For Discussion Purposes Only

CEC IEPR Workshop

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Executive Summary

PG&E requests that the Commissioners advise Staff that depictions of historic aggregate EE savings be consistent with those that have been filed, reported and depicted previously by IOUs, CPUC, CEC and other State and Federal agencies until such time as those historic savings estimates are revised through a rigorous and independently verified process. Depictions should be consistent with those shown in the 2005 Energy Action Plan in which IOU programs, building standards and appliance standards are all shown on a consistent ex-ante modeled and reported basis.

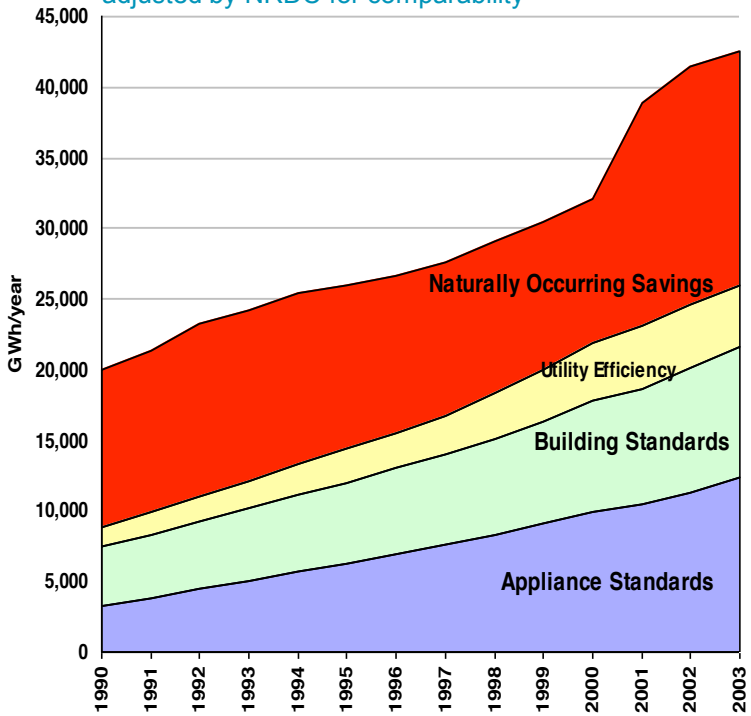
PG&E has no objection to Staff showing the portion of historic and future EE savings that is actually used as an input into the forecasting models provided that these depictions are clearly labeled and the intent of the depiction is to provide transparency into the forecasting process. For example PG&E finds Staff's depictions as most recently proposed to be informative and, in fact, to raise many questions regarding the consistency of logic used in the end-use demand forecasting process.

PG&E thanks the Commission, Commission Staff and the DAWG for providing an open forum for discussion and debate on this topic and looks forward to continuing to work with all stakeholders on the important task of understanding, to the extent possible, future California energy demand and how it may be impacted by improvements in customer energy efficiency.

The Graphs That Triggered the Discussion

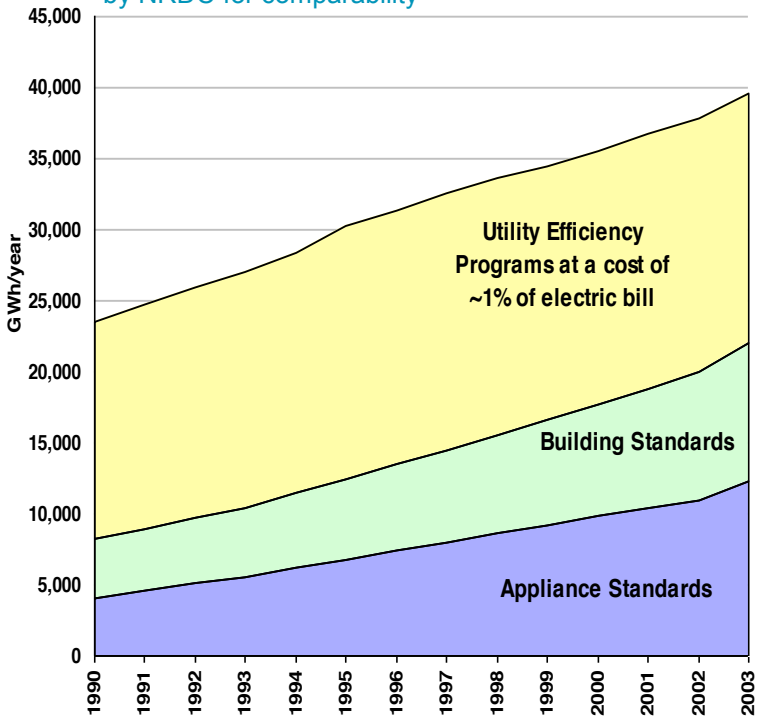
Savings by Source

Graph in CEC's 2009 California Energy Demand as adjusted by NRDC for comparability



