Shifting the Paradigm to Achieve Big Bold Energy-Efficiency Initiatives in California

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ABSTRACT

In 2007, the California Public Utilities Commission (CPUC) issued a monumental decision that lays the foundation for making energy efficiency an integral part of "business as usual" in California. The decision institutes a comprehensive, long-term efficiency strategy that includes three big, bold energy-efficiency strategies (BBEES), including: zero net-energy residential new construction by 2020, zero net-energy commercial new construction by 2030, and reshaping the HVAC industry to ensure optimal performance of equipment. To achieve these goals, the state will have to undergo a major paradigm shift in how utility portfolios are developed, energy-efficiency initiatives are funded, and energy services are delivered.

For the first time ever in California, the state's investor-owned utilities are required to create a single statewide long-term strategic energy-efficiency plan. The CPUC stressed the need for the utilities to participate in a collaborative planning process that actively involves local governments, key businesses, consumer groups, and other key stakeholders. To accomplish this goal, the state undertook a massive strategic planning process with numerous public workshops. This paper documents California Energy Efficiency Strategic Planning (CEESP) for 2009-20 and examines what worked and lessons learned.

Introduction

In October 2007, the California Public Utilities Commission (CPUC) adopted a Decision that directed the investor-owned utilities, Pacific Gas & Electric, Southern California Edison, Southern California Gas and San Diego Gas & Electric (collectively, Joint Utilities), in California to prepare for the first time ever a single, comprehensive statewide long-term energy efficiency strategic plan. This Decision was groundbreaking in that it also established three primary "Big Bold" programmatic initiatives or goals to direct the long term strategic planning process including:

- All new residential construction in California be zero net energy by 2020
- All new commercial construction in California be zero net energy by 2030
- Heating, Ventilation and Air Conditioning (HVAC) industry will be reshaped to ensure optimal equipment performance.

These stretch goals send a strong, long-term message to all market actors in California that the state is heavily committed to achieving deep energy-efficiency savings while at the same time minimizing lost opportunities.

As directed by the CPUC, 2009-20 California Energy Efficiency Strategic Planning (CEESP) will rest on three foundational pillars: collaboration, innovation and integration. The Decision stressed the importance of the strategic plan providing a roadmap that the 2009-2011 proposed program portfolio plans must follow. The Decision emphasized the importance of the

strategic plan in identifying new channels for delivery of energy efficiency and developing a collaborative planning process that includes public forums and participation of a broad set of stakeholders. In addition, the strategic planning process should foster innovation through long-term planning and identification of Research and Technology efforts that must be undertaken to set the foundation to achieve the Big Bold goals.

This paper documents California Energy Efficiency Strategic Planning (CEESP) for 2009-20 and examines what worked and lessons learned. Key questions addressed include:

- What are the key lessons learned from the planning process?
- Did the stakeholders feel they were heard?
- What key initiatives were identified?
- What is the role of utilities in a statewide initiative?
  Can this process be adapted for other states and communities?

Policy Context

The CPUC Decision requires long-term strategic planning to fit well within the broader policy context in California. A key objective of the California Energy Efficiency Strategic Plan will be to "connect the dots" with other state, regional, national, and international policy initiatives. Key policy initiatives in California that help set the foundation for the long-term energy-efficiency strategic planning process include:

