

Exhibit to Agenda Item #1c

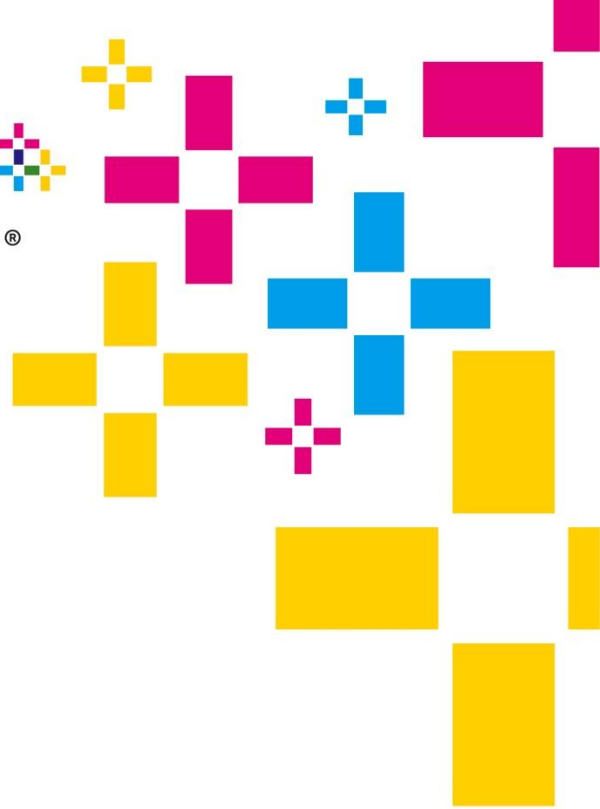
Board Strategic Development Committee and Special SMUD Board of Directors Meeting

Tuesday, November 13, 2018, scheduled to begin at 5:30 p.m.

Customer Service Center, Rubicon Room



nrg®



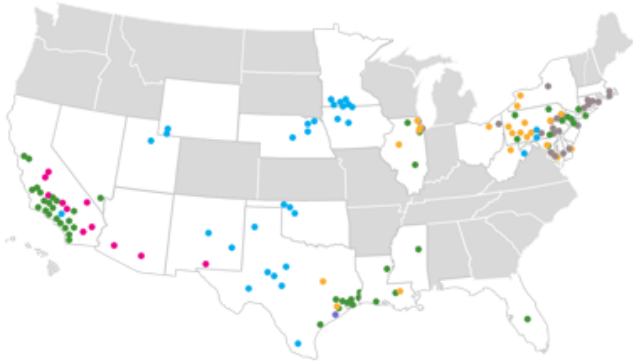
Generation

Brian Theaker Director, Regulatory Affairs
SMUD Board Strategic Development Committee
November 13, 2018