Savings by Source

Graph in CEC's 2005 Energy Action Plan as adjusted by NRDC for comparability

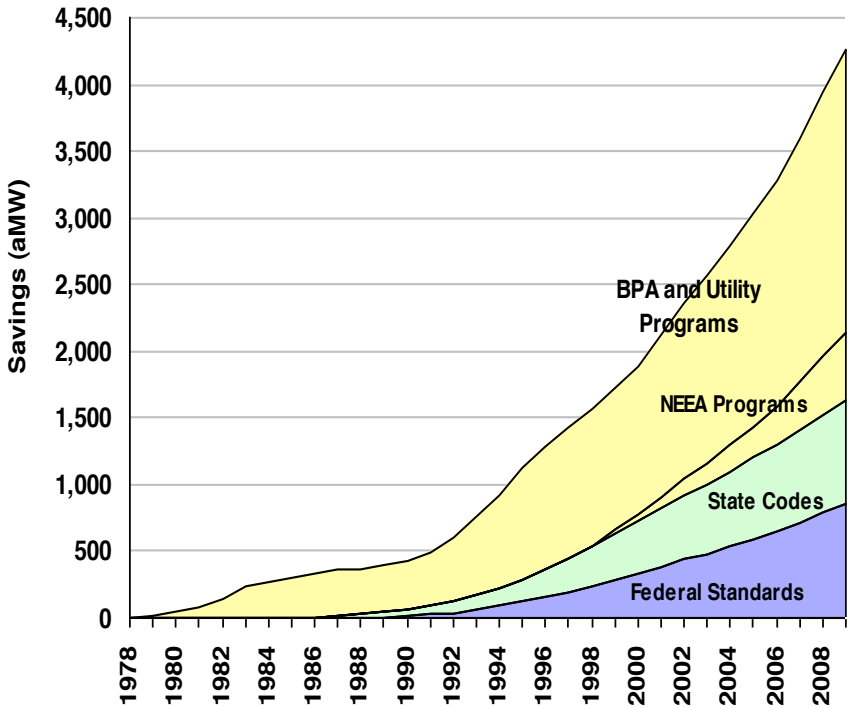


Between 2005 and 2009, the CEC's depiction of Total EE savings attributed to "IOU Programs" dropped from approximately 20,000 GWh to 4,000 GWh (almost 80%!).

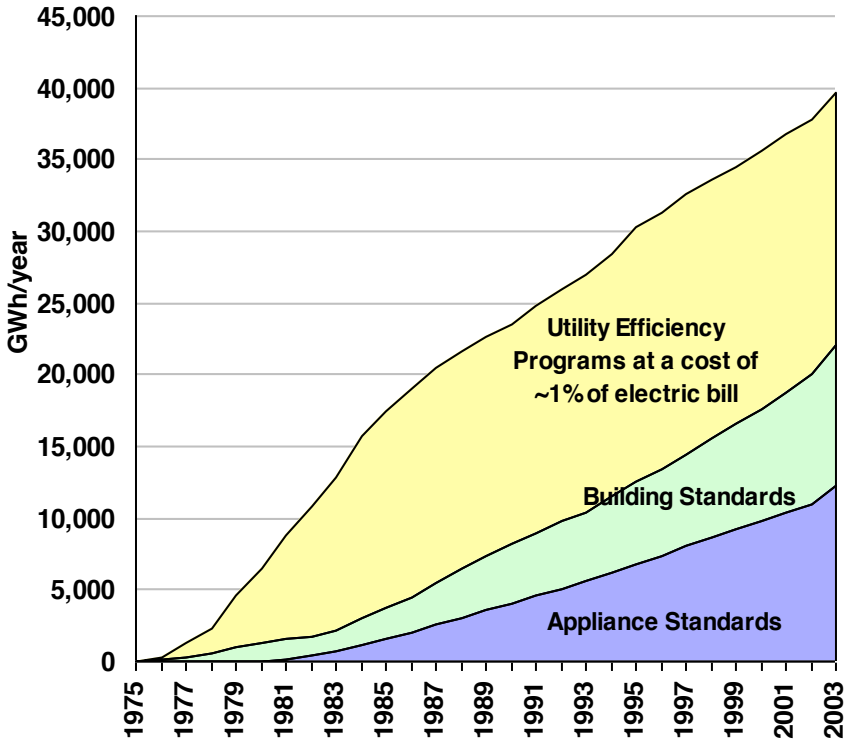
The CEC Staff has explained that these two graphs should not be compared because they are "apples and oranges" but, nevertheless, they have been compared and the wrong conclusions about the value of IOU programs have been drawn.