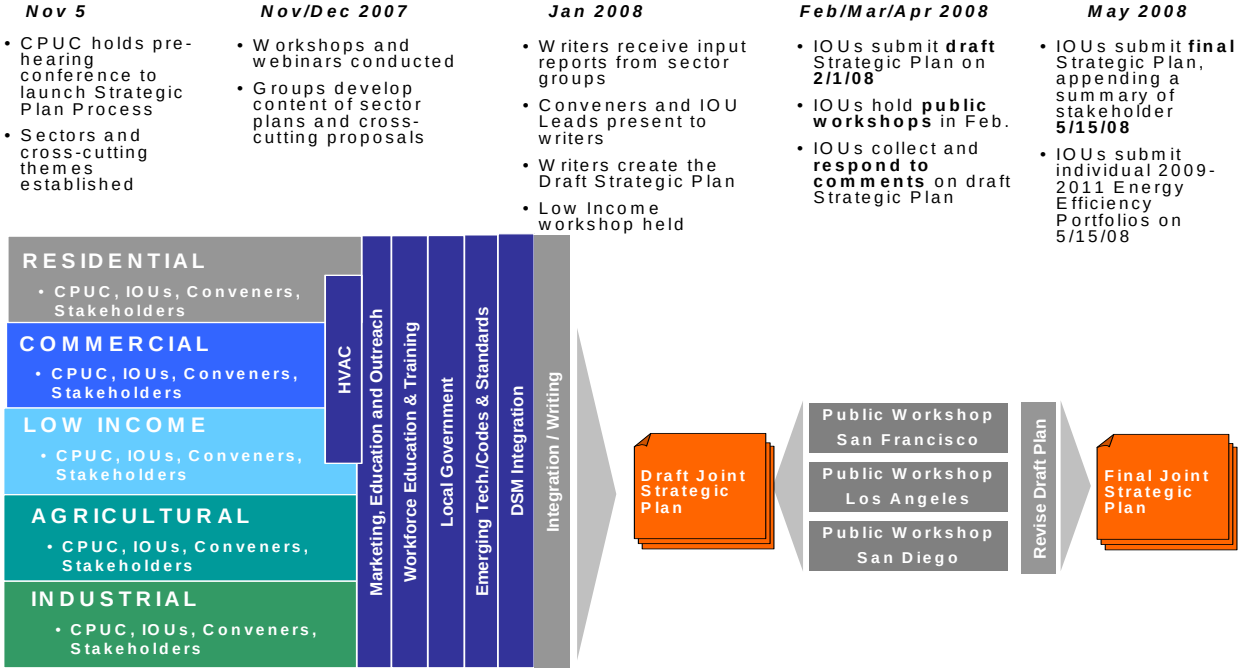
- The California Global Warming Solutions Act of 2006 (AB32)
  - Mandates that California reduce its greenhouse gas emissions to 1990 levels by 2020
- California's Energy Action Plan
  - Establishes a loading order for resources that lists energy efficiency as first in the loading order, followed by demand reduction measures, distributed generation, and conventional generation resources.
- The California Energy Commission's *Integrated Energy Policy Report (IEPR)*
  - Includes goals for 100 percent of economic potential for energy efficiency in the state over a 10-year period
  - Includes a recommendation that the state adopt "zero net energy" as a long-term goal for new commercial and residential buildings, to be accomplished in conjunction with the Energy Commission's building standards.
- Assembly *Bill 2021*
  - Requires the Energy Commission to file a report that identifies options to improve the efficiency and reduce peak demand of HVAC units

Strategic Planning Framework

Figure 1 outlines the strategic planning process that was launched in California. The strategic planning process was kicked off by Commissioner Grueneich on November 5, 2007. The Decision called for a fast-track schedule that required the Joint Utilities to file a draft strategic plan by February 1, 2008. The Decision also required that the strategic planning process

include broad-based public input. Workshops were held throughout the state during November and December 2007 and January 2008 to solicit stakeholder input into the strategic planning process. On the left side of the figure, the horizontal boxes represent sector planning teams and the vertical boxes indicate the cross cutting teams that were formed.

Figure 1. California Energy Efficiency Strategic Planning Process



In the first week of January 2008, the Conveners submitted draft section write-ups (straw-man sections) narratives to the Joint Utility writing team. In early February, the Joint Utilities were required to file the first draft of the California Energy Efficiency Strategic Plan. After the draft plan was filed, the Joint Utilities held public workshops during the month of February to present the plan to the public. Additionally, all parties had an opportunity to submit written comments on a formal basis to the CPUC.

After the public comment period, the Joint Utilities are scheduled to file their Final Draft California Energy Efficiency Strategic Plan on May 15th, 2008. The schedule also calls for each utility will also file their 2009-2011 program portfolios on May 15th 2008.

