



Western  
Area Power  
Administration

# Discussion on Markets

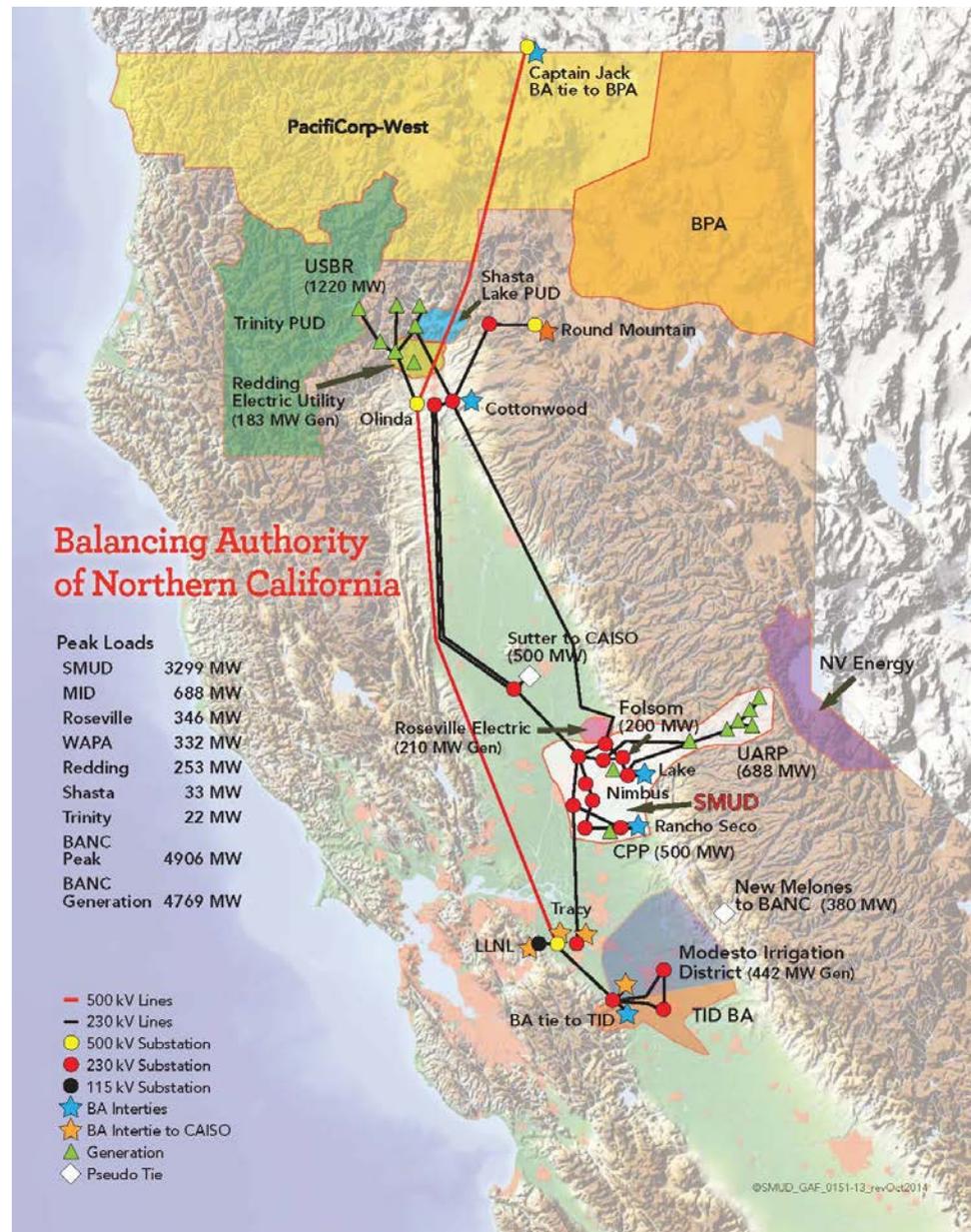
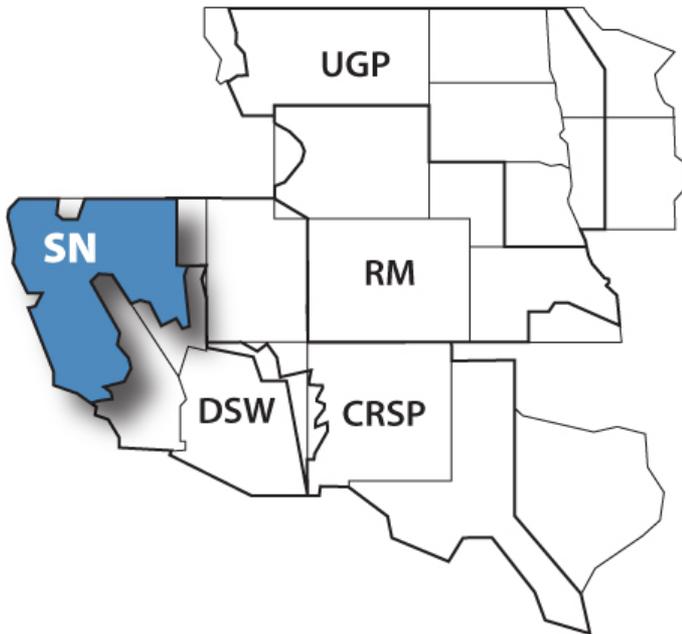
June 30, 2016



