Agenda Report

May 17, 2021

TO: Honorable Mayor and City Council

FROM: Water and Power Department

THROUGH: Municipal Services Committee (May 11, 2021)

SUBJECT: **ADOPT TEN-YEAR ENERGY EFFICIENCY AND DEMAND REDUCTION GOALS FOR FISCAL YEARS 2022 THROUGH 2031**

RECOMMENDATION:

It is recommended that the City Council:

1. Find that the proposed action is not a project subject to the California Environmental Quality Act (CEQA) pursuant to Section 21065 of CEQA and Sections 15060 (c)(2), 15060 (c)(3), and 15378 of the State CEQA Guidelines and, as such, no environmental document pursuant to CEQA is required; and,
2. Adopt an energy efficiency goal to achieve 11,720 Megawatt-hours ("MWh") per year energy savings and 1.8 Megawatts ("MW") per year demand reduction from Pasadena Water and Power ("PWP") energy efficiency programs for fiscal years 2022 through 2031 in accordance with California Law.

ENVIRONMENTAL ADVISORY COMMISSION RECOMMENDATION:

At its April 13, 2021 meeting, the Environmental Advisory Commission unanimously supported the staff recommendation provided that staff demonstrate to City Council that the recommended goals will achieve the Climate Action Plan ("CAP") goal Measure E-2.1 to "Facilitate energy efficient upgrades in existing homes and businesses" to reduce energy use (including electricity and natural gas) in existing homes and buildings by "40% in 2035 versus 2013 levels." Under the CAP, this would yield about 75,470 metric tons ("MT") of additional GHG emissions reductions from electricity savings.

Subsequent staff analysis indicates the projected cumulative energy efficiency savings under the recommended energy will fall 5-10% short of the 40% electric use reduction goal; however, the combined effect of PWP's future near-zero-carbon resource mix and electrification programs to convert existing natural gas and gasoline use with clean electricity will provide far more GHG reductions than meeting the CAP goal to reduce electricity use in existing homes and businesses. Staff anticipates recommending future

amendments to the CAP to measure net GHG emission reductions from the energy sector, rather than setting a goal to reduce electricity consumption.

EXECUTIVE SUMMARY:

California law requires that Publicly Owned Utilities ("POUs") such as PWP acquire all cost effective, reliable and feasible energy efficiency and demand response prior to other resources. It further requires that POU governing boards such as the Pasadena City Council adopt ten-year energy efficiency and peak demand reduction goals every four years. The City Council last adopted energy efficiency goals in 2017, and new goals must be adopted before the end of Fiscal Year ("FY") 2021. Utilities are also mandated to report their energy efficiency savings, expenditures, and cumulative progress to the California Energy Commission ("CEC") on an annual basis.

As has been done for each goal setting cycle since 2007, the California Municipal Utilities Association ("CMUA"), in collaboration with its member utilities - including PWP, retained a consultant to help determine the market potential for energy efficiency for FY 2022-2031. The consultant, with input from PWP staff, produced a customized model with results that were deemed appropriate for PWP's service territory.

The market potential studies project savings achievable from PWP's energy efficiency programs as well as the savings expected to result from the statewide adoption of new Codes and Standards ("C&S"). In prior years, the C&S contribution was relatively modest, was included in the recommended goals adopted by the City Council, and was reported to the CEC each year as part of PWP's energy efficiency results. However, the latest market potential forecast projects that C&S energy savings will contribute a significant share (about 40%) of the total savings, and, the CEC no longer allows utilities to report their share of energy savings from statewide C&S implementation. Therefore, starting with the current recommended ten-year goals, PWP will not include the projected contribution from C&S as part of the goal.

Table I summarizes the incremental annual energy efficiency goals and total annual savings starting in FY 2022. The projected total energy savings starting FY 2022 is 19,524 MWh and total demand reduction of 3.5 MW compared to total savings anticipated under the FY 2027 goals of 13,500 MWh and 2.3 MW, respectively.

Table I – Annual Energy Efficiency Goals

Energy Efficiency Target	PWP Program Savings[1]	C&S Savings	Total Savings[2]
Recommended Annual Energy Savings Goal[1] (MWh)	**11,720**	7,804	**19,524**
Adopted 2017 Goal[2] (MWh)	11,388	2,111	13,500
Recommended Annual Demand Reduction Goal[1] (MW)	**1.8**	1.7	**3.5**
Adopted 2017 Goal[2] (MW)	1.6	0.7	2.3

1) *The recommended goals reflect savings from PWP programs only.*
2) *The adopted 2017 goals reflected total savings including contribution from C&S*

Although there is no direct cost associated with adoption of the recommended energy saving goals, achieving these goals has a financial impact. Reduced electricity sales create funding gaps for infrastructure investment and exert upward pressure on rates, since the fixed costs for infrastructure must be recovered from fewer kilowatt-hours ("kWh") of electricity sales. For example, since FY 2008, the average electric rate required to generate $1 million in revenue has increased from $0.0008/kWh to $0.0010/kWh, or 25%, as a result of the PWP's net decline in retail electric energy sales volume.