Conveners

The CPUC took the lead role of coordinating the initial workshops to collect information about existing and potential program elements, identify opportunities and seek stakeholder input. Since this was a substantial task given the fast-track schedule, the CPUC sought the assistance of "conveners," or outside experts, to support the planning activities and discovery process. Conveners were recruited from a wide range of public and private sector organizations. As displayed on the left portion of Figure 1, several sector and cross-cutting teams were established. For each sector, the focus was on both the existing and new construction market segments.

The conveners were responsible for planning and conducting the public workshops and serving as the main point of contact for the sector or cross-cutting teams. The conveners were also responsible for facilitating communication among the public, CPUC, utilities, and other state agencies.

The conveners were ultimately responsible for delivering a straw-man section to the utility writing team by the first week of January 2008. The straw-man sections consolidated the stakeholder input into a single document that summarized the key strategies, milestones, and goals that came out of the public input process.

CPUC and Convener Organized Workshops

Workshops were held throughout the state to provide equal opportunity for stakeholders to participate. In all, there were 14 working groups and 36 workshops involving more than 1,100 participants.[1] A key objective of the workshops was to work with the stakeholders to identify market barriers; ways to reduce the market barriers; and short, mid, and long-term strategies for the California Energy Efficiency Strategic Plan. Additionally, many workshops were structured to have an educational component and included presentations from industry experts on relevant topics. Each team worked on a separate track, yet there was coordination among the teams at all levels.

Cross-cutting topics were handled in a variety of ways. Dedicated workshops were organized for HVAC, Low Income Energy Efficiency, Coordinating Demand Side Management Options, Local Government, Marketing, Education and Outreach, and Workforce Education and Training. Discussion of Research & Technology and Codes & Standards occurred naturally and was further encouraged within the sector workshops, with a synthesis document created to identify key information.

Core Planning Teams

The CPUC required that each of the four investor-owned utilities designate one or two representatives for each of the planning teams. As a result, there was approximately 30 utility staff personnel actively involved in the strategic planning process, representing both the existing and new construction market segments. Typically, the designated points of contact were program managers for the market sector and segment. For instance, for the residential sector, two utility representatives were appointed from each utility, one representing the existing market segment and one representing the new construction market segment.

Pulling from this list of representatives, several of the sector and cross-cutting teams established a core planning team that consisted of the convener, CPUC point person, and representatives from each of the California utilities. The level of coordination between the conveners and the core planning teams varied significantly between the different teams. For the residential sector, weekly conference calls were organized with the core planning team to solicit input on the workshop agendas, speakers, key participants, and break-out sessions. For other teams, the utility representatives attended the workshops but had minimal input on overall planning of workshops. Thus, the organization of the workshops and role of the utility representatives was determined by the convener to a certain extent.

[1] The working groups corresponded to the horizontal and vertical boxes on the left side of Figure 1.

The conveners were responsible for facilitating the active participation of the Joint Utilities, to the best extent possible. Without exception, all teams recognized the importance of getting the utility representatives to buy into the strategic planning process and worked diligently to achieve this goal. Through obtaining the buy-in of the utility program managers on the core planning teams, it was hoped that some of the strategies identified by the strategic planning process would be incorporated into the 2009-11 portfolio program plans.

Stakeholder Recruitment and Participation

As discussed earlier, more than 1,100 stakeholders participated in the workshop process during the months of November and December 2007. Each convener was responsible for developing a list of stakeholders and for recruiting participation in the workshops.

The number of stakeholder participants at the workshops varied by sector and cross-cutting team. The public and industry experts actively participated in the workshops either through breakout sessions or sub-committee activities.

Prior to every workshop, an email was sent out to the list of stakeholders with the workshop agenda. Many of the conveners also called industry experts to seek their participation in the workshops. In addition, notices for all workshops and supporting documents were posted on a central website. In addition to being a central repository for information on the strategic planning process, this website served to manage the RSVP process for the public meetings.

