



REGULAR MEETING OF THE
MUNICIPAL SERVICES COMMITTEE
Tuesday, October 9, 2012, 4:00 P.M.
100 North Garfield Avenue, Pasadena, Council Chambers

AGENDA

1. **CALL TO ORDER/ROLL CALL**
2. **PUBLIC COMMENTS ON MATTERS NOT ON THE AGENDA**
3. **APPROVAL OF MINUTES** – September 25, 2012 – Cancelled Meeting*
4. **OLD BUSINESS**
 - A. Discussion of Alternatives for Utility Oversight and Public Input*
5. **INFORMATION ITEMS**
 - A. Discussion on Options to Reduce Coal*
 - B. Energy Efficiency Goals Update*
 - C. 2011 Power Content Label Update*
 - D. Power Cost of Service Update

6. **ADJOURNMENT**

Margaret McAustin, Chair
Municipal Service Committee

*Attachment

POSTING STATEMENT:

I HEREBY CERTIFY that this Agenda, in its entirety, was posted on the Council Chamber Bulletin Board S249, the bulletin board in the rotunda area at City Hall, 100 North Garfield Avenue, the City Clerk's Office, and a copy was distributed to the Central Library for posting on the 9th day of October, 2012 by 4:00 p.m.

Sharon Stovall

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**CITY OF PASADENA
REGULAR MEETING OF THE CITY COUNCIL
MUNICIPAL SERVICES COMMITTEE
SEPTEMBER 25, 2012
COUNCIL CHAMBERS – ROOM S-249
100 N. GARFIELD AVENUE (2ND FLOOR)**

The regular meeting of the Municipal Services Committee, scheduled for Tuesday, September 25, 2012 at 4:00 p.m., was cancelled as ordered on September 20, 2012, and posted as required by law.

Margaret McAustin, Chair
Municipal Services Committee

ATTEST:

Sandra S. Robles
Recording Secretary

4.A



PASADENA WATER AND POWER

MEMORANDUM

October 9, 2012

To: Municipal Services Committee

From: Phyllis Currie, PWP General Manager

A handwritten signature in cursive script that reads "Phyllis S. Currie".

Subject: Utility Advisory Board Follow-up: Alternatives for Utility Oversight and Public Input

This item is for information only.

BACKGROUND:

The Municipal Services Committee (MSC) provides oversight of matters pertaining to electric and water services provided by Pasadena Water and Power (PWP). Given the complexity of operational, financial, legislative and regulatory issues with respect to the utility, the MSC and City Council have been considering alternatives for additional oversight and due diligence when considering major initiatives.

The MSC considered a number of options at the April 24, 2012 meeting, and directed staff to: (1) Provide a list of challenging issues that are expected to be considered in the near future; and (2) identify and recruit community members who would be willing to attend future MSC meetings to provide knowledgeable insight on specific issues.

Power Division

- Local generation repowering project
- Adopt new 10-year energy efficiency goals
- Greenhouse gas "Cap and Trade"
- Renewable Portfolio Standard (RPS) implementation and compliance issues
- Intermountain coal plant contract amendment and repowering with natural gas
- Cost of service study and rate redesign
- Power delivery infrastructure master plan update

Water Division

- Recycled water project
- Rate redesign to ensure fixed cost recovery, provide funding for WIRP programs, encourage conservation, and comply with Prop 218 requirements
- Water delivery infrastructure master plan update

Other Financial Matters

- Energy portfolio risk management policy and transaction authority

Additional information regarding these initiatives will be presented for discussion at the October 9 MSC meeting

By putting such initiatives on the MSC agenda early in their development process, the MSC may seek input from consultants that are working on the project, identify potential community concerns, and seek input from the community as deemed appropriate.

5.A



PASADENA WATER AND POWER

MEMORANDUM

October 9, 2012

To: Municipal Services Committee

From: Phyllis, Currie, General Manager

Subject: Discussion on Options to Reduce Coal

The 2012 Integrated Resource Plan (IRP) calls for Pasadena Water and Power (PWP) to reduce its reliance on coal-fired energy by 35 MW, or roughly one-third, by 2016. Recently, public interest in reducing PWP's reliance on coal-fired energy has increased. Various interest groups are advocating a "no coal by 2020" policy for PWP and other utilities.

