

Making Aggressive Levels of Efficiency “Business as Usual” – California’s Strategic Plan for the Next Generation of Energy Efficiency

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ABSTRACT

On October 19, 2007 California Public Utilities Commission Decision D. 07-10-032 launched California towards the creation of a landmark, statewide energy efficiency Strategic Plan for 2009-2020. The Decision directs the state’s regulated (investor-owned) utilities (IOUs), in close collaboration with state agencies, public utilities, local governments, and industry and other stakeholders, to prepare a single, statewide strategic plan by mid-May, 2008. The Decision endorsed three “Big, Bold” Programmatic Initiatives to include in the plan: all new residential and commercial buildings in California shall be zero net energy in 2020 and 2030, respectively; and California’s heating, ventilation and air conditioning (HVAC) industry should be reshaped to ensure optimal performance of small HVAC systems. The Decision also targets aggressive strategies to meet the state’s 2020 GHG reduction goals. This paper provides an overview of the organization and initial outcomes of this planning process, as well as lessons learned that may be applicable in other states and in future years in California. The aim is to make energy efficiency “business as usual.”

Introduction

The question this paper seeks to explore is: how can regulators incent ever deeper but cost effective levels of energy efficiency? More specifically, how can regulators in California make aggressive levels of energy efficiency ‘business as usual,’ given the state’s already low rates of energy use per capita and a challenging landscape of shared agency authority over energy regulation? This paper explores these questions by summarizing the experience of the California Public Utilities Commission (CPUC) in advancing aggressive energy efficiency targets for the state’s four investor owned utilities (IOUs) through 2020 via the adoption of several ‘Big Bold’ Programmatic Initiatives and a statewide energy efficiency strategic planning process.

Background Leading to the Strategic Plan

It is well known that California leads the nation in stabilized and low levels of per capita energy use. This achievement is a result of a combination of several factors -- statewide energy codes and standards for buildings and appliances starting in the 1970s, utility-administered energy efficiency programs, higher-than the national average utility rates and tariff structures that raise prices the more a consumer uses, and varying degrees of consumer and business attention to reducing energy costs and environmental “footprints”. All of this was further galvanized during and in response to the 2000-2001 California electricity market crises.

Over the years, CPUC policy decisions have created the policy framework to incentivize ever-expanding energy efficiency budgets and programs from the investor-owned utilities. This framework includes: a statewide Energy Action Plan listing energy efficiency as top in the

loading order of cost-effective energy resources; utility revenue decoupling; aggressive energy efficiency goals for regulated utilities, accompanied by rigorous, CPUC- managed evaluation, measurement and verification work; dual funding streams for energy efficiency, including authorized public goods charges and CPUC-reviewed utility procurement spending; and a utility shareholder risk-reward incentives mechanism that establishes performance-based incentives for utility investments more akin to utility earnings from power plant investments.¹

During the fall of 2006 and the early months of 2007 CPUC staff began to consider what guidance would be needed as the IOU utilities developed their next energy efficiency (EE) portfolios for the period 2009-2011. Staff was well aware that had been numerous concerns with process and outcomes in preparing the 2006-08 portfolios, and wanted to ensure the next three-year EE program designs and spending would contain improvements. Staff consulted a variety of stakeholder organizations and agencies and identified several issues of concern:

- Need to focus on cumulative energy efficiency savings, not just short-term measures (CFLs)
- Need for comprehensive program designs targeting deeper levels of savings
- Potential increased long-term program costs from history of ‘cream-skimming’ (meaning higher costs when utilities would have to go back to the same customers in later years for successive waves of single-purpose activities)
- Need for greater non-utility stakeholder participation in planning and portfolio design
- Need for greater clarity on extent of non-compliance with existing codes and standards, and degree to which relevant efficiency savings were being over-counted by the California Energy Commission (CEC) and the utilities.
- Need for greater coordination across strategies and smarter use of ratepayer funds, to be improved via planning multi-year “end-to-end” strategies across research, development and deployment (RD&D), emerging technology promotion, incentive and technical assistance programs, and eventual permanent market transformation via statewide codes and standards or market adoption of as many EE measures as possible
- Desire to maximize efficiency gains as a “least cost” greenhouse gas (GHG) reduction source for California’s AB32 implementation