California Energy Efficiency Website

A fully dedicated website (www.californiaenergyefficiency.com) was created to host information on the *California 2009-2020 Energy Efficiency Strategic Planning* initiative. The website includes information on public meetings and workshops, key reference documents, work products, the draft plan, written stakeholder comments and contact information for those involved in the strategic planning process. Eventually, this website may serve as a more comprehensive Energy Efficiency Web Portal that the Commission directed the utilities and the CPUC staff to create as broad-based tool to disseminate information on energy efficiency to the energy industry and the general public.

Sector and Cross-Cutting Teams Hand-off Straw-man Reports to the Joint Utilities

At the beginning of January 2008, the CPUC and conveners handed off straw-man reports to the Joint Utility writing team. The Joint Utility writing team consisted of representatives from each investor-owned utility as well as consultants that assisted with the writing process. The consultants who participated on the Joint Utility writing team were prominent industry luminaries who served to raise industry expectations for the process and final content of the strategic plan.

For the most part, the straw-man reports were developed by the conveners and their core planning teams. These straw-man reports reviewed the key strategies, goals and milestones identified for that particular team as well as relevant information on cross-cutting strategies such as codes & standards and research and technology.

Once the straw-man reports were submitted, the utility writing team had approximately 3 to four weeks to develop the Draft California Energy Efficiency Strategic Plan. Originally, the due date was set for February 1, 2008 but was later extended to February 8, 2008.

Key Strategies Identified in California Energy Efficiency Strategic Plan

The following sections summarize the visions and key strategies identified in the Draft California Energy Efficiency Strategic Plan. The utility writing team often adopted the core recommendations that came out of the stakeholder process at a high level. In some cases, the content was shortened significantly between the draft sector reports and the strategic plan. This is consistent with the utility perspective that subsequent filings should deal with tactics and implementation strategy.

Residential Sector Vision and Strategies

Residential Sector Vision	Strategies
Residential energy use will be transformed by 2020. Current and new channels of energy delivery will be strongly leveraged. Demand-side management (DSM) services will be fully integrated. Consumers will demand and the market will provide highly efficient products and services that will dramatically reduce energy use—with no loss of comfort or equipment efficacy—creating a "win" for the economy, the environment and society.	➢ Pursue whole-house solutions in existing homes ➢ Raise plug-load efficiency ➢ Advance residential new construction whole-house solutions on the path to zero net energy ➢ Provide monitoring and visual display tools ➢ Establish a consistent framework for new construction-savings determination ➢ Coordinate emerging "green" or sustainability standards ➢ Support aggressive enhancement and enforcement of California Building Energy Codes and Standards ➢ Advance energy efficiency through local ordinances ➢ Achieve full "one-stop shop" integration of DSM delivery.

Commercial Sector Strategies

Commercial Sector Vision	Strategies
Commercial buildings will be put on a path to zero net energy by 2030 for all new buildings and for many existing ones. Innovative technol-ogies and practices will dramatically grow in use in the coming years through a combination of tech-nology development, financing and incentives, Codes & Standards and market pull.	➢ Support aggressive enhancement and enforcement of California Building Energy Codes and Standards ➢ Align commercial building labels, benchmarking and operations and maintenance practices to address energy efficiency ➢ Target financing and incentives to meet the objectives of the strategic plan ➢ Promote integrated design for new zero-net-energy commercial buildings and renovations of existing buildings.

Industrial Sector Strategies

Industrial Sector Vision	Strategies
California industry will be vibrant, profitable and embrace resource efficiency as a competitive advantage.	➢ Leverage the marketing and competitive benefits of energy-efficiency branding and certification using a continuous improvement process within industrial facilities ➢ Provide integrated products to increase energy efficiency ➢ Provide centralized technical and regulatory assistance for resource efficiency ➢ Facilitate the direct involvement of industry in coordinated inter-agency planning for the energy-efficiency portions of AB32 implementation.

