

PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco CA 94102-3298



Pacific Gas & Electric Company
ELC (Corp ID 39)
Status of Advice Letter 6450E
As of January 24, 2022

Subject: Pacific Gas and Electric Company's Advice Letter - 2021 Annual WaterSaver Program Report

Division Assigned: Energy

Date Filed: 12-31-2021

Date to Calendar: 01-05-2022

Authorizing Documents: E-5073

| | |
|------------------------|-------------------|
| Disposition: | Accepted |
| Effective Date: | 01-30-2022 |

Resolution Required: No

Resolution Number: None

Commission Meeting Date: None

CPUC Contact Information:

edtariffunit@cpuc.ca.gov

AL Certificate Contact Information:

Kimberly Loo

415-973-4587

PGETariffs@pge.com

PUBLIC UTILITIES COMMISSION
505 Van Ness Avenue
San Francisco CA 94102-3298



To: Energy Company Filing Advice Letter

From: Energy Division PAL Coordinator

Subject: Your Advice Letter Filing

The Energy Division of the California Public Utilities Commission has processed your recent Advice Letter (AL) filing and is returning an AL status certificate for your records.

The AL status certificate indicates:

- Advice Letter Number
- Name of Filer
- CPUC Corporate ID number of Filer
- Subject of Filing
- Date Filed
- Disposition of Filing (Accepted, Rejected, Withdrawn, etc.)
- Effective Date of Filing
- Other Miscellaneous Information (e.g., Resolution, if applicable, etc.)

The Energy Division has made no changes to your copy of the Advice Letter Filing; please review your Advice Letter Filing with the information contained in the AL status certificate, and update your Advice Letter and tariff records accordingly.

All inquiries to the California Public Utilities Commission on the status of your Advice Letter Filing will be answered by Energy Division staff based on the information contained in the Energy Division's PAL database from which the AL status certificate is generated. If you have any questions on this matter please contact the:

Energy Division's Tariff Unit by e-mail to
edtariffunit@cpuc.ca.gov

December 31, 2021

Advice 6450-E

(Pacific Gas and Electric Company ID U 39 E)

Public Utilities Commission of the State of California

Subject: Pacific Gas and Electric Company's Advice Letter - 2021 Annual WatterSaver Program Report

Purpose

Pacific Gas and Electric Company (PG&E) submits this Tier 2 Advice Letter (AL) to satisfy the requirements as outlined in Resolution E-5073 (Resolution) which requires reporting on the progress of the WatterSaver Program.

Background

The Commission's January 15, 2021 Resolution E-5073 issued final approval of the WatterSaver Program, a behind-the-meter (BTM) thermal storage load-shifting program submitted as a response to Assembly Bill (AB) 2868 that was seeking proposals to accelerate widespread deployment of distributed energy storage systems to achieve ratepayer benefits, reduce dependence on petroleum, meet air quality standards, and reduce emissions of greenhouse gases. The WatterSaver Program will control electric water heaters, both heat pump water heaters (HPWHs) and electric resistance water heaters (ERWHs), to minimize energy consumption during peak periods.

The Public Advocates Office submitted an Application for Rehearing (AFR) of Resolution E-5073 on February 16, 2021. At such time, the majority of WatterSaver's pre-launch work was put on pause until the Commission addressed the AFR. The Commission did not find grounds for granting rehearing and denied the request on June 25, 2021. Due to this delay, the WatterSaver Program is expected to begin enrolling participants in January 2022 and does not yet have specific program data to report. However, this Advice Letter provides an updated program budget and describes PG&E's plan for reporting additional information in the next annual advice letter on the program, to be submitted pursuant to Resolution E-5073 by December 31, 2022.¹

¹ Resolution, p. 64 (Ordering Paragraph (OP) 11).