NRG

2015 Analyst Day



53 GW
GENERATION
CAPACITY

2.8 MM
RETAIL
CUSTOMERS

~100
PLANTS

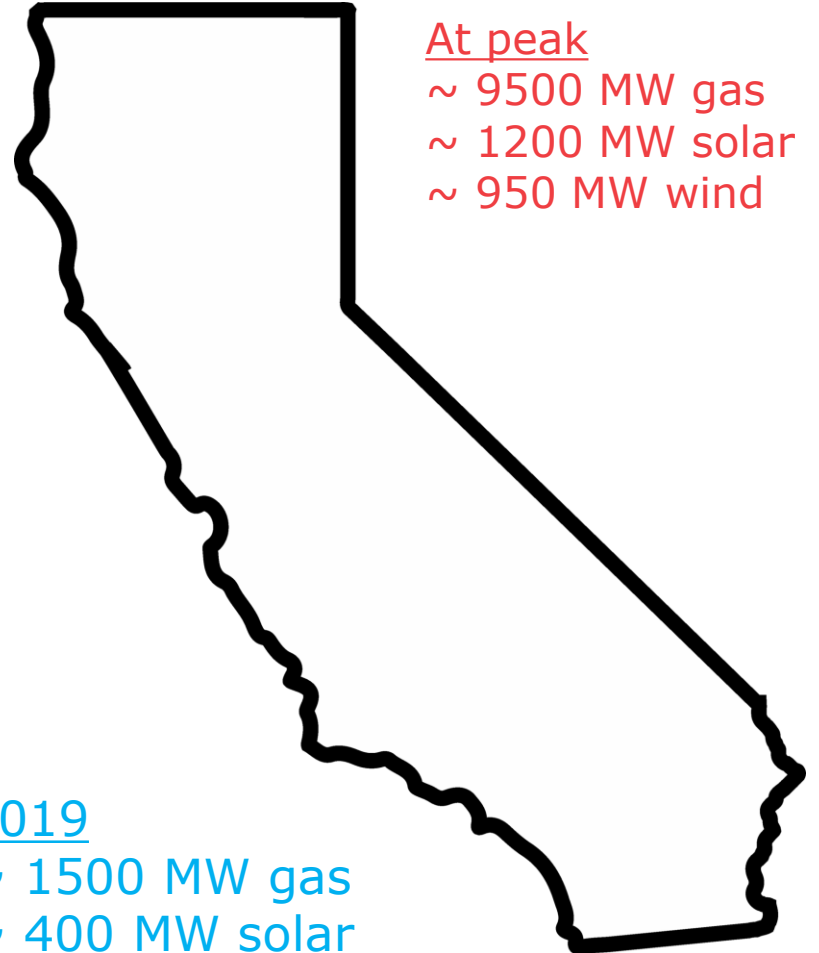
2018 Analyst Day



23 GW
GENERATION
CAPACITY

2.9 MM
RETAIL
CUSTOMERS

~40
PLANTS



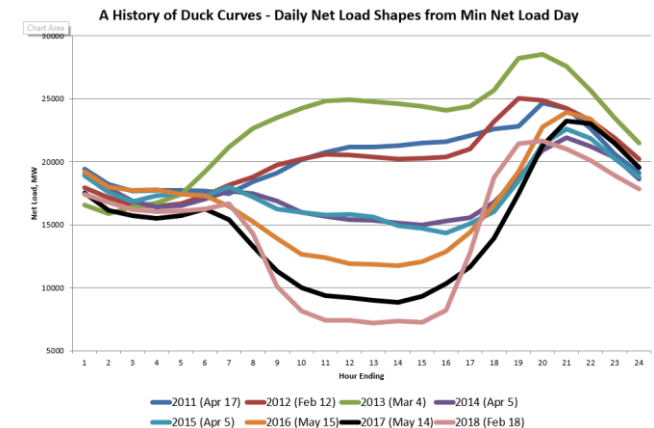
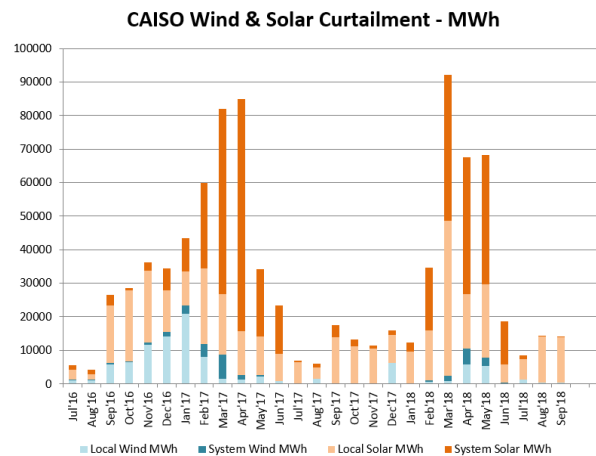
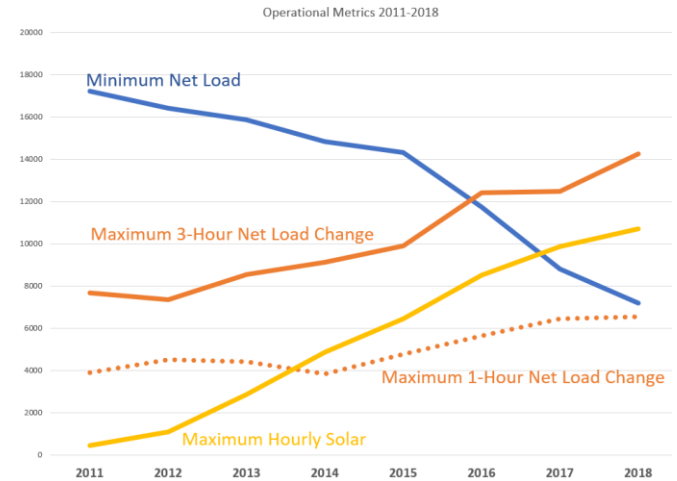