Groundwork Towards a Big, Bold Energy Efficiency and Strategic Planning Process

Recognizing that the EE planning process needed to get started for 2009-2011 portfolios, CPUC staff collaborated with CEC staff with the aim to identify an initial handful of major targets for EE that could lead to long-term, deeper savings to be achieved through cost-effective program or codes and standards strategies. The CPUC staff termed these possible “Big, Bold” EE strategies. The Agencies’ recommendations, along with additional ones suggested by California stakeholders, led to eight candidate strategies for Big Bold Energy Efficiency Strategies (BBEES). The eight were:

¹ See http://www.aceee.org/conf/mt08/1a_fogel.pdf for a full list of relevant California policy framework components.

Residential/ Small Commercial Sectors²

- X% of residential new construction and major residential renovations (during 2009-2011) to exceed Title 24 by 35%, and these levels would be incorporated into 2011 CEC Title 24 standards. Then plan for 2012-2020.
- Achieve “X”% market penetration of SEGWHAI³-qualifying residential and small commercial retrofit/replacement gas water heaters by 2011, “Y” % by 2014, and incorporate into Title 20 (or Title 24) building standards by 2014.
- Achieve X% penetration of high-efficiency air conditioning (A/C) systems in the retrofit/replacement residential and small commercial market segments. Systems also should be optimally sized, with high-quality installations and low-leakage ductwork. This strategy might involve a national approach to climate-zone- efficiency standards (e.g., hot-dry, warm-humid, and temperate zones).

Cross-Cutting Sectors

- Convert all general purpose and directional lighting in California to high efficiency light sources by 2017, through a combination of incentives, market activities, and standards.
- Achieve major market transformation of computer technology and data server network equipment efficiency

Non-Residential Sectors

- X million sq. feet of existing commercial buildings (Y % of the market) would carry out owner/manager/operator actions to improve their energy efficiency by 20% over their 2008 baselines (documented via benchmarking). Develop a trajectory for similar targets in later years.
- Sign on to AIA⁴ Campaign for Zero Net Energy Building Design by 2030. Identify next 6-10 years of CEC standards work, Emerging technologies initiatives, Incentive programs, and State or local initiatives targeting commercial building/ property developers.
- Industrial sector achieves 100% of electricity economic potential (15% reduction?) by 2015, through voluntary action

The joint staff developed a rough calculus of the EE and peak demand opportunities from each strategy, alongside the prospects for “engineering” eventual market transformation via statewide building codes and equipment standards. This overview is summarized in Table 1:

² There was no Big, Bold strategy proposed for existing homes per se. Instead, there were four distinct strategies that together covered the vast majority of energy use in homes – building codes applied to home renovations, largely involving kitchens, bathrooms, and lighting; overall lighting equipment sold in California; obtaining high efficiency A/C systems in retrofit and replacement markets; and super-efficient gas water heaters (gas being the predominant fuel type for California water heating). Separately, State and Federal appliance standards dictated the pace of EE to be accomplished in other major residential appliances.

³ Super Efficient Gas Water Heating Appliance Initiative

⁴ American Institute of Architects

Table 1. Energy Consumption and Estimated Savings for Candidate Strategies

Sector	CEC Estimate of Sector or Segment Consumption Magnitude			Estimated EE Potential			Other Considerations	
	TWH	MW	Million Therms	TWH	MW	Therms	Peak Benefit?	Planned for Codes and Standards (C&S)?
Commercial								
Existing Commercial Bldgs	95	21,000	2,200	12	4,600	300	Large	NA
New Commercial - Zero Net Energy	9	1,900	50	4.5	950	25	Medium	Some – 2008
Residential								
SEGWHA	6	500	2,000	NA	NA	50-100	NA	2008*
New Residential Construction	6	2,900	500	1	500	100-200	Small	Some – 2008
Cross Cutting								
HVAC Residential and Small Commercial	19	14,400	3,000	2	1,400	300	Medium	Some – 2008**
Lighting	46	8,000	NA	10-16	1,000 - 1,500	NA	Medium	Some - 2009 - 2010 ***
Electronics	17	2,400	NA	7	400	NA	Small	Some - 2010
Industrial								
Industrial	40	7,400	2,900	5	650	500	Small	

