



California ISO  
Shaping a Renewed Future



February 25, 2013

The Honorable Alex Padilla, Chair  
California State Senate Committee on  
Energy, Utilities and Communications  
State Capitol, Room 4038  
Sacramento, CA 95814

The Honorable Jean Fuller, Vice Chair  
California State Senate Committee on  
Energy, Utilities and Communications  
State Capitol, Room 3063  
Sacramento, CA 95814

Dear Senators Padilla and Fuller:

Thank you for the opportunity to respond to the Committee's questions in your letter of January 30, 2013, regarding the development of joint energy agency recommendations to further California's goal of reducing the need for new power plants by investing in energy efficiency. The California Public Utilities Commission (CPUC), California Independent System Operator (CAISO), and the California Energy Commission (CEC) agree that it is crucial to appropriately and consistently consider energy efficiency savings in energy forecasting, electricity procurement planning, and transmission planning to avoid over- or under-building the electricity infrastructure needed to provide safe and reliable power at reasonable rates to California and its citizens.

**Question 1:** How can the joint agencies improve the demand forecast and procurement planning processes to more efficiently reach agreement on how to account for reduced energy demand from energy efficiency?

**Response to Question 1:**

***Improvements Already in Progress***

The joint agencies are fully committed to aligning our respective processes to coordinate energy efficiency so that there is proper accounting of this top priority resource. As we indicated during the January hearing, there are multiple points of interface between the agencies. We agree that there is always room for improvement, and we are pursuing the following reforms to the demand forecasting process:

- The three agencies will implement a joint work plan in each *Integrated Energy Policy Report* proceeding, beginning with the 2013 IEPR. The work plan will align the key milestones of the demand forecasting process, including projections for energy efficiency, with agencies'

planning and policy deliberations and will clarify data flows between agencies. This reform will highlight timing needs for key deliverables, and will identify next steps for producing more disaggregated forecasts at sub-regional levels. This higher level of coordination via the work plan will clarify how each of the agencies may use the forecasts in their own deliberations.

- The CEC is modifying its existing models to support forecasting at more granular geographic levels in response to the needs of the CPUC and CAISO. This effort will also support recommendations in the *2012 Integrated Energy Policy Report* for more disaggregated forecasts to help identify preferred renewable development zones throughout California and facilitate better distribution system planning.
- The CEC is developing new modeling methods to more robustly capture efficiency impacts. The new models are being developed in close consultation with the CPUC and CAISO and will be vetted through the Demand Analysis Working Group (DAWG) collaborative process, which was established to include a wide variety of stakeholders in technical discussions about the forecasting process and methods. The CAISO will be actively engaged in the DAWG collaborative process.
- In the more immediate term, the CAISO will use the CEC's expected mid-case demand forecast, adjusted by the 2012 "low" scenario for additional achievable (incremental uncommitted) energy efficiency as the basis for analysis for the 2013-14 transmission planning process, which is already underway.
- After the CEC adopts the demand and additional achievable efficiency forecasts, the three agencies will agree on a single recommended forecast case to be used consistently in the next transmission planning and procurement cycles.
- As we implement these near term strategies, we also commit to using the current efficiency portfolio cycle to investigate additional planning improvements, from authorizing longer-term efficiency portfolio cycles to better integrating efficiency into system-wide and regional operational needs.

### ***Demand Forecast Process***

The CEC develops 10-year forecasts of electricity and natural gas demand every two years as part of the *Integrated Energy Policy Report*. Historical data from the CPUC and CAISO is used to develop the demand forecasts, estimate additional achievable efficiency program savings, and analyze peak energy demand. Traditionally, the CEC adopts electricity demand and additional achievable energy efficiency savings forecasts with ranges of scenarios, allowing the CAISO and CPUC to choose which scenarios to use in their procurement and planning processes. As a result there may not have been complete consistency among the forecasts used for the following purposes:

- By the CPUC in its efficiency potential and goals studies which guide program and funding decisions for investor-owned utilities;
- By the CPUC and CAISO to make decisions on electricity procurement and transmission planning; and

- As a basis for CPUC- and CEC-recommended portfolios used in the CAISO's transmission planning process.