Sierra Nevada Region Update  
Sonja Anderson  
VP, Power Marketing, SN Region

Phoenix, Arizona

# SN Footprint



# SN Power Marketing Plan

- Operates as a Sub-Balancing Authority under BANC
- 50% of customer loads are in the SBA and 50% are in the CAISO.
- Take or pay slice of system generation
- Priority usage of output
  - Project use loads
  - SNR Sub-Balancing Authority needs
  - Legislatively authorized First Preference customers
  - Preference customers



# Operating in CAISO Market Today

- Market Redesign and Technology Upgrade (MRTU) startup April 2009
- Merchant function schedules
  - Transactions for 12 Scheduling Coordinator IDs (SCID)
- Settlements staff process
  - 160 different charge codes
  - 8 invoices per SCID weekly
  - 30 customer billing statements
- Net importer to CAISO since 2009
  - 700K MWs in the Day Ahead Market
  - 230K MWs in the Real Time Market



# SN and CVP Challenges

- Environmental impacts
- Frequent CAISO market changes
  - Expansion EIM
  - SB-350 Regional Energy Market
- 5-Year Drought
- Cap and Trade
- CVPIA
- Air Resources Board
  - 50% renewable resources by 2030

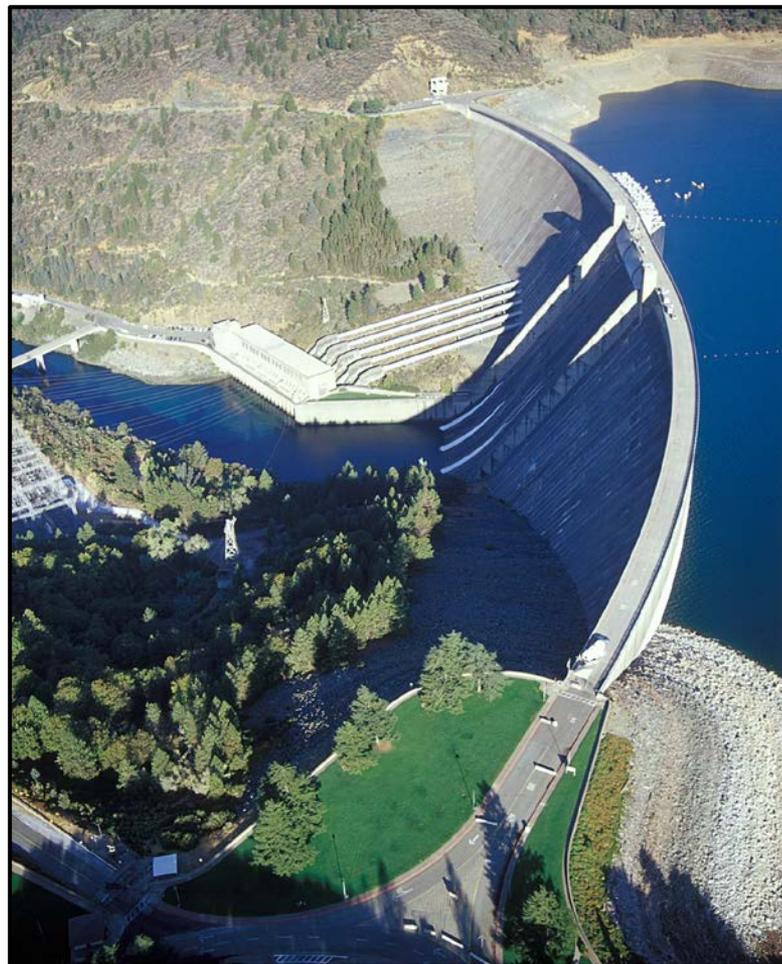


*Peak of drought at Folsom Reservoir*



# Addressing CVP Resource Challenges

- Worked closely with Customers
- Resulting programs:
  - Enhance benefits of CVP
  - Create efficiencies
  - Minimize delivery costs
  - MRTU, IBAA considered for several of the developed programs



*Shasta Dam, courtesy of Reclamation*



# Collaborative Programs

- Displacement Program
- Market Efficiency Enhancement Agreement (MEEA)
- Max Peaking
- Ancillary Sales Market
- Congestion Revenue Rights (CRR)
- Cap and Trade Program



# MRTU and IBAA

- MRTU objectives
  - Model generation and transmission day ahead to eliminate bottlenecks in real time
  - One stop shop for electricity, transmission and reserves to balance grid
  - Establish Locational Marginal Pricing (LMP) 3000 nodes
- Integrated Balancing Authority Area
  - BAs integrated into CAISO modeled differently
    - ✓ Integrated BAs believed to impact power flows.
  - Establish pricing scheme to prevent inappropriate scheduling
  - Established the BANC and TID IBAA