Joint staff vetted this information, as well as four qualitative criteria for selecting possible Big Bold EE areas, at several summer 2007 workshops. The four qualitative criteria were:

- **Bold: Extremely high levels of market penetration** targeted (see definitions used for each candidate strategy)
- **Bold: Unique opportunity** -- unlikely to be achieved without a Big Bold "bully pulpit", or would not be achieved "but for" this focus
- **Big: leverage actions by others** likely to unleash innovation and financial investment beyond California's ratepayers, thus optimizing ratepayer investments
- **Big: joint action** – strategy lends itself to joint action by other states, the nation, and potentially markets beyond the U.S.

Table 2 presents staff's assessment of the candidate strategies against the qualitative criteria. Of these eight, staff recommended dividing the candidate strategies into two groups. The first is a set of "Top 4" BBEES recommended as the priorities for further exploration and development via the BBEES workshop process planned for May-June, 2007:

- Residential new construction
- Commercial new construction
- HVAC in residential and small commercial buildings
- Industrial sector efficiency

The second group consisted of the remaining set of promising ideas. Staff felt these all could be considered for action through the utility EE portfolio development process, and/or via state or national codes and standards activities. The "Top Four" would command most of the time and attention of the CPUC's and CEC's staff's attention to craft carefully-integrated, yet big and bold approaches to achieving significant long-term energy savings.

**Table 2. CPUC Staff's Qualitative Assessment of Candidates
Best Meeting Criteria for Big Bold Energy Efficiency Strategies**

Sector	Big Energy Savings	Bold: Significant market penetration targeted	Bold: Unique opportunity -- not likely "but for" this focus	Big: \$ Leverage in actions by others	Big: Scale leverage potential beyond Calif.
Commercial					
Existing Commercial Bldgs	Huge	Very high, if achievable, but tough market to reach	Not otherwise likely	Unknown, modest leverage?	Limited
New Commercial - Zero Net Energy	Moderate energy and peak savings	Very High	Some savings likely, but not all savings otherwise likely	High leverage	Very high
Residential					
SEGWHAI	Small	Medium	Could do via standards	High leverage	High
New Residential Construction	Small energy, moderate peak	Very high	Some likely via CEC-NSHP, but balance not otherwise likely	High leverage	Moderate -to-high w/ neighbor states; varies by climate zone
Cross Cutting					
HVAC Residential and Small Commercial	High peak demand savings; small energy savings?	Very high, but must change HVAC business	Not otherwise likely	Limited leverage	Moderate potential on installer business
Lighting			State/national legislation or standards could achieve some/much separately; ACEEE and NRDC in national advocacy		
	Huge	Very high		High leverage	Potential for national action
Electronics			State/ national legislation, standards, or industry consensus could achieve much separately		
	Moderate	Very high		High leverage	Potential for national action
Industrial					
Industrial	Large	Very High, if achievable	Appears unique opportunity for comprehensive systems approach & coordination w/ AB 32	Unknown; moderate to substantial?	Depends on national action, GHG reduction policies, and other state policies

Joint staff led a wide-ranging discussion of how to do long-range EE planning at the May workshop. Participants were extremely interested in how California might go about planning and developing statewide EE strategies and action plans akin to approaches taken in the Northeast and Northwest regions of the U.S. A virtual panel included presentations by utility and non-profit EE organizations in both regions. A second panel included ideas from California utilities, as well as consumer, environmental, and research organizations for how to sustain long-term EE planning. Insights that emerged from this discussion revealed the value in having long-term strategies, ones that clarified roles for utilities (including both investor-owned and publicly owned utilities) or other market players and stakeholders, and the benefits of statewide or regional approaches. The latter could better match the natural business planning and markets of designers and builders, appliance manufacturers and retailers, and property owners. This discussion led to the idea of developing a California EE Strategic Plan, with emphasis on a single “statewide” plan, with the active participation of IOUs, POUs, and non-utility market actors.

