

# Agenda Report

April 12, 2010

**TO:** Honorable Mayor and City Council

**THROUGH:** Municipal Services Committee (March 23, 2010)

**FROM:** Water and Power Department

**SUBJECT: ADOPT ENERGY EFFICIENCY AND DEMAND REDUCTION GOALS FOR FISCAL YEARS 2011 THROUGH 2020**

## **RECOMMENDATION:**

It is recommended that the City Council:

1. Find that the adoption of energy efficiency and demand reduction goals is exempt from the California Environmental Quality Act ("CEQA") pursuant to State CEQA Guidelines Section 15061 (b) (3) (general rule);
2. Adopt an energy efficiency goal of 14,500 MWh per year and demand reduction goal of 3.3 MW per year for fiscal years 2011 through 2013, and respective goals of 17,500 MWh per year and 4.2 MW per year for energy efficiency and demand reduction for fiscal years 2014 through 2020, in accordance with Assembly Bill 2021 ("AB-2021").

## **MUNICIPAL SERVICES COMMITTEE RECOMMENDATION:**

On March 23, 2010, the Municipal Services Committee ("MSC") recommended that the City Council adopt the proposed energy efficiency goals, with the understanding that staff will continue to work with the Environmental Advisory Commission ("EAC") regarding their modeling concerns, and provide the EAC an opportunity review the goals and projected costs prior to the City Council taking action that would increase the Public Benefits Charge ("PBC") rate as a result of adopting the goals.

## **ENVIRONMENTAL ADVISORY COMMISSION RECOMMENDATION:**

On March 16, 2010, the EAC recommended that the City Council support the energy efficiency goals with the understanding 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 concerns. Due to inadequate time for deliberation and clarification of the study and in order for the City to meet a reporting deadline, the EAC authorized the Chair to send a memorandum (Attachment A) to the City Council through the MSC outlining several serious concerns.

**EXECUTIVE SUMMARY:**

In 2006, the state legislature passed Assembly Bill 2021 which mandates all utilities to invest in energy efficiency and demand reduction. The purpose of the bill is to reduce the growth in California's energy use as well as reduce the highest levels of demand for electricity. The peak demand typically occurs during the mid-afternoon to early evening hours on hot summer days and utilities are mandated to provide incentives for customers to shift their electrical use to non-peak times. Another piece of legislation, Senate Bill 1037, created a priority for investments in energy resources, giving energy efficiency and demand response first priority, followed by renewable resources and then fossil fuels like natural gas and coal. This law requires that the utility acquire all 'cost-effective, reliable and feasible' energy efficiency and demand response.

The City Council is charged with setting ten year energy efficiency and peak demand reduction goals for PWP. For investor-owned utilities, these goals are set by the California Public Utility Commission. As part of our compliance efforts, PWP joined with other municipal utilities to secure consultants to model the potential for energy efficiency and demand reduction and provide a basis for the goals. This process was first undertaken in 2006, and resulted in the City Council establishing the first goals in 2007. The law requires that the goals be updated every three years. Thus a new study was done last year and revised goals are recommended for adoption.

The consultant retained in 2009 developed a model to determine the market potential for energy efficiency in each participating utility's service territory for the period of 2011 to 2020. The following table shows the energy savings and peak demand reduction goals that were adopted by the City Council in 2007, the market potential as determined by the new model, and the proposed new goals. It also shows the estimated annual cost to achieve the recommended goals.

Period	Annual Energy Savings (MWh/year)			Peak Demand Reduction (MW/year)			Average Cost (\$/yr)
	2007 Goals	Market Potential	Proposed Goal	2007 Goals	Market Potential	Proposed Goal	
FY2011 to FY2013	22,627	13,640	14,500	2.7	3.1	3.3	\$5,400,000
FY2014 to FY2020	22,627	17,366	17,500	2.7	4.1	4.2	\$7,600,000

The proposed goals represent a 1.2% average annual reduction of PWP's forecast for future electric use. These goals are higher than those proposed by other participating utilities (the average is 0.73% of their projected annual electrical use) and are slightly higher than the market potential determined by the model results. The peak demand reduction goals are also higher than those established by the City Council in 2007 and will result in more progress towards the Urban Environmental Accords peak demand reduction goal.

