

DOCKETED	
Docket Number:	22-BSTD-07
Project Title:	Local Ordinance Applications Exceeding the 2022 Energy Code
TN #:	258433
Document Title:	Statewide Reach Codes Program Comments - City of Palo Alto Local Ordinance Application Cost Effectiveness Report Appendix (Single Family New Construction)
Description:	N/A
Filer:	System
Organization:	Statewide Reach Codes Program
Submitter Role:	Public
Submission Date:	8/9/2024 4:18:22 PM
Docketed Date:	8/9/2024

*Comment Received From: Statewide Reach Codes Program
Submitted On: 8/9/2024
Docket Number: 22-BSTD-07*

City of Palo Alto Local Ordinance Application Cost Effectiveness Report Appendix (Single Family New Construction)

Appendix documenting utility tariff data used in the cost-effectiveness calculations for Single Family New Construction Buildings.

Additional submitted attachment is included below.

2022 Cost-Effectiveness Study: Single Family New Construction



Prepared by:

Alea German, Claudia Pingatore, Ada Shen, & Keith Saechao, Frontier Energy, Inc
Misti Bruceri, Misti Bruceri & Associates, LLC

Prepared for:

Kelly Cunningham, Codes and Standards Program, Pacific Gas and Electric

Legal Notice

This report was prepared by Pacific Gas and Electric Company and funded by the California utility customers under the auspices of the California Public Utilities Commission.

Copyright 2022, Pacific Gas and Electric Company. All rights reserved, except that this document may be used, copied, and distributed without modification.

Neither PG&E nor any of its employees makes any warranty, express or implied; or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any data, information, method, product, policy or process disclosed in this document; or represents that its use will not infringe any privately-owned rights including, but not limited to, patents, trademarks or copyrights.

Acronym List

2023 PV\$ – Present value costs in 2023

ACH50 – Air Changes per Hour at 50 pascals pressure differential

ACM – Alternative Calculation Method

ADU – Accessory Dwelling Unit

AFUE – Annual Fuel Utilization Efficiency

B/C – Lifecycle Benefit-to-Cost Ratio

BEopt – Building Energy Optimization Tool

BSC – Building Standards Commission

CA IOUs – California Investor-Owned Utilities

CASE – Codes and Standards Enhancement

CBEECC-Res – Computer program developed by the California Energy Commission for use in demonstrating compliance with the California Residential Building Energy Efficiency Standards