CPUC staff then organized five sets of intensive one or two-day workshops in June 2007 to brainstorm the opportunities for Big Bold EE initiatives in the Top Four sectors and as regards strategic planning. Staff initiated outreach beyond the investor-owned utility and consumer advocates typically active at the CPUC, to invite active participation from publicly-owned utilities, market players involved in the sale or delivery of EE products and services, and professionals from the building sectors. To convey the “outside the box” intent of the discussions, the workshops were held at a downtown business district location.

These led to joint energy staff recommendations for three initial Big Bold strategies, chosen on the basis that they could be easily understood and quantified, galvanize their respective industries and stakeholders, and serve as a focus for integrated end-to-end action strategies. The three became known as:

- Zero Net Energy New Residential Construction⁵
- Zero Net Energy New Commercial Construction
- Transforming the California market for small HVAC system selection, installation, and maintenance.

Fall 2007 Commission Decision: Aggressive Energy Efficiency Initiatives and a Statewide Strategic Planning Process

On October 19, 2007 CPUC Commissioners adopted Decision D. 07-10-032, and launched California towards its first statewide energy efficiency strategic planning process, for the period 2009-2020. This decision set in motion a number of important principles.

First, it directed California's IOUs, in close collaboration with state agencies, public utilities, local governments, and industry and other stakeholders, to prepare a single, statewide strategic plan by mid-May, 2008.

Second, it endorsed the three "Big, Bold" Programmatic Initiatives, directed the IOUs to include these as centerpieces of the strategic plan, and directed IOUs to include applicable near-term supporting utility activities based on the plan in their 2009-2011 EE portfolios.

The decision also outlined additional aims for strategic planning, in particular for:

- Better coordination or "integration" of marketing and delivery of demand-side management programs, including AMI, demand response, distributed generation, solar and energy efficiency programs, with expectations there could be substantial cost savings from efficiencies in program delivery.
- Deployment of "end-to-end" strategies that could move promising R&D results and emerging technologies more quickly through development and marketing cycles, and ultimately to a level of market penetration sufficient to obviate the need for utility rebate programs and instead comprise either standard market practices or inclusion in mandated codes and standards.
- Strategies for improved communications, education, professional development and training activities necessary to ensure a sufficient workforce in California to implement the aggressive goals.

Staff agreed that the 2009-2011 portfolios needed to be put together early in 2008, with a Commission decision on the portfolio contents and budgets by summer 2008. This schedule would permit sufficient time for the utilities to make program changes and develop new programs or implementation mechanisms to roll out by January 2009. But this timetable created a dilemma for how to shoehorn in a strategic planning process between the October 2007

⁵ The earlier inclusion of beyond-code efficiency levels applied to renovations of existing homes was no longer a driving element of this definition, although it was expected that many of the technologies and practices used in beyond-code or zero net energy new homes would be applied to existing homes with increasing frequency.

decision and the anticipated early 2008 portfolio filings for the 2009-2011 period. The compromise staff agreed on was to undertake a compact, intense public process of strategic planning in November-December 2007, give utility writing teams time to distill this into a strategic plan in January 2008, and require utilities to post an initial draft plan in February 2008. Staff hoped that utility writing teams would identify key utility roles and any needed changes in workshop proposals and/or new programs needed for 2009-2011 during January. This left 2-3 months for the final shaping of the programs to comprise the portfolios to be filed by May (later extended to June). In December 2007, the CEC adopted its own commitment to achieving the zero net energy targets for new residential and commercial building in the 2007 Integrated Energy Policy Report⁶, further strengthening the groundwork for a successful workshop process.