A key aspect of the demand forecast is accounting for energy efficiency initiatives as reductions to projected future demand. Since 1985, initiatives have been split into two types. The first is "committed" efficiency, which refers to utility and public agency programs, codes and standards, and legislation already implemented or that have final approval, firm funding, and specific program designs. The second is "additional achievable" efficiency – savings from future initiatives yet to be funded or designed but that have some degree of reasonable expectation. As noted above, the agencies will work together in each IEPR cycle to arrive at a single recommended forecast that encompasses both the CEC adopted electricity demand forecast and the CEC adopted additional achievable energy efficiency forecast.

***Agency Collaborative Efforts for the 2013 Integrated Energy Policy Report Proceeding***

Attachment A provides a schedule and list of collaborative activities related to the demand forecast that will occur as part of the *2013 Integrated Energy Policy Report* proceeding. This is the first step in what will become an annual joint agency collaborative work planning effort. Looking beyond 2013, the three agencies see a number of key issues to be addressed for the next work planning effort:

- Data needs and methods to advance forecast disaggregation to smaller geographic areas than climate zones;
- Level of confidence needed for relying on future energy efficiency savings for long-term infrastructure planning; and
- Timing and alignment of the demand forecast, energy efficiency funding cycles, measurement and evaluation, and agency planning cycles.

**Question 2:** How can the design, implementation, and coordination of energy efficiency programs be improved so that they best match grid operational requirements, including reliability and local capacity, with consideration of grid impacts from renewable energy and other state energy policies? Please reference Attachment B, the graph provided by the CAISO that was discussed at the hearing and depicts grid impacts.

**Response to Question 2:**

While energy efficiency is not a dispatchable resource, its deployment can be targeted to manage load in various ways that benefit grid operation. Deployed at significant scale and targeted at times of greatest system stress, energy efficiency can free up dispatchable resources for grid reliability and renewables integration. Energy efficiency programs targeted towards peak load and specific geographic areas could reduce the need for new resources for local capacity. In evaluating the cost-effectiveness of various programs, the CPUC considers a variety of factors on a portfolio basis. As the electric grid system needs evolve, the composition and cost-effectiveness criteria of the portfolio can adapt accordingly.

Working with the other two agencies, the CPUC is exploring a range of approaches to deploy energy efficiency in a manner that best matches grid operational requirements while complying with adopted state energy policies. The three agencies are also working together to address the

growing need for flexible capacity to reliably and efficiently integrate intermittent resources to achieve state mandates. Since the needs of grid operation are dramatically changing due to the rapid investments in clean energy, the joint agencies are coordinating to ensure future energy efficiency programs can help reduce the need for generation resources at critical times of the day and year. Specifically:

- The CEC and CAISO are planning to develop recommendations that can be used by the CPUC to focus utility efficiency programs on local reliability areas and specific times of day. This approach will require the CPUC to include the CAISO's transmission study results and the CPUC's LTPP procurement needs determinations in the Energy Efficiency proceeding so that geographic and time of use information informs program design. The CPUC is already tracking the impacts the energy efficiency programs have on reducing peak load, and new information being developed by the CAISO shows that in the future, energy efficiency programs could also target the extreme system ramping times of the day identified in the attached CAISO chart (Attachment B).
- The actual programs deployed to meet these goals range from increased marketing and outreach expenditures, higher incentive offerings, and direct install programs. These targeted programs will create equity issues since one group of customers receive higher incentives than another for the same set of efficiency measures simply by being advantageously located on the grid. However, some of these equity issues are offset by savings for all ratepayers and reduced environmental impacts if less electrical capacity must be built because energy efficiency is more optimally located.
- For the 2013-2014 efficiency portfolio, the utilities are required to spend a minimum specified percentage of marketing dollars to increase participation in specified programs in extreme climate zones.
- The CPUC has taken steps toward requiring the utilities to procure energy efficiency resources as part of all-source procurement. This means the utilities would procure energy efficiency in competition with all other resources and will more accurately balance the grid impacts of all their procurement. In fact, on February 13, 2013, the CPUC in the Long Term Procurement Plan proceeding (D.13-02-015) approved and directed Southern California Edison to follow this approach in procuring local area resources. Pursuant to this decision, the utility must develop a plan and hold request for offers to procure preferred resources, including energy efficiency, in the Los Angeles basin.