All of PWP's coal energy comes from two long-term contracts for the Intermountain Power Plant (IPP) in Utah. These contracts, which typically supply about 60% of PWP's energy needs, were signed in the early 1980's and extend through 2027.

While it may be difficult to imagine in today's climate, these contracts were conceived and executed during a period in which the federal law¹ encouraged the use of coal and restricted the use of natural gas for electric generation. Nuclear was out of favor due to safety concerns, and the use of oil in local steam plants was being phased out due to air quality issues in Southern California. There simply were no other viable options to meet PWP's growing loads.

Integrated Resource Plan

The City Council adopted aggressive environmental goals for the city's energy resources through the 2009 and 2012 IRP process. The IRP set a target of 40% renewable energy by 2020, more than the state goal of 33%, as well as a goal to reduce greenhouse gas emissions by 40%.

The IRP includes reducing the dependence on coal while managing the cost impact to Pasadena residents and businesses. By 2016, PWP has a target of reducing coal resources by one-third, and of developing alternative resources to meet retail energy needs by the time the existing contracts for IPP expire in 2027. PWP's energy portfolio would then be coal free.

The IRP was adopted after an extensive public process which included input from public meetings, and active engagement by a customer and citizen stakeholder advisory group

¹ The 1978 Powerplant and Industrial Fuel Use Act

in determining the IRP objectives, alternative resource portfolios and the final recommendations that were adopted by the City Council.

Achieving these results is challenging. The cost of energy is tied to the mix of fuels used. The increased cost in renewable resources has so far been offset by low natural gas prices. However, these low prices are not expected to hold indefinitely. Future electric rates will also be affected by needed investments in our existing natural gas-fired power plant to address its age and improve its efficiency.

PWP has made considerable progress towards meeting the IRP goals. 24% of the energy used by the end of 2011 came from renewable resources. Overall energy use has been reduced by 8% annually as result of energy efficiency programs since 2007, and local solar installations have increased by 4 Megawatts.

PWP's use of coal for retail sales was reduced somewhat in 2011, and will be reduced further in 2012. These are temporary effects due a combination of factors including: (1) an extended unit outage; (2) short-term sales of excess capacity to out of state purchasers; and, (3) reduction in generation output at night due to extremely low spot-market energy prices in some hours.

Challenges and Considerations Associated with Coal Reduction

PWP has been seeking opportunities to sell a portion of its output on a long-term basis, but thus far has not been able to close a deal. If PWP makes a long-term power sale to a private utility, the tax exempt status of the IPP bonds could be jeopardized. If PWP delivers the power to a California buyer, then PWP will be responsible for the carbon emissions. Thus the pool of potential buyers (qualified tax-exempt entities that could take physical delivery of the energy out of state) is relatively small.

Uncertainty with respect to transmission rights is another hurdle to executing long-term sales of PWP's generation from IPP to out of state purchasers. PWP cannot make firm commitments to deliver IPP out of state because our rights to deliver IPP energy to Utah are tied to the IPP excess power sales agreement and are subject to reductions when the Utah participants in this agreement exercise their right to "recall" the energy and associated transmission purchased by PWP under this agreement.

The financial viability of any coal reduction strategy depends upon how it will affect PWP's obligations and allocations under California's greenhouse gas cap and trade program. To the extent that PWP is not responsible for the carbon emissions from IPP, there is a potential for reduced costs or increased revenues associated with procuring or selling emission credits. These cost savings or revenues help mitigate the added cost of securing replacement sources of energy. Unfortunately, the rules remain unclear and under development with respect to this issue. The law was written to prevent entities covered under the cap and trade program from avoiding carbon compliance through exchanges of high carbon resources for low carbon resources. So called "contract shuffling" can result in severe penalties under the evolving cap and trade program rules.