Graphical Comparison From Our Northern Neighbors

Savings by Source
Graph in NPPC's 2010 Power Plan as adjusted by NRDC for comparability



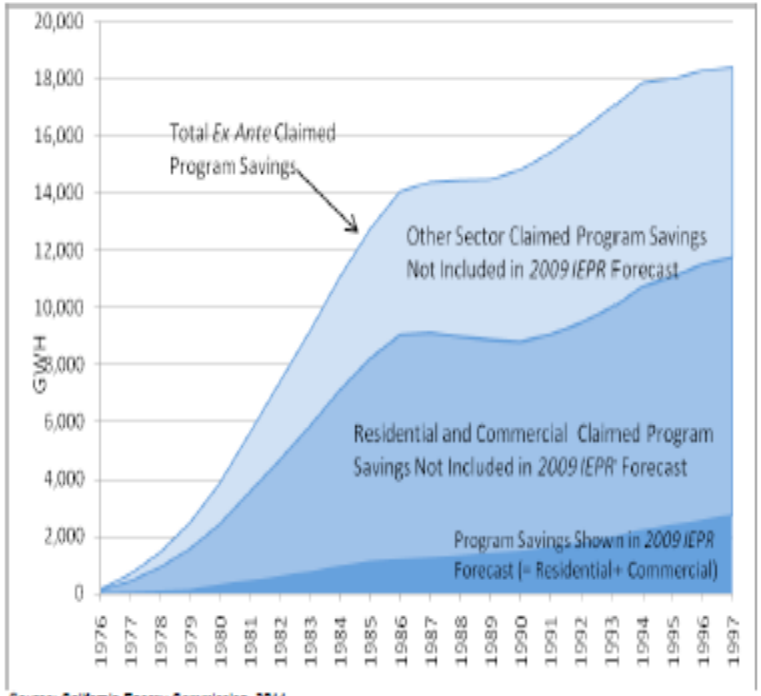
Savings by Source
Graph in CEC's 2005 Energy Action Plan



Note that the shares of savings between programs, State codes & standards and Federal codes & standards are roughly equal in both these graphical representations of historic EE savings.

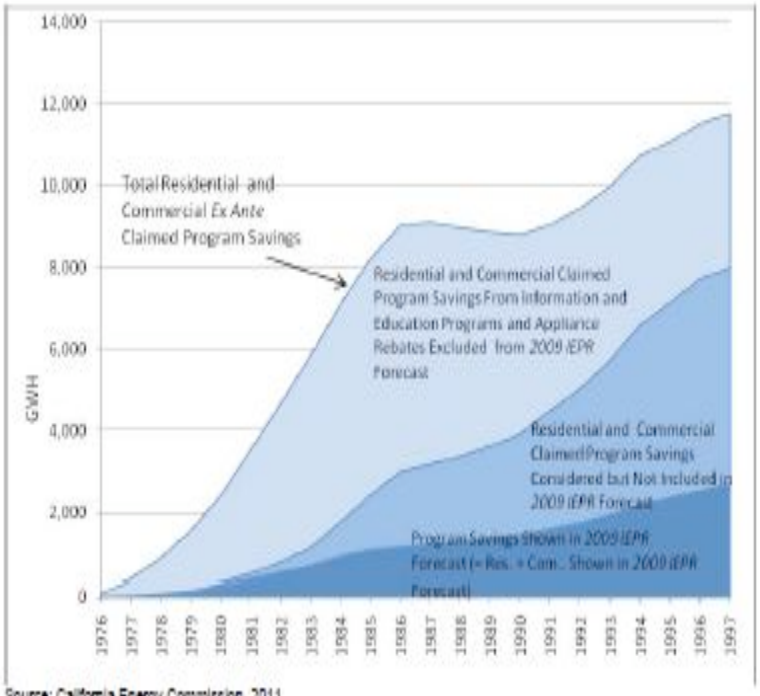
Staff's Proposed Depictions for 2011 IEPR