Proposed Key Performance Indicators

The Resolution requires that this Advice Letter “include all the Key Performance Indicators identified in Advice Letter 5731-E.”²

The following table lists the various Key Performance Indicators (KPI) that were identified in AL 5731-E. PG&E will include the actual values for the KPIs in its next annual advice letter once it has operational data to report. Additionally, PG&E will solicit guidance from the Energy Division on appropriate quantification methodologies during quarterly status update meetings and will follow up with written summaries to confirm its understanding of that guidance.

Table 1. Key Performance Indicators for WatterSaver, per AL 5731-E

| WatterSaver Key Performance Indicators | |
|---|--|
| Enrolled Thermal Energy Storage Peak Demand Capacity (MW) | |
| Enrolled Thermal Energy Storage Energy Capacity (MWh) | |
| Targeted Customer Segment Enrollments (#/Segment) | |
| Residential | |
| Commercial | |
| Program Cost-Effectiveness | |
| (Program \$/Gross kW shifted) | |
| (Program \$/Gross kWh shifted) | |
| # of Controlled Residential and Commercial HPWHs | |
| (Costs (control, API, TMV)/Gross kW) | |
| (Costs (control, API, TMV)/Gross kWh) | |
| # of Controlled Residential and Commercial ERWHs | |
| (Costs (control, API, TMV)/Gross kW) | |
| (Costs (control, API, TMV)/Gross kWh) | |
| Customer TOU Cost Savings | |
| (Gross) | |
| (Average per customer) | |
| GHG Reduction | |
| (Gross) | |
| (Average per customer) | |
| Air quality improvement | |
| Petroleum reliance reduction (removal of propane water heaters) | |
| Average Customer Satisfaction (1, satisfied - 5, dissatisfied) | |

² *Id.*, p. 63 (OP 2).

Proposed Cost Effectiveness Calculation Methodology

The Resolution requires PG&E to “calculate the Total Resource Cost test, the Program Administrator Cost test, the Ratepayer Impact Measure test, and the Participant Cost Test in each Advice Letter filing” related to the Program using “the latest version of the cost-effectiveness tool, or when necessary, an Excel spreadsheet file to calculate program cost-effectiveness.”³

Per Resolution E-5073, we will calculate the Total Resource Cost, the Program Administrator Cost, the Ratepayer Impact Measure test, and the Participant Cost Test as defined in the Resolution. These values will be calculated for next year’s advice letter, after actual program data is collected.

- Total Resource Cost (TRC) – Compares the total costs of the program, including both the participants’ and the utility’s program administrator’s costs, to its avoided costs.
- Program Administrator Cost (PAC) – Compares the costs incurred by the program administrator (including incentive costs) to the program avoided costs.
- Ratepayer Impact Measure (RIM) – Measures the program’s impact on customer bills or rates due to changes in utility revenues and operating costs caused by the program.
- Participant Cost Test (PCT) – Measures benefits and costs from the program participant’s perspective.

Unless new standards are developed for this type of water heating load-shifting program during 2022, the equations found in the California Standard Practice Manual (SPM) will be used as the basis for the above calculations. Refer to Advice Letter 5731-E-A, pages 7-9, for previously reported cost effectiveness. This value will change once actual customer data is acquired.

Annual Program Report, Revised Program Budget, and Budget Categories

The Resolution requires this Advice Letter to include “the first WatterSaver program annual program report, a revised program budget, budget categories, and cost-effectiveness analysis.”⁴

PG&E is providing the first Annual Program Report as Appendix A to this Advice Letter.

Due to the technology enrollment ratio (HPWH/ERWH) target change from an 85/15 ratio to a 60/40 ratio, requested by the Commission in Resolution E-5073, WatterSaver’s proposed budget in the implementation and incentives categories changed slightly

³ *Id.*, p. 63 (OPs 3-4).

⁴ *Id.*, p. 63 (OP 8).

relative to what was submitted in PG&E's Advice Letter 5731-E-A. The Total Program Budget amount decreased by 2%.

