



Integrated Energy Policy Report 2013

- Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires CEC to prepare a biennial integrate energy policy report that assess major energy trends and issues facing California's:
 - Electricity
 - Natural Gas
 - Transportation Fuels
- And make policy recommendations to conserve resources; protect the environment; ensure reliable, secure and diverse energy supplies; enhance the state's economy; and protect public heath and safety (Public Resources Code Section 25301 [a]).
- The Energy Commission held 29 public workshops.
- Draft IEPR was released in October 2013 and a final draft on December 20, 2013.
- IEPR adopted on January 15, 2014.



Warren-Alquist Act Provisions for IEPR

- Section 25300 (d) Legislative Findings and Declarations: "... timely reporting, assessment, forecasting, and data collection activities are essential to serve the information and policy development needs of the Governor, the Legislature, public entities, market participants, and the public."
- Section 25302 (f): "...For the purpose of ensuring consistency in the underlying information that forms the foundation of energy policies and decisions affecting the state, those entities [CPUC, ORA, CARB, CAISO, DWR, etc.] shall carry out their energy-related duties and responsibilities based upon the information and analyses contained in the report..."



California Energy Commission

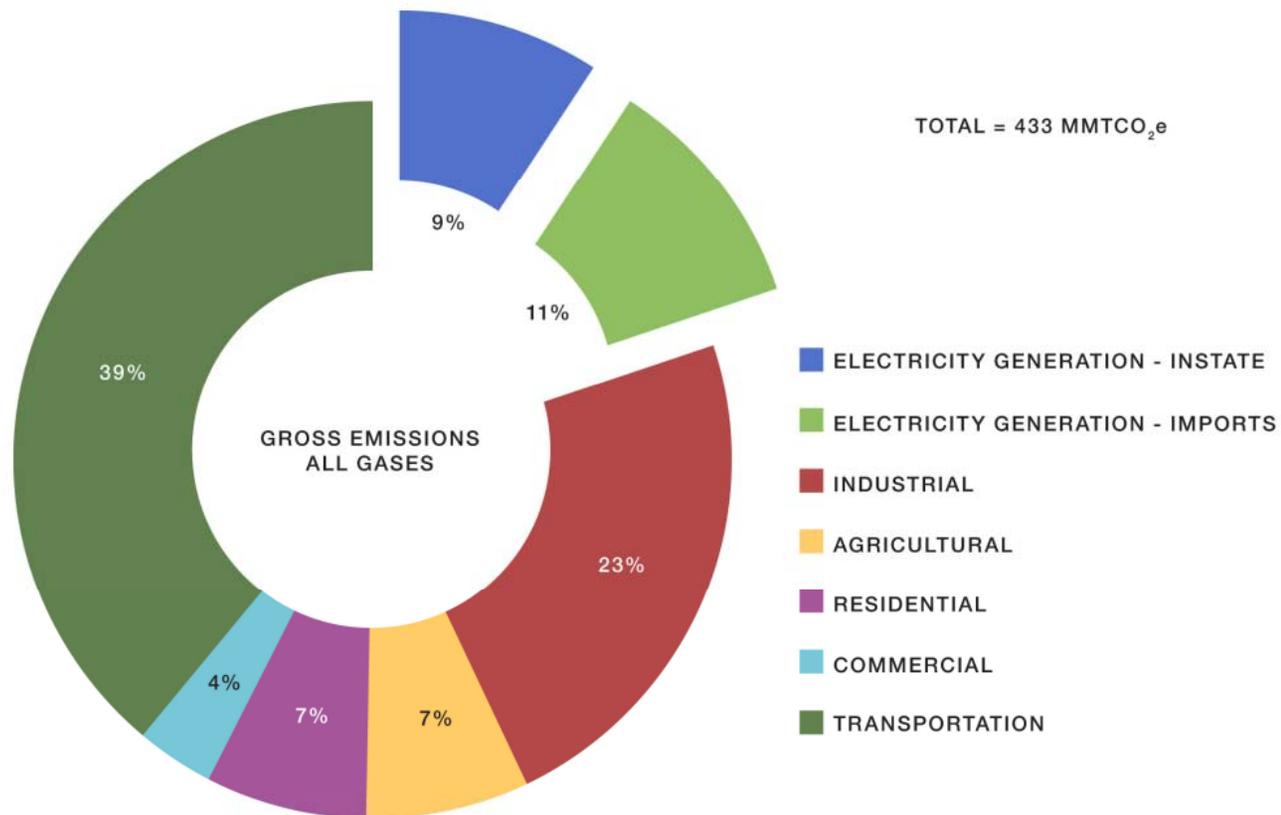
Integrated Energy Policy Report Chapters

