

Exhibit to Agenda Item #1c

Board Strategic Development Committee Meeting and Special SMUD Board of Directors' Meeting

Tuesday, April 17, 2018 scheduled to begin at 5:30 p.m.

Customer Service Center, Rubicon Room

Regional Market Developments

SMUD Strategic Direction Committee



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Overview

- ▶ Driving Forces for Regional Market Evolution
- ▶ Overview of Developments
- ▶ What is on the Horizon

Driving Forces of Change

- ▶ Changes to the Generation Fleet
 - ▶ State Policies
 - ▶ Economics of Renewable Energy
 - ▶ Rooftop Solar and Customer Preference
 - ▶ Retirement of Existing Fossil
- ▶ Transmission Opportunities
 - ▶ Significant Opportunities for New Transmission in the West
 - ▶ Regional Markets May Increase Opportunities for Project Approval and Spread Costs More Broadly
 - ▶ Opportunities for Higher Rates of Return

Not Everyone Has the Same Policies But the Trends are There

- ▶ In vertically integrated states, the utility have every incentive to replace retiring generation with utility-owned wind and solar
 - ▶ THAT IS THE REST OF THE WEST
- ▶ Some states have significant penetration of non-utility wind and solar driven by PURPA obligations
- ▶ Arizona has high amounts of rooftop solar
- ▶ Oregon has adopted an aggressive RPS
- ▶ Oregon and Washington seem poised to implement new carbon policies