Potential Coal Reduction Strategies

Three potential strategies to reduce the coal content used to meet PWP's retail loads are summarized below. Each strategy is based on the premise that PWP will honor its contractual commitments to pay for its share of IPP the debt service and other fixed costs through 2027, approximately \$38 million per year, whether we use the coal or not.

IRP Recommendation

As part of the 2009 IRP process, PWP's consultant evaluated a wide range of supply portfolios, including some with less coal. The added cost of the no coal portfolio resulted in projected rate increases that were not considered tolerable by the stakeholder group.

The recommended policy that was adopted called for reducing deliveries of IPP energy to meet PWP retail load by about one-third by 2016. This strategy could be accomplished by reducing generation or selling a portion of the output to other utilities in order to mitigate the rate impact associated with continued payment of fixed-cost obligations. As part of a balanced portfolio that met various environmental, reliability, and operational goals, the overall rate impact was deemed acceptable.

As noted previously, implementing this strategy has proven elusive thus far.

No Coal Deliveries to PWP Load

PWP may be able to develop a "coal free" resource portfolio for its retail customers by selling its entire share of IPP energy production to other utilities. Due to a dearth of qualified buyers, PWP would likely need to discount the price below market to secure a long-term buyer, with greater cost and rate impacts than the currently adopted policy. While potential savings or revenues from carbon emission credits could potentially mitigate the difference between the replacement power costs and the discounted sale price of IPP, potential contract shuffling penalties could make this alternative uneconomic. The rate impact of this strategy would ultimately depend on the relative energy purchase, sale, and carbon emission credit revenues obtained, and whether penalties are incurred.

Whether such a strategy is beneficial to the environment or appears to be an accounting gimmick is a matter of perception. PWP can monitor market prices and carbon rules and economically execute such a strategy as conditions warrant.

No Coal Generation

While the IPP contracts contain minimum take provisions, PWP may be able to "abandon" its share of the output prior to contract expiration provided we continue paying our share of fixed costs. PWP has taken a fresh look at this option, and determined the additional cost to all customers would be substantial. PWP estimates that rates would need to increase by approximately 2-4 ¢/kWh to eliminate our share of IPP generation from 2013 through 2020. Beyond 2020, forecast replacement energy rates, carbon credit costs, and even the variable portion of IPP costs are highly uncertain at this time.

IPP Beyond 2027

State law (Senate Bill 1368 of 2006) prevents PWP and other California participants in the project from exercising our contractual rights to extend our participation in IPP beyond 2027, when the current contracts expire and the plant's debt service has been fully paid.

Project participants have been working with the Intermountain Power Agency, which owns the facilities, and Utah legislature to facilitate the construction of new gas-fired power plants at the IPP site. While there are many issues and challenges, including political, financial, regulatory, and contractual, progress is being made. As some potentially viable strategy emerges, PWP will discuss it with the MSC.

5.B



PASADENA WATER AND POWER

MEMORANDUM

October 9, 2012

To: Municipal Services Committee

From: Phyllis E. Currie *Phyllis E. Currie*
General Manager

Subject: ENERGY EFFICIENCY GOALS UPDATE

The City Council must adopt new ten-year energy efficiency and demand reduction goals for Pasadena Water and Power Department ("PWP") within the next few months in order to meet statutory deadlines. This report is intended to provide the Municipal Services Committee ("MSC") with background information in advance of staff completing the analysis and developing recommendations.

BACKGROUND:

Urban Environmental Accords

On September 18, 2006 the City of Pasadena adopted the United Nations Urban Environmental Accords ("Urban Accords") and endorsed the US Mayors' Climate Protection Agreement. These policies are aimed to provide leadership to develop sustainable urban centers and promote a clean, healthy and safe environment for all members of society. Urban Accords policies relevant to the recommendations herein include: (i) Reduce greenhouse gas ("GHG") emissions 25% by 2030; (ii) Reduce the City's peak electric load by 10% by 2012; and, (iii) Increase the use of renewable energy to meet 10% of the City's peak electric load by 2012.