Figure 2: Total Claimed Program Savings by Sector vs. Savings Shown in 2009 IEPR Forecast, 1976-1997



Source: California Energy Commission, 2011

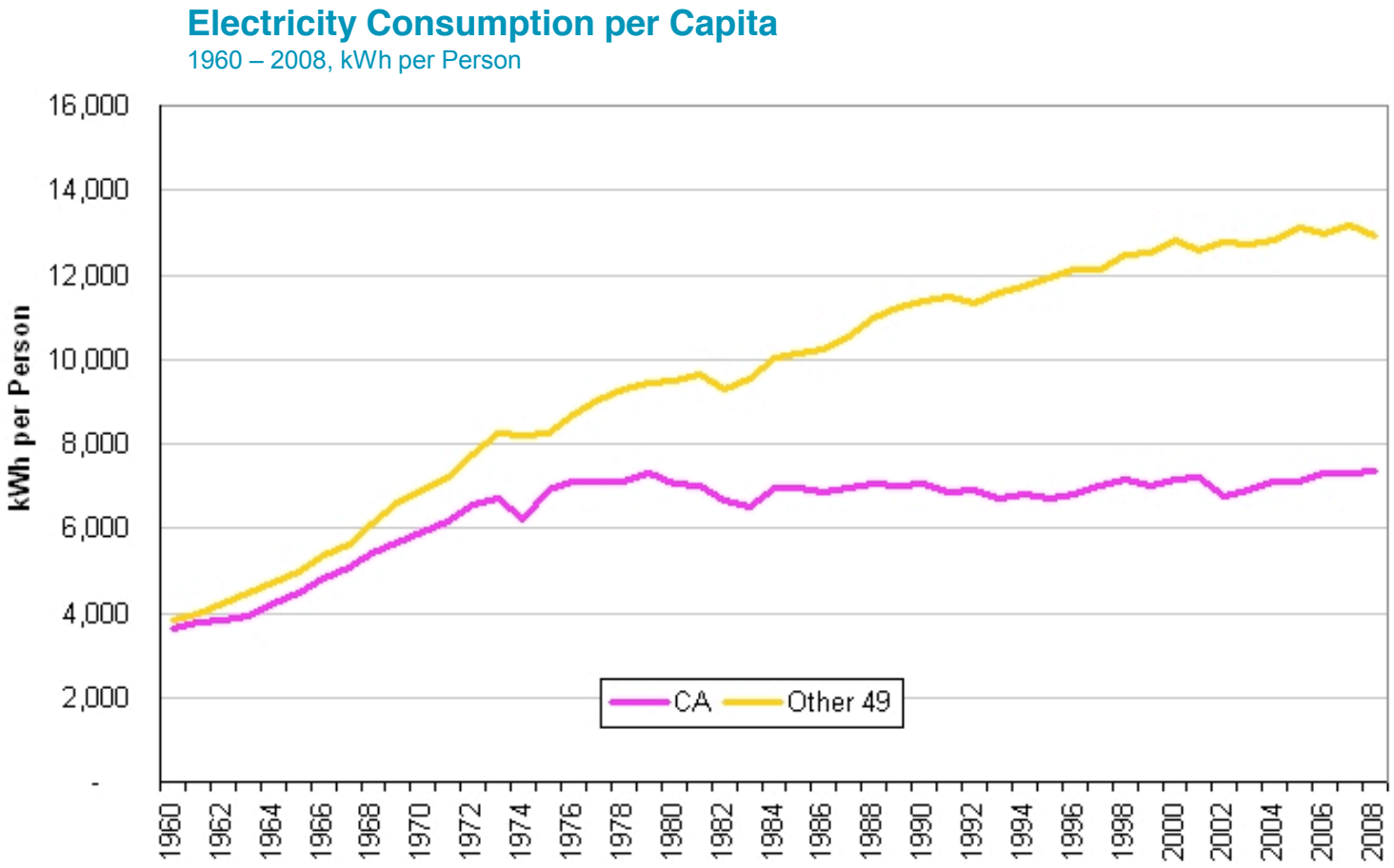
Figure 3: Residential and Commercial Claimed Program Savings: Excluded, Considered but Not Included, and Amount Shown in 2009 IEPR Forecast, 1976-1997



Source: California Energy Commission, 2011

This type of depiction showing what portion of historic EE savings actually was used in the end-use models is informative provided it is clearly labeled and the intent of the depiction is to provide clarity into the demand forecasting process.