Agricultural Sector Strategies

Agricultural Sector Vision	Strategies
Energy efficiency and renewable energy resource development will support the long-term profitability and stability of California agriculture, including through increased profitability, support of AB32 compliance, and support of renewable energy goals.	➢ Establish and maintain a knowledge base sufficient to characterize the market and set goals to support planning for development of available energy efficiency and demand reduction resources ➢ Promote the adoption of energy efficiency as standard practice through comprehensive workforce education and training programs ➢ Develop an integrated marketing and outreach strategy for efficiency technologies and practices ➢ Coordinate the goals, program designs, and funding of major sources of efficiency financing and incentives ➢ Foster advances in equipment efficiency and improvement of management practices for irrigation pumping, process natural gas, and refrigeration ➢ Maximize emerging technologies.

Heating, Ventilation and Air Conditioning Strategies (HVAC)

HVAC Vision	Strategies
Residential and small commercial HVAC will be transformed to ensure that technology, equipment, installation, and maintenance are of the highest quality to promote energy efficiency and peak load reduction in California's climate.	➢ Develop new and emerging HVAC technologies for California's climate and buildings ➢ Promote quality HVAC installation/maintenance and improve code compliance for peak load efficiency and performance ➢ Deploy system diagnostics to maintain quality performance of HVAC systems ➢ Promote whole-building performance to get better space conditioning.

Codes & Standards

Codes & Standards Vision	Strategies
A broad range of aggressive and continually improving energy C&S will be adopted to greatly accelerate the widespread deployment of zero-net and highly efficient buildings and equipment. The effectiveness of C&S will be enhanced by improved code compliance as well as coordinated voluntary efficiency activities.	➢ Develop C&S that are more stringent and more comprehensively cover energy-consuming applications ➢ Improve code compliance and enforcement ➢ Improve code research and analysis ➢ Improve coordination of energy C&S with other programs, policies, and jurisdictions.

DSM Coordination and Integration Strategies

DSM Vision	Strategies
All DSM programs are coordinated and, as appropriate, integrated to increase the penetration of energy efficiency and avoid lost opportunities.	➢ Establish integration procedures and determine the limits of integration through pilot projects ➢ Enhance regulatory coordination ➢ Develop a shared vision and process for regulatory coordination in California.

Workforce Education and Training Strategies (WE&T)

WE&T Vision	Strategies
All DSM programs are coordinated and, as appropriate, integrated to increase the penetration of energy efficiency and avoid lost opportunities.	➢ Foundation building, including preparing a needs assessment, evaluating cost-benefit analysis tools for investments in WE&T, creating a WE&T web portal, establishing ongoing dialogue with key players, and forming a WE&T task force ➢ Focus specific strategies on K-12, adult education and community colleges, technical training, higher education programs, and minority, low-income, and disadvantaged communities. .

Marketing, Education and Outreach Strategies (ME&O)

Marketing Vision	Strategies
Californians are engaged as partners in the state's energy efficiency, DSM, and clean energy efforts for 2009 and beyond with the dual goals of informing them of the importance of energy efficiency and their opportunities to take action	➢ Explore the use of a recognizable and trustworthy brand for California's energy efficiency and other DSM consumer products and services ➢ Utilize statewide segmentation research to develop targeted and highly relevant energy efficiency and DSM marketing messages to incite behavior change/action ➢ Use social marketing techniques to build awareness and change consumer attitudes and perceptions ➢ Explore developing a website with statewide information on GHG reductions, efficiency, and DSM awareness and options.

Emerging Technologies Strategies (ET)

Emerging Technologies Vision	Strategies
Technology advancement related to energy use has matched—or even eclipsed—the consumer electronics industry in innovation, time to market, and consumer acceptance.	➢ Enhance market intelligence and behavioral research activities ➢ Expand activities to create market pull for energy-efficient technologies ➢ Promote upstream channels and investment in promising energy-efficiency technologies ➢ Drive product improvement and adoption activities ➢ Focus on leading-edge technologies.

