Overview of the Inland Empire Energy Center, LLC

Prepared for
The SAWPA Commission

September 2 , 2014

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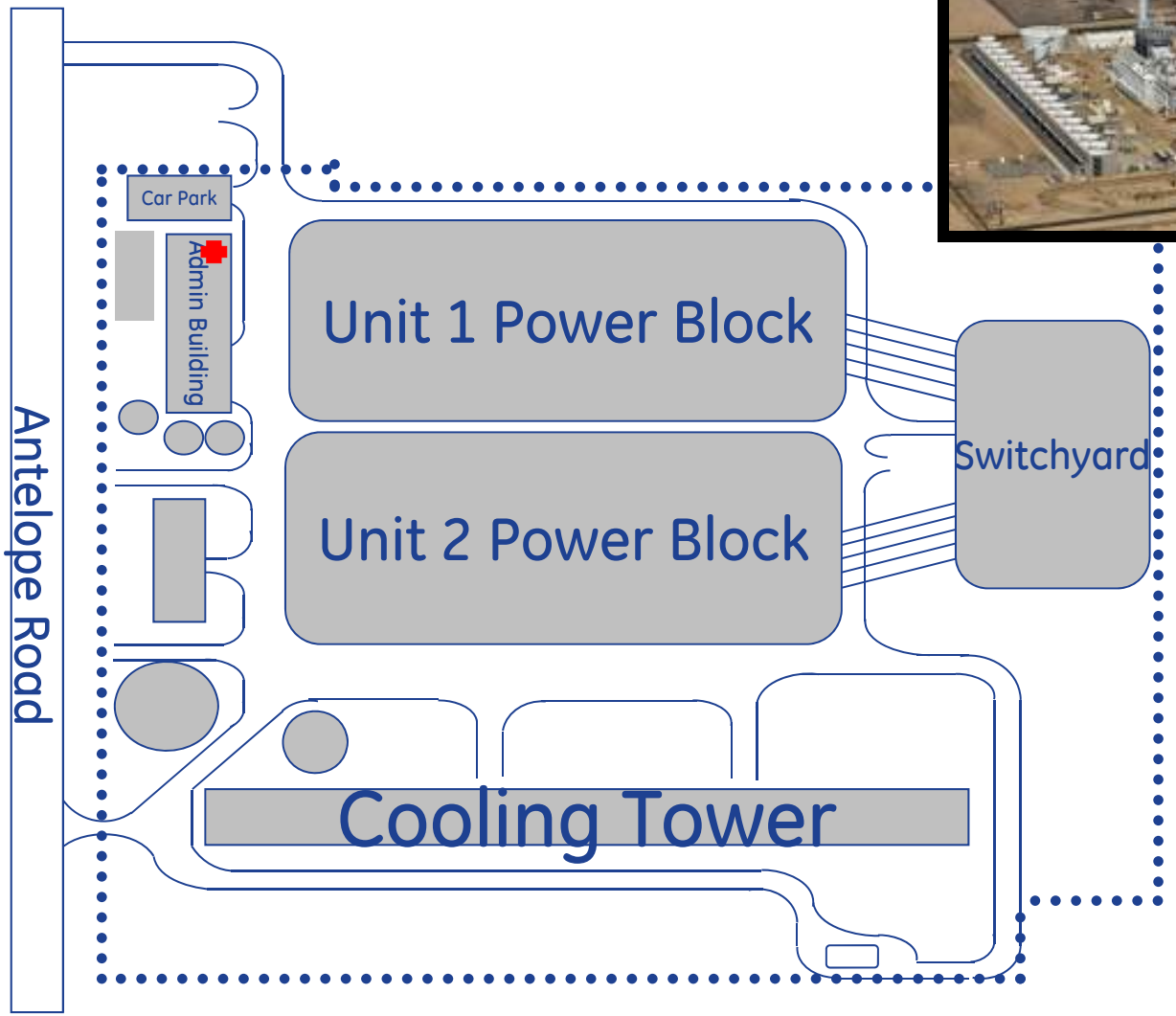
Inland Empire Energy Center

- Launch Site for 60Hz H System
- Located in Menifee, California, USA
- Owned and Operated by GE Energy P&W
- GE & Calpine Jointly Managed Plant Construction
- Calpine Energy Services, LP manages trading activities
- Plant configuration: 2 x 107H CCGTs, 810MW site rating located on over 50 acres
- Commercial Operation –6/29/09 (U1), 5/1/10 (U2)
- >48,000 Hours of Operation