The "Rosenfeld Curve"



*Is this difference primarily due to **Price** rather than **Policy**?*

Source:
Energy Info. Admin., State Energy Database System, Consumption, Physical Units 1960-2008, (June 2010), available at: http://www.eia.doe.gov/states/_seds.html.

The Role of IOU/POU Programs is to Promote Market Transformation and Long Lasting Savings

The CPUC's October 2007 decision (D.07-10-032) states:

> "Market transformation includes promoting one set of efficient technologies, processes or building design approaches until they are adopted into codes and standards (or otherwise substantially adopted by the market), while also moving forward to bring the next generation of even more efficient technologies, processes or design solutions to the market."

Appendix A: PG&E's Response to Staff's Proposals

PG&E's Response to Staff's Recommendations

Staff Recommendation: No staff time or resources should be used in re-estimating historic residential and commercial efficiency program load impacts. There is no reason to believe that re-analysis will yield different results given the lack of adequate ex post studies and data. In the future, the results of the joint Energy Commission-CPUC consumption metric work may provide a basis for changing current estimates.

PG&E Response: PG&E agrees there is no useful benefit in Staff attempting to re-characterize the history of EE savings. PG&E agrees that forward looking consumption metrics by end-use and customer class would be useful for all Stakeholders.

Staff Recommendation: In future forecasting reports, staff should include an estimate of non-residential/non-commercial program impacts wherever program savings are listed. In addition, staff should include estimates of naturally occurring savings for these sectors.

PG&E Response: PG&E agrees that any depiction of historic or projected EE savings should be shown on as complete a basis as possible. PG&E disagrees with Staff and agrees with NRDC, SCE and SDG&E that any depiction of historic and projected EE savings should be based on analysis using existing and vetted EM&V protocols and not on ad-hoc methodologies based on Staff's end-use modeling structure. PG&E disagrees with Staff that "naturally occurring" as defined in Staff's modeling structure should be shown in any depiction of EE savings as this definition of "naturally occurring" and the methodology for determining it is not consistent with existing protocols and has not been properly vetted. Likewise PG&E disagrees with Staff and agrees with NRDC, SCE, SDG&E that depictions of historic IOU programs savings which have been reduced by as much as 80% from filed historic savings should not be allowed in CEC reports until such time as that analysis has been properly vetted and agreed to by Stakeholders as an accurate depiction of historic EE savings based on rigorous analysis.

PG&E's Response to Staff's Recommendations

Staff Recommendation: Because of possible significant overlap among different sources of savings, staff should first show total savings (the sum of the three sources) without individual attribution whenever reporting savings. Staff should then present estimates of savings by type with full qualification of these estimates and discussion of overlap and other uncertainties.

PG&E Response: As stated earlier PG&E disagrees that Staff should be showing "naturally occurring" as defined by staff in any context. As for the other categories, as stated earlier, PG&E believes that, to the extent aggregate savings are being shown, filed historic numbers should be used to be consistent with other depictions of historic savings released by the CPUC/CEC and other public agencies. If Staff wants to show what portion of those historic savings were actually used as inputs to their forecast models PG&E has no objection to that as long as it is clearly explained. For example PG&E has no objection to graphs such as Figures 1, 2 and 3 of Staff's report which show total reported savings and the portion of those savings which was actually used to inform Staff's forecasting model.

Staff Recommendation: With respect to efficiency, staff's focus should be on analysis of recent and future impacts. The Energy Commission and CPUC should strive to make data available for this purpose, allowing staff to provide more comprehensive analysis, including incorporation of "rebound," "takeback", and other indirect effects from efficiency initiatives.

PG&E Response: PG&E agrees this would be a more beneficial use of Staff's and Stakeholder's resources than the current effort to re-characterized savings from prior decades. Additionally PG&E would like Staff to re-examine other possible reasons why the end-use forecasting models tend to under-project observed historic energy demand in the absence of reducing filed IOU program savings by 80%. This also may yield useful information.