Legislative Requirements

California Assembly Bill 2021 ("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. Assembly Bill 2227 (2012) changed the adoption timeline to every four years beginning in 2013. These statutes require that utilities report their energy efficiency goals, spending, and progress regularly to the California Energy Commission ("CEC").

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 (“POU”) to acquire all cost effective, reliable, and feasible energy efficiency and demand response prior to other energy supply 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. SCPPA and NCPA retained the Rocky Mountain Institute to assist the participating utilities in developing the first set of ten-year goals in 2007, retained Summit Blue Consulting (now Navigant) in 2010 to develop a new model to support the development of energy efficiency and demand reduction goals for years 2011 through 2020. The same consulting team from Navigant has been retained again to support this process for the third round of energy efficiency goal analysis.

In addition to model development, Navigant is responsible for collecting and assessing individual utility data to determine the appropriate model inputs for each utility. Navigant will then evaluate overall energy efficiency and demand reduction potential using the updated model. This information will guide each participating utility in establishing their respective energy efficiency goals.

Each member utility’s governing board must adopt their respective utility’s goals by March 2013 to meet statutory requirements. CMUA has requested that participating member utilities adopt their respective targets by the end of 2012 to provide ample time to aggregate the goals and prepare a comprehensive report for submission to the CEC by March 15.

ENERGY EFFICIENCY MODEL:

The California Publicly Owned Utility Energy Efficiency Resource Assessment Model (“EERAM”) developed by Navigant for the 2010 process has been updated and will be utilized again for the 2013 process. The EERAM is an energy efficiency potential model designed to estimate technical, economic, and market energy efficiency potential for a utility’s service area. The model forecasts energy savings and demand reduction potential within the residential, commercial, and industrial sectors through 2023. Using data supplied by each participating CMUA member, Navigant has configured unique versions of the model to reflect each individual service territory.

The EERAM is an Excel spreadsheet model based on the integration of energy efficiency measure impacts and costs, utility customer characteristics, utility load forecasts, and utility avoided costs and rate schedules. The model utilizes a “bottoms-

up” approach in that the starting points are the study area building stocks and equipment saturation estimates, forecasts of building stock decay and new construction, energy efficiency technology data, past energy efficiency program accomplishments, and decision maker variables that help drive the market scenarios. The model calculates market potential based on a decision maker adoption rate algorithm.

The EERAM estimates energy efficiency resource potential for three perspectives. Each perspective provides “net” estimates of resource potential:

- 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 represents the portion of the technical energy efficiency potential that is “cost-effective,” from a societal perspective, as defined by the total resource cost test.
- Market energy efficiency potential is an estimate of the achievable portion of the economic energy efficiency potential that could be attributed to a utility energy efficiency program, recognizing the effect of a limited set of market barriers.