- Energy efficiency, particularly in existing and new buildings;
- Demand response;
- Bioenergy;
- Electricity;
- Transmission;
- Nuclear energy;
- Natural gas;
- Transportation; and
- Climate change.



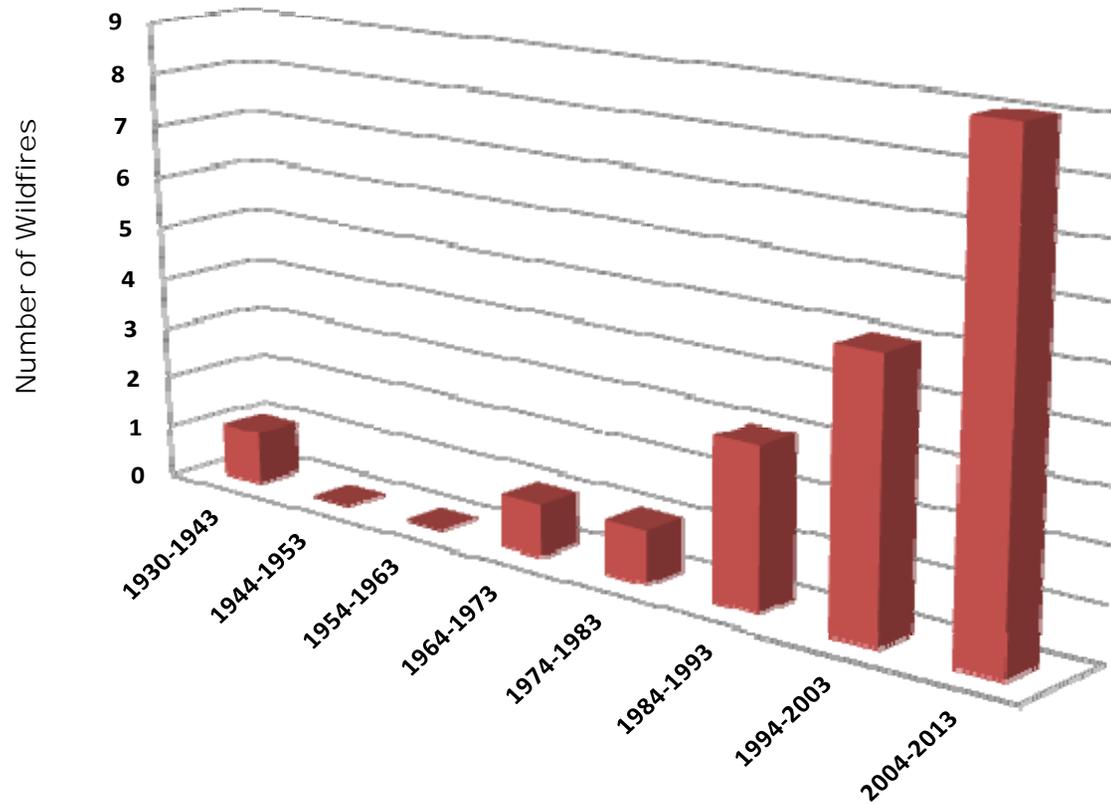
California Energy Commission

California's 2011 Greenhouse Gas Emissions By Sector



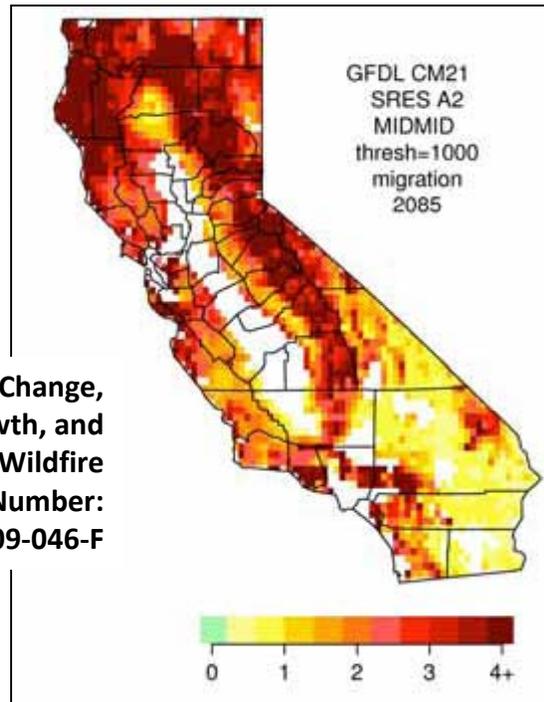


20 of Largest Wildfires in CA



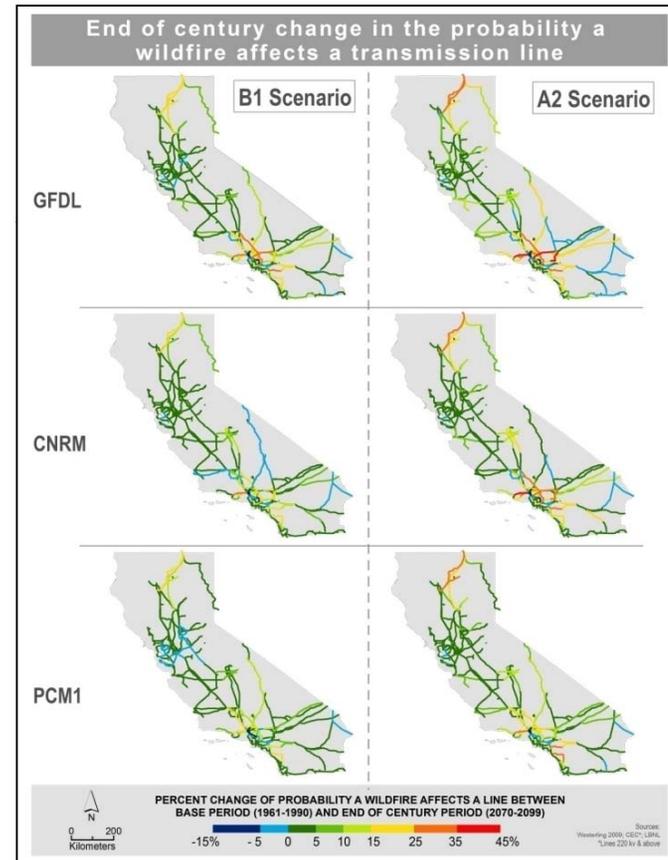


Wildfires Would Affect Transmission Lines



Climate Change,
Growth, and
California Wildfire
Publication Number:
CEC-500-2009-046-F

Estimating Risk to California Energy Infrastructure
from Projected Climate Change
Publication Number: CEC-500-2012-057





CEC Develops Statewide Electricity and Natural Gas Demand Forecast

- Section 25303 of the Warren-Alquist Act states: “(a) The commission [CEC] shall conduct electricity and natural gas forecasting and assessment activities to meet the requirements of paragraph (1) of subdivision (a) of Section 25302.”
- Assigned Commissioner’s Ruling under Rulemaking 04-04-003: “We view the CEC’s IEPR process, in particular, as the appropriate venue for considering issues of load forecasting, resource assessment, and scenario analyses, to determine the appropriate level and ranges of resource needs for load serving entities in California.”