Organization of the Strategic Plan Development Process

CPUC staff organized the Strategic Plan stakeholder process into four sector and five cross-sectoral groups, as indicated in Table 3. The leadership personnel needed to pull off strategic thinking and planning in short order needed to be subject matter experts, long-experienced with identifying alternative action strategies that could leverage potential roles of many actors and not just utility programs. They also needed to be able to operate as neutral facilitators to engage the input of a wide variety of stakeholders while keeping in sight the sea-change level of efficiency that the Commission envisioned was needed and could be achieved. To fill this role, the CPUC contracted ten neutral consultants to convene and facilitate these working groups, and received logistics support from an additional consultant group. CPUC staff also arranged regular coordination with IOU leads and worked to ensure that IOU personnel were assigned to all work groups, taking as active a role as they were capable of doing. The CPUC recognized that it was critical for utility staff to be actively engaged in the process since at the end of the day the utilities would prepare the strategic plan and use it as a framework for their own EE program portfolio development. Yet Energy Division staff prepared a “Guidance Document” to provide additional direction to the IOUs regarding the expected content of the planning effort and work product.⁷ CPUC staff also prepared a draft outline of the proposed plan as guidance for the eventual IOU writing team, and provided similar guidance to conveners regarding the work group reports they were to prepare to summarize the outcomes of each of the work group planning efforts.

CPUC staff worked to maintain momentum in the stakeholder process by active recruitment of organizations and business association representatives to participate in the work groups; holding alternate work group meetings between northern and southern California; creation of a master web site where all relevant information about the planning process, work products, and key personnel contact information was posted (www.californiaenergyefficiency.com); audio cast or conference call arrangements for most all meetings; advance agendas; posting of meeting notes; and use of small break-out groups to facilitate stakeholder participation on the issues of greatest interest.

CPUC with its consultants and the CEC together convened some 40 stakeholder working group sessions to develop sector and cross-sector reports during November- December 2007. Consultants prepared these as consensus reports that were in turn presented to the IOUs in early

⁶ <http://www.energy.ca.gov/2007publications/CEC-100-2007-008/CEC-100-2007-008-CMF.PDF>

⁷ “2009-2020 California Statewide Energy Efficiency Strategic Plan Guidance Document for Expected Contents,” CPUC Energy Division staff, November 5th, 2007, <http://www.californiaenergyefficiency.com/overview.shtml>

January. The utilities utilized these five hundred pages as input into their initial version of the draft Strategic Plan, which was posted on-line in early February. The CPUC subsequently directed the utilities to provide more detail on action plan strategies, milestones, and suggested lead organizations for each strategy, and a second IOU draft containing much of this information was posted online in early March.

Table 3. Organization of California Energy Efficiency Strategic Plan Topics

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Sectors			
<u>Residential</u>	<u>Commercial</u>	<u>Agriculture</u>	<u>Industrial</u>
☐ Small HVAC BBEES			
☐ New Residential Construction BBEES	☐ New Commercial Construction BBEES		
☐ Low Income EE (LIEE) ⁸			
Local Government Roles			
Emerging Technologies, Market transformation, and/or Code & Standards			
Integrated DSM & EE program development & delivery			
Integrated Marketing, Outreach & education			
Training & Work Force Development			

While the utilities were starting work on preparing the statewide strategic plan document, CPUC staff met in mid-January with the work group conveners to review the overall sets of work group reports and strategy recommendations. Together the CPUC staff and conveners prepared a “Top 10” list of the most important strategies, and provided this to the utility writing team as a group consensus, but one that had not been reviewed or approved by the CPUC commissioners. The Top 10 strategies identified were:

1. Aligning benchmarking, building energy labels, and operation and maintenance for commercial buildings
2. Developing an industrial sector vision and framework for improved regulatory coordination (e.g. across energy, air, water, and GHG issues) at a state level
3. Developing whole house solutions for existing homes
4. Developing a commitment to a long-term strategy of aggressive codes and standards for commercial buildings (and potentially other sectors)
5. Six items tied for 5th importance:

