DOCKET
11-IEP-1C
DATE
RECD. May 27 2011

DRAFT STAFF PAPER

EFFICIENCY PROGRAMS: INCORPORATING HISTORICAL ACTIVITIES INTO ENERGY COMMISSION DEMAND FORECASTS

Chris Kavalec
Don Schultz
Demand Analysis Office
Electricity Supply Analysis Division
California Energy Commission

MAY 2011
CEC-200-2011-005-SD

ACKNOWLEDGEMENTS

Tom Gorin provided helpful information for this paper. Chris Ann Dickerson (*CAD Consulting*) helped to organize the paper and added helpful comments.

ABSTRACT

A clear, consistent record of evaluated *ex post* (after the fact) efficiency program achievements is not readily available, at least not prior to the 2006-2008 California Public Utilities Commission energy efficiency program cycle. This creates a great deal of uncertainty around any estimate of historical program impacts. This uncertainty, along with other issues related to impact measurement, has been debated in recent Demand Analysis Working Group meetings, with some parties suggesting that historical program effects incorporated in Energy Commission demand forecasts are vastly underestimated before 1998. This staff paper discusses this controversy and other related issues, and provides staff recommendations to move forward.

Keywords: Efficiency, demand side management, naturally occurring savings, building and appliance standards, *ex ante* claimed program savings, *ex post* program achievements

Please use the following citation for this report:

Kavalec, Chris and Don Schultz. 2011. *Efficiency Programs: Historical Activities and Incorporation in Energy Commission Demand Forecasts*. Staff Paper. California Energy Commission, Electricity Supply Analysis Division. CEC-200-2011-005-SD.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Introduction

With the adoption of the first *Energy Action Plan* in 2003,[1] energy efficiency became the "resource of first choice" for meeting the state's future energy needs. This plan, translated into numerical goals by the California Public Utilities Commission (CPUC) in 2004, combined with The Global Warming Solutions Act of 2006 (Assembly Bill 32) (Nuñez, Chapter 488, Statues of 2006), raised proper accounting of energy efficiency impacts to critical importance. Increased scrutiny of energy efficiency brings attention to estimates of historical impacts used to gauge the effectiveness of efficiency initiatives, particularly in the case of utility efficiency programs, and to guide future policy. Historical efficiency impacts, when they persist into the future, must also be considered in electricity and natural gas demand forecasts.

Unfortunately, a clear, consistent record of evaluated *ex post* (after the fact) program achievements is not readily available, at least not before the 2006-2008 CPUC energy efficiency program cycle. This creates a great deal of uncertainty around any estimate of historical impacts. This uncertainty, along with other issues related to impact measurement, has been debated in recent Demand Analysis Working Group[2] (DAWG) meetings, with some parties suggesting that historical program impacts incorporated in California Energy Commission demand forecasts are vastly underestimated before 1998. This staff paper discusses this controversy and other related issues and provides staff recommendations for moving forward with forecasting responsibilities.

The paper is organized as follows. The next section provides background by describing in general how efficiency and conservation savings are addressed in the Energy Commission demand forecasts. The following section describes the historical period (beginning in the late 1970's) by characterizing different eras in terms of program activity and verification. Following this is a discussion of staff estimates of historical program impacts versus *ex ante* (before the event) claimed impacts by the utilities. The final section provides staff recommendations.

Efficiency and Conservation Savings in Energy Commission Demand Forecasts

Staff estimates reductions in energy demand associated with three sources: utility and public agency efficiency programs, building and appliance standards, and naturally occurring savings, which are intended to capture the impacts from energy price changes and certain market trends not directly associated with programs or standards. The impacts of standards are incorporated

1 http://docs.cpuc.ca.gov/published/REPORT/28715.htm

2 The DAWG (and its predecessor the Demand Forecast Energy Efficiency Quantification Project) is composed of Energy Commission and CPUC staff, and representatives from utilities, environmental groups, and other interested organizations. The group was formed to address issues related to efficiency measurement, particularly with respect to demand forecasts. Over the last three years, the working group has devoted significant attention to understanding approaches to, and the implications of, various approaches to characterizing historical energy efficiency in demand forecasts.

in the end-use forecasting models directly through changes in average energy consumption at the end-use level, assuming a certain compliance rate.[3] Naturally occurring savings are simulated by changes in average end-use energy consumption and by application of price elasticities within the forecasting models. Program impacts are accounted for in the forecast mainly through post-processing of model results, although some program effects are calculated within the models.[4]

Efficiency programs present the greatest difficulties from a modeling standpoint, since impacts cannot be tied as directly to targeted end uses as in the case of mandates and cannot as easily be estimated empirically as price effects (through price elasticities). Recent evaluation, measurement and verification (EM&V) efforts have improved the situation for recent program years, but this leaves little sound verification analysis for the early years of ratepayer-funded energy efficiency programs. For the *2009 Integrated Energy Policy Report* (*IEPR*) forecast, staff made a major effort to improve estimates of program impacts going back to 1998, but pre-1998 impacts remain as estimated in earlier forecasts and rely heavily on staff judgments of the time.