California Energy Demand 2014-2024 Final Forecast: Three Baseline Scenarios

- High Demand: higher economic and demographic growth, lower efficiency program impacts, lower rates, higher climate change impacts
- Low Demand: lower economic and demographic growth, higher efficiency program impacts, higher rates, no climate change impacts
- Mid Demand: in between high and low



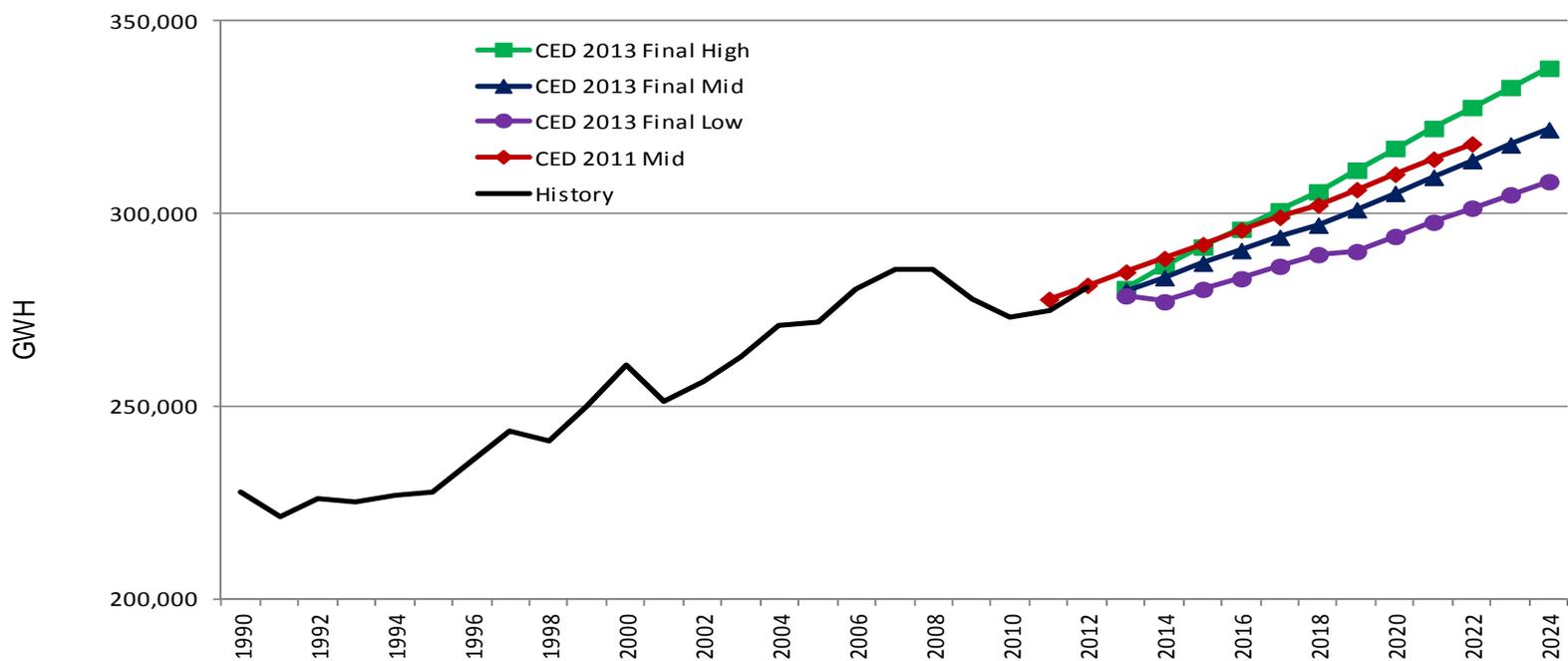
Additional Achievable Energy Efficiency (AAEE)

- Five Scenarios
 - Low
 - Low Mid
 - Mid
 - High Mid
 - High
- Scenarios vary by assumptions for economic growth, incentive levels, incremental costs, standards compliance, and other factors