Topics

- Renewables
- Gas-Fired Generation
- Resource Adequacy
- The Future

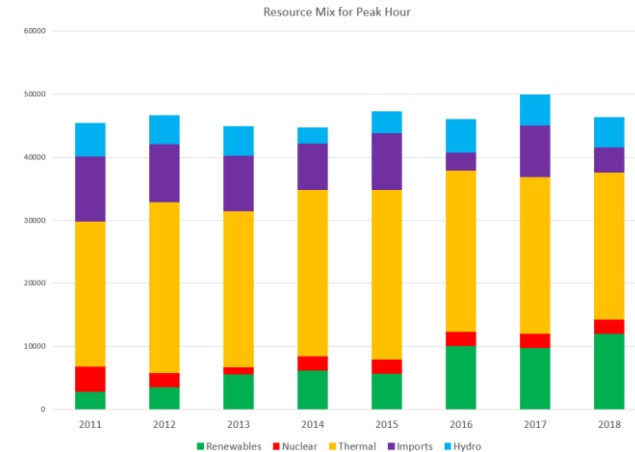
Renewables

- Growth and operational impact (net load and afternoon ramp)
- Wind and solar prices down
- Recent lull in renewables procurement
 - IOUs long and losing load to CCAs
 - CCAs: starting to pivot to new steel?
 - Federal tax credits expiring
- Curtailment – PPA provisions

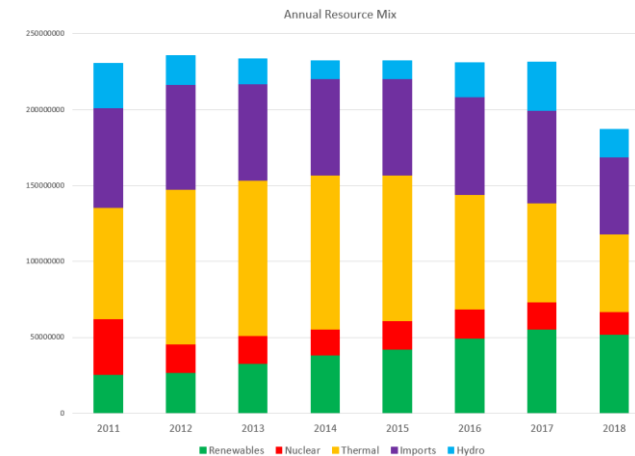


Gas

- The mantra: no [new] gas
 - Puente the poster child
 - Storage as substitute: duration analysis key
- Aliso Canyon
 - SoCalGas system restricted
 - Increased OFOs, price volatility
- La Paloma complaint (EL18-177)
- Retirements
 - UCS “Turning Down the Gas” – 25% can be retired but 75% cannot (primarily for LCR)
 - CAISO TPP: problems emerge with 4-6 GW retired; at 1-2 GW if EE not doubled
 - IRP: assumed 32 GW (all non-OTC) still in service in 2030; follow-up analysis still waiting
- What is the venue for a conversation about the future role of gas?



Mix at peak demand hour



Annual mix



Resource Adequacy

- Significant Recent CAISO Backstop Procurement
 - 2017: annual RMR agreements (~700 MW) and LCR deficiency CPMs (~1100 MW)
 - 2018: short-term designations for September (~ 600 MW) and October (~2500 MW): bad CEC load forecast
- Challenges: load migration, single year cycle, flexibility
- Pending Modifications
 - CPUC Track 2: Multi-Year Forward RA, Central Buyer
 - ELCC-based QC for renewables: initial step for 2017, awaiting follow-up (values still inflated by 2-3 GW)
 - CAISO Initiatives: CPM-RMR, RA Enhancements
- FERC:
 - La Paloma (EL18-177)
 - Urged a “holistic” approach (4/12 CPM RoR Order, ER18-641)
 - PJM: addressing “state-sponsored” resources in capacity pricing

The Future

- SB 100
 - 60% RPS by 2030, 100% clean energy by 2045
 - Role of electrification
- Storage
 - Combined solar/storage
 - Storage as local capacity resource – what duration?
 - Storage as Transmission Asset/market resource
- Distributed Energy Resources
 - Beyond NEM and demand charge mitigation to microgrids, T&D deferral, ?
- Role of gas-fired generation
 - E3 analysis: cheapest way to “100% clean energy” has 23 GW of “capacity” gas
- What is the long-term investment paradigm?
 - Contracts?
 - Centralized Procurement?