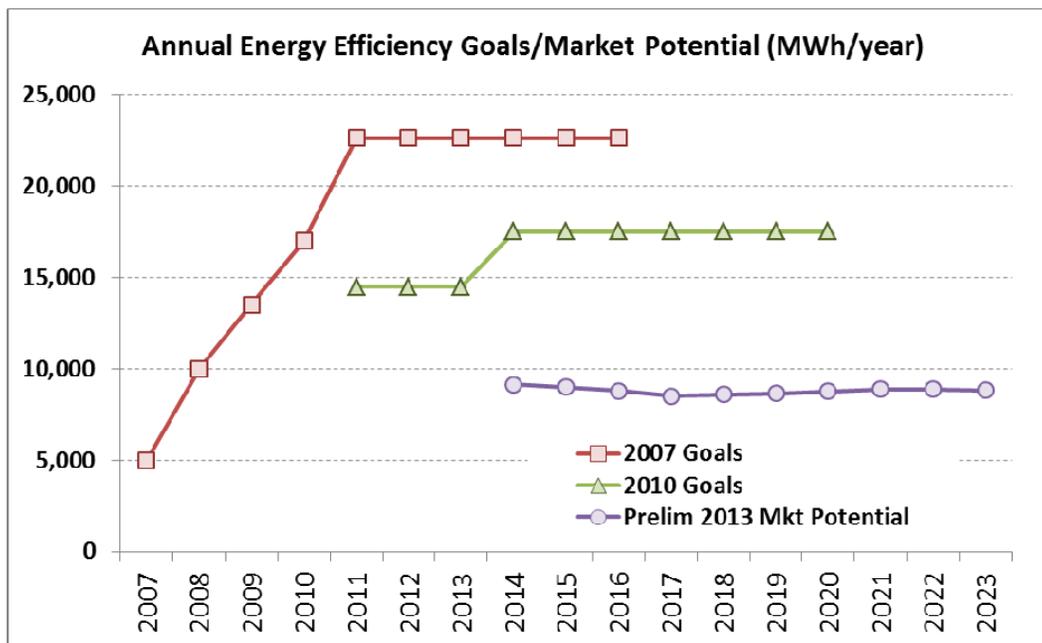
Caveats and Limitations

Energy efficiency potential models are invaluable tools for utility program planners to use when establishing efficiency program targets. They provide a credible and technically rigorous approach to estimating the potential energy efficiency savings attributable to a utility’s energy efficiency program. However, it is understood that there are many limitations to utilizing a technical model to forecast real world results. In particular, customer willingness and awareness assumptions in potential models do not sufficiently explain consumer behavior, lifestyle, or decision-making styles that ultimately drive the success of voluntary efficiency programs. Such limitations create uncertainty that utility program planners must consider when setting realistic yet aggressive goals for efficiency programs tailored to the communities they serve.

Preliminary Model Results

The figure below depicts the annual energy efficiency market potential for 2014 – 2023 based on preliminary results of the EERAM. The figure also shows the goals adopted in 2007 and in 2010.

The preliminary market potential for future load reduction from energy efficiency programs is declining, and represent less than the minimum 1% of sales target (about 12,000 MWh per year for PWP) preferred by the CEC and environmental policy advocates. Several factors may be influencing this reduction versus the 2010 market potential, including: Lower avoided costs; New efficiency codes and standards (energy efficiency programs only count savings to the extent they exceed current efficiency requirements); and, for PWP, relatively high saturation in some technologies due to past program success.



PWP staff will work with the vendor to review model inputs and key assumptions. As a result, the final results will likely be different than those shown.

Ultimately, the market potential for energy efficiency serves only as a guide for the goals that will be adopted by the City Council for PWP. Assuming the results do not change as PWP’s model input data are reviewed and improved, staff may propose the target be set at 10,000 MWh per year, 12,000 MWh per year, or exactly 1% of retail sales for the 2014-2023 period. Additional assessment of the budget and rate implications will be included as the proposed goals are developed and deliberated.

5.C



PASADENA WATER AND POWER

MEMORANDUM

October 9, 2012

To: Municipal Services Committee

From: Phyllis, Currie *Phyllis S. Currie*
General Manager

Subject: 2011 Power Content Label Update

This report on Pasadena Water and Power's (PWP) 2011 Power Content Label (PCL) is for information only. It provides information regarding power supply resource procurement to implement the 2012 Power Integrated Resource Plan (IRP) and the Renewable Portfolio Standard (RPS).

Power Content Label Update

Senate Bill 1305 (1997) requires utilities to report information to its customers and the California Energy Commission (CEC) about the energy resources used to generate the electricity they sell. Assembly Bill 162 (2009) modified PCL requirements such that quarterly printing and mailing is no longer required.

The CEC developed the accounting methods and format of PCL, which is intended to be a user-friendly way of displaying the energy resource information to enable customers to easily compare the power "content" of one electricity product with that of others, in a manner similar to "nutrition labels" for food.

PWP's PCL is published annually on the PWP website at www.PWPweb.com/PCL, and depicts of three different power mix columns:

- **PWP Power Mix**, which is used to supply electricity to all of PWP's other retail electric customers;
- **PWP Green Power Mix**, which is used to supply electricity to all of PWP's retail electric customers that participate in PWP's 100% Green Power program¹; and,
- **California Power Mix.**

¹ Visit PWP's website at www.PWPweb.com/pcl/greenpower/ for additional information.