Statewide Baseline Electricity Consumption

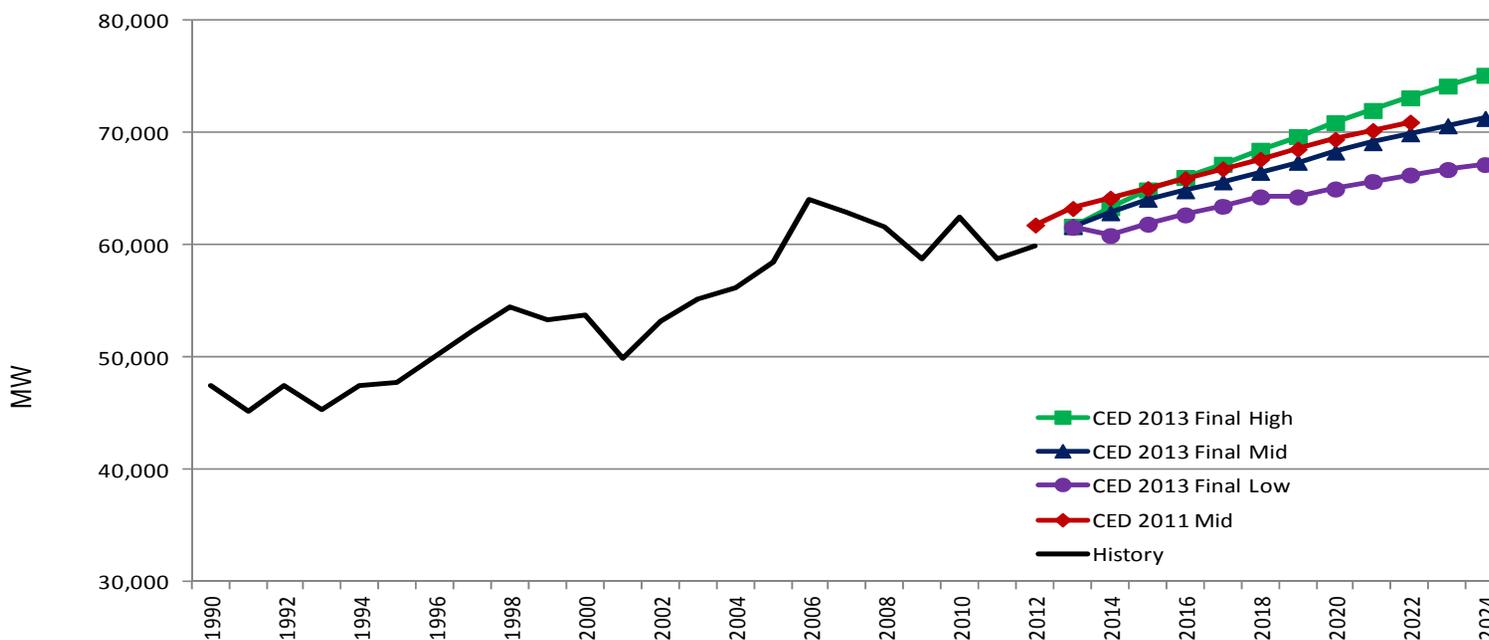
Average annual growth from 2012-24 ranges from 0.79% to 1.56%