PWP's energy efficiency programs are funded with revenues from the PBC rate. While a part of a customer's overall bill, PBC revenues are maintained in a separate fund, and used for specific purposes specified by state law: energy efficiency and demand reduction programs; solar programs; research and development; and low income assistance. PBC revenues currently average approximately \$7 million annually. In order to meet the proposed goals, as well as other PBC Fund obligations, it is projected that PBC revenues would need to be increased to \$10 million in FY2013 and exceed \$12 million in FY2014. The increased revenue requirements are due both to the proposed goals, but also to anticipated growth in obligations required for solar programs.

Thus, goals proposed for FY2011 are achievable with no increase in PBC rates; however, a PBC rate increase of 0.1-0.2¢/kWh would likely be required by July 1, 2011 to provide sufficient funding to meet anticipated PBC program expenditures for fiscal years 2012 and 2013. An additional PBC rate increase of 0.1-0.2¢/kWh would likely be required in FY2014. However, over time, achievement of the proposed goals could reduce future energy procurement and infrastructure costs and thereby moderate the escalation of the corresponding portions of our electric rates.

## **BACKGROUND:**

### ***Legislative Requirements***

AB-2021, signed into law in September 2006, requires that the governing bodies of public utilities adopt 10-year energy efficiency and demand reduction goals every three years beginning in 2007. It further requires that utilities report their goals, spending, and progress regularly to the California Energy Commission ("CEC"). The City Council must adopt new energy efficiency goals for fiscal years 2011 through 2020 by June 1, 2010 to remain in compliance with AB-2021.

Achieving the energy efficiency goals will also help PWP meet the goals of two other state laws, including: Assembly Bill 32 ("AB-32"), which lays out statewide goals to reduce California's GHG emissions to 1990 levels by 2020; and, Senate Bill 1037 ("SB-1037"), which requires each local publicly owned electric utility to acquire all cost effective, reliable, and feasible energy efficiency and demand response prior to other resources.

### ***Municipal Utility Collaborative Process***

Since the enactment of AB-2021, the California Municipal Utilities Association ("CMUA"), the Northern California Power Agency ("NCPA") and the Southern California Public Power Authority ("SCPPA") have worked in collaboration to develop and report individual utility energy efficiency and demand reduction targets, spending, and progress of 36 publicly owned utilities. In 2007, SCPPA and NCPA each retained the Rocky Mountain Institute to assist the participating utilities in developing goals by evaluating overall energy efficiency and demand reduction potential for each utility. SCPPA and NCPA retained Summit Blue Consulting to develop a new model to support the development of energy efficiency and demand reduction goals. In addition to model development, Summit Blue collected and analyzed individual utility data to determine

the appropriate model inputs for each utility and evaluate overall energy efficiency and demand reduction potential. This information was then used by each utility to establish their respective energy efficiency goals.

At the request of the CEC, CMUA has aggregated staff recommendations from each utility and reported each utility's goals in draft form along with the required 2010 SB-1037 report on FY2009 efficiency program results, due March 15, 2010. Each member utility's governing board must adopt their respective utility's goals by June 1, 2010 so that CMUA can submit a final composite report.

**2007 Energy Efficiency Goals and Progress**

The current energy efficiency and demand reduction goals were adopted by the City Council on September 17, 2007. The following table summarizes these goals and actual or forecast results through FY2010. PWP expects to exceed the cumulative goals set for FY2007 through FY2010.