Historical Program Activity

During the late 1970s and early 1980s, the CPUC began to allow the utilities to collect and spend ratepayer money to promote various kinds of demand-side management (DSM) programs.[5] Initial efforts included mainly voltage reduction, audits, and information and education programs. Later in the 1980's, incentive-type programs became more common. Throughout this decade, the utilities in general proposed DSM budgets as part of their General Rate Cases (held every three years), then proceeded to administer the programs with minimal requirements in terms of reporting how the monies were spent or what the effect was in terms of reducing demand for electricity or natural gas. By the end of the 1980's, activities began to decline.

In response to declining expenditures for DSM programs, some parties (notably the National Resources Defense Council) pushed the CPUC to (a) make energy efficiency a higher priority; and (b) establish mechanisms whereby energy efficiency would become profitable for utilities so that they would be rewarded for avoiding the costs of central power plants with comparable compensation to what would have been earned had they built and financed the power plant(s) via traditional ratemaking mechanisms. As a result of ensuing 1989-90 directives from the CPUC, utilities ramped up DSM spending and received approval for utility-specific shareholder earnings mechanisms for program years 1990-1993. Reporting requirements were minimal; utilities agreed that they would participate within ad hoc groups of interested parties to identify and conduct selective measurement and evaluation (M&E) studies to provide evidence that

3 Typically 70-80 percent, with a "ramp up" period when new standards (or a change in existing standards) are introduced.

4 Currently, the impacts of residential lighting and certain retrofit programs are estimated within the Residential and Commercial end-use models through changes in average energy consumption.

5 Referred to as Conservation and Load Management programs until the late 1980s, demand-side management refers to financial incentives and education to modify consumer energy demand.

DSM programs were, in fact, reducing the energy consumption of program participants. However, studies on the effectiveness of programs were not directly linked to earnings amounts.

It was not long before some advocacy groups, including the Division of Ratepayer Advocates (DRA), began pushing for a consolidated forum for review and approval of DSM budgets and programs. Advocates also called for much stronger requirements for the utilities to demonstrate the success of their programs as a condition for CPUC approval of any earnings claim.

The 1993-1997 era was characterized by a consistent type of shareholder incentive mechanism (known as *shared savings*) and a more comprehensive set of reporting requirements, including a higher standard for verifying reported results pertaining to participation levels, number of measures installed, and actual load impacts. During and after these years, the oversight for DSM activities was heavily shaped by the California Demand-side Measurement Advisory Committee (CADMAC[6]), created by CPUC order at the recommendation of stakeholders. CADMAC (and its successor organization the California Measurement Advisory Council "CALMAC"[7]) played a key role in determining the compliance with a wide-ranging set of M&E studies that were required per CPUC-adopted "protocols." DRA and the Energy Commission were given specific rights, roles, and responsibilities in the functioning of CADMAC, taking the lead in overseeing and verifying M&E study compliance. DRA was authorized to select and hire a group of consultants to review, comment on, and verify the conformance of required M&E studies.

Disputes about protocols and the required M&E studies were addressed in the Annual Earnings Assessment Proceeding (AEAP). Earnings claims from DSM programs for program years 1994-1997 were also vetted in an AEAP. Since the earnings claims for these programs were stretched out in segments that lasted up to ten years, the most recent AEAP was not completed until early this century. DRA staff resource constraints required that challenges to utility-claimed program savings be selective, targeting claims that seemed the most exaggerated, so that many other suspect claims went unchallenged.

From 1995 into the early years of this century, tens of millions of dollars were spent by the utilities to conduct the wide array of M&E studies required as a condition for portions of utility shareholder earnings claims for the 1993-97 programs. The studies conducted under the auspices of CADMAC have, in more recent years, been scanned and stored "online" and remain available for continued review in a searchable database at http://www.calmac.org.