WatterSaver Program Total Budget⁵

| | Previous Budget with 85/15 | Current Budget with 60/40 |
|--------------------------------------|----------------------------|---------------------------|
| Administrative | \$447,218 | \$447,218 |
| Marketing | \$606,630 | \$606,630 |
| Direct Implementation Non-Incentives | \$2,124,956 | \$2,108,527 |
| Incentives | \$3,138,192 | \$3,016,136 |
| Total Program Budget | \$6,316,996 | \$6,178,510 |

While the shift from an 85/15 to 60/40 technology enrollment ratio may result in fewer controlled water heaters to achieve the 2.5 MW goal, ERWH controls and associated control installations are expected to be more costly than for HPWH control costs, many of which will not incur control costs. For example, ERWH controls require a control module which must be installed by a qualified technician, whereas some HPWHs can be third-party controlled without the need for external, WatterSaver-funded controls. Additionally, for HPWHs that do require a WatterSaver-funded external control, many can be installed by the homeowner or by the homeowner's plumber during the HPWH installation without incurring program or participant costs.

Potential Program Improvements

The Resolution requires this Advice Letter to address "how the WatterSaver program, including but not limited to program incentive structures, program incentive values, program control strategies, and other program elements, such as qualifying rates, could be modified to improve cost-effectiveness, maximize ratepayer benefits, and lessons learned in relation to other related programs adopted."⁶

One potential area of improved benefits, and thus improved cost-effectiveness and customer bill benefits, could be more aggressive load shift strategies than what is initially anticipated. The intended control algorithm will ramp up the water heater set point to a certain temperature before the customer's peak period and then reduce the setpoint to a lower but still comfortable temperature in order to reduce electricity consumption of the water heater during the duration of the peak period. If the tank's water temperature drops below a certain set point, the heat pump or resistance heater will turn back on to avoid a cold water event. The initial algorithm will be more conservative in order to minimize any potential for participant comfort dissatisfaction. An example of a more aggressive strategy could mean an even lower water heater set point during the peak event so as to fully

⁵ Budget Expenditures to-date are included in Annual Program Report (see Appendix A)

⁶ Resolution, p. 63 (OP 9).

minimize any electricity consumption during the peak period. However, the WatterSaver program needs to establish ample actual data and information from participants that indicate more aggressive load shift strategies are achievable without risking cold water complaints or negative participant feedback.

The WatterSaver team met with the Sacramento Municipal Utility District (SMUD) to discuss lessons learned from their event-based demand response HPWH program, PowerMinder. They emphasized the importance of enrolling customers at the time of water heater installation as they had no success in recruiting participants who already owned HPWHs previously. They explained that their initial \$2/month participant incentive was too low which supported WatterSaver's higher \$5/month incentive payment. They also found that their thermostatic mixing valve requirement was an enrollment barrier for some customers which is why WatterSaver is partnering with the TECH initiative to provide incentives to contractors for thermostatic mixing valves at HPWH installation.

At this stage, WatterSaver believes it is premature to propose any other significant, hypothetical modifications prior to customer participation and absent any actual load shift data. As PG&E collects data regarding actual participation in 2022, PG&E will identify lessons learned and potential modifications during its quarterly status update meetings with the Energy Division and expects to be able to substantively address the need for program improvements in the 2022 Annual Advice Letter.

Centralized vs Decentralized Controlled Water Heaters

The Resolution requires that this Advice Letter include details regarding “how to establish, monitor, and verify the ability of a decentralized control subgroup to provide similar benefits to ERWHs and HPWHs being managed by a centralized system.”⁷

A centralized management system means all enrolled water heaters will be controlled and optimized based on the customer's Time-of-Use (TOU) rate and usage pattern. The energy use data from each individual water heater will be captured by the controlling party and the control of the water heater can be iterated on and optimized based on the collection and analysis of this data. A decentralized management system means that each individual water heater owner must control and optimize their own device, or where the device does this autonomously, without any input from a third party and would be limited to only control types that do not require any subscription or communication fees. Whether or not that water heater data is recorded is up to the individual. For a decentralized management system, data that will be available to the Commission will be meter-level data only. Therefore, a centralized management system allows device-level consumption measurement and verification as opposed to meter-level measurement and verification. This device-level data could also be useful in developing water heater-specific energy usage analysis tools.