Reliability Challenge: The Duck Curve

Net Power for Load (NPL) for 02/26/2017

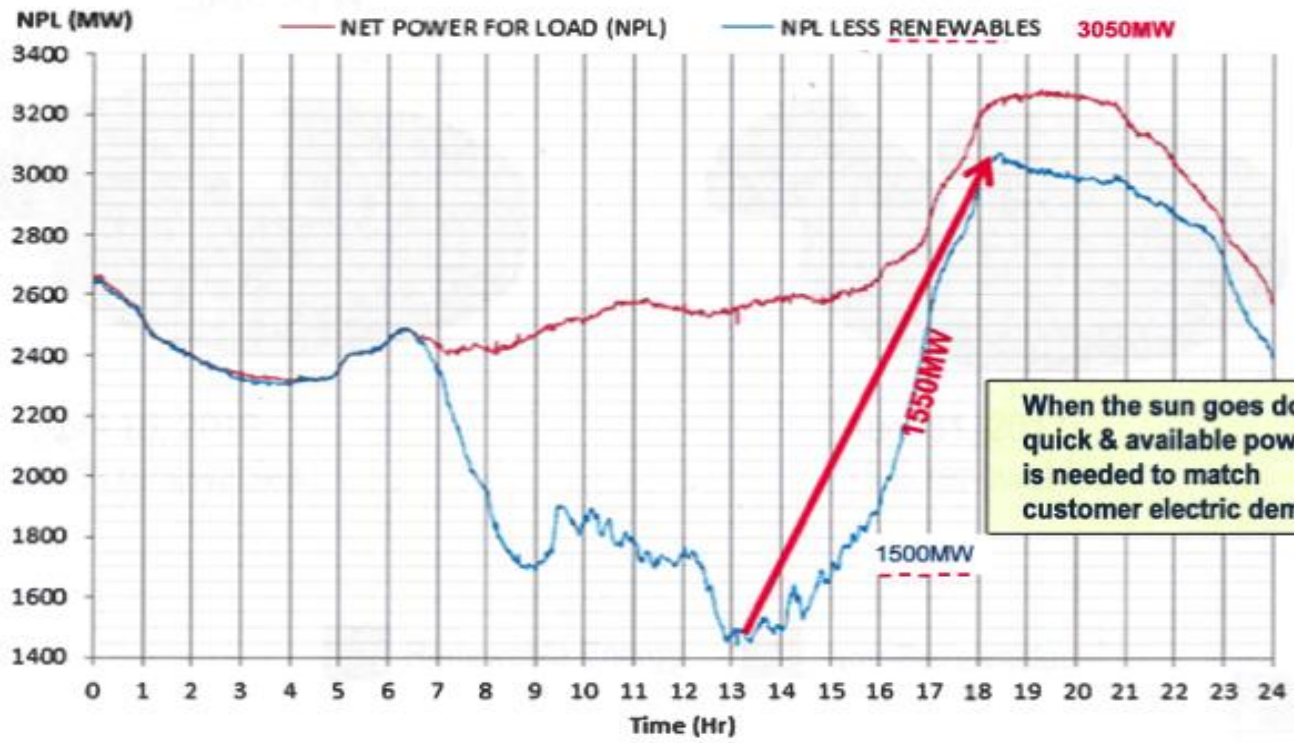