⁸ Low Income Energy Efficiency

- Standardization of green building and EE standards across the state
- Developing a plan to achieve building/appliance code and quality installation compliance and certification for HVAC systems
- Developing a brand and creating demand for quality HVAC systems and service (maintenance)
- Undertaking EE opportunity market characterization and goal setting for the agricultural sector
- Developing a common menu of local government policy mechanisms to accelerate EE achievement
- Undertake pilot activities to demonstrate cutting edge integrated DSM approaches, using local governments (facilities or policies) as one delivery channel

The utilities' March draft of the California Energy Efficiency Strategic Plan included most of the Top 10 activities to greater or lesser extents. However, five of these strategies received relatively light treatment in the draft plan.⁹ The common theme among all five was they were not natural territory for utility leadership or execution—essentially, the draft plan leaned toward activities with which utilities were more comfortable. To help redirect the plan's scope, later in March 2008 CPUC staff revised one of the draft sector chapters into a “model chapter” that the utilities and their consultant writers could use to prepare final plan chapters better matched to the Commission's guidance.¹⁰

The nature of the work group and utility process in November – March did not avail adequate time or resources to conduct quantitative assessments of EE savings potential, expected costs, nor the associated greenhouse gas reductions. Such efforts were underway in a parallel time frame (i.e., the CPUC's EE Goals Update Study,¹¹ and the CEC/CPUC's joint proceeding to assess GHG reduction strategies in the electricity and gas industries.¹² Modeling work in the CEC/CPUC joint GHG proceeding indicated in April of 2008 that in the electricity sector, EE strategies in a “reference case” would be expected to supply 8 million tonnes of CO₂e per year—about 40% of the combined 21 million tonnes CO₂e contributions from EE, renewables, and combined heat and power hoped for by 2020. In a more aggressive “33% RPS¹³/High EE Goals” scenario, EE options are identified to potentially reduce an additional 10 million tonnes, or about 35% of the hoped-for 30 million tonnes from this more aggressive scenario. In short, with California's target set at reducing GHG emissions by 174 million tonnes CO₂e by 2020, EE is being considered for an over 10% contribution, on top of California's historic efforts.¹⁴

⁹ Whole house solutions for existing homes, standardization of green building and EE standards across the state, developing a plan for code compliance and quality installation for HVAC systems, quality brand development for HVAC systems and service, and developing a common menu of local government policy mechanisms to accelerate EE achievement.

¹⁰ One Commission staff person was assigned to continue to work closely with the utilities through the spring to help shape the final chapters for major end use sectors with the aim that the final plan document would truly be a broad, statewide strategic document.

¹¹ <http://www.cpuc.ca.gov/NR/rdonlyres/D72B6523-FC10-4964-AFE3-A4B83009E8AB/0/GoalsUpdateReport.pdf>

Note: the actual publication date is in 2008, and not 2007 as shown in error on the title page.

¹² http://www.cpuc.ca.gov/PUC/energy/electric/Climate+Change/070411_lbghgcap.htm

¹³ Renewable Portfolio Standard

¹⁴ [http://www.ethree.com/GHG/E3_CPUC_GHGResults_13May08%20\(2\).pdf](http://www.ethree.com/GHG/E3_CPUC_GHGResults_13May08%20(2).pdf)

Lessons Learned and Challenges Ahead for Next Round of Strategic Planning

There are a variety of lessons learned from this first condensed approach to preparing a statewide strategic plan for energy efficiency in California. The following observations are presented in order of our perceived importance. For each we identify “lessons learned” to guide the next round of planning.