With the adoption of Assembly Bill 1890 (Brulte, Chapter 854, Statutes of 1996), California set off in a new direction of deregulation. Deregulation, as originally planned, included the replacement of utility administrators of efficiency programs with an Independent Program Administration (IPA) structure. The task of making this transition was given to entities, created by the CPUC, known as the California Board for Energy Efficiency (CBEE), which included an institutional slot for the Energy Commission, and the Low Income Governing Board (LIGB).

6 http://www.calmac.org/cadmac.asp
7 http://www.calmac.org

The rules and regulations that governed efficiency programs for 1994-1997 were removed and replaced with a new set to be incorporated by the expected IPA regime. The utilities were directed by the CPUC to continue to administer efficiency programs until the new structure was established. The shareholder incentive mechanism that was in place for 1994-1997 was eliminated and replaced on an interim basis with one that included either no shareholder earnings opportunity or based on the completion of "same year milestones" that were not directly connected to measureable load reductions.

For various reasons, the CBEE was not able to put the new IPA structure in place. Efficiency programs continued under the loose oversight of the CBEE until it was disbanded in 2002. At this point, the CPUC, under the direction of President Loretta Lynch, took more direct control over efficiency programs, establishing a large staff in the Energy Division. Many of the DRA responsibilities from the 1990s were handed to the Energy Division.

As a result of the energy crisis, changes at the CPUC brought a renewed interest in energy efficiency, as well as a resurrection of a set of DSM programs known as Load Management. More typically referred to now as demand response, these programs have made their way into the "loading order" of the *Energy Action Plan*, as well as the *IEPR*. This phase (2003-2005) included the resurrection of the CPUC's policy to authorize DSM program budgets on a three year cycle.

The notion that it was necessary to reestablish energy efficiency as a profit center to expect aggressive and successful efficiency programs brought about the resurrection of a shareholder incentive mechanism for 2006-2008. The more recent version of this mechanism is similar to that which governed program years 1994-1997 in the sense that earnings opportunities are tied to reported net benefits of the efficiency program portfolios. However, the newer version includes a much shorter earnings recovery period and a much looser linkage between earnings claims and previously required M&E study completion. The expansive role of the Energy Division is reflected in more comprehensive analyses of efficiency program activities, referred to as EM&V, as well as other areas of program oversight. **Table 1** describes these program eras and the dominant evaluation approaches to estimating load impacts.

Table 1: Energy Efficiency Programs and Evaluation Approaches by Era

Program Years	Examples / Types of Dominant Programs	Characteristics of Reporting and EM&V Requirements	CPUC Proceeding(s) to address / resolve disputes
Pre-1990	**Late 70s/early 80's**: mostly non-EE programs (e.g., Voltage Reduction). **Early-mid 1980s**: Information and Education; Residential Audits; Direct Assistance; Loans and rebates for weatherization; "Load Management" standards and incentives; **Mid-late 1980s**: sharp decline in activities	Limited mostly to "March 31st Reports (annual reports on prior year expenditures and accomplishments and current year plans); **no verification** of utility-reported costs or benefits (for example, energy savings)	General Rate Cases (prospectively, focus on expenditure/budget requests)
1990-92	Ramped up spending for audits/rebates in all sectors (Residential, Commercial, Industrial, Agricultural)	Limited to ad hoc agreements in periodic stakeholder meetings. Completion of studies, or results of studies NOT linked to earnings amounts.	Energy Cost Adjustment Accounts and Biennial Cost Allocation Proceedings used to address disputes; Different types of earnings mechanisms, per utility "choice" from 1990 "DSM Collaborative"
1993-97	Full range of programs (all major sectors); energy savings linked to shareholder earnings opportunities. Major dollars and reported savings for customized rebate programs in the non-residential sector.	Comprehensive set of EM&V Protocols, under the "governance" of CADMAC Agreements to establish and maintain Database for Energy Efficient Resources and Measure Cost Studies	Annual Earnings Assessment Proceeding (AEAP); "Shared Savings" earning mechanism for all/most utilities/programs.
1998-2001	Shift away from dominant role of utility as program administrator; the rise of the Standard Performance Contract (SPC) program design in non-residential sector.	Ad hoc agreements under the "governance" of the CBEE and LIGB; CALMAC "established" as unofficial repository of all/most M&E studies	AEAP (for PY 94-97 earnings claims)
2002-05	Return of customized rebate program, decline of SPC program design emphasis; increased role for Local Governments as "subimplementers"	Energy Division and their consultants assume dominant role in conducting/overseeing EM&V	Ad hoc (nonevidentiary hearings)
2006-2008 & 2009	Resurrection of earnings opportunity; earnings claims relinked to energy savings claims	Energy Division and consultants continue to dominate EM&V	Ad hoc (nonevidentiary hearings)