IEEC – Plant Layout



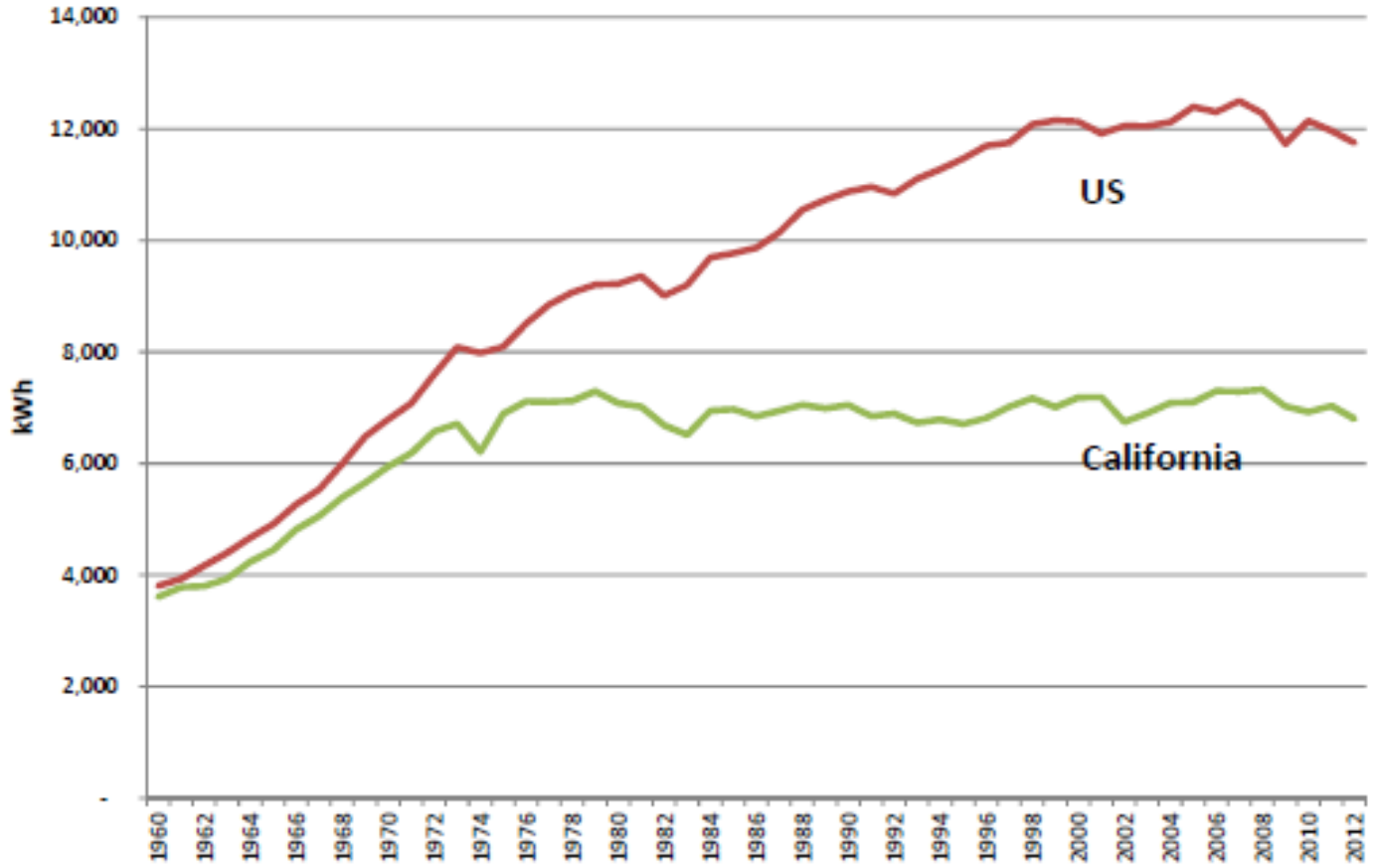
IEEC – Operating Experience

CA is one of the most challenging regulatory environments

- Air Permit: <2PPM NOx, Monthly/Starting CO limits, Limit on Total Start Hours
- CAISO Redesign of Electricity Market
- Transition to Market Redesign & Technology Upgrade (MRTU)
  - Economics-based dispatch, ending a mostly bilateral-based market
- Economic downturn had pronounced impact on Riverside
  - One of the highest foreclosure rates in the nation
  - Reduced residential and industrial demand driving surplus capacity and depressed pricing
- Renewables and low natural gas pricing contributing to downward price pressure of electricity

CA Market Update

CA vs. US per capita energy consumption
(excl. Self-Gen)



Source: Based on U.S. Energy Information Administration, Population U.S. Census Bureau (Sources [1]-[9]), as modified by California Energy Commission, Demand Analysis Staff in February 2013.