⁷ *Id.*, pp. 63-64 (OP 10).

There is much variation in the level of controllability among the numerous electric water heaters that are eligible to participate in WatterSaver. Water heaters that require add-on devices, which are all ERWHs and certain HPWHs that will need the CTA-2045 communication device, can only be managed by a centralized system without the installation of those additional control devices. These water heaters are not designed/manufactured to manage themselves and require a third party if they are to be controlled. For JA-13 compliant HPWHs, if the water heater is set up in compliance with JA-13 requirements at time of HPWH installation, it will have the potential to load shift in a decentralized manner, but it depends on how the manufacturer and installer have set up the JA-13 optimization logic. The default settings may not be optimized based on the customer's usage pattern, rate schedule, or climate zone.

As part of the program's measurement and verification process, randomly assigned water heaters will operate in a decentralized state of operation (uncontrolled by WatterSaver) on a daily rolling basis, thus creating a temporary decentralized control group, which will be compared against water heaters managed by the centralized system. Additionally, as HPWHs are installed under the TECH⁸ program in areas outside of PG&E service territory or in applications where those TECH-funded HPWHs are not enrolled in WatterSaver, the data reported by TECH on a meter-level energy use consumption of TECH-funded HPWHs will allow additional insight into how a decentralized HPWH control group would operate.

Protests

*****Due to the COVID-19 pandemic, PG&E is currently unable to receive protests or comments to this advice letter via U.S. mail or fax. Please submit protests or comments to this advice letter to EDTariffUnit@cpuc.ca.gov and PGETariffs@pge.com*****

Anyone wishing to protest this submittal may do so by letter sent via U.S. mail, facsimile or E-mail, no later than January 20, 2022, which is 20 days after the date of this submittal. Protests must be submitted to:

CPUC Energy Division
ED Tariff Unit
505 Van Ness Avenue, 4th Floor
San Francisco, California 94102

Facsimile: (415) 703-2200
E-mail: EDTariffUnit@cpuc.ca.gov

⁸ The Commission's Decision 20-03-027 authorized a budget of \$117M for the Technology and Equipment for Clean Heating (TECH) Initiative to fund incentives and market transformation activities for heat pump technology.

Copies of protests also should be mailed to the attention of the Director, Energy Division, Room 4004, at the address shown above.

The protest shall also be sent to PG&E either via E-mail or U.S. mail (and by facsimile, if possible) at the address shown below on the same date it is mailed or delivered to the Commission:

Sidney Bob Dietz II
Director, Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, California 94177

Facsimile: (415) 973-3582
E-mail: PGETariffs@pge.com

Any person (including individuals, groups, or organizations) may protest or respond to an advice letter (General Order 96-B, Section 7.4). The protest shall contain the following information: specification of the advice letter protested; grounds for the protest; supporting factual information or legal argument; name, telephone number, postal address, and (where appropriate) e-mail address of the protestant; and statement that the protest was sent to the utility no later than the day on which the protest was submitted to the reviewing Industry Division (General Order 96-B, Section 3.11).