Source: California Energy Commission, 2011

Energy Commission Estimates of Efficiency Program Impacts

Although the Energy Commission played an advisory role in efficiency program activities, its main focus related to efficiency has been on developing and implementing building and appliance standards, beginning in 1976. End-use forecasting models were developed to incorporate these standards directly; less attention was paid to modeling behavioral phenomena such as conservation and efficiency measure adoption. Given the paucity of a consistent, useable set of M&E studies, Energy Commission staff in the 1980s and 1990s relied heavily on judgment to adjust reported program savings and develop realistic historical and projected consumption impacts to be included within energy forecasts. Program impacts were generally viewed as relatively insignificant compared to the impacts of standards and energy prices.

With the *Energy Action Plan* and AB 32, efficiency programs are expected to play a more significant role in load reduction, and this has brought increased attention to Energy Commission estimates of program impacts. For the *2009 IEPR* forecast, staff devoted time and effort to updating and refining program impact estimates back to 1998 and developing a methodology to project impacts for future program cycles. This effort, vetted through the DAWG, is detailed in the *California Energy Demand 2010-2020 Adopted Forecast* as part of the *2009 IEPR*.[8] Pre-1998 energy efficiency program activity, although not playing a major role in more recent forecasts, is also receiving increased scrutiny as a measure of past program success and a guide for future efforts. At issue is the amount of program savings for 1976-1997 as presented in unverified claims made by program implementers versus a significantly lower amount of savings shown in Energy Commission demand forecasts. These claimed savings include those from public agency and municipal utility programs, but come mainly from investor-owned utility efforts. To explain this difference, staff methods for incorporating efficiency programs is discussed in this section.

For the residential and commercial end-use forecasting models, historical efficiency program estimates must be specified explicitly, either through a model adjustment or through post-processing of model results. This specification is required since the end-use models must begin with a realistic "backcast," or simulation of historical consumption, to ensure a reasonable forecast. On the other hand, the industrial and agricultural models (econometric) and the street lighting, transportation, communications, and utility model (trend analysis) operate off of actual historical consumption and therefore incorporate all historical load impacts from standards, programs, and naturally occurring savings in the last historical (or base) year and forward. No specification of historic program savings is required to produce a forecast.

Staff's typical practice in past *IEPR* forecasts has been to report historical program savings *only in the commercial and residential sectors*, since these have a direct impact on

8 See Chapter 8 of this report: http://www.energy.ca.gov/2009publications/CEC-200-2009-012/CEC-200-2009-012-CMF.PDF.

forecast results. Historical program savings in the other sectors are incorporated implicitly through use of actual consumption data. Program savings in these sectors affect the forecast (and are reported with forecast results) only through impacts above and beyond those in the last historical year. **Table 2** summarizes how efficiency program impacts are incorporated in the various models.

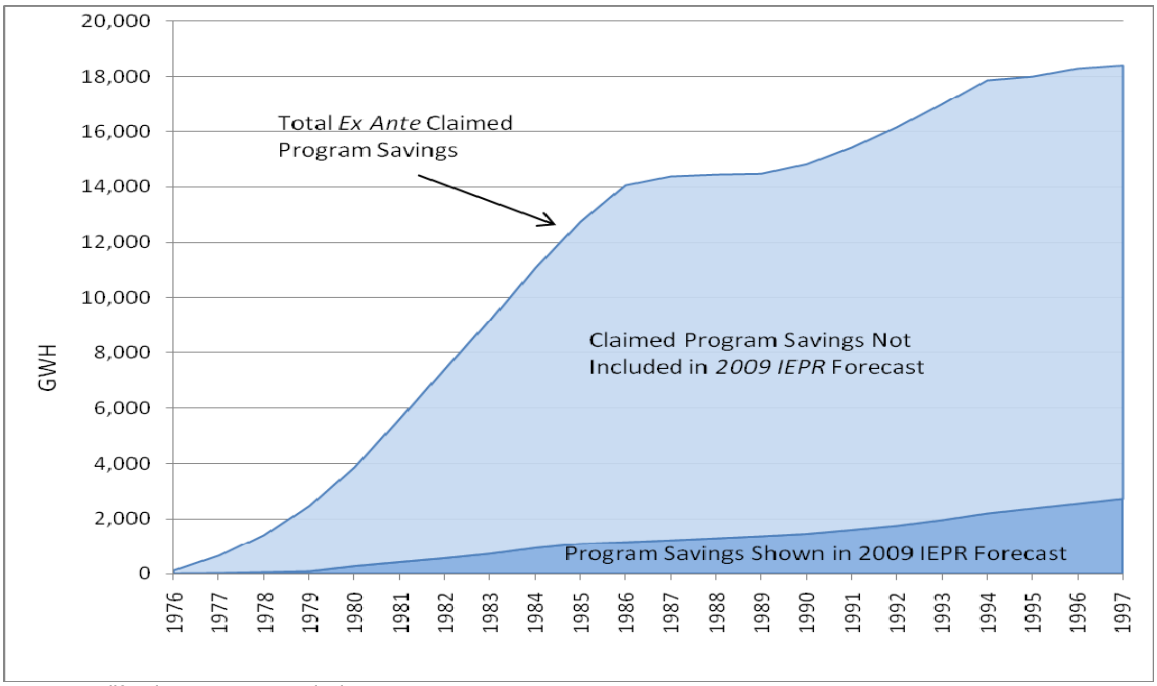
Table 2: Efficiency Program Impacts as Addressed in Energy Commission Models