Statewide Baseline Electricity Peak Demand

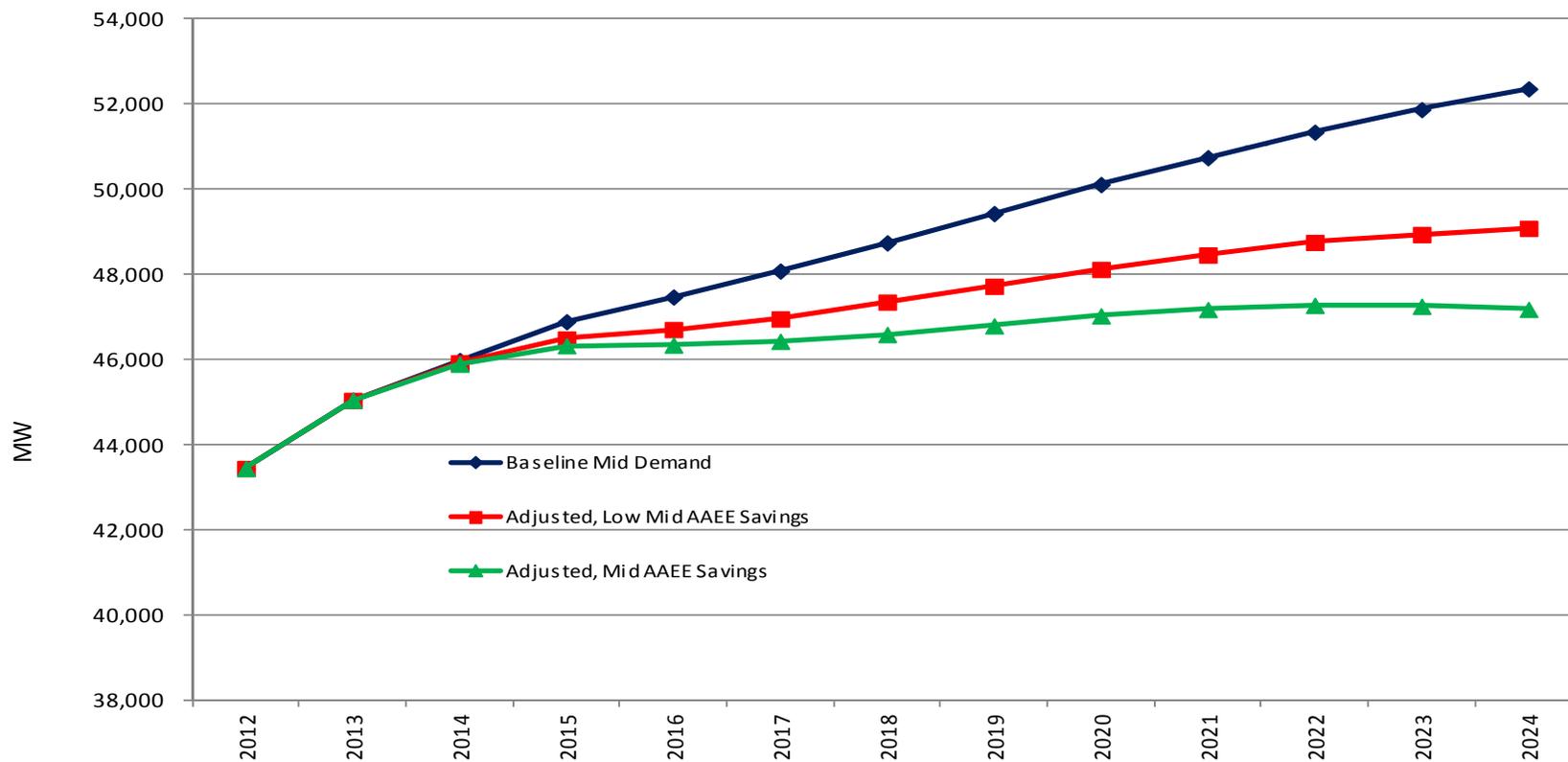
Average annual growth from 2012-24 ranges from 0.98% to 1.92%





Baseline and Managed Forecasts

Mid Baseline, Mid AEE, and Low Mid AEE, Combined IOU Peak





Selection of Single Forecast for Planning Purposes

- The joint agencies committed to using a single forecast set for all resource planning analyses
- Stakeholders were presented the various baseline and AAEE scenarios and asked to choose a single forecast



Selection of Single Forecast for Planning Purposes

- After careful consideration of stakeholder comments, the Energy Commission, in consultation with the CPUC and CAISO, recommends using the mid baseline forecast combined with the mid AEE scenario for system-wide planning
- To account for uncertainty related to locational impacts of energy efficiency, the Energy Commission recommends using the mid baseline forecast combined with the low mid AEE scenario for localized energy planning



Energy Efficiency

- ***AB 758- The Action Plan for the Comprehensive Energy Efficiency Program for Existing Buildings.***
 - Collaborating with CPUC, regional and local governments, state's major utilities and other stakeholders.
 - Draft action plan scheduled to be released by summer/fall
 - Existing Buildings account for about a third of GHG emissions



The Action Plan for the Comprehensive Energy Efficiency Program for Existing Buildings- Long term vision

- **California will support and enable a robust, sustainable energy and water efficiency industry and market that will deliver multiple benefits and value to property owners and consumers making energy efficiency investments in existing homes, properties and businesses.**
- ***Resulting In: Reduce average energy use intensity in existing building stock statewide by 20% from 2010 levels (based on climate zone and building type) by 2030 through building, operational, and behavior improvements.***



Establish the Value Proposition

- Californians need to better understand the value of the energy their buildings use, how much they use and how they can reduce that use.
 - Expanded Energy Use Disclosure
 - Voluntary Rating and Label Protocol Standard
 - Development of third party tools to utilize data, both to make valuable improvements and to inform mortgage underwriting and financial risk assessment