Effective Date

Pursuant to General Order (GO) 96-B, Rule 5.2, PG&E requests that this Tier 2 advice submittal become effective on regular notice, January 30, 2022 which is 30 calendar days after the date of submittal

Notice

In accordance with General Order 96-B, Section IV, a copy of this advice letter is being sent electronically and via U.S. mail to parties shown on the attached list and the parties on the service list for A.18-03-001 [A18-02-016/A.18-03-002]. Address changes to the General Order 96-B service list should be directed to PG&E at email address PGETariffs@pge.com. For changes to any other service list, please contact the Commission's Process Office at (415) 703-2021 or at Process_Office@cpuc.ca.gov. Send all electronic approvals to PGETariffs@pge.com. Advice letter submittals can also be accessed electronically at: <http://www.pge.com/tariffs/>.



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Pacific Gas and Electric Company (ID U39E)

Utility type:

- ELC GAS WATER
 PLC HEAT

Contact Person: Kimberly Loo

Phone #: (415)973-4587

E-mail: PGETariffs@pge.com

E-mail Disposition Notice to: KELM@pge.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
 PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

Advice Letter (AL) #: 6450-E

Tier Designation: 2

Subject of AL: Pacific Gas and Electric Company's Advice Letter - 2021 Annual WatterSaver Program Report

Keywords (choose from CPUC listing): Compliance

AL Type: Monthly Quarterly Annual One-Time Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: Resolution E-5073

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL:

Confidential treatment requested? Yes No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information:

Resolution required? Yes No

Requested effective date: 1/30/22

No. of tariff sheets: 0

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102
Email: EDTariffUnit@cpuc.ca.gov

Name: Sidney Bob Dietz II, c/o Megan Lawson
Title: Director, Regulatory Relations
Utility Name: Pacific Gas and Electric Company
Address: 77 Beale Street, Mail Code B13U
City: San Francisco, CA 94177
State: California Zip: 94177
Telephone (xxx) xxx-xxxx: (415)973-2093
Facsimile (xxx) xxx-xxxx: (415)973-3582
Email: PGETariffs@pge.com

Name:
Title:
Utility Name:
Address:
City:
State: District of Columbia Zip:
Telephone (xxx) xxx-xxxx:
Facsimile (xxx) xxx-xxxx:
Email:

Advice 6450-E
December 31, 2021

Appendix A

WatterSaver 2021 Annual Report

Appendix A

WatterSaver 2021 Annual Report

The Commission's January 15, 2021 Resolution E-5073 issued final approval of the WatterSaver Program, a behind-the-meter (BTM) thermal storage load-shifting program submitted as a response to Assembly Bill (AB) 2868 that was seeking proposals to accelerate widespread deployment of distributed energy storage systems to achieve ratepayer benefits, reduce dependence on petroleum, meet air quality standards, and reduce emissions of greenhouse gases.

The Public Advocates Office submitted an Application for Rehearing (AFR) of Resolution E-5073 on February 16, 2021. At such time, the majority of WatterSaver's pre-launch work was put on pause until the Commission addressed the AFR. The Commission did not find grounds for granting rehearing and denied the request on June 25, 2021. WatterSaver's preparation activities for program launch resumed in July 2021.

During the remaining six months of 2021, WatterSaver focused on various pre-launch activities which included:

- Creation of a program website that will serve to educate and enroll customers
- Design and implementation of a web-based application that WatterSaver will use to send notifications to participating customers, issue incentives, and provide information about energy savings
- Development of a program implementation database
- Generation of a measurement and verification plan
- Creation of marketing and outreach collateral
- Finalization of incentive processing systems
- Development of device connection processes
- Creation and implementation of training materials

As of mid-December 2021, each of the above tasks were completed or were in the final stages of development. The goal is to officially launch and enroll the first WatterSaver participants January 2022.

The WatterSaver Program has also entered into purchase order agreements with manufacturers of various HPWH and ERWH control devices which are being manufactured and shipped December 2021 in preparation for control installations to begin in the first quarter of 2022. Due to Covid-19 and the global shortage of parts, some of the control devices and/or thermostatic mixing valves may not be readily available in 2022. Additionally, the WatterSaver program has entered into subcontracts with contractors who will install the control devices on the water heaters that need them. The procurement of controls and contracting of installation subcontractors have been in accordance with the 60/40 HPWH to ERWH technology enrollment ratio target as outlined in Resolution E-5073.