Characteristics	Sector				
	Residential	Commercial	Industrial	Agriculture/ Water Pumping	Transportation/ Communications/ Utilities and Street Lighting
Type of Model	End Use Analysis: "Bottom Up"	End Use Analysis: "Bottom Up"	Econometric, Aggregate Level: "Top Down"	Econometric, Aggregate Level: "Top Down"	Trend Analysis, Aggregate: "Top Down"
Program Impacts Specified	Historical and Forecast	Historical and Forecast	Forecast (Impacts Above Base Year)	Forecast (Impacts Above Base Year)	Forecast (Impacts Above Base Year)
Reported with Forecast	Historical and Forecast	Historical and Forecast	Forecast (Impacts Above Base Year)	Forecast (Impacts Above Base Year)	Forecast (Impacts Above Base Year)
Level of Efficiency Specification	End Use	End Use	Aggregate Totals	Aggregate Totals	Aggregate Totals

Source: California Energy Commission, 2011

In **Figure 1**, the amount of program savings shown in the *2009 IEPR* forecast is compared to the total claimed for the period 1976-1997, the historical period prior to that with more detailed analysis (1998 onward) included in the *2009 IEPR* forecast. The total claimed represents an accumulation by Energy Commission staff of first-year *ex ante* claimed program savings using a specified decay function and program-specific expected useful lives.[9] The percentage of *2009 IEPR* savings out of the total claimed is very low, averaging around 7 to 15 percent.

Figure 1: Total Claimed Program Savings vs. Savings Shown in *2009 IEPR* Forecast, 1976-1997