The energy efficiency goals adopted by the City Council are incorporated into PWP's Power Integrated Resource Plan ("IRP"), which serves as the utility's long-range blueprint to supply customers with reliable and environmentally responsible electricity at competitive rates. The 2018 IRP includes a commitment to secure future resources from net zero-carbon resources: Therefore, reduced annual electric energy consumption will have diminishing climate benefit over time.

BACKGROUND:

Legislative Requirements

Senate Bill 1037 (2005) requires each POU to acquire all cost effective, reliable, and feasible energy efficiency and demand response prior to other energy supply resources. Assembly Bill 2021 (2006) requires that the governing bodies of POUs adopt ten-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. Senate Bill 350 (2015) directs the CEC to achieve an overall doubling of energy efficiency across all sectors (including natural gas) through various means "to the extent doing so is cost-effective [and] feasible."

Collectively, these statutes require that utilities report their energy efficiency goals, savings, expenditures, and progress to the CEC. CMUA compiles and submits a comprehensive report for its member agencies each year. The March 2021 report includes energy efficiency program results for FY 2020 as well as the forecast market potential for energy savings developed by the consultant for the recommended goals.

City of Pasadena Sustainability Policies

Energy efficiency goals support Pasadena's CAP, which is a strategic framework for measuring, planning, and reducing Greenhouse Gas ("GHG") emissions. The CAP includes an ambitious goal of reducing citywide GHG emissions by more than half by the year 2035. The recommended energy efficiency goals support the CAP's *Strategy 2: Energy Efficiency and Conservation* measures to reduce energy consumption in existing buildings and new construction.

The recommended energy efficiency goals will be incorporated into an update of the IRP expected to commence later this calendar year.

Energy Efficiency Model - Collaborative Process

Since the enactment of Assembly Bill 2021, the CMUA has coordinated and facilitated a collaborative effort to develop and report energy efficiency goals for its 45 member agencies that provide electric services. For the 2021 goal adoption cycle, CMUA retained GDS Associates, Inc. ("GDS") to develop, update and utilize an analytical model to guide each member utility in establishing its respective goals.

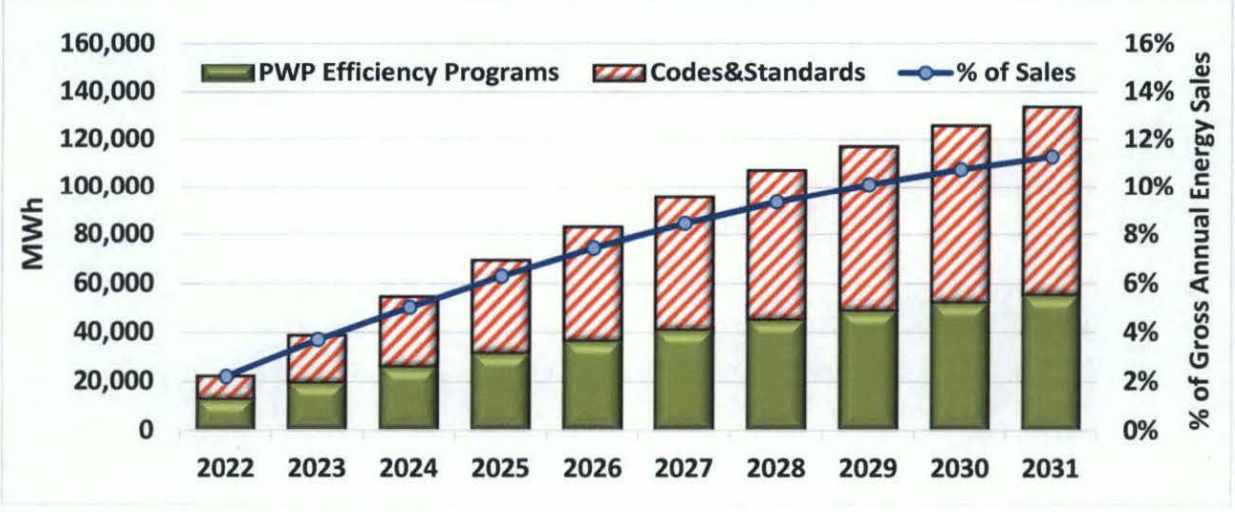
GDS utilizes a variety of publicly-available tools to determine the energy efficiency savings potential for each participating CMUA member agency. The technical potential (i.e., the maximum possible without economic or other considerations) for energy efficiency is determined based on a universal database of energy efficiency measures that could be applied to a given utility. Each utility's economic potential is determined by selecting those measures that cost less to implement than their corresponding avoided costs. Finally, the market potential considers other utility-specific factors such as penetration of existing measures, past customer participation behavior, economic conditions, and other relevant factors.

