



# Smart Grid Overview




CALIFORNIA'S SMART GRID

Commissioner **Rachelle B. Chong**  
California Public Utilities Commission

ASERTTI Fall Meeting  
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## California Environmental and Energy Policies Require a Smart Grid

- ✓ **Aggressive greenhouse gas reduction goals**
  - State law requires that greenhouse gas emissions be reduced to 1990 levels by 2020. Further goal to reduce emissions to 80 percent below 1990 levels by 2050
- ✓ **Growing renewable energy mandates**
  - 20% of electricity must come from renewable sources by 2010. Legislature debating a 33% requirement by 2020.
- ✓ **Distributed generation growing rapidly**
  - 3,000 megawatts of solar photovoltaics by 2017
- ✓ **Significant energy efficiency and demand response goals**
- ✓ **Reliability needs to be maintained or improved while achieving other goals**





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## California Committed to Implement Smart Grid


- **California regulatory agencies have launched key Smart Grid initiatives**
  - California Public Utilities Commission (CPUC)
  - California Energy Commission (CEC)
- **Three large Investor-Owned Utilities deploying advanced meters throughout their systems and investing in other areas of the Smart Grid**
- **Smart Grid legislation awaiting Governor's signature (SB 14)**


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## Advanced Metering Deployment Progressing


- **In 2003, CPUC adopted a policy that all electric customers should have advanced meters**
- **Advanced meters in place now for customers with greater than 200 kilowatt (kW) maximum demand**
- **The three large investor-owned utilities will deploy 12 million advanced electric meters and 5 million advanced gas meters by the end of 2012**
  - **PG&E has installed 1.6m electric meters and 2.0m gas meters**
- **Concurrent tariff changes to offer time-of-use rates and dynamic pricing**


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## Utilities also Investing in Other Parts of the Smart Grid


- **Significant Smart Grid initiatives already in progress. Some examples:**
  - Substation and Distribution automation
  - Grid failure prevention, detection, repair
  - SynchroPhasors
  - Microgrid pilot project
  - Electric vehicle testing
- **No specific Smart Grid related regulatory framework is guiding these deployments**


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## California Regulatory Agencies Pursuing Smart Grid


- **CPUC**
  - Smart Grid Rulemaking initiated in December 2008
  - Held seven Smart Grid workshops featuring academic and industry experts
  - CPUC targeting a decision in Dec. 2009 to address some aspects of Smart Grid policy
- **California Energy Commission**
  - Two public workshops on Smart Grid held May 13<sup>th</sup> and 14<sup>th</sup> to discuss policy and technology
  - Funding research projects to develop a vision for California's electric grid in 2020


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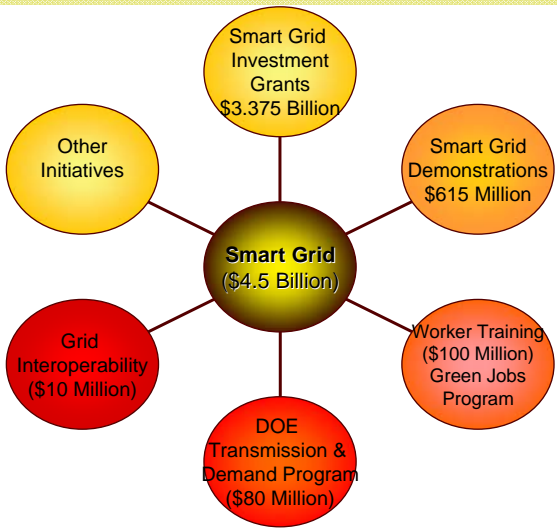
## CPUC Smart Grid Rulemaking Expectations

- **Comply with federal Energy Independent Security Act of 2007**
- **Develop state-wide Smart Grid policies, e.g.**
  - Customer access to energy usage information and energy prices
  - Policies for evaluating utility investments
  - Cybersecurity
- **Process expected to last two years**
  - Held public workshops
  - Exploring role of standards
  - Identifying and addressing other policy issues

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## Recovery Act Smart Grid Funding



The diagram shows a central circle labeled "Smart Grid (\$4.5 Billion)" connected to six surrounding circles representing funding sources:

- Smart Grid Investment Grants: \$3.375 Billion
- Smart Grid Demonstrations: \$615 Million
- Worker Training (\$100 Million) Green Jobs Program
- DOE Transmission & Demand Program (\$80 Million)
- Grid Interoperability (\$10 Million)
- Other Initiatives

Source: EPRI 





## Smart Grid Investment Grant Program

**Overview**

- Goal: To support manufacture, purchase and installation of Smart Grid devices for immediate commercial use
- Competitive, merit-based solicitation; more than 1,500 applications expected
- Covers electric transmission, distribution, and customer-side applications

<b>Eligibility and Funding</b>	<b>Schedule</b>										
<ul style="list-style-type: none"> <li>• \$3.375 billion available</li> <li>• Funding provided for up to 50% of qualified investments requested by grant applicants</li> <li>• Applications expected from eligible entities such as electric utilities, load serving entities, appliance and equipment manufacturers, and IT vendors</li> <li>• Expected project awards range from \$300,000 to \$200,000,000</li> </ul>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><i>Activity</i></th> <th style="text-align: center;"><i>Date</i></th> </tr> </thead> <tbody> <tr> <td>Funding Opportunity Announcement (FOA)</td> <td>June 25, 2009</td> </tr> <tr> <td>Letter of Intent / Application Due Dates</td> <td>July 16 / Aug. 6, 2009; Oct. 23 / Nov. 4, 2009; Feb. 10 / Mar. 3, 2010</td> </tr> <tr> <td>All Funds Obligated</td> <td>September 2010</td> </tr> <tr> <td>Period of Performance</td> <td>3 years</td> </tr> </tbody> </table>	<i>Activity</i>	<i>Date</i>	Funding Opportunity Announcement (FOA)	June 25, 2009	Letter of Intent / Application Due Dates	July 16 / Aug. 6, 2009; Oct. 23 / Nov. 4, 2009; Feb. 10 / Mar. 3, 2010	All Funds Obligated	September 2010	Period of Performance	3 years
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**Source: DOE** 



## Smart Grid Demonstrations

**Overview**

- Goal: Demonstrate the application of existing and emerging Smart Grid technologies
- Competitive, merit-based solicitation; several hundred proposals expected
- Covers electric transmission, distribution, and customer-side projects at a scale that can be replicated across the country

<b>Eligibility and Funding</b>	<b>Schedule</b>										
<ul style="list-style-type: none"> <li>• \$615 million available</li> <li>• Applicant's cost share must be at least 50% of the total allowable costs</li> <li>• Expect applications from all types of organizations including state and local agencies, universities, electric utilities, equipment manufacturers, and project developers</li> <li>• Expect to fund: 8-12 Demonstrations, 12-19 Energy Storage projects; \$25m to \$100m per project</li> </ul>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><i>Activity</i></th> <th style="text-align: center;"><i>Date</i></th> </tr> </thead> <tbody> <tr> <td>Funding Opportunity Announcement (FOA)</td> <td>June 25, 2009</td> </tr> <tr> <td>Application Due Date</td> <td>Aug. 26, 2009</td> </tr> <tr> <td>All Funds Obligated</td> <td>September 2010</td> </tr> <tr> <td>Period of Performance</td> <td>3 to 5 years</td> </tr> </tbody> </table>	<i>Activity</i>	<i>Date</i>	Funding Opportunity Announcement (FOA)	June 25, 2009	Application Due Date	Aug. 26, 2009	All Funds Obligated	September 2010	Period of Performance	3 to 5 years
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