Activating a Self-Sustaining Market

- Need to consider whole building deep retrofits, single measure improvements, light bulb change outs, behavior modification and operational improvements. Must provide a path for long term sustained energy savings. Can be done by:
 - Updating and simplifying the energy code.
 - Establish efficiency as a clear market value to any building.
 - Expanding financing and funding models to meet the needs for each sector



Demand Response

- DR of critical importance in 2013 IEPR due to loss of SONGS and once-through-cooling requirements.
 - Increasing need for flexibility to integrate intermittent renewable resources.
- Need to re-emphasize DR's position alongside EE at the top of the loading order.



Advancing Demand Response

The Energy Commission identified 5 strategies to advance DR:

1. Establishing rules for direct participation in CAISO markets;
2. Developing and pilot testing additional market products;
3. Resolving regulatory barriers i.e. Rule 24;
4. Continuing the collaborative process among CEC, CPUC, CAISO, GO, including efforts to advance fast response DR and;
5. Advancing customer acceptance.



Zero Net Energy Goal

- **Newly Constructed Residential Buildings to be Zero Net Energy by 2020**
- **Newly Constructed Nonresidential Buildings to be Zero Net Energy by 2030**



ZNE adopted definition

- A Zero Net Energy (ZNE) Code Building is one where the net of the amount of energy provided by on-site renewable energy resources is equal to the value of the energy consumed annually by the building at the level of a single “project” seeking development entitlements and building code permits, measured using the California Energy Commission’s Time Dependent Valuation (TDV) metric. A ZNE Code Building meets an Energy Use Intensity value designated in the Building Energy Efficiency Standards by building type and climate zone that reflect best practices for highly efficient buildings



ZNE Code Building

- A ZNE Code Building does not mean a building with zero utility costs or grid loads.
- It is important to understand that the estimated energy use for the ZNE Code Building is determined for the building design, and that the actual energy use of the building will depend on how the building is operated.

