

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

$$\begin{aligned} TotalBenefit_{a,h,t} = & GenMC_{a,t,y} + Externality_{a,t,y} + TransMC_{a,t,y} + DistMC_{a,t,y} \\ & + Reliability_{a,t,y} + DemandReductionBenefit_{a,t,y} \end{aligned}$$

Gas Avoided Costs / Benefits

$$\begin{aligned} TotalBenefit_{a,t,y} = & Commodity_{a,t,y} + Transportation_{a,t,y} + Externality_{a,t,y} \\ & + DistMC_{a,t,y} + DemandReductionBenefit_{a,t,y} \text{ (if available)} \end{aligned}$$

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