# Displacement Program

- IBAA established price points
  - Imports to ISO at lower price point
  - Exports to BANC at higher price point
- Displacement program function
  - 1:1 exchange
  - BANC customers provide base resource equivalent to customers in the CAISO
  - CAISO customers provide their WAPA allocation to BANC customers in SBA
- Total \$13.3 million since June 2009
  - Benefits to each customers group is \$6.6 million



# MEEA

- FERC ruled IBAA non-discriminatory
  - Participants could receive appropriate pricing through MEEA agreement
- WAPA negotiated MEEA agreement
  - At customer request
  - More favorable pricing
  - ISO receives increased information
    - ✓ Location and operation of resources in WAPA footprint
- Since February 2016, saved \$600K



# Max Peaking Program

- Unique arrangement between Reclamation and WAPA
- Reclamation times generation to maximize power value
  - High releases for more generation during high-peak times
  - Lower releases for less generation during low-peak times
- Customers shape load requirements
- WAPA, Reclamation develop generation curves
  - Sell excess power into market at super peak times
  - Buy at off peak times
- Benefit = approximately \$2.5M annually



# Ancillary Sales and CRRs

- Ancillary Sales
  - SNR works with Reclamation to identify Spin and non-spin capacity and bids into the Ancillary market
  - Benefit of \$2 million in cost reductions
- CRRs
  - Financial instrument to manage variability of congestion costs on Locational Marginal Pricing
  - Benefit = \$11.2M in savings since 2009



# California Cap and Trade Program

- Requires energy imported into California to be covered by allowances.
- Each utility received free allowances up to 2030
- Additional allowances bought and sold in auction
- Congress gave the SN region authority for Cap and Trade participation
- Participating ensures our PACI and COTP transmission rights are not rendered useless.



# Key Take Away

*Due to the constantly changing energy market in the state of California, CVP's future depends on our interactions with other players in the industry. We look forward to building upon our existing relationships and creating new ones as we move forward in the energy frontier.*