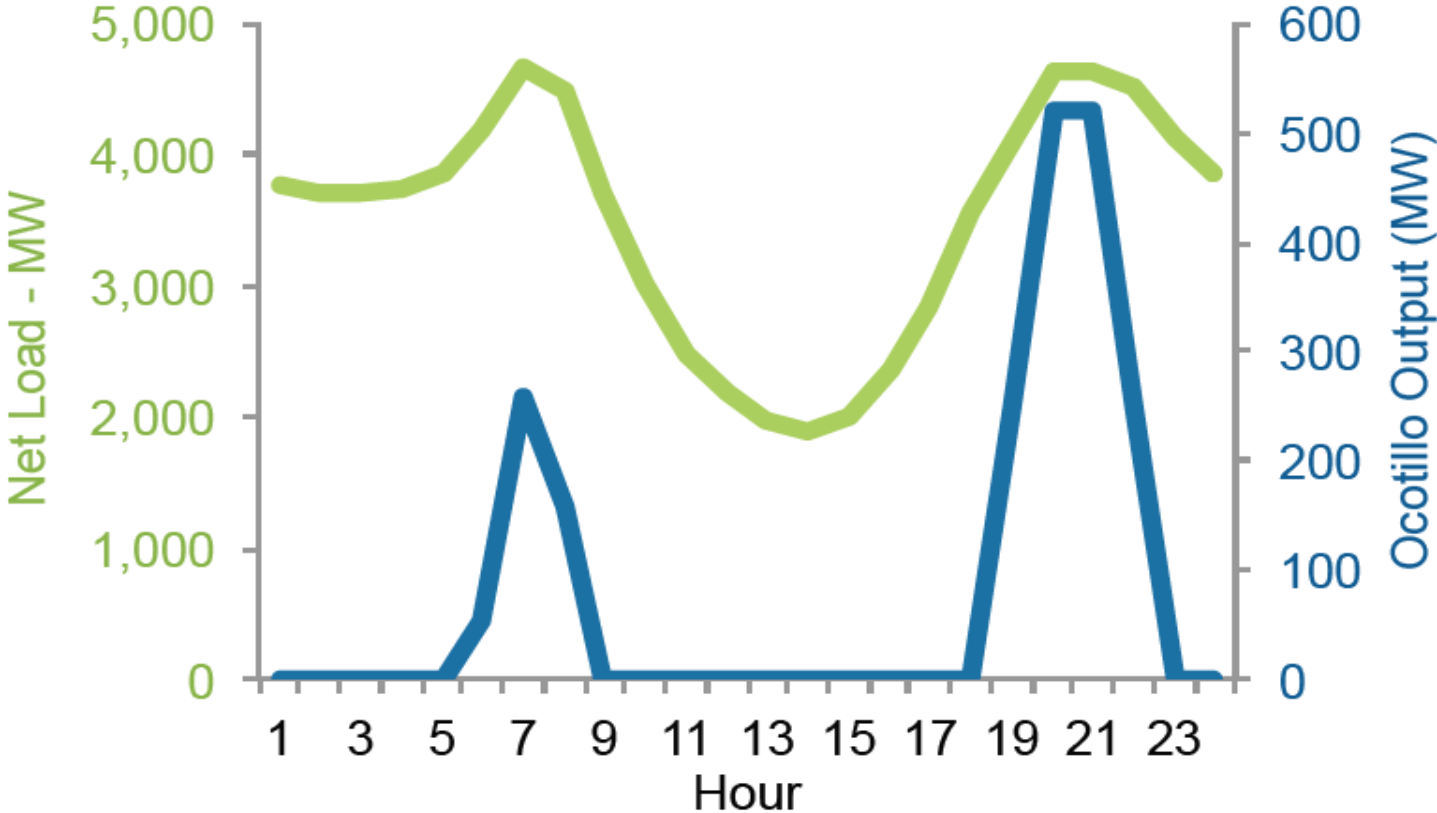
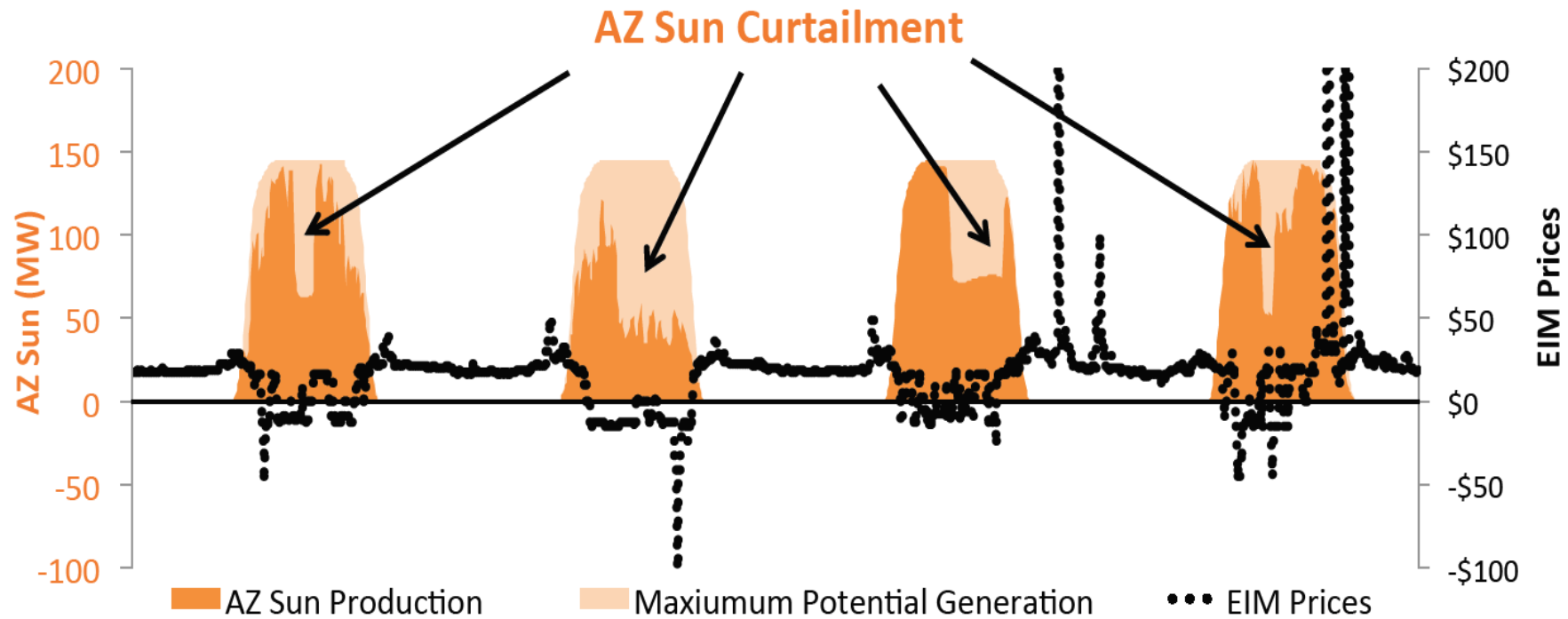


