



CALIFORNIA ENERGY COMMISSION

# Electric Program Investment Charge

## 2015-2017 Triennial Investment Plan

April 22, 2014

Laurie ten Hope

Deputy Director

Energy Research and Development Division



## Overview

- The proposed *2015-2017 EPIC Investment Plan* funds pre-commercial clean energy technologies and approaches.
- Budget totals \$388.8 million.
- Complements the investor-owned utility plans.



## Energy Innovation Matters



- Provides ratepayer savings and other benefits.
- Drives investment, fosters California's clean tech economy, and achieves policy goals.



## A Foundation of Achievement

- Building on a Solid ROI:
  - For example, ratepayers will save an estimated \$10 billion from just 19 research projects that led to upgrades in efficiency standards.
  - With demonstration funding and validation, companies like SunPower and Primus Power bring technologies to market, build companies, and create jobs.



## Schedule for Investment Plan Development and Approval

Activity	2015-2017 Triennial Investment Plan
✓ Scoping workshop	February 7, 2014
✓ Northern CA workshop on proposed initiatives	March 17, 2014
✓ Southern CA workshop on proposed initiatives	March 21, 2014
✓ Energy Commission posts staff final proposed investment plan	April 10, 2014
➔ Energy Commission considers adopting proposed investment plan at business meeting	April 22, 2014
Submit investment plan to CPUC	May 1, 2014
CPUC proceeding	May 2014 – Nov. 2014
CPUC Decision adopting or modifying Investment Plans	December 2014



# Bringing clean energy ideas to the marketplace for the benefit of California IOU ratepayers

## Energy Innovation Pipeline





## Energy Commission Proposed 2015-2017 EPIC Budget (Million)

<b>Funding Element</b>	<b>Total</b>
Applied Research and Development	\$151.63
Technology Demonstration and Deployment	\$145.02
Market Facilitation	\$53.27
New Solar Homes Partnership (Market Support)	*
Program Administration	\$38.88
<b>Grand Total**</b>	<b>\$388.8</b>

\* Up to \$130 million.

\*\* Any additional funds that may be allocated to the Energy Commission as a result of any CPI adjustment will be used to increase the budget proportionally across all areas.



## Initiatives for Proposed 2015-17 EPIC Investment Plan

- The proposed funding initiatives are based on:
  - SB 96 (2013 Statute) and other relevant energy statutes and policies.
  - Stakeholder comments received.
  - Current knowledge of state-of-the-art technologies.
  - Existing RD&D efforts, including 2012-2014 EPIC Investment Plan.
  - Known barriers and gaps.
- Proposed funding initiatives incorporate:
  - CPUC EPIC defined program areas.
  - Guiding principles and electricity value chain.
  - Policy and other ratepayer benefits as described in CPUC EPIC decisions.
  - Greatest potential value proposition for ratepayers.



## Applied Research and Development

- Energy Efficiency and Demand Response
  - *Strategic Objective 1.* Improve Energy Efficiency Technologies and Strategies in California's Buildings, Industries, Agriculture and Water Sectors.
  - *Strategic Objective 2.* Enable Cost-Effective Demand Response for California IOU Electricity Customers.
- Clean Generation
  - *Strategic Objective 3.* Develop Innovative Solutions to Increase the Market Penetration of Distributed Renewable and Advanced Generation.
  - *Strategic Objective 4.* Improve Power Plant Performance, Reduce Cost, and Accelerate Market Acceptance of Existing and Emerging Utility-Scale Renewable Energy Generation Systems.
  - *Strategic Objective 5.* Reduce the Environmental and Public Health Impacts of Electricity Generation and Make the Electricity System Less Vulnerable to Climate Impacts.



## Applied Research and Development

- Smart Grid Enabling Clean Energy
  - *Strategic Objective 6.* Advance the Use of Smart Inverters as a Tool to Manage Areas with High Penetrations of PV.
  - *Strategic Objective 7.* Develop Advanced Distribution Modeling Tools for the Future Smart Grid.
  - *Strategic Objective 8.* Advance Customer Systems to Coordinate with Utility Communication Systems.
  - *Strategic Objective 9.* Advance Electric Vehicle Infrastructure to Provide Electricity System Benefits.
- Cross-Cutting
  - *Strategic Objective 10.* Advance the Early Development of Breakthrough Energy Concepts.
  - *Strategic Objective 11.* Provide Federal Cost Share for Applied Research Awards.



## Technology Demonstration and Deployment

- *Strategic Objective 12.* Overcome Barriers to Emerging Energy Efficiency and Demand-Side Management Solutions Through Demonstrations in New and Existing Buildings.
- *Strategic Objective 13.* Demonstrate and Evaluate Biomass-to-Energy Conversion Systems, Enabling Tools, and Deployment Strategies.
- *Strategic Objective 14.* Take Microgrids to the Next Level: Maximize the Value to Customers.
- *Strategic Objective 15.* Demonstrate Advanced Energy Storage Interconnection Systems to Lower Costs, Facilitate Market, and Improve Grid Reliability.
- *Strategic Objective 16.* Expand Smart Charging and Vehicle-to-Grid Power Transfer for Electric Vehicles.
- *Strategic Objective 17.* Provide Federal Cost Share for Technology Demonstration and Deployment Awards.



## Market Facilitation

- *Strategic Objective 18.* Foster the Development of the Most Promising Energy Technologies into Successful Businesses.
- *Strategic Objective 19.* Facilitate Inclusion of Emerging Clean Energy Technologies into Large-Scale Procurement Processes.
- *Strategic Objective 20.* Accelerate the Deployment of Energy Technologies in IOU Territories Through Innovative Local Planning and Permitting Approaches.
- *Strategic Objective 21.* Inform Investments and Decision-Making Through Market and Technical Analysis.



## New Solar Homes Partnership

- The Staff Final Proposed 2015-2017 EPIC Investment Plan proposes the option of using EPIC to help fund NSHP if other sources are not available.
- At this time, staff proposes keeping all options for NSHP funding open, including combining different funding sources, provided that total funding does not exceed the \$400 million cap for NSHP under SB1 (2006).



Source: NSHP program participant, single-family affordable housing  
Photo courtesy of Habitat for Humanity, East Bay, (Oakland, CA).



## Public Process Facilitated Productive Engagement

- Broad input from energy stakeholders.
- Over 150 comments received in developing this second investment plan.
- Productive feedback helped shape this comprehensive plan.



## Next Steps

- Staff seeks adoption of the staff final proposed *2015-2017 EPIC Investment Plan*.
- If the plan is adopted, staff will submit the Energy Commission final proposed *2015-2017 EPIC Investment Plan* to the CPUC.
- CPUC proceeding May- Nov. 2014.
- CPUC decision expected in December 2014.
- Implementation of EPIC investment plans.