Roles of Local Government

Local Government Vision	Strategies
By 2020, all of California's local governments will be operating within an energy-efficiency and renewable-resource environment that is characterized by integrated state approaches, local engagement and cooperation, and informed energy action.	➢ Simplify and standardize state policies and codes guiding local building, community design, and zoning codes ➢ Build capacity for local governments to lead by example ➢ Maximize energy efficiency in new and existing construction through local government policy ➢ Rapidly upgrade and expand energy-efficiency training and information for local governments.

Low-Income Energy-Efficiency Strategies (LIEE)i

LIEE Vision	Strategies
To provide all eligible consumers the opportunity to participate in the LIEE programs and to offer those who wish to participate all cost-effective energy-efficiency measures in their residences by 2020	➢ Develop customer segmentation to improve program delivery, increasing the opportunities for program participation and energy savings. ➢ Pursue collaboration and leveraging of other programs ➢ Integrate LIEE programs with energy-efficiency and other DSM programs ➢ Develop and integrate LIEE workforce training requirements into the WE&T strategy aimed at reaching minority and other disadvantaged communities ➢ Specify and employ program elements that emphasize long-term and enduring energy savings ➢ Specify and deploy ME&O for LIEE program consistent with energy-efficiency strategies

Supplemental Filing

Within a week after the Joint Utilities submitted the Draft California Energy Efficiency Strategic Plan to the CPUC, an Assigned Commissioner's and Administrative Law Judge's Ruling was issued that required a supplemental filing of the Draft California Energy Efficiency Strategic Plan. Although the Ruling recognized that most of the requirements for the Energy Efficiency Strategic Plan were met, the ALJ Ruling required the Joint Utilities to submit a supplemental filing to provide more specific information on key action steps across the sector strategies by timeframe, including "critical path" action steps. The intent is to establish a trajectory toward zero-net energy buildings and other key goals that next steps and statewide planning can be vetted against. In addition, in the supplemental filing, the Joint Utilities were required to provide information on specific linkages from the Strategic Plan to the 2009-2011 portfolio filing and Big Bold Energy Efficiency initiatives. The Joint Utilities filed a Supplemental Draft Strategic Plan on March 6, 2008.

Model Chapter

A subsequent "Model Chapter" was developed by the CPUC after the utilities filed the Supplemental Draft Plan. This model chapter provides further clarity on the expectations of how to draw the linkages between strategic initiatives and outline the critical path action steps. Part of the challenge associated with the drafting of the plan is related to the Joint Utilities reluctance to call upon other entities in state to take action. The model chapter helped to pave the way towards a a plan that is less utility centric and more inclusive of alternative channels of delivery for energy services and policy initiatives.

Lessons Learned

The following section discusses key lessons learned from the strategic planning process including:

Importance of Establishing Stretch Goals

The long-term strategic planning process has demonstrated the importance of establishing stretch goals to help shift the paradigm from historic business practices. The stretch goals have

set the foundation to address climate change in an aggressive manner through setting targets for deeper energy efficiency savings. They challenge people to go beyond business as usual, to think big, to leapfrog ahead rather than take mere steps towards achieving our goals. The zero-net energy strategies are particularly well framed as they apply a discipline to the pursuit of all appropriate energy-efficiency to minimize the scale of application of renewable energy to the reach zero-net energy goal.

Importance of Strong Leadership and Development of Champions

It is also critically important to have strong leadership when promoting a vision or stretch goals. It's important to work to establish "champions" within different organizations, agencies and the utilities at all different organizational levels. The process proved effective in developing champions who are now clearly moving the ball forward within their organizations. These champions will serve to continue the momentum that was created by the strategic planning process.

Importance of Requiring Widespread Participation of Utilities

Through strong leadership and the establishment of the first time ever statewide energy efficiency strategic planning process, numerous utility representatives (senior executives, directors, program managers) were required to participate in the planning activities. For the most part, these planning activities (workshops, core team meetings, etc.) focused on how to set the foundation to achieve the Big Bold Energy Efficiency Initiatives.

In the early stages of the planning process, many of the utility representatives were cynical of whether the goals were achievable. After several months of intensive planning, we found that momentum started to build. Thus, the collaborative planning process had the effect of getting the utilities to "buy-in" to the process and, more importantly, to begin to take actions to help achieve the stretch goals.

