



Incorporating the Efficiency Resource into State and Regional Energy Resource Plans – Challenges and Opportunities for EM&V



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Why is Energy Efficiency Important in Resource Planning for California IOUs?

- Energy efficiency is first in the loading order per California's Energy Action Plan adopted in 2003
- Investments in energy efficiency have increased significantly to reflect that priority position.

2002-2003	2004-2005	2006-2008	2010-2012
\$450	\$800	\$2,000	\$3,000
<i>Increase:</i>	78%	150%	50%

In millions of \$

- Such significant investments, and associated savings, must be accounted for in the resource procurement plans
 - Impact IOU procurement, new infrastructure net short or long position and reserve need for Renewable Portfolio Standard.





How is Current Energy Efficiency Incorporated into Resource Planning for California IOUs?

- IOUs report savings based on estimates developed prior to program implementation and field testing.
 - The IOU's use these reported savings as the inputs for internal modeling and forecasting.
 - The CPUC (and historically the IOU's) conduct evaluation of the savings based on field research to better understand in-field performance.
 - This is typically not complete until well after the program cycle.
- The CEC accounts for energy efficiency savings based on a combination of IOU reported savings as well as adjustments for evaluation results. (see next slide)
- Long Term Procurement Planning (CPUC) considers the estimates in their final decision on procurement





Table 37: Data Sources and Assumptions for IOU Efficiency Program Impacts

Program Year	1998-2002	2003-2007	2008-2009	2010-2012
Program Accomplishments	IOU Annual Reports	Monthly and Quarterly IOU Reports— Processed by Itron	IOU Quarterly Reports	March 2009 IOU Filings
Level of Disaggregation	Sector (residential, commercial, etc.)	End Use Category for Residential and Commercial	Measure	End-Use Category for Residential and Commercial
Attribution to End Use	Applied 2003 Distribution for Residential and Commercial	Residential and Commercial— Provided by Itron	By Measure Description	IOU Projections
Net-to-Gross Ratios	Assumed 80 Percent	Provided by Itron	From IOU Workbooks	Assumed 80 Percent
Realization Rates	Assumed 70 Percent			
Expected Useful Life of Measures	Averages determined for each end use category based on 2006 – 2008 program workbook data			
Decay of Measures	Logistic decay of <i>realized</i> savings – 100 percent first year, 50 percent at the end of expected useful life			

California Energy Demand 2010 - 2020 Commission-Adopted Forecast

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- http://www.energy.ca.gov/2009_energy policy/documents/





How is Future Energy Efficiency Incorporated into Resource Planning for California IOUs?

- IOUs are expected to reach goals set by the CPUC through energy efficiency programs and other market interventions.
 - The goals are cumulative and are a function of technical, economic and market potential.
 - The goals (unlike “current” energy efficiency savings) are not tied to program designs or funding levels.
- The CEC accounts for future energy efficiency savings based on the expectation that the IOUs will be able to reach those goals with sufficient funding.
 - Since they are not yet funded or have defined program designs they are considered “uncommitted” and are more uncertain.
- Given uncertainty over the 10 yr LTPP planning horizon, parties are able to recommend future savings assumptions suitable for reliability purposes.





Opportunities and Limitations for EM&V Research to Inform Processes in California Procurement

	Opportunity	Limitation
Committed <i>(Current)</i>	<ul style="list-style-type: none"> • Provides updated estimates based on field results of savings. • May provide insights into future performance of similar measures or programs 	<ul style="list-style-type: none"> • Can be significantly delayed behind planning cycle. • May not be well suited to answer questions about peak demand as adequately as energy savings are measured. • May be highly specific to a program cycle.
Uncommitted <i>(Future)</i>	<ul style="list-style-type: none"> • Updated estimates of savings and market adoption of energy efficient technologies can be used to inform potential and goal estimates. 	<ul style="list-style-type: none"> • Results can be significantly delayed. • May not be applicable to future program designs or currently available technology.





Hot topics we are addressing. . .

- Providing forecasters the most accurate picture of past energy savings (and the persistence over time) from IOU programs.
 - There is more detailed evaluation based information regarding the 2006-2008 program cycle than for prior program cycles
 - The availability of detailed results reduces the need for generalized assumptions about savings.
- Reconciling definitions of peak in the CEC forecast and the CPUC energy efficiency MW savings.
 - Implications of using different peak to energy ratios can be significant.
- Forecasters need to share with evaluators specific needs and wishes from field research to continue to improve the forecast inputs.





Questions, Comments?

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If you have further questions

