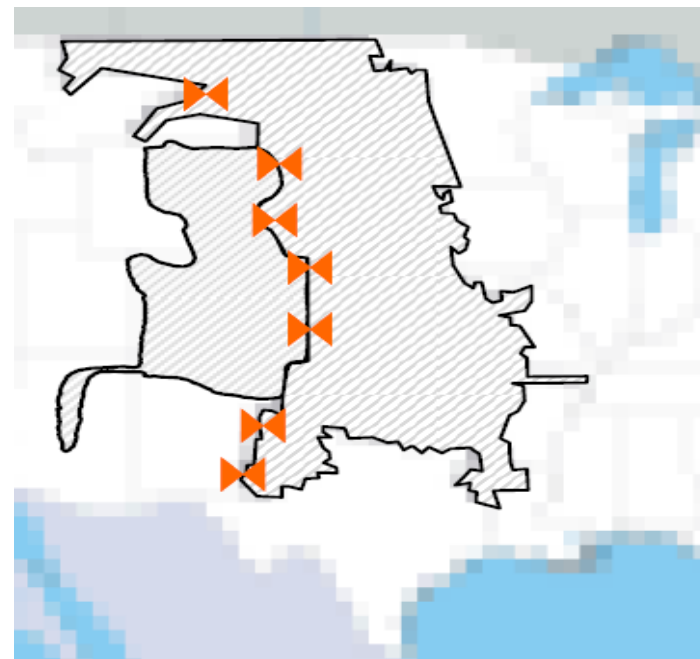
- Overall rationale:
  - Efficiency and reliability benefits for customers forecasted to outweigh project costs
  - Consolidated transmission access and planning
  - Integrated regional energy market
- Parties engaged CAISO, SPP, MISO, and PJM and narrowed focus to SPP
- March 2018: SPP BOD accepted MWTG proposed terms
  - Key elements included:
    - Phased-in administrative fee (discount)
    - Cost allocation of DC ties
    - Protection of transmission owner rights
    - Resolve some tariff design issues like “Z2” and “zonal placement”
    - Provision of combined RC and RTO services



# Mountain West Effort

- Key risk areas for PSCo:
  - Minimum costs known, benefits mostly modeled – or declined as project progressed
  - Declining potential for expansion of members as EIM expands
  - Upward pressure on project costs at SPP
  - SPP east members pushing back on terms in stakeholder process
- By early May 2018: the project plan called for execution of contracts to implement RC and RTO services for MWTG members
  - April 20, 2018: Xcel Energy announced that it would not continue participating in Mountain West efforts to join SPP.

SPP and MWTG Footprint





# PSCo BA Joint Dispatch Agreement

- 2016 – Present
- Pre-dates formal MWTG Initiative
- PSCo, PRPA, Black Hills Co., Colo. Springs Utilities (March 2020)
- Hourly System Marginal Price Dispatch
- Posted ATC Based
- \$0, reciprocal transmission use
- Largely based on manual processes
  - Congestion Management

# 2019...

- March/April 2019 SPP proposes a “west market” in its new West RC footprint
- SPP formalizes Western Energy Imbalance Service proposal
  - “Western Joint Dispatch Agreement” vs “Joint Dispatch Agreement”
- CAISO responds to JDA inquiry regarding EIM functionality
- Summer 2019 – JDA Parties contract with The Brattle Group to study WEIS vs EIM
- September 2019 – A portion of former MWTG members announce intent to join WEIS
- December 2019 – JDA entities (remainder of former MWTG) announce intent to join EIM

# 2019 Continued...

- CO Senate Bill 19-236
  - Colorado Transmission Coordination Act
  - Required the PUC to open an investigatory docket examining various market options (RTO's, EI markets, power pool, joint tariff) in the state
  - Requires an order from the PUC determining whether joining “something” is in the public interest and if so, directing utilities to pursue
  - More to come....

# “The Brattle Study”

- The Brattle Group was primary consultant in former MWTG work
- PSCo and other JDA entities felt a cost/benefit comparison was necessary
- Scenarios studied:
  - PSCo BA (JDA entities) in EIM
  - All former MWTG in WEIS
  - All former MWTG in EIM
- Business as usual/Status Quo case updated to capture existing JDA benefits
  - “Base Case” different in this study vs MWTG
- Natural Gas and “added transmission” sensitivities

# “The Brattle Study”

- Designed study to compare differences between the options rather than focus on total benefits
  - Many benefits not quantified vs other public “EIM” analyses
    - Flex Reserve reductions
    - Incremental renewable integration
    - Reduction in Renewable curtailments
  - Agreed that there is significant benefit in either option
- Study Report and Narrative Summary (JDA Entities interpretation) posted on CO PUC site under docket 19M-0495E
  - Discussion of start-up costs, exit provisions, market depth, trading volume concerns

# Production Cost Results

- Compared to “Business as Usual” (JDA):
  - \*Note: These benefits are for the JDA entities only
    - JDA joining EIM = \$1.98m/yr
    - MWTG joining EIM = \$17.34m/yr
    - MWTG joining WEIS = \$1.62m/yr
- Highlights:
  - JDA in EIM has small transaction rights with the rest of EIM
  - MWTG in EIM has very large transaction rights with the rest of EIM
  - MWTG in EIS has large internal transmission capability, but little optimization benefit
  - No substantive “ah ha” information gleaned from added transmission and NG sensitivities
    - Added transmission case did show increased benefits

# Participation/Exit Costs

- EIM

- ~\$1.6m Up-front Implementation Charge
- ~\$0.187/MWh Admin Charge (imbalance energy volume)
  - ~\$0.45m/year for estimate purposes
- No Exit Provisions

- WEIS

- \$0 Up-front Implementation Charge
- \$0.07/MWh Admin Charge\* (total NEL)
  - ~\$3.48m/year for estimate purposes
  - Current stated WEIS rate is \$0.22/MWh – assumed that drops to \$0.07 if PSCo BA joined
- Declining balance Exit Provision (financed start-up costs)

# Takeaways

- MWTG in EIM case discarded since Sept. 2019 WAPA/Tri-State/Basin announcement to join WEIS (highest benefits)
- JDA in EIM case has less cost, better production cost benefits, and more potential future benefits compared to WEIS for the JDA footprint
- Even with low transmission capability with the rest of EIM, the improved SCED of EIM increases benefits for the JDA over the status quo



# Next Steps

- Implementation Agreement Execution
- Project plan development
- Visits with other EIM Entities
  
- Questions?