

Date: 3/18/2010
To: City Council Municipal Services Committee
From: Carol Carmichael, Chair, Environmental Advisory Commission
RE: Concerns with New Energy Efficiency and Demand Reduction Goals for Fiscal Years 2011 through 2020
cc: Phyllis Currie, General Manager, PWP
Michael Beck, City Manager

At its 3/16/2010 regular meeting, the Environmental Advisory Commission (EAC) voted to support staff's Recommendation to the City Council to Adopt New Energy Efficiency and Demand Reduction Goals for Fiscal year 2011 through 2020. The EAC made this recommendation based on the understanding that the City has a legislative deadline of June 1 to submit the goals per AB 2021. However, significant concerns were raised that the EAC would like to bring to the City Council Municipal Services Committee's attention.

The EAC's concerns are particularly important given the fact that (1) the City of Pasadena's EE goals were outliers compared to those for other cities that participated in the same modeling by Summit Blue Consulting; and (2) the City's EE goals have not been met since the City Council first established them in 2007 and have been revised downward. **Although the EAC voted to support the new recommendations, the EAC is requesting that the MSC and City Council not consider any budgetary request or change to the PBC rate based on the current study results until the EAC and staff have resolved the following concerns:**

1. Describe how societal externalities such as CO₂e (greenhouse gas emissions) factor into the model; in particular whether costs associated with carbon were included in the avoided cost of energy used in the model.
2. List and describe assumptions made in the model (e.g., the cost tests that were used to determine the market potential; whether cost of lost revenues were factored into the analysis, or the assumptions about Pasadena's customer mix, especially the payback expectations of the large institutional customers unique to Pasadena such as PCC, PUSD, Caltech, Art Center, or the Huntington Hospital)
3. Describe the PWP incentives and factors built into the model and how they were determined.
4. Explain if an analysis involving a representative sample of customers was performed to determine what customers are willing to pay for energy efficiency.
5. Explain whether smart metering was considered to determine the impact of such meters on consumer behavior and energy consumption and if not, why it wasn't considered.
6. Explain the general approach to goal setting (the decision to lower goals because targets cannot be met begs the question about how such goals are established).

Comments on the Use of Models in Public Decision-Making Suggestions for City Council and City Staff

Many policy issues involving climate change, power, water and transportation will require technical models and methods to provide better information for decision makers. The purpose of this memo is to use the energy efficiency study to illustrate ways in which we can **improve the utility and acceptability of such studies in decision making.**

The EAC discussion with staff about the energy efficiency study, and their recommendations related to its results, revealed an unacceptable level of uncertainty about key decisions related to the modeling study. A central issue for the EAC is the validity of the modeling exercise and the appropriateness of its results for the proposed actions related to goal setting and rate changes. Our concerns arose from the inability of the staff to answer questions about key variables or inputs to the model developed by the consultant. These inputs involve subjective decisions that may require further consideration.

The selection of values for some inputs, the assumptions used in setting these values, or the use of particular cost-tests can significantly change the study results. Furthermore, **some model decisions may reflect policy decisions which should be explained to the City Council and the public.**

The models developed for both the 2007 and 2010 energy efficiency studies allow for customization for each utility, for example to adjust for size of the utility or characteristics of its customer base. The **fine-tuning, or “tweaking,” of the model involves use of local data and knowledge** (and, in some cases, best estimates) about the city and its utility customers.

The models support analyses to determine what is technically feasible and what is cost-effective in the market. The evaluation of the market feasibility for energy efficiency, in particular, involves the incorporation of subjective, “local knowledge” related to inputs. **The variation in some of these inputs can significantly change the results of the study.** Some examples of the parameters used in these models are provided here (from the 2007 study report, pp. 20-23).

- Financial parameters include cost rates, energy costs, discount rates, overhead, and customer rebate levels.
- Cost-tests that can reflect different priorities for the goals of the energy efficiency programs. These include:
 - rate impact measure test (*incentive paid to customer, lost revenues, marketing, evaluation, measurement and verification, admin costs*);
 - participant cost test (cost of technology after incentives/rebates);
 - utility program administrator cost test (*incentive paid to customer, marketing, evaluation, measurement and verification, admin costs*); and
 - total resource cost test (cost of technology, marketing, evaluation, measurement and verification, admin costs).

- Additional parameters involving “local knowledge” that may be used to adjust the technical versus market potential for energy efficiency include:
 - *customer payback expectations* (especially relevant for Pasadena customer base),
 - local demographics,
 - age and condition of building stock,
 - *saturation of previously installed energy efficiency measures*,
 - economic growth,
 - rate of expansion and new construction.

In general, the EAC’s concerns arise from a lack of transparency and explicitness in the development and presentation of the energy efficiency study used to support recommendations to the City Council.

It is for these reasons that the best practices in the use of models in public decision making recognize that the acceptability of model results among diverse stakeholders depends on a transparent and sometimes iterative process in which stakeholders are educated about the model and the implications of decisions involving subjective decisions on key parameters and assumptions. This is especially true for decisions resulting in a material impact on the stakeholders or changes in goals.

The EAC, and the City Council (through the Municipal Services Committee), should expect the following best practices for future studies involving the use of models:

1. Involve stakeholder groups in an educational process with staff and consultants during the scoping and implementation phases of a study.
2. In written reports and oral presentations to the public and decision makers:
 - Clearly identify model design decisions, assumptions or variables which have been included or adjusted based on the discretion of the model developer or end user. What do these assumptions or adjustments imply about the City’s priorities or policies?
 - Clearly explain the adjustments made to the model, the values selected for certain inputs and how they were selected. How do changes in any of these assumptions or variables impact the results obtained from the model?
 - What are the validation processes used by the staff and its consultants? Or, how are the models validated, and how well do the modeling results reflect expected outcomes?