Pasadena's 2011 Power Content Label

The following table depicts PWP's 2011 PCL, as shown on the website and reported to the CEC.

ENERGY RESOURCES	2011 PWP POWER MIX ¹ (actual)	2011 PWP GREEN POWER MIX ² (actual)	2011 CA POWER MIX ³ (for comparison)
Eligible Renewable	24%	100%	14%
• Biomass & Waste	13%	0%	2%
• Geothermal	1%	0%	5%
• Eligible Hydroelectric	2%	0%	2%
• Solar	0%	0%	0%
• Wind	8%	100%	5%
Coal	56%	-	8%
Large Hydroelectric	4%	-	13%
Natural Gas	7%	-	37%
Nuclear	6%	-	16%
Unspecified sources of power⁴	3%	-	12%
TOTAL	100%	100%	100%

1. "PWP Power Mix" represents all sources of energy procured by PWP and provided to all customers (including [Green Power Program](#) customers). ALL PERCENTAGES ARE ROUNDED.

2. Energy sources procured specifically for the [Green Power Program](#)

3. Percentages are estimated annually by the California energy Commission based on all electricity sold to California consumers during the previous year.

4. Energy procured from transactions on the spot market that are not traceable to specific generation sources

For specific information about this electricity product, contact the PWP Answerline at (626) 744-6970. For general information about the Power Content Label, visit the [California Energy Commission website](#) or call the CEC at 1 (800) 555-7794.

PWP met 24% of its 2011 retail electric demand using a combination of long-term and short-term eligible renewable resource purchase contracts. This exceeds both statutory and Pasadena's adopted RPS requirements. Any "excess" procurement from 2011 may be applied toward meeting the state's 2011-2013 compliance period RPS requirement of 20% on average. It is possible that PWP's renewable energy content may be less in the next two years.

The California Power Mix

Each year, the CEC calculates the California Power Mix, which reflects the energy resource mix for electricity consumed in California net of electricity sold to consumers as specific purchases. In other words, it is the mix of resources used to supply power from all non-specific or unspecified sources, such as PWP's typical spot market energy purchases. Information about the California Power Mix is provided only as a reference.

Under Senate Bill 1305, utilities had the option to not make any specific claims for their resource mix and report only the California Power Mix to their customers. PWP opted not to make specific claims until the second quarter report in calendar year 2005.

Pasadena's Historical Annual Power Content Label

The following table summarizes the PWP Power Mix reported on the annual PCL since calendar year 2005. The label for each year also includes a column for the PWP Green Power mix, which is always 100% eligible wind resources.

ENERGY RESOURCES	2005 PWP	2006 PWP	2007 PWP	2008 PWP	2009 PWP	2010 PWP	2011 PWP
	(actual)						
Eligible Renewable	2%	2%	8%	8%	9%	16%	24%
-- Biomass & waste	<1%	<1%	5%	6%	5%	8%	13%
-- Geothermal	<1%	1%	1%	1%	2%	2%	1%
-- Small hydroelectric	<1%	<1%	0%	1%	1%	0%	2%
-- Solar	<1%	<1%	0%	0%	0%	0%	0%
-- Wind	1%	1%	1%	1%	1%	6%	8%
Coal	70%	67%	65%	60%	61%	54%	56%
Large Hydroelectric	7%	10%	7%	6%	5%	4%	4%
Natural Gas	15%	16%	15%	20%	18%	13%	7%
Nuclear	6%	5%	5%	6%	6%	6%	6%
Unspecified Sources¹	0%	0%	0%	0%	0%	7%	3%
TOTAL	100%						
Purchased From Specific Resources	84%	78%	89%	91%	90%	93%	97%

Percent of Sales to Green Power Customers	0.5%	0.8%	1.4%	1.5%	1.2%	1.2%	1.2%
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¹ The CEC accounting treatment for Unspecified Sources was revised in 2010. From 2005-2009, energy from Unspecified Sources was allocated to each of the listed energy resource categories base on the applicable California Power Mix.