Fiscal Year	Annual Energy Savings (MWh/year)			Peak Demand Reduction (MW/year)		
	2007 Goals	Actual PBC Funded	Other PWP Savings*	2007 Goals	Actual PBC Funded	Other PWP Savings*
2007	5,000	4,238		0.6	1.25	
2008	10,000	7,646	529	1.2	1.59	
2009	13,500	25,915	644	1.6	5.38	0.02
2010 Fcst	17,000	20,086		2.1	4.69	
<b>Cumulative</b>	<b>45,500</b>	<b>57,886</b>	<b>1,173</b>	<b>5.5</b>	<b>12.9</b>	<b>0.0</b>

\* Savings from other PWP programs include 529 MWh from water conservation in FY2008, and 467 MWh from water conservation programs and 177 MWh from distribution upgrades to reduce transformer losses in FY2009.

The remaining goals for fiscal years 2011 through 2017 were set at 22,627 MWh energy savings and 2.7 MW peak demand reduction for each year.

**2010 Energy Efficiency Model**

The energy efficiency potential model developed by Summit Blue Consulting is designed to estimate energy efficiency potential for a utility's service area for years 2011-2020. The model estimates energy efficiency resource potential for three perspectives as follows:

- **Technical energy efficiency potential** - represents the amount of energy efficiency savings that could be achieved when not considering economic and market barriers to customers' installing energy efficiency measures;
- **Economic energy efficiency potential** – is the portion of the technical energy efficiency potential that is cost effective from a societal perspective; and,
- **Market energy efficiency potential** - estimates the achievable portion of the economic energy efficiency potential, recognizing that a number of barriers

prevent full participation by all customers. The market potential is generally accepted as the appropriate basis for establishing efficiency program goals.

**Energy Efficiency Model Results and Recommended Goals**

The following table summarizes the average annual energy savings and demand reduction goals that were adopted by the City Council in 2007 along side the market potential determined by model and the proposed goals recommended in this report.

Fiscal Year	Annual Energy Savings (MWh/year)			Peak Demand Reduction (MW/year)		
	2007 Goals	Market Potential	Proposed Goal	2007 Goals	Market Potential	Proposed Goal
2007	5,000	--	--	0.6	--	--
2008	10,000	--	--	1.2	--	--
2009	13,500	--	--	1.6	--	--
2010	17,000	--	--	2.0	--	--
2011	22,627	14,112	<b>14,500</b>	2.7	3.2	<b>3.3</b>
2012	22,627	12,781		2.7	3.0	
2013	22,627	14,028		2.7	3.3	
2014	22,627	15,891	<b>17,500</b>	2.7	3.7	<b>4.2</b>
2015	22,627	17,329		2.7	4.0	
2016	22,627	18,065		2.7	4.3	
2017	--	17,925		--	4.3	
2018	--	17,659		--	4.2	
2019	--	17,437		--	4.2	
2020	--	17,255		--	4.1	
<b>Average</b>	18,126	16,248	<b>16,600</b>	2.2	3.8	<b>3.9</b>
<b>FY11-FY13</b>	22,627	13,640	<b>14,500</b>	2.7	3.1	<b>3.3</b>
<b>FY14-FY20</b>	22,627	17,366	<b>17,500</b>	2.7	4.1	<b>4.2</b>

The proposed ten-year energy efficiency and demand reduction goals are based on the model results for market potential, but also with consideration for consistency and simplicity of the annual goals, the City’s environmental objectives, available funding for incentive programs, and electric rate impacts. The goals are broken down into two implementation timeframes that align with changes in model results as well the statutory interval for adopting new ten-year goals:

- **Years 1-3:** For the period FY2011 through FY2013, the proposed 14,500 MWh/year and 3.3 MW/year goals are slightly higher than the market potential model results for rounding purposes. The new proposed goal for demand reduction from energy efficiency programs is higher than the previous goal; however, the proposed energy savings goal is about one-third lower than that established by the City Council in 2007 for this same period. The model

factors in the cumulative energy savings for the period FY2007 through FY2010 which will exceed expectations. Program expenditures for the period FY2011 through FY2013 are expected to average \$5.4 million per year to achieve the proposed goals.