CFI – California Flexible Installation

CFM – Cubic Feet per Minute

CO₂ – Carbon Dioxide

CPAU – City of Palo Alto Utilities

CPUC – California Public Utilities Commission

CZ – California Climate Zone

DHW – Domestic Hot Water

DOE – Department of Energy

DWHR – Drain Water Heat Recovery

EDR – Energy Design Rating

EER – Energy Efficiency Ratio

EF – Energy Factor

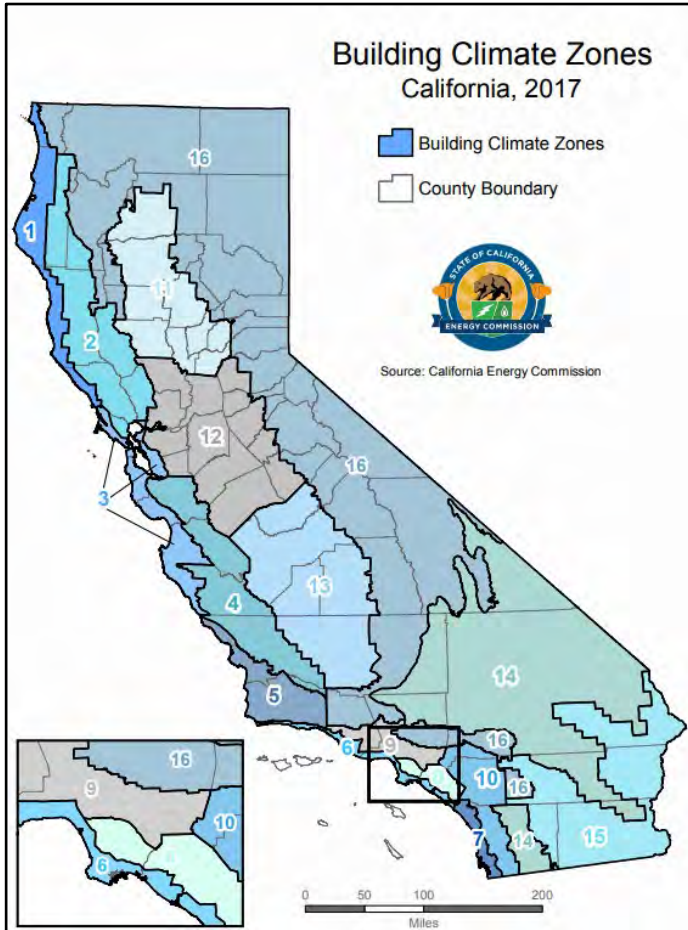


7 Appendices

7.1 Map of California Climate Zones

Climate zone geographical boundaries are depicted in Figure 4. The map in Figure 4 along with a zip-code search directory is available at: https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html

Figure 4: Map of California climate zones.



7.2 Utility Rate Schedules

The Reach Codes Team used the CA IOU and POU rate tariffs detailed below to determine the On-Bill savings for each package. The California Climate Credit was applied for both electricity and natural gas service for the IOUs using the 2023 credits shows below.²² The credits were applied to reduce the total calculated annual bill, including any fixed fees or minimum bill amounts.

2023 Electric California Climate Credit Schedule

	February or March	April	May	June	July	Aug	Sept	Oct
PG&E	\$38.39							\$38.39
SCE	\$71.00							\$71.00
SDG&E	\$60.70							\$60.70

Residential Natural Gas California Climate Credit

In 2023, the 2023 Natural Gas California Climate Credit will be distributed in February or March instead of April.

	2018†	2019	2020	2021	2022	2023	Total Value Received Per Household 2018-2023
PG&E	\$30	\$25	\$27	\$25	\$48	\$52.78	\$208
SDG&E	*	\$34	\$21	\$18	\$43	\$43.40	\$162
Southwest Gas	\$22	\$25	\$27	\$28	\$49	\$56.35	\$207
SoCalGas	*	\$50	\$26	\$22	\$44	\$50.77	\$194

Electricity rates reflect the most recently approved tariffs. Monthly gas rates were estimated based on recent gas rates (November 2023) and a curve to reflect how natural gas prices fluctuate with seasonal supply and demand. The seasonal curve was estimated from monthly residential tariffs between 2014 and 2023 (between 2017 and 2023 for CPAU). 12-month curves were created from monthly gas rates for each of the ten years (seven years for CPAU). These annual curves were then averaged to arrive at an average normalized annual curve. This was conducted separately for baseline and excess energy rates. Costs used in this analysis were then derived by establishing the most recent baseline and excess rate from the latest tariff as a reference point (November 2023), and then using the normalized curve to estimate the cost for the remaining months relative to the reference point rate.

²² <https://www.cpuc.ca.gov/industries-and-topics/natural-gas/greenhouse-gas-cap-and-trade-program/california-climate-credit>

7.2.1 Pacific Gas & Electric

The following pages provide details on the PG&E electricity and natural gas tariffs applied in this study. Table 29 describes the baseline territories that were assumed for each climate zone. A net surplus compensation rate of \$0.07051/ kWh was applied to any net annual electricity generation based on a one-year average of the rates between December 2022 and November 2023.

Table 29: PG&E Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
CZ01	V
CZ02	X
CZ03	T
CZ04	X
CZ05	T
CZ11	R
CZ12	S
CZ13	R
CZ16	Y

The PG&E monthly gas rate for G-1 in \$/therm was applied on a monthly basis according to the rates shown in Table 30. These rates are based on applying a normalization curve to the November 2023 tariff based on ten years of historical gas data. Corresponding CARE rates reflect the 20 percent discount per the GL-1 tariff.