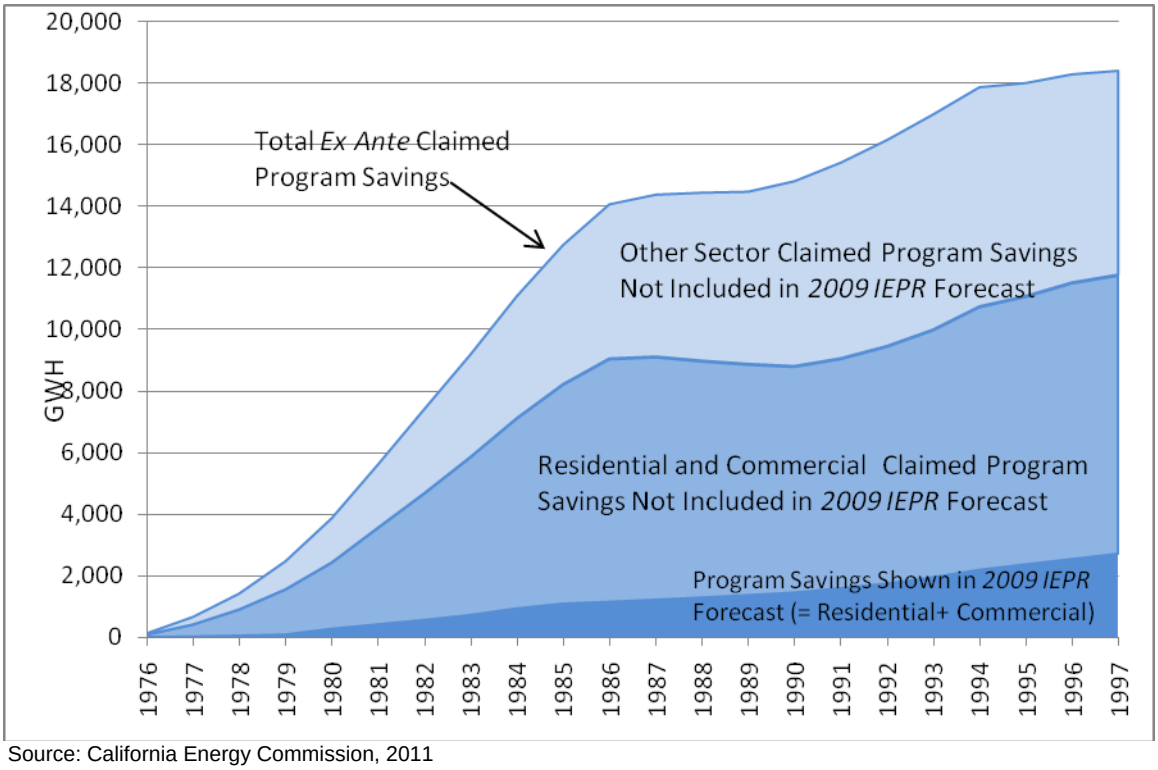


Source: California Energy Commission, 2011

9 Decay is estimated using an exponential specification so that half of adopted measures wear out by the end of the expected useful life. For more details, see the Energy Commission staff report *Electricity Impacts from Historical, Existing or Committed Statewide DSM Programs*, http://www.energy.ca.gov/1995publications/CEC-200-1995-901.PDF

However, **Figure 32** gives a more roper comparison (since only residential and commercial historical savings were shown in the *2009 IEPR*) is given in, which also separates the total claimed program savings in the residential and commercial sectors. The ratio of savings shown in the *2009 IEPR* to residential and commercial claimed savings ranges from 10 to 25 percent through most of the period.

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



Source: California Energy Commission, 2011

Although not as low as those relative to the total claimed, these ratios represent a significant discounting of *ex ante* claimed savings in the residential and commercial sectors. As discussed above, this discounting was part of staff's effort to develop a realistic backcast relative to actual historic energy consumption in the commercial and residential sectors. In staff's judgment at the time, actual reductions in consumption from programs, after accounting for standards, price effects, and other factors, were nowhere near the amount of savings claimed. The reported estimates were prepared with due diligence, but the estimates were made before reliable evaluation techniques and reporting requirements were developed.

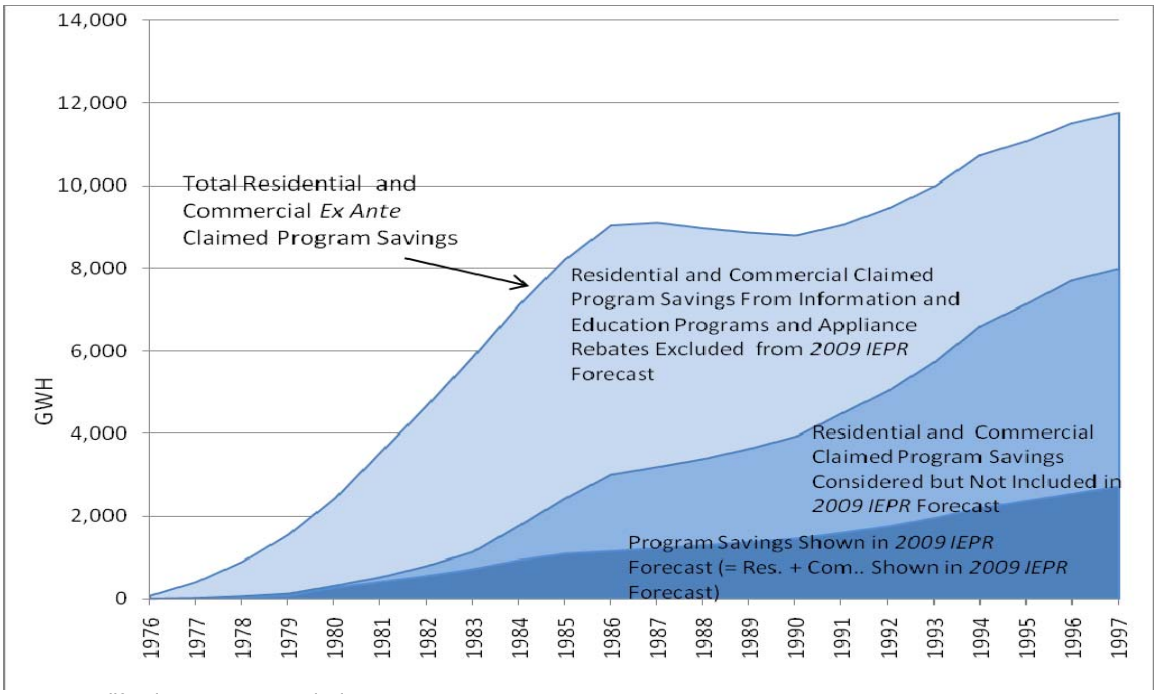
More specifically, Energy Commission staff typically excluded information and education programs, since there was no basis for concrete estimates of consumption decline from these mechanisms. These activities in particular have little long-term measured and verified savings associated with them. Residential appliance efficiency