PG&E's Response to Staff's Recommendations

Staff Recommendation: Staff should work with stakeholders through the DAWG to ensure that efficiency impacts are presented in the most useful (and user-friendly) manner possible

PG&E Response: PG&E agrees that gaining consensus for these types of analysis and representations through the DAWG is desirable. However if consensus cannot be reached PG&E feels it is appropriate for Staff to seek Commissioner input and direction as it is now doing through this workshop.

Appendix B: PG&E's Response to Staff's Questions

PG&E's Response to CEC Questions

Why is the depiction of historic EE savings Important to PG&E?

IOU programs are a necessary and critical step in reducing market barriers to emerging energy efficient technologies leading to market transformation and long lasting energy savings.

PG&E believes that the current CEC Staff's depiction of IOU program savings which suggests that IOU programs have no lasting impact on consumer behavior is both incorrect and contradictory to more than 30 years of California public policy. Policy that has lead to observable differences between the energy consumption behavior of California residents and those of the rest of the country.

PG&E's Response to CEC Questions

Which version of the "program history" information should be used for IOU programs?

There is an existing history of EE savings which has been filed by the IOUs under the direction of the CPUC using the protocols established at the time of the filings. CEC Staff has not made a compelling case to justify the drastic revisions to these filed program savings estimates that they are proposing.

CEC's Staff's primary motivation for adjusting the history appears to be to improve the back-casting statistics of the residential end use models. Without significant reductions in historic EE savings, the residential end-use models tend to significantly under-forecast observed demand.

There could be many reasons why the residential end-use models tend to under-forecast demand including but not limited to omitted variables, embedded EE, biased parameters and changes in underlying consumer behavior over time.

Staff has not demonstrated that they have ruled out any or all of these other possibilities which have caused the residential end-use models to be out of an acceptable calibration range before taking such drastic action in reducing historic EE savings from IOU programs by 80%.

PG&E's Response to CEC Questions

How specific should the write-up be about attribution between C&S, programs and naturally occurring savings categories and why?

The DAWG-ES team has reviewed the methodology used to develop this attribution and has been unable to agree that the results produced are anything other than "artifacts" of the modeling process. The proposed attribution is a result of assumptions that have not been vetted or agreed to by Stakeholders.

PG&E believes Stakeholders would be better served if staff would produce EE indices for the end-uses actually used in the forecasting models. If producing a breakdown between C&S, programs and naturally occurring savings at the end-use level would help to provide transparency and a better understanding of the forecast inputs and outputs then PG&E has no objection to that.

If Staff, notwithstanding the objections of PG&E and others, is compelled to show aggregate EE savings then PG&E suggests that "naturally occurring" as currently defined by Staff should not be shown as these are primarily price effects estimated by the Staff's forecasting model. These are highly speculative, are not based on any type of EM&V protocol that PG&E is aware of, and have not been vetted by anyone outside of CEC Staff.

PG&E's Response to CEC Questions

Should the CEC use the ex post evaluated results or some other characterization of 2006-2008 programs?

If 2006-08 evaluation results are used in any capacity, it should be to develop a low case scenario for risk assessment purposes.

There is currently no consensus among stakeholders that the 2006-2008 EM&V studies appropriately characterize EE savings that were achieved during that period.

PG&E's Response to CEC Questions

CEC Staff's current proposal is to use the assumption, per CPUC, that 50% of measures are replaced with equally efficient measures during the forecast period.

PG&E believes that the persistence of savings that are first induced by IOU program is much higher than 50%. Savings that were first induced by IOU programs generally lead to savings that are continued upon replacement either by due to updated codes and standards or due to naturally occurring market processes.

Persistence of savings needs further study and development in the context of demand forecasting. CEC Staff should provide greater transparency regarding how persistence enters into the forecasting model and ultimately impacts the projections of California energy demand.

PG&E's Response to CEC Questions

Suggestions for going forward

- PG&E would like to see Staff revisit the reasons why their residential models tend to under-project observed demand during back-casting if they do not reduce historic filed IOU programs saving by 80%.
- PG&E would like to see a much more simplified, transparent and consistent energy demand forecasting process/model than currently exists. The CEC Staff's end-use models continue to be a "black box" to Stakeholders.
- PG&E suggest that energy efficiency indices by end-use and customer class (residential, commercial, industrial, Ag.) should be developed as part of the potential and goal setting analysis which would then feed into both regression based and end-use models used by Stakeholders.