Need for Dedicated Strategic Planning Staff

There is not yet enough utility or Joint Agency staff assigned to, or skilled at, strategic planning to permit critical differentiation across the several functions most staff now performs. The CPUC had been advising utility executives since mid-2007 that they needed to staff up and assign separate personnel to strategic planning. This has not yet occurred, and the utility team’s work product so far does not reflect fully robust or truly strategic visions for how to accomplish accelerated levels of energy efficiency in California, nor comfort in engaging expert stakeholder involvement in planning discussions. Instead, the draft plan documents exhibit a hesitance to venture beyond the terrain of utility comfort zones.

Many key utility staff currently wear four hats – oversight and management of existing 2006-08 program implementation; participation in evaluation and data analysis of prior (2004-05) and current program cycles; development of 2009-2011 EE programs; and, participation in the long-term strategic planning effort. Limited staff numbers and skill sets dictate that staff at utilities and agencies span numerous functions without sufficient time to dedicate their focus to quality work on just one or two of these functions. Moreover, performing strategic planning requires skill sets and professional experience not possessed by all staff members.

Lesson learned: Assign dedicated strategic thinkers to lead the strategic planning effort, regardless of their institutional affiliation (i.e. from state government, utilities, consultants, or others). These planners can call upon evaluators, program managers, and technical personnel as needed to contribute in their core areas of expertise.

Engaging Thought Leaders

This initial effort demonstrated the need for greater access to supporting market research, thought leaders and think-tank(s), and other analytical services.

Lesson learned: Strategic planning requires ongoing research and analysis, as well as specific commissioned studies. Such work might be housed in one center or organization that can make a long-term commitment to support such functions (e.g. a state agency, university, or institute). Alternatively, one center or agency could commission periodic work from consultants or other sources (but this could lead to methodological variations or data collection duplications).

Lack of Adequate Data and Analysis

There is an inherent time-lapse problem in accessing timely data for planning purposes; essentially, newer data still in progress or under development is not available. Our working time constraints seriously limited the data retrieval and analytical resources that could be applied to this first strategic plan. Participants in the 2007-2008 planning process had to rely on available

data, to the extent that they even had time to seek out and contribute information. Data sources included 2004-05 program experience and evaluations, a 2006 study on potential energy efficiency opportunities by sector & measure, older market saturation data, and historical data on utility program designs, participation rates, and costs. Arguably, much of this data was inapplicable to the broader, more aggressive program designs and marketing strategies envisioned for the plan. Utility and agency staff did not have time to commission special analytical information or, in particular, assess the relative cost-effectiveness of alternative implementation strategies with modeling studies.

Lesson learned: Expand the scheduled time and analytical resources to better support reality checks and tradeoff considerations among the strategies under consideration.

Lack of Adequate Time

The sheer limitations of time prevented sufficient consultation with knowledgeable stakeholders. CEC staff was limited by the press of their own year-end work obligations, and that agency was able to spare only modest numbers of staff to participate in the strategic planning process.¹⁵ So too, the utility strategic plan writing team scheduled only short one-hour debriefing phone calls with each of the work group conveners in January, nowhere near the amount of time that most likely was advisable to best explain the 100+ page work products of several of the work groups. The lack of time also short-changed achieving some of the planning efforts' cross-cutting goals for integrated RD&D, emerging technologies, and commercialization plans; integrated DSM delivery programs; and long-term strategies with manufacturers and builders for achieving market transformation goals.

Lesson learned: Schedule greater elapsed time; work in phases so that there is time for iterations across work groups and with invited input from experts to achieve better integration outcomes. Schedule the planning update process to start one-year in advance of the time portfolio development must commence.

Facilitating Broad Stakeholder and Expert Participation

Strategic planning requires more specialization, with access to relevant market information, technology development and commercialization trends, informed insight on leveraging market and legislative strategy options, and analytical activities with regard to cost and scale functions. While the CPUC staff showed a leadership role in setting this planning process in motion – with over 500 participants in the planning process – the talents required must also draw upon individuals now found in national laboratories and some professional/industry leadership organizations. In particular, the initial effort revealed the need for greater involvement from CEC staff, publicly owned utilities, building and industry leaders, local governments, and research and venture capital professionals.