programs were typically folded into the standards ramping up process within the models when simulating the effects of new appliance standards.

Figure 3 shows the total *ex ante* claimed residential and commercial program savings (the sum of the bottom two areas in **Figure 2**) divided into three pieces: the excluded information, education, and appliance rebate programs; the residential and commercial claimed savings considered but not included in the *2009 IEPR* forecast; and the amount of the total included in the 2009 forecast ultimately.[10] Approximately 33 – 50 percent of the savings considered for inclusion over the 1976-1997 period were included in the 2009 forecast. Most of the early run-up in utility-claimed savings came from information and education programs (around 90 percent of the excluded area in **Figure 3** through 1985).[11]

For those programs considered, staff either included the claimed savings, by post-processing of (subtracting from) model results, *or by* assessing of how the programs would affect average electricity consumption by end use. In the latter case, this typically resulted in savings different from *ex ante* claims for the program.

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

10 The considered programs included mainly weatherization, audit, retrofit, new construction, and other incentivized programs.

11 For further discussion of early efficiency programs, see the Energy Commission staff report *A Discussion of Proposed Energy Savings Goals for Energy Efficiency Programs in California*, pp. 14-16, available at http://www.energy.ca.gov/reports/2003-09-24_400-03-022D.PDF

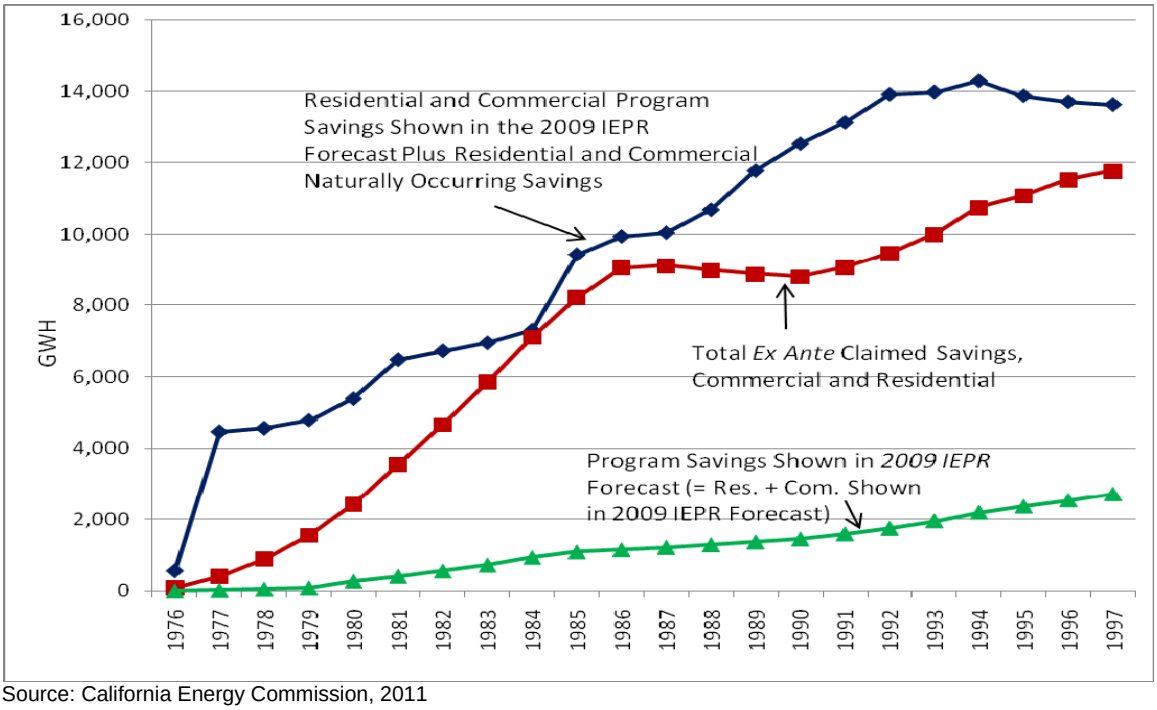
The foregoing is meant to give a general idea of how staff developed program consumption impacts for the residential and commercial sectors, starting from much higher *ex ante* estimates reported by program implementers. There remains, however, a considerable amount of claimed savings in the other sectors. As discussed, forecasts in these other sectors do not require specific accounting for historical program savings, and, therefore, these savings are not typically reported with forecasts results. This has led to confusion in interpreting the forecast. To remedy this situation, staff proposes to make a rough estimate of historical program savings in these sectors, starting with *ex ante* claimed savings, and to identify these savings whenever historical program impacts are reported.