The three agencies already have experience working together to target energy efficiency programs and demand response programs in specific geographical regions. In 2012, in response to the San Onofre Nuclear Generating Station outage, the CPUC – working with the CAISO and the CEC – directed Southern California Edison and San Diego Gas and Electric Company to target energy efficiency program expenditures in the southern Orange County region affected by the outage, and deferred to the utilities as the program administrators to decide what activities to pursue.

**Question 3:** How can it be ensured that energy efficiency investments will be cost-effective as California increases its focus on “market transformation” efficiency strategies that the CPUC has stated may not be cost-effective, especially in the near term?

**Response to Question 3:**

***Current CPUC Process for Determining Cost-Effectiveness***

Cost effectiveness for the energy efficiency programs the CPUC is mandated to oversee is determined by taking a portfolio approach. Under this approach, while some individual programs might not be cost-effective, the overall investment provides an estimated cost effectiveness ratio of approximately 1.25 – meaning for every rate payer dollar invested in energy efficiency, ratepayers will save at least \$1.25. This approach allows the CPUC to direct the utilities to pursue a variety of market transformation programs whose benefits will take longer to achieve (for example, the Emerging Technologies Program, Whole House Upgrade programs, and HVAC Quality Installation and Quality Maintenance programs) while balancing these efforts with more immediately cost-effective programs to ensure that the overall portfolio is cost-effective – including a significant factor of safety to protect ratepayers from results that are below forecasted levels. This portfolio approach to the utilities’ energy efficiency programs has been hailed by efficiency advocates throughout the nation because it allows high-value measures to act as a hedge in the short term against market transformation programs that do not deliver shorter-term savings now but have the potential to be cost-effective in the future.

***Lowering of the Cost Effectiveness Ratio over Time***

As the Legislative Analyst’s Office has noted, the cost-effectiveness ratio has decreased over the past few years. The downward trend in energy efficiency portfolio cost-effectiveness over the past decade is the result of several factors, including:

- The state has encouraged utilities to increase the size of their energy efficiency portfolios to meet larger energy efficiency goals. While portfolio cost effectiveness ratios remain positive, an increase in the size of the portfolio adds measures with lower cost-effectiveness, which in turn lowers the overall ratio.
- Starting in 2006 and continuing through today, the CPUC has transferred the duties of overseeing and monitoring the program evaluations from the investor-owned utilities to CPUC staff. The purpose of this transition was to have a less biased entity oversee the evaluation. This transition has led to the reduction in what we believe were somewhat inflated savings that in turn led to higher cost-effectiveness estimates in years past.
- Aggressive code and standard efforts are moving cost-effective technologies into code more quickly than in the past, reducing cost-effective opportunities for utility voluntary programs.

The energy efficiency cost-effectiveness calculator was augmented beginning with the 2010-2012 cycle to adjust avoided costs by climate zone, so measures that reduce peak demand (such as air conditioners) installed in warmer areas get ‘extra credit.’ As a next step in increasing the granularity of the CPUC’s cost-effectiveness calculations the CPUC will explore adding locational and/or shoulder load reduction avoided cost benefits to the cost-effectiveness calculator.