Since the workshops, we also have begun to see more coordinated planning between the utilities, perhaps due to the relationships that were developed during the strategic planning process. Not only was it important to establish stretch goals, it was equally important to set up a process that required the active participation of key players within the utilities, particularly the key decision makers (senior management) and the energy efficiency program managers who are directly responsible for program design and implementation. Achieving the Big Bold goals will require even more diffusion of information and a higher level of coordination within and between utilities.

Local Governments Key Channel for Delivering Energy Efficiency Services

The strategic planning process reveled that local governments are a key channel for delivery of energy efficiency services. Local governments and utilities will need to collaborate to influence change in current building practices. Local governments will be strongly encouraged to go beyond existing statewide C&S through local ordinances. Utilities will support these local government initiatives through development of model local ordinances, C&S technical support and highly coordinated incentive programs.

Land-use planning will also play a significant role in helping to achieve zero net-energy residential new construction by 2020. Statewide smart growth initiatives will work to set the foundation for reduced energy consumption and improved transportation efficiency. In addition to smart growth initiatives, local governments, planning departments, master developers and utilities should work collaboratively in the early stages of housing development planning to influence street layouts, home orientations, shade tree programs and other initiatives to help optimize the energy performance of homes and communities. Lastly, all parties agreed that we need to do a better job "connecting the dots" between local based carbon reduction initiatives and energy efficiency program funding and technical support.

Compliance and Enforcement of Building C&S

Achieving the zero net-energy goals outlined in the Strategic Plan will require a combination of mandates and voluntary actions. Most stakeholders and IOU participants believe that to achieve the zero net-energy new construction goals by 2020 and 2030, we will have to continuously ratchet up Title 24 Codes and Standards (C&S) over the planning horizon to a point where zero energy homes are mandated sometime prior to 2020.

Consensus was reached that efforts to reach any goals beyond code were not appropriate unless all new construction was meeting the minimum code requirements. It is widely recognized in the state of California that there is widespread non-compliance with the Title 24 Building Codes and Standards (C&S). Therefore, the strategic planning process revealed that state agencies and utilities should work collaboratively with local governments to significantly increase C&S compliance and enforcement.

Increased RD&D Support Required

In addition to the fundamental need for C&S support, there are deep technical challenges associated with achieving this goal by 2020. Without significant increased RD&D efforts and large-scale demonstration projects, it will be difficult to transform the market in such a short period of time.

Stakeholders Felt They Were Heard

The workshops proved to be an effective tool in soliciting public input on the strategic planning process. Stakeholders were actively involved and worked along side the utilities to develop strategies for the sector or cross-cutting team. They brought an important voice to the process and, through their participation and buy-into the key strategies, helped to lay the foundation for implementation of the plan.

Can This Process be Adapted for Other States and Communities?

The strategic planning process developed by the state of California provides a useful model for other states to leverage. In particular, the identification of the fourteen working groups allowed for development of a comprehensive plan dealing with programmatic issues as well as marketing and outreach and workforce education and training. Additionally, the establishment of the core planning teams allowed project managers and senior executives from the different

utilities to work collaboratively on developing a single plan. The planning process has since led to enhanced coordination between the utilities in developing the 2009-2011 programs.

Marketing, Education and Outreach

Establishing a statewide cohesive marketing education and outreach (ME&O) campaign is also critical to transforming the market in California. We need to establish the push pull mechanism to drive the market in California. Of critical importance will be establishing continual feedback loops that provide relevant information to production home builders and other market actors. Market research will be critical to provide feedback on indicators such as consumer demand for highly efficient or net zero-energy homes, housing values, carrying costs and other economic factors. Early research has been limited yet quite promising on this topic.