- **Years 4-10:** For FY2014 through FY2020, the proposed 17,500 MWh/year and 4.2 MW/year goals are roughly equivalent to the market potential and would be expected cost \$7.6 million per year on average. The City Council must adopt new goals for this period before this period commences in 2013.

At the end of the ten-year period, the proposed energy efficiency goals will have offset electric energy sales growth by 166,000 MWh per year and peak demand by 39 MW. This would result in little or no net load growth over the ten-year period, reducing PWP's need to procure energy resources by approximately 12%.

### **BUDGET CONSIDERATIONS:**

#### ***Energy Efficiency Program Cost***

The estimated \$5.4 million average annual budget determined by the energy efficiency model to meet the proposed efficiency goals is in line with staff expectations based on recent energy efficiency program experience. The model results indicate that energy efficiency program costs will average 35¢/kWh of annual energy savings in FY2011, increasing to 39¢/kWh of annual energy savings in FY2013. By way of comparison, PWP's current average incentive rates for energy efficiency programs are approximately as follows:

<b>Program Type</b>	<b>Average 1<sup>st</sup> Year Cost (¢/kWh)</b>
<b>Residential Average</b>	<b>28</b>
<b>Commercial Cooling</b>	<b>35 - 47</b>
<b>Commercial Lighting</b>	<b>8 - 22</b>
<b>Commercial Direct Install</b>	<b>100+</b>

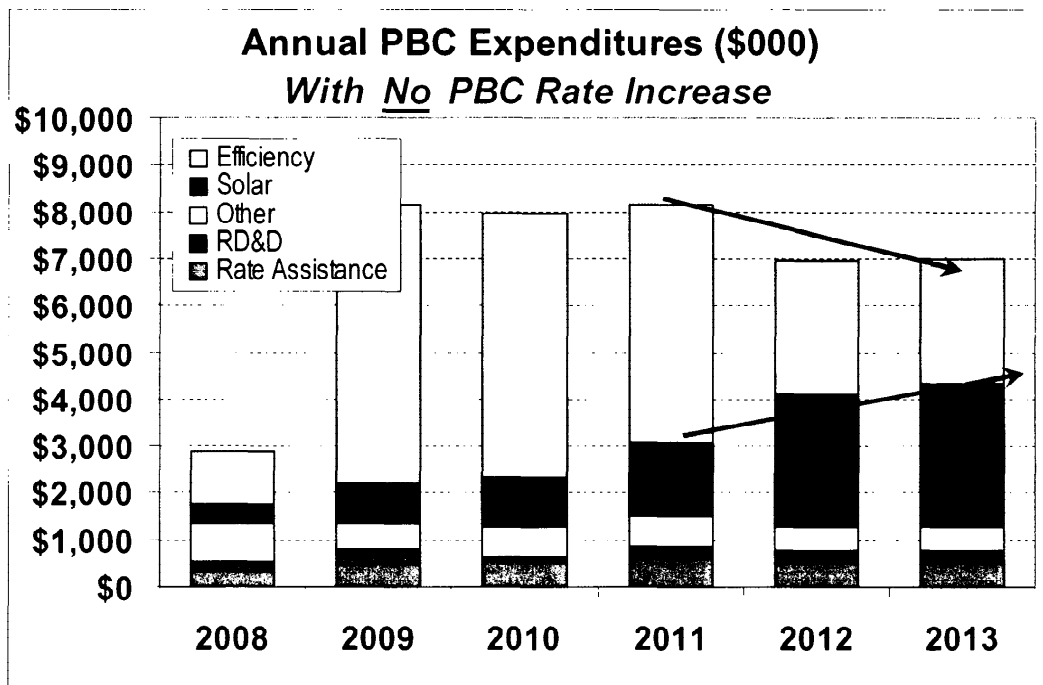
PWP was able to achieve lower average program costs of 23¢//kWh in FY2009 due to one-time programs such as the compact fluorescent lighting distribution (39% of the total FY2009 energy savings at 11¢/kWh); however, in the future there will be greater reliance on higher cost programs, particularly commercial heating, ventilation, and cooling (HVAC) and other non-lighting programs that have higher average costs than lighting distribution and retrofit incentives.

