



Final 2013 Integrated Energy Policy Report

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Background

- Energy Commission prepares IEPR every two years, an update in intervening years
- Issued *2013 IEPR* Scoping Order on March 7, 2013
- Held 29 workshops between October 2012 - October 2013 on Scoping Order topics
- Released *Draft 2013 IEPR* October 2, 2013
- Changes in *Final 2013 IEPR* reflect:
 - Public comments
 - *California Energy Demand 2014-2024 Final Forecast*
 - Market developments
 - Clarifying and other edits



Overview

2013 *IEPR* includes 9 chapters:

1. Energy Efficiency
2. Demand Response
3. Bioenergy Status and Issues
4. Electricity
5. Strategic Transmission Investment Plan
6. Nuclear Power Plants
7. Natural Gas
8. Transportation Energy
9. Climate Change



Energy Efficiency in Existing Buildings Recommendations

- *Implement the Action Plan for the Comprehensive Energy Efficiency Program for Existing Buildings*
- Incorporate energy efficiency into property valuation
- Implement energy usage disclosure requirements
- Improve code compliance rates
- Improve Building Standards to encourage compliance
- Leverage Proposition 39 funds
- Consider ways that standards can address demand response and grid resource opportunities
- Conduct a new commercial end-use survey



Energy Efficiency Continued

- Zero-net energy recommendations:
 - Increase efficiency of new buildings by 20-30% in each triennial building standard update
 - Help advance reach standards
 - Track market progress
 - Coordinate with CPUC
 - Develop workforce
 - Include a voluntary energy tier in California Green Building Standards Code



Energy Efficiency Recommendations

- Investor-Owned Utilities
 - Advance financing mechanisms
 - Advance locational and peak period energy efficiency
 - Increase natural gas end use efficiency
 - Address data issues and modernize information management practices
 - Analyze savings from codes and standards



Energy Efficiency Recommendations

- Publicly Owned Utilities
 - Improve transparency
 - Improve evaluation, measurement, and verification
- Encourage geothermal heat pump and ground loop industry to:
 - Develop an alternate calculation method
 - Produce model local ordinance
 - Promote the use of California-specific standards for training



Demand Response

- With energy efficiency, DR is at the top of the Loading Order
- DR can help maintain reliable electric system and integrate renewables
- DR can potentially offset the need for new power plants and transmission
- Insufficient progress
- Given supply constraints in South Coast there is urgent need to advance DR



Demand Response Recommendations

- Establish rules for direct participation in California ISO markets
- Develop and pilot test market products
- Resolve regulatory barriers
- Continue collaborative process to advance fast response DR
- Advance customer acceptance



Bioenergy

- Provides societal benefits
- AB 1900 (Gatto), evaluate barriers and solutions to biomethane
- Challenges include:
 - Regulatory uncertainty
 - Expense of upgrading to pipeline quality
 - Limited access to distribution pipelines
 - Interconnection
 - Low natural gas prices
 - Technology commercialization



Bioenergy Recommendations

- Biomass management practices
 - Explore all mechanisms to fund biomass collection and distribution
 - Develop aggressive goals
 - Develop standards for sustainable biomass use
- Biopower for electricity production
 - Develop a statewide programmatic environmental impact report
 - Modify procurement process
- Further support R&D for advanced biofuels and pipeline biomethane injection



Electricity – Demand Forecast

- The *California Energy Demand 2014-2024 Final Forecast* presents 3 base demand scenarios (high, mid, low) and 5 additional achievable energy efficiency (AAEE) scenarios
- Results include:
 - Ave. annual electricity demand growth 2012-2024: 0.88% - 1.82%
 - Peak demand growth 2012-2024: 0.97% - 1.92%
- Leadership agreed upon a single forecast for system-wide planning:
 - Mid base case, mid AAEE
 - For local studies, use mid base case and low mid AAEE



Electricity – Infrastructure Needs

- Electricity infrastructure needs
 - Once-through cooling retirements
 - Permanent closure of San Onofre
- *Preliminary Reliability Plan for LA Basin and San Diego*
 - Energy Commission, CPUC, and California ISO staff developed the plan
 - Balanced portfolio of energy efficiency, demand response, distributed generation, and storage
 - Will include off ramps and contingencies
 - Finalized plan will be submitted to the Governor and culminate into an action plan



Electricity – Cost of New Generation

- Estimates of the costs of new generation
 - Rapid decline in costs expected for solar PV, cost reductions expected for solar thermal
 - Cost reductions for wind expected to continue, offset by cost of land and transmission in California
 - Other renewables (biomass and geothermal) not expected to see substantial cost reductions
 - Fossil-fueled technologies expected to remain flat, cost increases of about 15% in coming decade



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



Nuclear Power Plants

- California's 2 nuclear power plants (Diablo Canyon and San Onofre) near major earthquake faults
- Follow up on *2011 IEPR* recommendations for PG&E and SCE
- Recommendations include:
 - Address comprehensive design basis seismic analyses
 - Compliance with fire protection regulation
 - Accelerate transfer of spent fuel storage
 - Support federal efforts for integrated management of nuclear waste



Natural Gas

- 2013 *IEPR* discusses hydraulic fracturing, pipeline safety, renewable energy integration, pipeline development, interest in LNG exporting, and CNG
- Recommendations include:
 - Better integrate pipeline delivery of natural gas with electric system reliability needs
 - Monitor national interest in LNG
 - Track changing revenue dynamics for natural gas



Transportation

- Accounts for 40% of energy consumption, 39% of GHGs
- Sept. 2013, AB 8 (Perea) reauthorized program funding through Jan. 1, 2024
- Alternative and Renewable Fuel and Vehicle Technology Program first created in 2007
 - \$400 million
 - 233 projects



Transportation Energy

- Could see a three-fold increase in alternative fuel growth by 2020
- Recommendations include:
 - Implement Governor's Executive Order and ZEV Action Plan
 - Balance multiple policy objectives with electrification
 - Support national renewable fuel standard goals
 - Develop multi-year strategy to fund vehicle rebates and infrastructure incentives
 - Expand data collection authority



Climate Change

- In May, 2013 Governor Brown joined researchers around the world to help bridge scientific research with call to political action
 - *Scientific Consensus on Maintaining Humanity's Life Support Systems in the 21st Century: Information for Policy Makers*
<http://mahb.stanford.edu/consensus-statement-from-global-scientists>
- Workshops to discuss latest climate projections, impacts, and needed preparations
- ARB's *Scoping Plan Update* will emphasize targets and challenges for the 2030 and 2050 timeframe



Climate Change

- Recommendations
 - Sponsor research on regional climate projections, energy sector vulnerability, strategies to reduce climate risk, and reduce GHGs
 - Continue to coordinate climate change research
 - Support actions to reduce GHG emissions and increase preparedness
 - Assess the vulnerability of transportation fuel infrastructure
 - Support development of GHG reduction targets for 2030 and metrics to track progress



QUESTIONS and PUBLIC COMMENT