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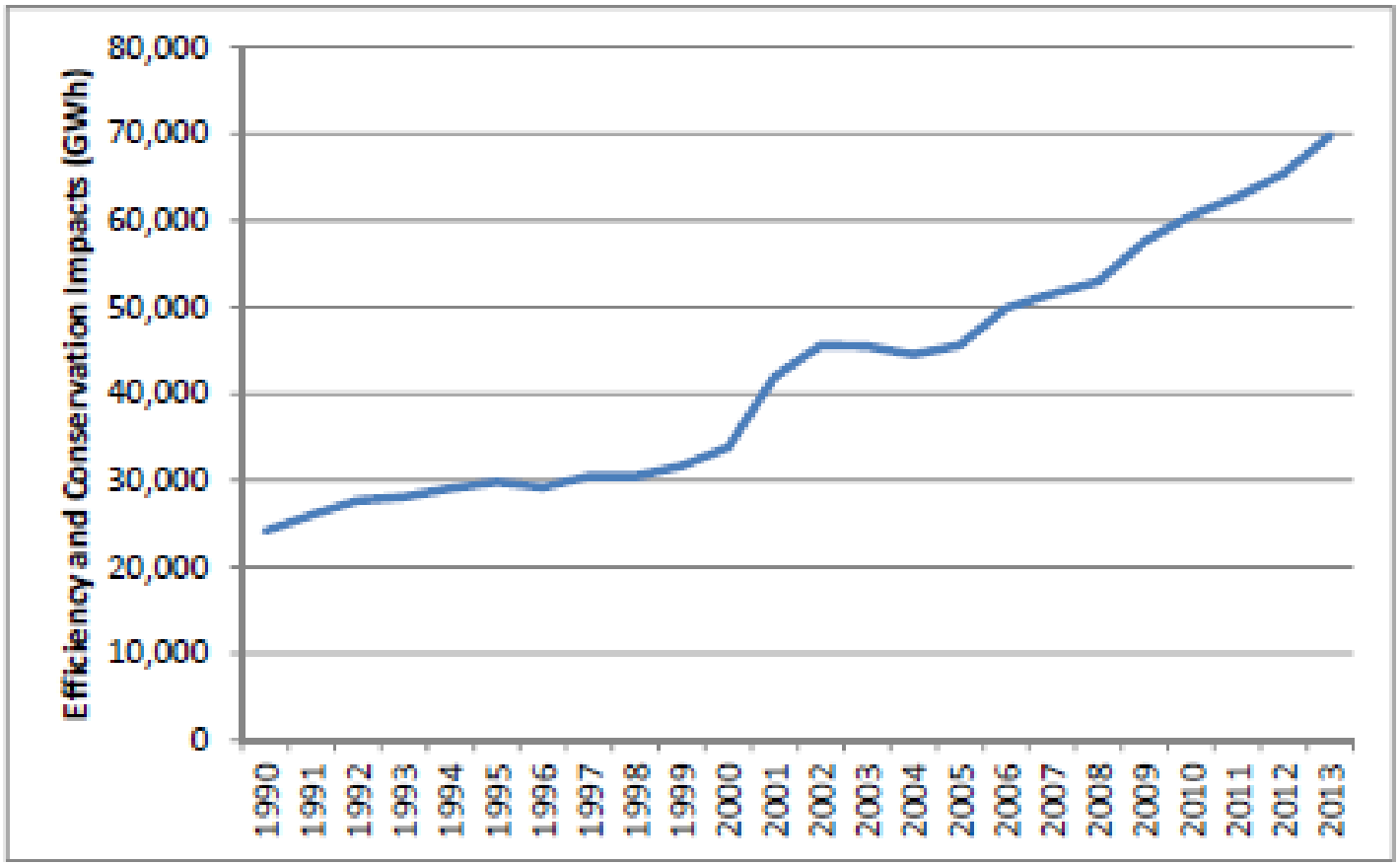
CA Leading the Country In Energy Efficiency

Energy Efficiency Programs



Source: California Energy Commission, Demand Analysis Office, based on the California Energy Demand 2014-2024 Revised