Including these other sector savings with residential and commercial savings would provide estimates of total historical program net savings. However, the lack of comprehensive and consistent evaluation study results over 1976-1997 means these estimates are subject to a great deal of uncertainty.

Complicating matters further, program impacts likely overlap with standards and naturally occurring savings. One example is appliance rebate programs, where impacts are difficult to separate from appliance standards. Price effects (by far the dominant source of naturally occurring savings in Energy Commission forecasts) almost certainly overlap with program impacts, since the availability of incentives for and information on efficiency measures would tend to increase price response in the face of a rate increase. Although these have not been reported in past forecasts, naturally occurring savings also occur in the other sectors, (besides residential and commercial), yielding the same attribution issues.

The debate over historical program savings is therefore also an issue of attribution**.** Error! Reference source not found. **Figure 4** compares the *ex ante* claimed residential and commercial program savings with the amount of residential and commercial program savings plus naturally occurring savings shown in the *2009 IEPR* forecast report for 1976-1997.

Figure 4: Comparison of Residential and Commercial *Ex Ante* Claimed Program Savings With Total Residential and Commercial Program Savings Plus Naturally Occurring Savings Shown in *2009 IEPR* Forecast, 1976-1997



Source: California Energy Commission, 2011

As the figure shows, staff estimated an amount of savings beyond standards, at or above the amount of residential and commercial claimed savings through these two sources, but most of this savings (blue line) is assigned to naturally occurring price effects. It is certainly possible that, given adequate data, a full analysis of historical program versus price effects would result (from an analytical perspective) in a transfer of savings from naturally occurring to program impacts but would not affect the total amount of savings. In staff's opinion, insufficient *ex post* data validated through evaluation studies exist to warrant such an effort. However, staff is participating in CPUC's effort over the next two years to develop a *consumption metric* for efficiency program impact measurement. This effort involves estimating the historical impact of programs on electricity consumption through statistical methods and could help better tease out historical price versus program (and standards) effects.

The amount of efficiency program impacts specified in the residential and commercial models affects the forecast through the calibration process. The models currently calibrate by scaling model output minus estimated efficiency program savings in the base year to actual consumption in that year. This refers to savings not already included as adjustments to model inputs. This gives a scaling factor of:

actual consumption / (model output minus efficiency program savings).

This factor is applied to the model output (model output times scaling factor) in the forecast period, with projected efficiency program savings subtracted off to give the actual forecast.

Suppose there is a very accurate measurement of program savings in the base year. A savings estimate lower than this "true" measurement decreases the scaling factor (the denominator gets larger) compared to a factor with "true" program savings. This biases the forecast downward, since model output in the forecast period is being multiplied by a smaller scaling factor. Therefore, if historical program savings estimates are too low, as some have claimed, this would bias residential and commercial forecasts downward. However, the effect from this bias, if it exists, would be minimal from the historical period in question since residual impacts from programs introduced during 1976 - 1997 would likely be very small by 2008, the base year in the *2009 IEPR* forecast.

Staff Recommendations

For future forecasting work, staff proposes the following recommendations:

- No staff time or resources should be used in reestimating historical residential and commercial efficiency program load impacts from 1976-1997. There is no reason to believe that reanalysis 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.
- The emphasis has focused on residential and commercial program impacts. Future forecasting reports should include an estimate of other sector program impacts wherever program savings are shown. In addition, staff should include estimates of naturally occurring savings for these sectors.
- Because of possible significant overlap among different sources of savings, total savings (the sum of the three sources) without individual attribution should be shown first whenever reporting savings. Estimates of savings by type with full qualification of these estimates and discussion of overlap and other uncertainties should follow.
- With respect to efficiency, staff should focus should be on analysis of more recent (post 1997) 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.
- Work with stakeholders through the DAWG to ensure that efficiency impacts are presented in the most useful (and user-friendly) manner possible should continue.