FIGURE ES-11. OMP CONTRIBUTION TO MEETING NET LOAD IN NON-SUMMER MONTHS



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FIGURE ES-13. NEGATIVE WHOLESALE POWER PRICING IN THE ENERGY IMBALANCE MARKET (EIM)



Manifestations of Change

- ▶ EIM Establishment and Expansion
- ▶ Legislative Proposals to Change CAISO Governance
- ▶ Further Proposals to Enhance Regional Markets
- ▶ Mountain West Transmission Group and Southwest Power Pool
- ▶ Splintering of Reliability Coordinator Services along Market Boundaries

EIM Expansion

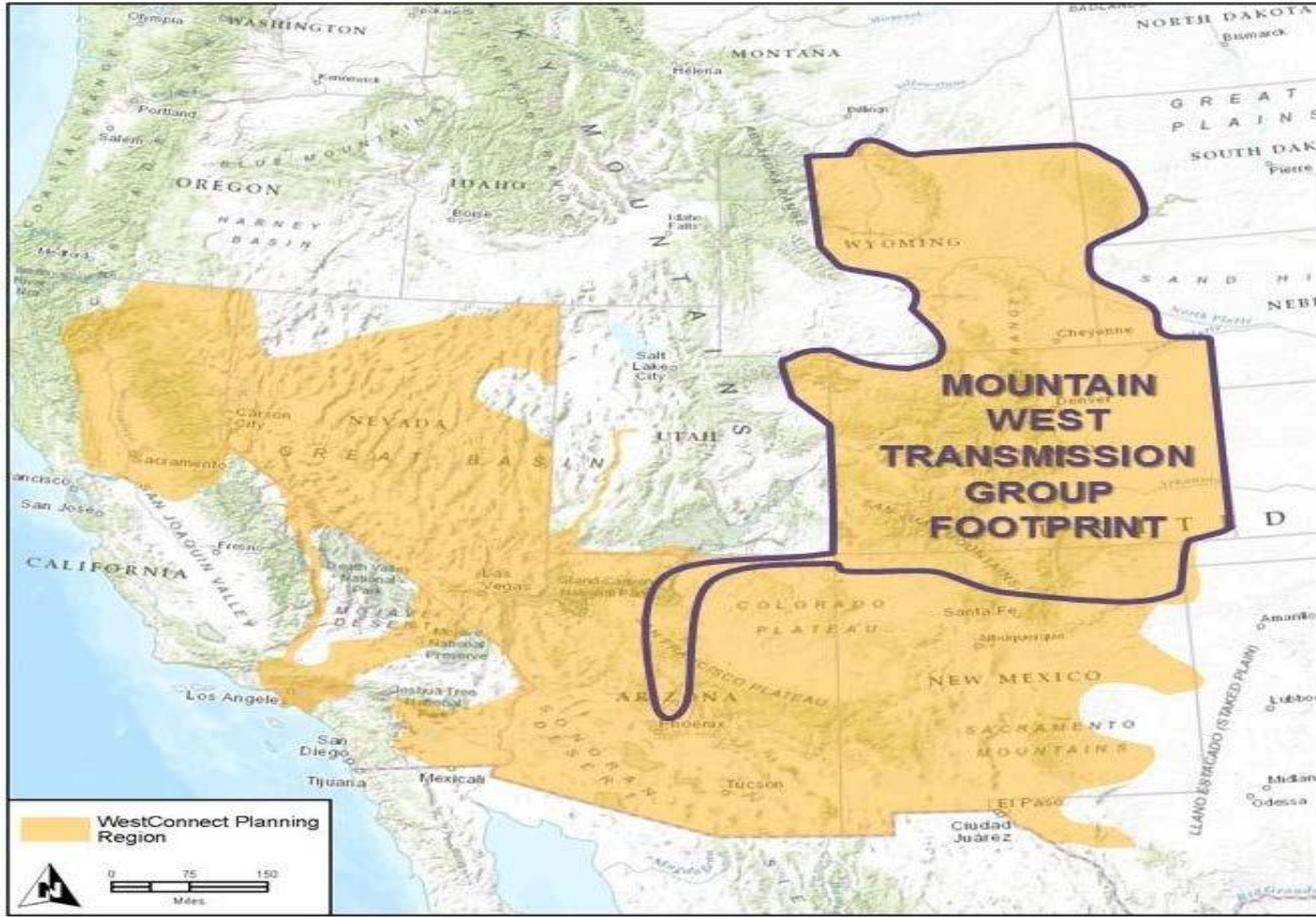
- ▶ 2014 - 2017 Sees Historic Changes to How the West Trades Power
- ▶ 11 Entities Operating or Slated to Operate in the EIM
- ▶ Public Power Foray into EIM
 - ▶ BANC/SMUD 2019
 - ▶ LADWP, SCL, SRP 2020
- ▶ Likely More To Follow



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Developments in the Mountain West Transmission Group

- ▶ Public, Cooperative, and Investor Owned Utilities on Front Range
- ▶ Explore Market Options
- ▶ MWTG Proceeding to Join Southwest Power Pool
- ▶ This is a Full RTO “Day Two” Market
 - ▶ Day Ahead
 - ▶ Joint Transmission Planning
 - ▶ Common Resource Adequacy Rules



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Changes to Reliability Coordination Services

- ▶ MWTG Anticipated to Exit Peak RC as Services Duplicate Those Provided by SPP
- ▶ Peak Announces Partnership with PJM to Offer Market Services in the West
- ▶ Peak Announcement Triggers CAISO Notice of Withdrawal
- ▶ Most Every “Funding Party” Has Now Provided a Notice of Withdrawal
- ▶ SPP and CAISO to Expand or Stand Up RC Service Offerings
- ▶ Peak?

EIM Augmentation

- ▶ CAISO Planning Changes to Its Own Day Ahead Market
 - ▶ Responding to Renewable Integration Challenges
- ▶ CAISO Proposing to Consider Then Expanding Day Ahead Participation to EIM Entities
 - ▶ Greatly Expand Trading within the Single Optimization
 - ▶ Affects on Liquidity of Other Markets
 - ▶ Raises Issues: Governance, Transmission, Resource Adequacy, GHG, Others

Legislation 2018 - AB 813; Déjà vu All Over Again, But Different

- ▶ Proposes to Condition California Entity Participation in MultiState Regional Transmission Operator
 - ▶ Public Openness and Transparency
 - ▶ Reasonable Cost Allocation
 - ▶ GHG Attribution
 - ▶ Others
- ▶ Politics of 2018. Are they Different that 2016, 2017?
- ▶ Do We Need Governance Changes?

Conclusions

- ▶ Change is Afoot
- ▶ Generation Choices Have Changed
 - ▶ Economics
 - ▶ Policy
 - ▶ Consumer Demands
- ▶ Markets Are Evolving Without Legislative Fiat
- ▶ California Will Have to Make Choices on How it Wants to Drive and Align Itself Within This Changing Structure