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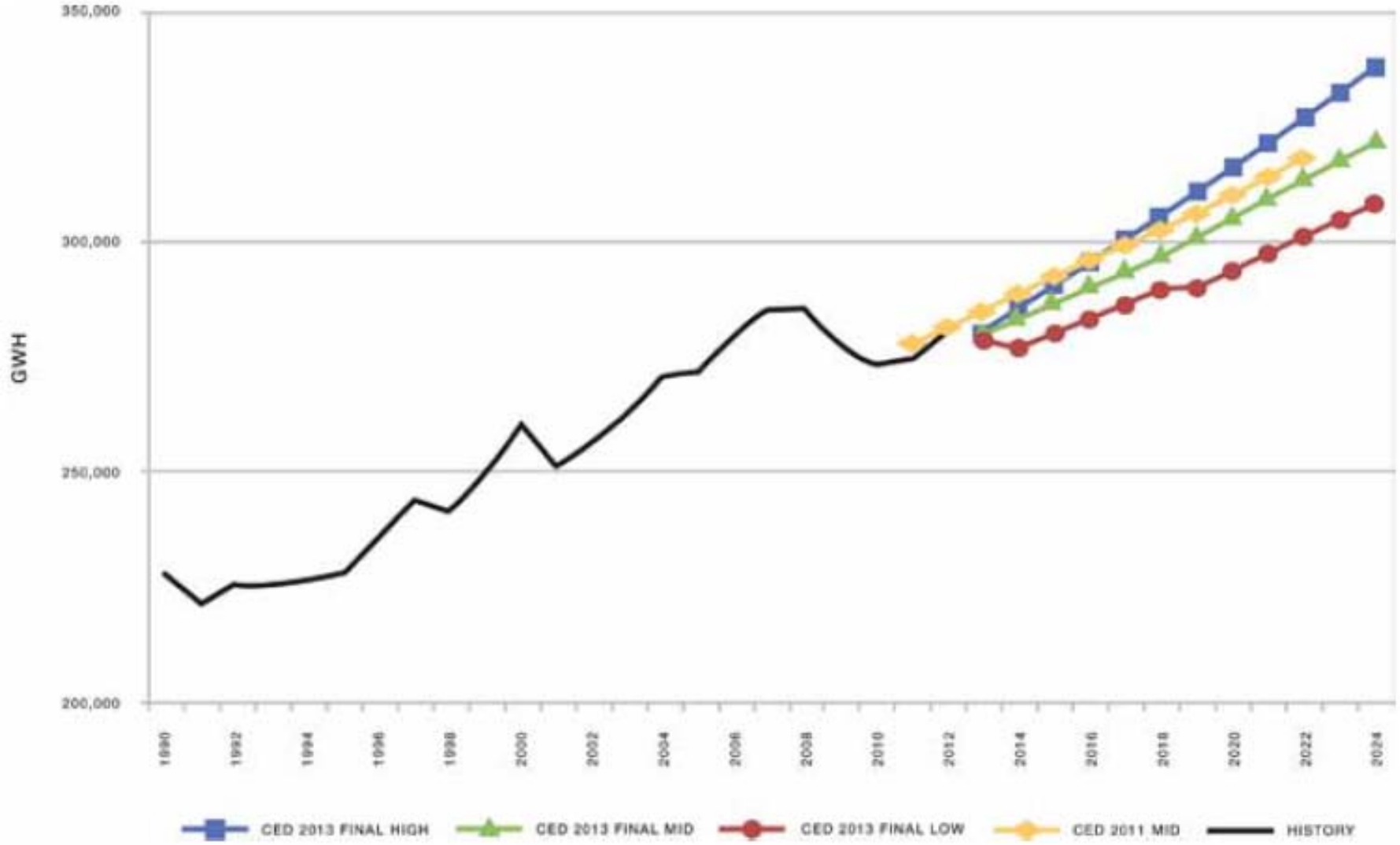
Energy Efficiency Viewed as an Investment