#### ***Pasadena's Public Benefits Fund Summary***

PWP customers pay a PBC rate based on their electric energy usage to fund cost-effective energy efficiency programs; renewable resources, which are currently limited to the Pasadena Solar Initiative program; research, development and demonstration projects; and, low income rate assistance and energy efficiency programs. PBC revenues are maintained in a separate fund (PBC Fund 410) that is used only for these

purposes as authorized under Public Utilities Code 385(a). At the end of each fiscal year, any remaining unspent revenues are carried forward to the next fiscal year. The PBC revenues are the sole source of funding for PWP's energy efficiency and solar energy incentive programs. The current PBC rate of 0.573¢/kWh generates approximately \$7 million in revenues per year and costs the average residential customer using 500 kWh of electricity \$2.87 per month.

Currently, approximately \$6 million of PBC funds are available for energy efficiency due to relatively low expenditures for the solar photovoltaic program and residual unspent PBC Fund balance from prior years. As show in the figure below, however, the amount of PBC funds available for energy efficiency will start to decline in FY012 as a result of increasing solar program expenses and exhausting the PBC Fund balance from prior years.



PWP can achieve the proposed energy efficiency goals for FY2011 without increasing PBC revenues. However, due to increased energy efficiency and solar photovoltaic program costs, a PBC rate increase of 0.1-0.2¢/kWh (neglecting any unforeseen increases in solar, low income, or research and development program expenditures) would be required by July 1, 2011 to provide sufficient funding to meet anticipated PBC program goals and commitments for fiscal years 2012 and 2013. An additional PBC rate increase of 0.1-0.2¢/kWh would likely be required in FY2014 to fund the increased goals for fiscal years 2014 to 2020. Staff will review the program in one year and make recommendations to Council regarding the PBC budget and rate needed to achieve FY2012 efficiency goals.

The following table summarizes anticipated PBC Fund revenues and expenditures. Revenues include PBC rate revenue and interest on the PBC Fund balance, and expenditures assume the proposed energy efficiency goals are adopted.

**Projected Annual PBC Fund Revenues and Expenditures (\$000)**

Fiscal Year	2010	2011	2012	2013	2014
<b>PBC Fund Revenues</b>					
Carry Forward	2,294	1,239	32	0	0
Revenues	6,921	6,946	7,000	7,035	7,070
<b>Total PBC Revenues</b>	<b>9,215</b>	<b>8,185</b>	<b>7,032</b>	<b>7,035</b>	<b>7,070</b>
<b>PBC Fund Expenses</b>					
Energy Efficiency	4,901	5,084	5,400	5,700	7,100
Solar PV Program	1,598	1,598	2,850	3,070	3,500
Other PBC Programs	1,477	1,471	1,250	1,250	1,300
<b>Total PBC Expenses</b>	<b>7,976</b>	<b>8,153</b>	<b>9,500</b>	<b>10,020</b>	<b>11,900</b>
<b>Surplus (Deficiency)</b>	<b>1,239</b>	<b>32</b>	<b>(2,468)</b>	<b>(2,985)</b>	<b>(4,830)</b>

**Other Electric Rate Trends**

As summarized in the table below, each component of PWP's electric rates is facing significant upward pressure, and any increase to the PBC rate would add to this issue in the near term. However, since the average cost of energy efficiency incentives over the full lifecycle of the energy savings is less than the cost of energy procurement, the investment in energy efficiency will reduce overall rate increases in the long run.