Finally, the WaterSaver program has been meeting regularly with various stakeholders and program administrators regarding the coordination, marketing, and outreach of WaterSaver, including but not limited to PG&E’s Energy Savings Assistance Program, PG&E’s San Joaquin Valley Electrification Pilot Team, the TECH initiative, program administrators, local government representatives, HPWH installation contractors, BayREN, and each of the Community Choice Aggregators within PGE’s service area.

The following provides a summary of program budget expenditures for 2020 and 2021 (as documented at time of Advice Letter submission).

| | 2020 Budget Expenditures | 2021 Budget Expenditures ¹ | Remaining Budget | Total Budget |
|--------------------------------------|--------------------------|---------------------------------------|------------------|--------------|
| Administrative | \$ 18,639 | \$ 8,268 | \$ 420,311 | \$ 447,218 |
| Marketing | \$ 61,068 | \$ 52,312 | \$ 493,251 | \$ 606,630 |
| Direct Implementation Non-Incentives | \$ 205,804 | \$ 133,583 | \$ 1,769,140 | \$ 2,108,527 |
| Incentives | - | \$ 66,764 | \$ 2,949,372 | \$ 3,016,136 |
| Total Program Budget | \$ 285,510 | \$ 260,927 | \$ 5,632,073 | \$ 6,178,510 |

¹ Through November 30, 2021.

**PG&E Gas and Electric
Advice Submittal List
General Order 96-B, Section IV**

AT&T
Albion Power Company

Alta Power Group, LLC
Anderson & Poole

Atlas ReFuel
BART

Barkovich & Yap, Inc.
California Cotton Ginners & Growers Assn
California Energy Commission

California Hub for Energy Efficiency
Financing

California Alternative Energy and
Advanced Transportation Financing
Authority
California Public Utilities Commission
Calpine

Cameron-Daniel, P.C.
Casner, Steve
Center for Biological Diversity

Chevron Pipeline and Power
City of Palo Alto

City of San Jose
Clean Power Research
Coast Economic Consulting
Commercial Energy
Crossborder Energy
Crown Road Energy, LLC
Davis Wright Tremaine LLP
Day Carter Murphy

Dept of General Services
Don Pickett & Associates, Inc.
Douglass & Liddell

East Bay Community Energy Ellison
Schneider & Harris LLP Energy
Management Service
Engineers and Scientists of California

GenOn Energy, Inc.
Goodin, MacBride, Squeri, Schlotz &
Ritchie
Green Power Institute
Hanna & Morton
ICF
International Power Technology

Intertie

Intestate Gas Services, Inc.
Kelly Group
Ken Bohn Consulting
Keyes & Fox LLP
Leviton Manufacturing Co., Inc.

Los Angeles County Integrated
Waste Management Task Force
MRW & Associates
Manatt Phelps Phillips
Marin Energy Authority
McKenzie & Associates

Modesto Irrigation District
NLine Energy, Inc.
NRG Solar

OnGrid Solar
Pacific Gas and Electric Company
Peninsula Clean Energy

Pioneer Community Energy

Public Advocates Office

Redwood Coast Energy Authority
Regulatory & Cogeneration Service, Inc.
SCD Energy Solutions
San Diego Gas & Electric Company

SPURR
San Francisco Water Power and Sewer
Sempra Utilities

Sierra Telephone Company, Inc.
Southern California Edison Company
Southern California Gas Company
Spark Energy
Sun Light & Power
Sunshine Design
Tecogen, Inc.
TerraVerde Renewable Partners
Tiger Natural Gas, Inc.

TransCanada
Utility Cost Management
Utility Power Solutions
Water and Energy Consulting Wellhead
Electric Company
Western Manufactured Housing
Communities Association (WMA)
Yep Energy