Workforce Education and Training

Workforce education and training is also a critical component to establishing a viable market where high energy efficiency design, green building practices, and distributed generation are incorporated into all new and retrofit building designs as a matter of practice. Builders, developers, local planning departments, inspectors, architects, and the HVAC engineering design community will need to be trained in order to develop the necessary infrastructure to achieve this market transformation. This training effort that will span from the formal educational institutions (Colleges and Universities), who will need to ensure their curriculums are in place to provide the technical talent required to solve the challenging design hurdles, to the many others involved in construction of the project. A significant portion of this training can be delivered through the existing IOU energy resource centers and through Partnerships with local governments.

Behavioral Research

Behavioral research is another area that will require significant attention in order to provide a basis to make important strategic decisions and accurately assess their impact. It's important to note that significant technological progress can very easily be dwarfed by poor consumer choices and behavior patterns. Thus, to achieve the goals of zero net-energy new construction and deep energy savings in existing infrastructure, we will need to develop a greater understanding of consumer choices and tradeoffs, consumer behavior and the key motivators for behavioral change. We'll need to develop a greater understanding of how to leverage social networks and social norms to bring about behavioral change within communities. Additionally, we need to develop a greater understanding of the key factors that influence decision-making for the primary market actors in the value chain, i.e. builders and developers, contractors, designers, planners, etc. Therefore, it is critically important that we substantially increase our behavioral research activities, both on a statewide and regional basis.

Increased attention on plug loads is critical

Addressing the issue of widespread growth in plug loads associated with consumer electronics also needs to be addressed in a comprehensive manner if we are to achieve more significant energy savings in California. We need to identify comprehensive strategies to address

the issue of growth in plug loads and work at all levels of the value chain to facilitate change. At a minimum, plug loads will need to be reduced by half compared to where they are now if we are to achieve California's zero net-energy goals. Potential savings from this plug load strategy in the residential sector could be 200 MW by 2011 with larger potential savings in the future.

Challenges Associated with Planning Process and Assignment of Lead Agency

In the future, the CPUC should examine whether it's best to assign the investor-owned utilities the lead role in developing the strategic plan. There were several limitations associated with assigning the investor-owned utilities the lead role in developing the strategic plan. First and foremost, the utilities have a utility centric view of the situation in California and they were reluctant to add content to the strategic plan that identified new channels for delivery of energy efficiency services and action items for other entities or state agencies. Additionally, the utilities were reluctant to include strategies in the strategic plan were not cost-effective under the current California cost-effectiveness test methodology.

Another limitation of having the investor-owned utilities as the lead agency is that we had limited participation by the municipal utilities in the strategic planning process. Since the CPUC does not have regulatory authority over the municipal utilities, they were not "required" to participate in the statewide strategic planning process. With the exception of SMUD, few municipal utilities attended more than one or two planning workshops. This clearly created a gap in the planning process that should somehow be addressed prior to the next planning cycle.

Furthermore, due to the resource constraints of many state agencies, we did not have active participation from many relevant state agencies. A key strategy that came out of the strategic planning process is to increase coordination between state agencies on energy efficiency initiatives. For instance, it is vitally important that the CPUC and California Air Resources Board, increase coordination on carbon mitigation strategies related to enhancing the efficiency of our existing building stock and industrial processes. Similarly, it is equally important that the CPUC and the CEC increase coordination on strategic issues such as the continuous ratcheting up of Building Codes and Standards in an effort to set the pathway to achieve zero net-energy new construction in the residential and commercial sectors by 2020 and 2030, respectively.

Conclusions

The California Energy Efficiency Strategic Plan will help set the foundation for achieving the Big Bold programmatic initiatives in California. The strategic planning process served an important function by getting a vast number of participants (utility professionals, CPUC staff, Conveners, local governments, industry experts and other key stakeholders) to collaboratively develop short, mid and long-term strategic initiatives. By the end of the planning process, participants had become committed to trying to achieve the Big Bold stretch goals. The process was highly effective in soliciting stakeholder input and building relationships that will be leveraged throughout the coming years to harness new channels for delivery of energy services. Going forward, it will be important to maintain the positive momentum that was created through the planning process by keeping key players actively involved in strategic initiatives designed to promote Big Bold savings opportunities in California.

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