GDS worked closely with PWP staff to determine appropriate avoided costs for the analysis. The Avoided Cost Model ("ACM") developed by Energy + Environmental Economics for the state's investor owned utilities was used to generate PWP's avoided costs on an hourly level. PWP selected the most appropriate avoided cost model parameters for PWP, then customized these inputs to reflect the generation portfolio mix, resource adequacy capacity needs and pricing, and the social cost of carbon from the 2018 IRP.

Model Results and Recommended Goals

Figure 1 shows the cumulative market potential for energy savings (in MWh per year) for the ten-year period from 2022 to 2031 produced by the model. Figure 1 shows that annual electricity sales would be reduced by approximately 133,400 MWh, or 11.3% of the forecast gross retail sales volume (before energy efficiency), in FY 2031.

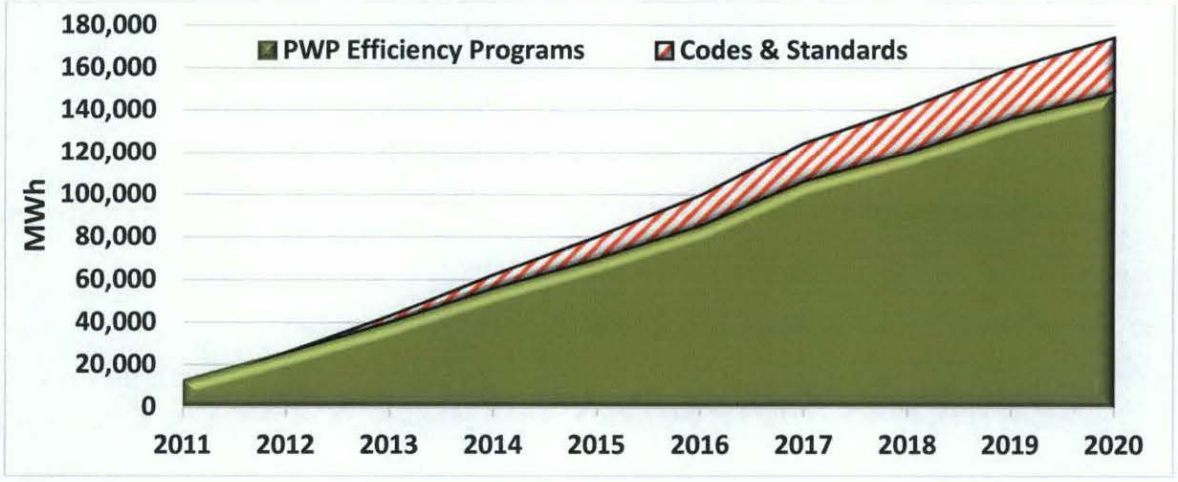
Figure 1 – Cumulative Ten-Year Net Market Potential Energy Savings



Cumulative Impact of Last Ten Years' Energy Efficiency

Figure 2 shows that cumulative actual energy efficiency savings over the last ten years from FY 2011 through FY 2020 have helped PWP electric customers save approximately 174,000 MWh per year as of June 30, 2020. This equates to approximately 17.2% of what FY 2020 gross retail sales would have been without the energy efficiency savings (i.e., actual retail sales plus cumulative annual impact of energy efficiency).

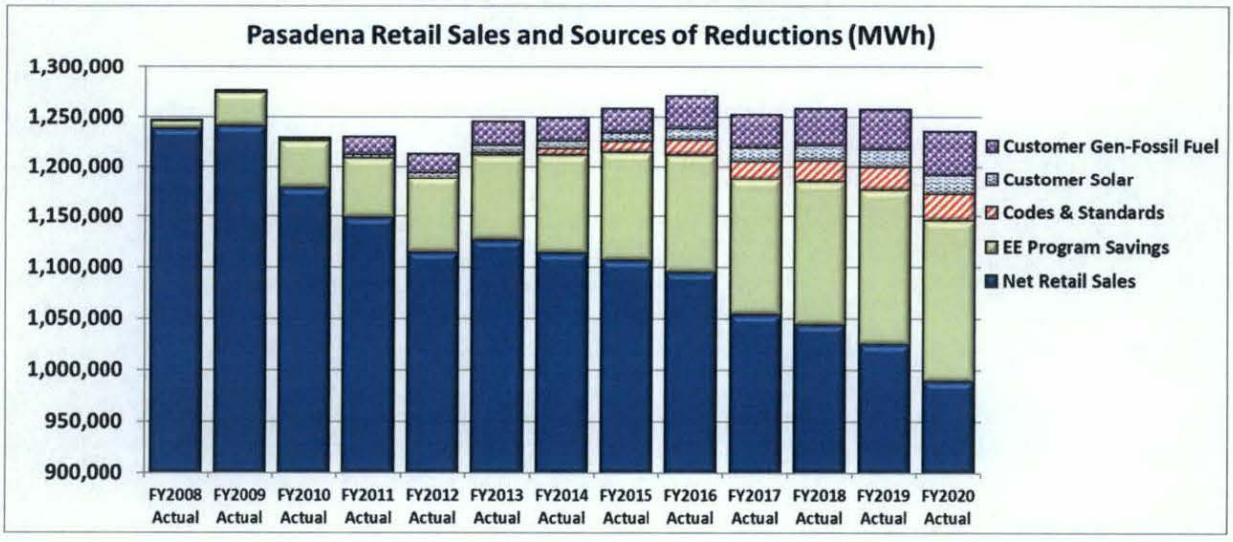
Figure 2 - PWP's Actual Cumulative Energy Efficiency Savings (MWh)



