California Energy Commission

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Draft 2013 Integrated Energy Policy Report

Presented by Heather Raitt

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Background

- Energy Commission prepares IEPR every two years, an update in intervening years
- Adopted Order Instituting Information Proceeding for *2012 IEPR Update* and *2013 IEPR* in February 2012
- Issued *2013 IEPR* Scoping Order on March 7, 2013
- Held 28 workshops between October 2012 - October 2013 on Scoping Order topics
- Staff reports, workshop presentations, and transcripts available at: http://www.energy.ca.gov/2013_energypolicy/

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 Recommendations

- *Draft Action Plan for Comprehensive Energy Efficiency in Existing Buildings* recommendations include advancing:
  - Improved data reporting and management
  - Tools and code enforcement to improve compliance
  - Workforce training
  - A portfolio of options for upgrades
  - Development of standard building assessment tools
  - Focus on multifamily and smaller commercial building upgrades
  - Work with local governments to improve public buildings
  - Innovative financing options
- Opportunities with Executive Order B-18-12 and Proposition 39
- Adopt appliance standards that reduce plug load

Energy Efficiency Recommendations

- Zero-net energy
  - Increase efficiency of new buildings by 20-30% in each triennial building standard update
  - Develop training to help achieve reach standards
  - Track market progress on construction and performance
  - Coordinate with CPUC on future utility new construction-related programs
  - Develop workforce development programs
  - Include a voluntary energy tier in California Green Building Standards Code

Energy Efficiency Recommendations

- Utility energy efficiency targets
  - Advance financing mechanisms
  - Advance locational and peak period energy efficiency
  - Increase natural gas end use efficiency
  - Analyze savings from codes and standards
  - Modernize energy related information management practices
- 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
- 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
- Conduct pilot tests to develop a multi-year, forward auction mechanism targeting capacity constrained areas
- Resolve market barriers for multi-year reliability framework
- Continue collaborative process to advance fast response DR
- Advance customer acceptance

Bioenergy

- Small part of system, but provides benefits
  - Solid-fuel biomass capacity (electricity): 681 MW as of 2012
  - Biofuel in-state production capacity (transportation): about 220 million gallons/yr in 2013
- 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

- Develop a statewide programmatic environmental impact report
- Expanded consideration of the benefits of bioenergy in the CPUC's procurement process
- Development of sustainability standards for biomass fuel harvesting
- Further support R&D for advanced biofuels and pipeline biomethane injection

Electricity – Demand Forecast

- The California Energy Demand 2014-2024 Preliminary Forecast presents 3 base demand scenarios (high, medium, low) and 5 additional achievable energy efficiency scenarios
- The revised staff draft demand forecast results are:
  - Ave. annual electricity demand growth 2012-2024: 0.76% - 1.54%
  - Peak demand growth from 2012-2024: 0.8% - 1.83%
- Recommendations include:
  - Better align agency planning cycles
  - Determine appropriate level of forecast granularity

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 developed plan
  - 50% of incremental resource need from energy efficiency, demand response, distributed generation, and storage
  - Will include off ramps and contingencies in case resources do not materialize in time
  - Finalized plan will be submitted to the Governor and culminate in an action plan
- Energy Commission will update data reporting requirements beginning in 2014

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
- 18 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 that address reliability concerns and ways to reduce permitting timelines
  - 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
- San Onofre announced permanent closure on June 7, 2013
- Recommendations include:
  - Address comprehensive design basis seismic analyses
  - Compliance with fire protection regulation
  - Accelerate transfer of spent fuel storage

Natural Gas

- Nearly 46% of natural gas use was for electricity in 2012
- 90% of natural gas supply comes from out-of-state
- Fracking has transformed market
- *2013 IEPR* discusses pipeline safety, renewable energy integration, pipeline development, and interest in LNG exporting
- 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, 38% of GHGs
- Sept. 2013, AB 8 (Perea) reauthorized extending program funding through Jan. 1, 2014
- Alternative and Renewable Fuel and Vehicle Technology Program first created in 2007
  - $400 million
  - 223 projects
- Investments are adding:
  - 7,200 electric vehicle charging stations
  - 205 E85, 50 natural gas, 6 hydrogen fueling stations
  - >26,000 EVs, 160 electric trucks, 1,375 natural gas trucks

Transportation Energy

- Estimated plausible growth for several low carbon alternative fuel options
- Could see a three-fold increase in alternative fuel growth by 2020 as result of:
  - Existing incentives and regulations
  - Alternative fuel price advantages
  - Expected economy of scale for vehicle manufacturing
  - Technology advances
- Recommendations include:
  - Implement Governor's Executive Order and ZEV Action Plan
  - Collaborate to balance multiple policy objectives with electrification
  - Support national renewable fuel standard goals
  - Develop multi-year strategy to fund vehicle rebates and infrastructure incentives

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
- Further research is needed on:
  - Effect of extreme weather events on the energy sector
  - Changes needed for California's energy system in coming decades
  - Improvements to climate change indicators

Climate Change

- ARB's 2013 Scoping Plan update will emphasize targets for 2030 and challenges to meeting 2050 goals
- Three strategies to reduce GHG emissions:
  - Energy efficiency
  - Expanded ZEV deployment
  - Decarbonizing Western Grid
- Energy Commission & ARB will develop metrics to track progress

Next Steps

- Comments due COB October 29
- Instructions on submitting written comments are on the notice for the October 15 meeting available at: http://www.energy.ca.gov/2013_energypolicy/documents/
- Release of proposed final *2013 IEPR* anticipated December 23, 2013
- Proposed adoption January 15, 2014