Statewide Annual Electricity Consumption



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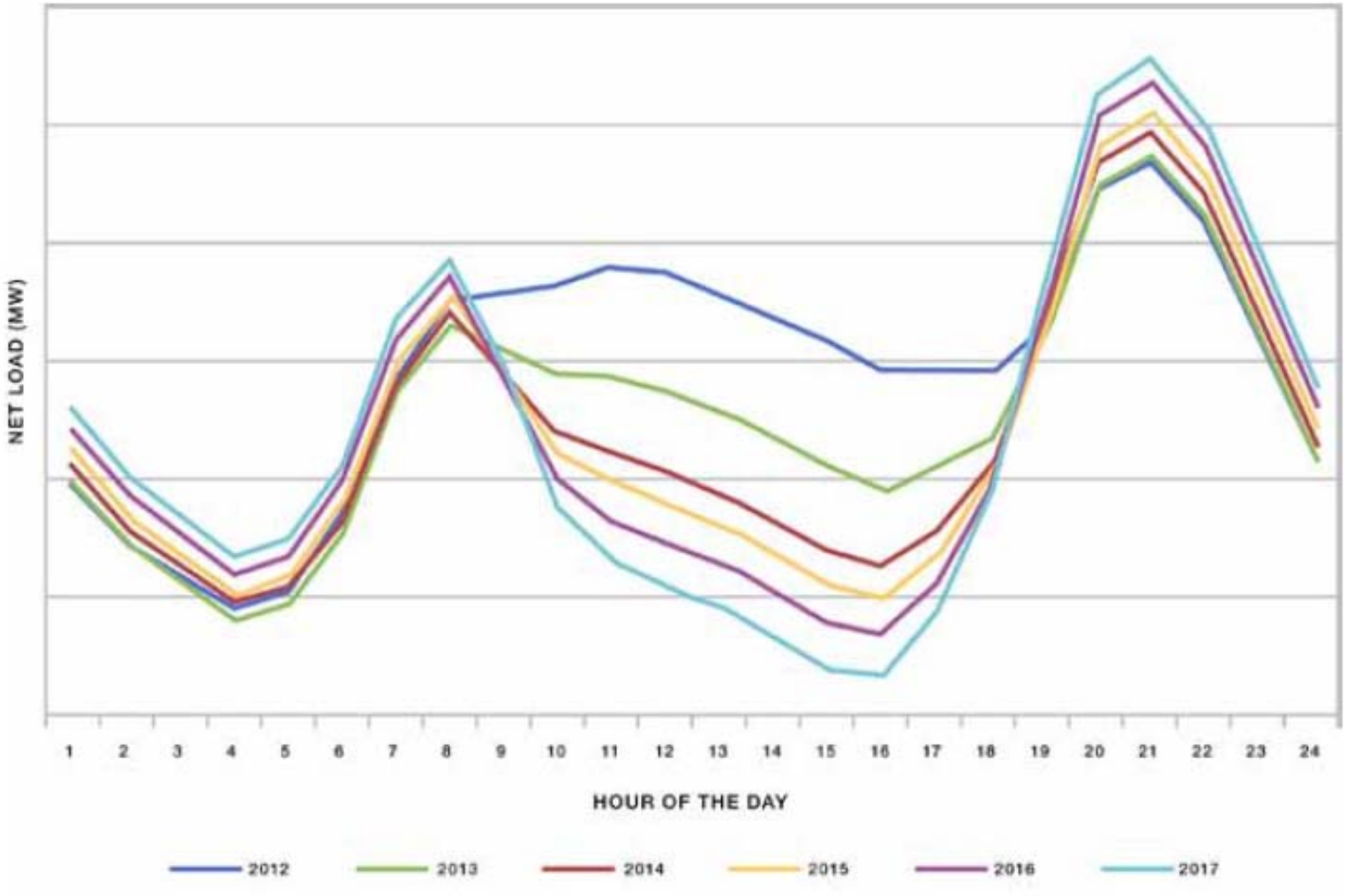
Recovery Is Coming, but Slowly

Projected Net Load Curves for 2013-2017*

(*Based on March 22, 2013 Day)



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Flexible Dispatch Will be Key in Future

Water Use

Use of Water in Production Process

Process Water System

- Receives, stores and distributed the disinfected Tertiary 2-2 Recycled Water provided by EMWD
- Water supplied at a rate between 1000-5000 GPM
- Stored in Process Water Storage Tank (2.1M gal.)
- Feeds both units and the support systems associated
- Applications
  - Circulating Cooling Water
  - Water Treatment System
  - Fuel Gas System Moisturization
  - Auxiliary Steam
  - Service Water System
  - Waste Water System
  - Landscape Irrigation

Waste Water Generation & Disposal

Generation

- Primary source of waste from cooling tower evaporation/concentration cycling
- Reverse-Osmosis rejection cycle

Disposal

- Both sources described above connected to the brine line for discharge to SAWPA connection
  - Max rate 1,100 gpm
  - Nominal rate 500 gpm,
  - Max 1.2M GPD
- Brine discharge capture tank on-site for emergency backup
  - 6-hour capacity under most extreme circumstance

Value/Benefit of Brine Line Use

Generation

- Cooling tower evaporation/concentration cycling
- Reverse-Osmosis rejection cycle

Benefit

- SAWPA connection eliminates the need for transport of discharge by other means (Baker tanks, tanker trucks, etc.)
- More cost-effective than moving to Zero Liquid Discharge process
  - The installed cost for a ZLD system in 2004 was >$10M
  - Subsequent studies demonstrate efficacy of SAWPA line

Q & A.