Rate Component	~Rate	Rate Pressures
PBC	0.58¢	<ul style="list-style-type: none"> <li>• Solar and Energy Efficiency Programs</li> </ul>
Energy	8.53¢	<ul style="list-style-type: none"> <li>• Renewable Resources</li> <li>• Fuel Costs</li> <li>• GHG Mitigation, Credits/Tax</li> </ul>
Transmission	0.82¢	<ul style="list-style-type: none"> <li>• CAISO Transmission Rate</li> </ul>
Distribution	4.28¢	<ul style="list-style-type: none"> <li>• Infrastructure Replacement/Smart Grid</li> </ul>

**Funding Requirement to Achieve Higher Energy Efficiency Goals**

The proposed energy efficiency goal for fiscal years 2011 through 2013 is about one-third less than the current goal adopted by the City Council in 2007. An immediate 0.32 ¢/kWh PBC rate increase would be required to meet the 22,627 MWh/year goal established previously for FY2012, as the annual energy efficiency program cost would increase by an additional \$4 million per year. Additional PBC rate increases would be required in FY2013 and beyond. By contrast, adopting the proposed efficiency goals will require less of an increase in the future, and none at this time.



**COUNCIL POLICY CONSIDERATION**

The proposed energy efficiency and demand reduction goals are consistent with the City's Urban Accords Goals, the General Plan Energy Element, the City Council's Strategic Planning Goals, and the 2009 Power Integrated Resource Plan. Combined with progress already achieved, achieving the recommended demand reduction through energy efficiency will result in a cumulative peak demand reduction of approximately 22.8 MW by FY2013<sup>1</sup>, or approximately 70% of the Urban Accords goal. . The annual electric energy savings and will contribute to greenhouse gas reduction goals by nearly eliminating electric load growth.

**ENVIRONMENTAL ANALYSIS:**

CEQA only applies to projects that have the potential for causing a significant effect on the environment. These proposed goals will not be detrimental to the public interest, health, safety, convenience, or general welfare of the City nor do they have the potential for causing a significant effect on the environment, do not constitute approval of any construction project, and are therefore exempt from CEQA review pursuant to State CEQA Guidelines Section 15061(b)(3).

---

<sup>1</sup> The Urban Accords goal calls for a 10%, or 32 MW, peak demand reduction by 2012. Since the peak demand occurs in the summer, the 2012 peak is reached in fiscal year 2013.

**FISCAL IMPACT:**

Energy efficiency program expenditures for this period are expected to average \$5.4 million per year for FY2011 through FY2013, and \$7.6 million per year for FY2014 through FY2020 to achieve the proposed goals. Sufficient funds are available in the PBC Fund, including approximately \$6.9 million in PBC rate revenue and a \$1.2 million drawdown of the PBC Fund balance, to support the proposed energy efficiency goals for FY2011 and approximately \$3 million in other PBC program expenditures. Due to increased energy efficiency and solar photovoltaic program costs, a PBC rate increase of 0.1-0.2¢/kWh will be required by July 1, 2011 to provide sufficient funding to meet anticipated PBC program goals and commitments for FY2012 and FY2013. An additional PBC rate increase of 0.1-0.2¢/kWh would likely be required in FY2014 to fund the increased goals for fiscal years 2014 to 2020. Revenues from the PBC are exempt from taxes, surcharges, and the General Fund Transfer calculation, thus any changes to the PBC will not affect the General Fund.

Respectfully submitted,

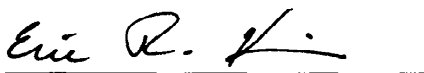


PHYLLIS E. CURRIE

General Manager

Water and Power Department

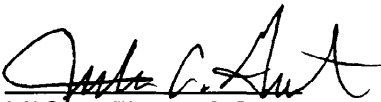
Prepared by:



ERIC R. KLINKNER

Assistant General Manager

Approved by:



MICHAEL J. BECK

City Manager

for