California’s Peak Efficiency Efforts and Evaluation Approaches

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2006-2008 CA Energy Efficiency Programs

Impact of the $2 billion funding to the four IOUs:

• Cut energy costs for homes & businesses by more than $5 billion

• **Avoid** building 3 large (500 MW) **power plants** over the next three years

• Reduce global warming pollution by an estimated 3.4 million tons of carbon dioxide by 2008, which is equivalent to taking about **650,000 cars** off the road

• Increase funding for the Governor’s Green Building Initiative (Executive Order S-20-04) to $230 million/year, which is a 36 increase in annual funding for climate change efforts

• Provide **net resource benefits** (value of savings benefits minus program and customer out-of-pocket costs) of estimated **$2.7 billion**, representing a benefit cost ratio (using Total Resource Costs or **TRC test**) of 2 to 1 return on the efficiency investment
Cost Effectiveness Calculation

- CPUC adopted Standard Practice Manual
- Total Resource Cost (TRC) test:
  - Measures the net costs of EE program as a resource option based on the total costs of the program, including both the participants' and the utility's costs.
- TRC ratio = TRC Benefits/TRC Costs, where
  - TRC Benefits = costs of supply-side resources avoided or deferred
  - TRC Costs = costs of the measures/equipments installed and costs incurred by program administrator
- For the 2006-2008 Energy Efficiency programs for all 4 utilities:
  - TRC Benefits = $5.4 billion
  - TRC Costs = $2.7 billion
  - TRC ratio = 2
E3 Avoided Cost Calculator

– Feed avoided costs into the cost-effectiveness calculations
– Provide objectively derived estimates of avoided costs that are suitable for evaluating PUC funded programs
– Provide Transparent and defensible avoided cost methodology
– Provide software to update estimates of avoided costs
– Requires 8760 load shape data
Framework of the E3 Avoided Cost Methodology

**Electric Avoided Costs / Benefits**

\[ \text{Total Benefit}_{a,h,t} = \text{GenMC}_{a,t,y} + \text{Externality}_{a,t,y} + \text{TransMC}_{a,t,y} + \text{DistMC}_{a,t,y} + \text{Reliability}_{a,t,y} + \text{DemandReductionBenefit}_{a,t,y} \]

**Gas Avoided Costs / Benefits**

\[ \text{Total Benefit}_{a,t,y} = \text{Commodity}_{a,t,y} + \text{Transportation}_{a,t,y} + \text{Externality}_{a,t,y} + \text{DistMC}_{a,t,y} + \text{DemandReductionBenefit}_{a,t,y} \text{ (if available)} \]

Where \( a = \) area, \( t = \) time dimension, \( y = \) year.
E3 Cost Effectiveness Calculator

Input:
• Avoided Cost from E3 Avoided Cost Calculator
• Utility Administrative costs
• Program measure data

Output:
• Costs and net benefits numbers
• TRC
• PAC
Monitoring and Indicators of Success for 2006-2008 Programs

Monitor program results through:

• Tracking database reports on (a) program expenditures, installations & activities, and (b) program evaluation activities and results
• Independent verification of measure installations and costs

Indicators of EE Success

• Performance of each utility administrator evaluated at the portfolio level
  – Based on net resource benefits (value of energy savings minus program and customer out of pocket costs over the life of the measures)
  – Includes minimum performance threshold tied to achievement of energy and peak savings goals