Impact of Energy Efficiency and Customer-Owned Generation on Sales

Figure 3 shows PWP has experienced a net 22% decline in actual retail electric energy sales volume since FY 2008. The decline in energy sales can be attributed to several factors that include PWP's aggressive energy efficiency programs, statewide C&S, customer investments in distributed generation, and other factors such as weather and the underlying economic activity in PWP's service territory. The reduced energy sales create funding gaps for infrastructure investment and apply upward pressure on rates as PWP's fixed costs are spread over fewer kWh of electricity sales.

Figure 3 – Annual Retail Energy Sales and Contributions to Reductions



PBC Fund and Budget Considerations

PWP customers pay a Public Benefit Charge ("PBC") rate based on their monthly or bi-monthly electric usage to fund programs such as; Cost-effective energy efficiency incentives; renewable resources; low income rate assistance and targeted energy efficiency; research, development and demonstration; and, beneficial electrification programs. PBC revenues are maintained in a separate fund (410) that is only used for the purposes listed above as authorized under Public Utilities Code 385(a) and the City Council. At the end of each fiscal year, any remaining unspent PBC revenues are carried forward in the PBC Fund.

The PBC rate is determined by a formula based on the approved PBC budget, less any available carry-forward funds, divided by forecast energy sales. The PBC rate is currently $0.00685/kWh and generates approximately $6.9 million in revenue per year. The PBC charges add $3.43 per month for an average residential customer using 500 kWh per month.

Based on model results and past program experience, staff estimates PWP's energy efficiency program spending will average approximately $3 million per year to achieve the recommended goals. As shown in Table II, this is consistent with recent energy efficiency program spending.

Table II – Historical Energy Efficiency Program Expenditures ($000/year)

Annual Cost	FY2016	FY2017	FY2018	FY2019	FY2020
Residential Programs	$782	$854	$1,727	$1,935	$1,664
Non-Residential Programs	$2,008	$3,766	$1,267	$1,099	$1,080
Total Program Cost	**$2,790**	**$4,620**	**$2,994**	**$3,034**	**$2,744**

PWP anticipates the current PBC rate will be sufficient to cover energy efficiency expenditures needed to meet the recommended energy efficiency goals while maintaining the current level of funding for other programs. However, should funding increase for rate assistance or electrification programs be approved in future budgets, the PBC rate may need to be revised as necessary at that time.

COUNCIL POLICY CONSIDERATION:

The proposed energy efficiency and demand reduction goals are consistent with the City's Urban Environmental Accords, the General Plan's Open Space and Conservation Element, City Council's Strategic Planning Goals, the 2018 CAP, and the 2018 Integrated Resource Plan. Adoption of the proposed energy efficiency goals will contribute to GHG emissions reduction goals by reducing energy consumption.

ENVIRONMENTAL ANALYSIS:

The action proposed herein is not a project subject to the CEQA in accordance with Section 21065 of CEQA and State CEQA Guidelines Sections 15060 (c)(2), 15060 (c)(3), and 15378. The establishment of energy efficiency and demand goals does not involve

FISCAL IMPACT:

The recommended action has no direct fiscal impact, as it does not authorize additional expenditures or rate adjustments. Future Light and Power Fund retail electric revenues and expenses will be reduced as a result of implementing programs to achieve the recommended goals, with a net effect of applying upward pressure on electric rates. The magnitude and timing of future electric rate adjustments may be altered depending on numerous factors, including customer participation in energy efficiency programs, changing patterns in electric consumption, customer investments in new technology, and actual cost savings realized.

Energy efficiency program expenditures are approved in the annual PBC Fund (410) operating budget. Expenditures are expected to average approximately $3 million per year, or 1.6% of PWP's retail electric rate revenues, to achieve the recommended goals. PBC revenues are sufficient to maintain the current level of funding for ongoing PBC-funded programs.

Respectfully submitted,

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