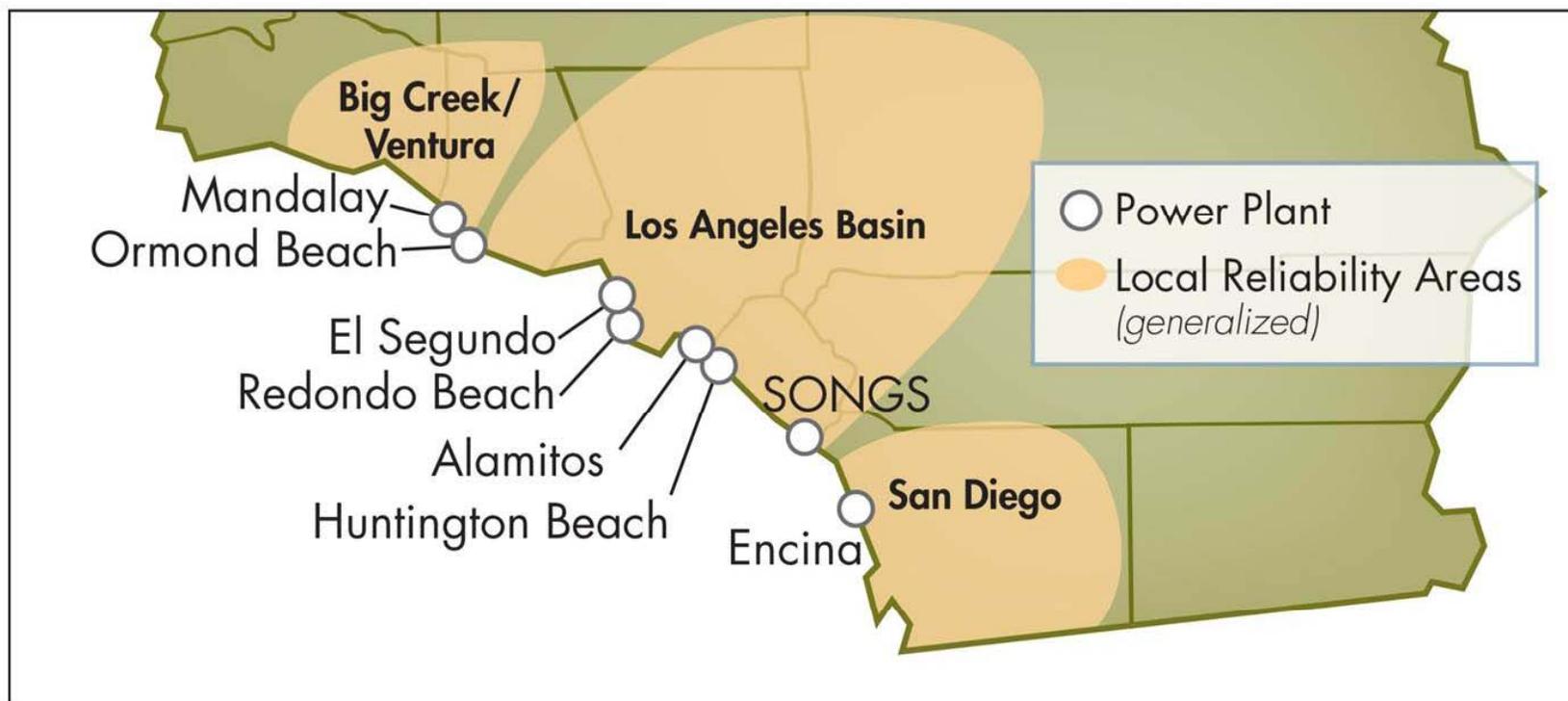


Southern California Electricity Infrastructure

- Featured in 2009, 2011 and 2013 IEPRs
- OTC policy created an impetus for action on long standing CEC concerns about aging power plants
- Staff of CEC, ISO and CPUC have worked together extensively on these issues
- “ground zero” for colliding forces of preferred demand side resources, renewables, gas fired generation, and transmission system upgrades



Southern CA Local Reliability Areas



The LA Basin and San Diego Local Reliability Areas are affected by SONGS' retirement.



The Pre-SONGS OTC Challenge



- Balancing ocean water impact reduction versus air emission increases
- assuring local reliability in three distinct areas



Post SONGS Reliability

- SONGS retirement induced extensive studies that revealed more severe consequences than previously understood
- Voltage collapse of entire LA Basin/San Diego region could be induced by N-1-1 outage of SPL and SWPL



Preliminary Reliability Plan

- Governor Brown called together energy agencies' leadership to work with IOUs and key environmental agencies to solve SONGS problem
- Preliminary Reliability Plan sunshined at September 2013 IEPR workshop
- Key features:
 - ISO power flow studies for CPUC Track 4
 - 50:50 balance between preferred resources and new generation
 - No regrets transmission upgrades
 - Contingency plan in the event principal solutions falter



Actions Since Preliminary Plan

- **CPUC:**
 - Authorized procurement for both SDG&E and SCE
 - Identified numerous factors affecting LCR requirements or potential for preferred resources
 - Authorized less gas-fired generation than expected
- **ISO:**
 - 2013/14 TPP studies revealed potential for numerous transmission system upgrades
 - Board authorized several reactive power upgrades and Mesa Loop-in
- **CEC:** processing AFCs for new generation



Development of an Action Plan

- Shared Responsibility
 - CPUC (preferred resources, generation procurement)
 - ISO (transmission upgrades)
 - CEC (processing AFCs, contingency plan)
- Status
 - CPUC and ISO have authorized numerous actions
 - SCE's living pilot, SCE and SDG&E procurement authorization for both conversional, transmission and voltage support – Further action needed for all
 - Contingency plan development is underway



CEC's Contingency Measures Plan

- CEC developing the contingency measures plan to:
 - Track procurement authorization
 - Measure demand side savings as well as supply side additions
 - Evaluate the data
 - Trigger a contingency



Strategic Transmission Investment Plan

- To support 33% by 2020 RPS, California needs quick and effective transmission project permitting
- 17 transmission projects identified and approved to integrate renewables
- Recommendations include:
 - Encourage participation in the California ISO's energy imbalance market
 - Continue joint agency efforts to recommend long-term potential transmission solutions
 - Identify appropriate transmission corridors