Lesson learned: Planning conveners or facilitators need the stature, time, funding resources, and format flexibility to identify and successfully attract the participation of key stakeholders. Conveners should put extra effort into securing the participation of those representing major blocks of end users, EE equipment manufacturers, and building and technical service industries that support the delivery of energy efficiency designs, equipment, and

¹⁵ The greatest time came for the HVAC convener, with several days of input from PIER R&D staff, and very limited input from building and appliance standards staff.

services. If needed, conveners should narrow a plan's scope to better leverage the benefit of outside expertise and perspective. More broadly engaging public utilities may require longer-lead times for outreach to their leadership, different, perhaps shorter, workshop formats, or specially-scheduled sessions to discuss POU roles.

Enhanced Interagency Coordination in AB 32 GHG Implementation Era

The Strategic Plan will likely become a central coordination node between the CPUC and the CEC's energy efficiency efforts relevant to AB32 implementation. However, it is not yet known if some kind of market system for GHG emissions reductions or "white tags" will be sanctioned under AB32, thus permitting greater market or voluntary actions to stimulate energy efficiency. If this occurs, it is likely to greatly alter the playing field for energy efficiency, resulting in additional market players, greater innovation in end use energy efficiency solutions, and more creative market adoption strategies when compared to historical voluntary utility program experience. However, until we know the economic premium placed on the GHG emissions reduction properties of energy efficiency, EE likely will remain under-valued from a societal perspective.

*Lesson learned: Draw upon GHG policy studies to assign some incremental GHG benefit extending beyond traditional energy resource avoided cost benefits and local environmental benefits.*¹⁶

Preliminary Conclusions on the Merits of the Strategic Plan Effort

Despite the challenges still to overcome, we strongly believe that California is better off for undertaking a statewide Strategic Plan — even in such a condensed period of time and with the limitations of data, analysis, and participation as discussed above. We already see the following benefits:

- The scope of the draft plan envisions long-term action, and how early stage research or emerging technology efforts must fit hand-in-glove with voluntary promotional efforts down the road and eventual codes and standards or market transformation outcomes.
- The plan identifies potential roles and a wide range of initiatives that can tap the knowledge, connections, and motivations of a broader variety of stakeholders. These range from State government agencies and the State legislature, to private enterprise and local governments. Planning engaged players from building design, construction, and operation/management as important partners in utility program design and implementation.
- Previews suggest that the utility 2009-11 portfolios will contain major steps toward more comprehensive, multi-faceted program designs. These include initial steps toward ZNE homes, pilot programs with integrated DSM marketing/ delivery, and expanded partnerships with local governments interested in locally-higher efficiency or green building initiatives.

¹⁶ The CPUC did exactly this in April 2008 when it advised the utilities how to conduct cost-effectiveness analysis of their upcoming 2009-2011 EE portfolios, using a GHG reduction value sensitivity analysis of \$30/tonne (CO₂e) <http://docs.cpuc.ca.gov/efile/RULINGS/81727.pdf>).

- The CEC has embraced the vision of ZNE homes and commercial buildings, and sees the compelling need for achieving this in part with improved coordination across RD&D, emerging technologies, IOU programs, and locally-higher codes and standards efforts.
- The planning process brought out participation of California statewide local government associations and support organizations representing the over 500 local governments, in addition to two dozen leading local government who have already partnered with utilities on EE program activities. Statewide approaches promise to leverage experience and accelerate widespread complementary EE and other actions by local governments in California.
- The vital issue of workforce development and training is now more visible, with education constituencies better connected with EE stakeholders, and together engaged in tackling approaches to the human infrastructure needed to accomplish California's ambitions for EE and GHG reduction.
- An important Marketing, Education, and Outreach statewide task force was convened and will continue to develop more effective mechanisms for engaging opinion leaders, consumers, and the business community in communicating and advocating the message of EE action.

Together these have provided a solid foundation and great start for accelerating our progress toward the next generation of energy efficiency. Future years will expand and fine tune plans toward a long-term vision of truly integrated demand side and energy efficient solutions.