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Finally, some parties argue that the cost effectiveness calculator should estimate the future benefits of market transformation activities. While we are open to many improvements, our top goal is to ensure that we adopt a portfolio that is cost-effective. Any revisions to the benefits quantified in the calculator require a high degree of confidence that they represent real benefits to ratepayers.

### **Conclusions**

As was discussed during the January 28 Committee Hearing, the three agencies agree that there is room for improvement in the way the agencies work together to ensure that California's energy efficiency investments achieve the goal of reducing the need for new power plants, and the joint agencies are fully committed to doing so. We will increase the transparency of and coordination between our respective procurement and transmission planning processes by using one demand and additional achievable energy efficiency forecast that will be developed with CAISO and CPUC input during the *Integrated Energy Policy Report* proceeding. Moving forward, energy efficiency programs will reexamine the value propositions for the future deployment of programs taking into account the cost-effectiveness of the measures.

Sincerely,



ROBERT B. WEISENMILLER  
Chair  
California Energy Commission



MICHAEL R. PEEVEY  
President  
California Public Utilities Commission



STEVE BERBERICH  
President and CEO  
California Independent System Operator

cc: Governor Edmund G. Brown Jr.  
Darrell Steinberg, Senate President pro Tempore

## Attachment A

### Schedule of Collaborative Activities for Demand Forecast in 2013

#### Demand Forecast

- **February 19:** IEPR workshop on economic, demographic, and energy price inputs for electricity, natural gas, and transportation fuel demand forecasts. This represents the first opportunity for stakeholder comment on the CEC staff 2014-2022 modeling input assumptions. CPUC Commissioners participated.
- **February to May 2013:** The CEC conducts analysis and the Demand Analysis Working Group holds meetings to review the iterations of the CPUC's energy efficiency potential study, review preliminary demand forecast results, and compare results to utility forecasts. CAISO participates in these discussions.
- **April 2013:** The CPUC and its consultant Navigant Consulting are expected to complete the potential study that will inform post-2014 efficiency goals and program planning. This study is designed to provide (1) investor-owned utility program savings goals for the portfolio guidance proceeding and (2) additional achievable energy efficiency savings projections for the CEC's IEPR demand forecast. The CPUC will make its model available to the CEC to be used in estimating additional achievable energy efficiency savings. By using this study for the forecast, the CPUC and CEC can ensure that the efficiency savings forecast is consistent with the CPUC portfolio requirements.
- **May 30, 2013:** The CEC releases its preliminary 2014-2024 demand forecasts and holds a public workshop to discuss the results. The forecast will be disaggregated to climate zones, but will not yet incorporate any additional achievable energy efficiency impacts.
- **June-July 2013:** Work begins on the additional achievable energy efficiency estimation using the CPUC's model. CPUC consultant Navigant works with CEC to develop new scenarios in conjunction with CPUC's evaluation and procurement staff. Consultation begins with CAISO and CPUC staff on a single forecast case to use in the 2014-2015 transmission and procurement planning cycles. The Demand Analysis Working Group reviews the application of the post-2014 efficiency goals study to the demand forecast and the development of the revised forecast, including the additional achievable energy efficiency forecast.
- **July 2013:** CPUC provides evaluated energy efficiency savings data to CEC from the 2010-2012 program cycle.
- **August 2013:** CEC releases revised demand forecast and additional achievable energy efficiency forecast and holds public workshop that includes CPUC and CAISO participation.
- **November 2013:** CEC adopts demand and additional achievable energy efficiency forecasts as part of *2013 Integrated Energy Policy Report*. The three agencies agree on a single forecast case, including additional achievable energy efficiency, to be used in the next procurement and transmission planning efforts. CEC staff participates in procurement planning working groups.
- **January 2014:** Kickoff meeting for the 2014 joint agency work plan.

**Attachment B**

**CAISO Chart – Growing Need for Flexibility Starting 2015**