Table 30: PG&E Monthly Gas Rate (\$/therm)

Month	Total Charge	
	Baseline	Excess
January	\$2.05	\$2.43
February	\$2.08	\$2.46
March	\$1.92	\$2.31
April	\$1.80	\$2.20
May	\$1.77	\$2.18
June	\$1.78	\$2.18
July	\$1.80	\$2.20
August	\$1.85	\$2.26
September	\$1.92	\$2.33
October	\$1.99	\$2.40
November	\$2.06	\$2.46
December	\$2.05	\$2.44

Residential GAS Baseline Territories and Quantities ^{1/}

Effective April 1, 2022 - Present

BASELINE QUANTITIES (Therms Per Day Per Dwelling Unit)

Individually Metered			
Baseline Territories	Summer (April-October)	Winter Off-Peak (Nov, Feb, Mar)	Winter On-Peak (Dec, Jan)
	Effective Apr. 1, 2022	Effective Nov. 1, 2022	Effective Dec. 1, 2022
P	0.39	1.88	2.19
Q	0.56	1.48	2.00
R	0.36	1.24	1.81
S	0.39	1.38	1.94
T	0.56	1.31	1.68
V	0.59	1.51	1.71
W	0.39	1.14	1.68
X	0.49	1.48	2.00
Y	0.72	2.22	2.58

Master Metered			
Baseline Territories	Summer (April-October)	Winter Off-Peak (Nov, Feb, Mar)	Winter On-Peak (Dec, Jan)
	Effective Apr. 1, 2022	Effective Nov. 1, 2022	Effective Dec. 1, 2022
P	0.29	1.01	1.13
Q	0.56	0.67	0.77
R	0.33	0.87	1.16
S	0.29	0.61	0.65
T	0.56	1.01	1.10
V	0.59	1.28	1.32
W	0.26	0.71	0.87
X	0.33	0.67	0.77
Y	0.52	1.01	1.13

Summer Season: Apr-Oct
 Winter Off-Peak: Nov, Feb, Mar
 Winter On-Peak: Dec, Jan

Advice Letter: 4589-G
 Decision 21-11-016
 GRC 2020 Ph II [Application 19-11-019]
 Filed: Nov 22, 2019



Pacific Gas and Electric Company

U 39

Oakland, California

Revised
Cancelling Revised

Cal. P.U.C. Sheet No. 56550-E
Cal. P.U.C. Sheet No. 56229-E

ELECTRIC SCHEDULE E-TOU-C
RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

Sheet 2

RATES:
(Cont'd.)

E-TOU-C TOTAL BUNDLED RATES

Total Energy Rates (\$ per kWh)	PEAK		OFF-PEAK	
<i>Summer</i>				
Total Usage	\$0.53933	(I)	\$0.45589	(I)
Baseline Credit (Applied to Baseline Usage Only)	(\$0.08851)	(R)	(\$0.08851)	(R)
<i>Winter</i>				
Total Usage	\$0.43662	(I)	\$0.40827	(I)
Baseline Credit (Applied to Baseline Usage Only)	(\$0.08851)	(R)	(\$0.08851)	(R)
Delivery Minimum Bill Amount (\$ per meter per day)	\$0.37612			
California Climate Credit (per household, per semi-annual payment occurring in the March* and October bill cycles)	(\$38.39)			

Total bundled service charges shown on customer's bills are unbundled according to the component rates shown below. Where the delivery minimum bill amount applies, the customer's bill will equal the sum of (1) the delivery minimum bill amount plus (2) for bundled service, the generation rate times the number of kWh used. For revenue accounting purposes, the revenues from the delivery minimum bill amount will be assigned to the Transmission, Transmission Rate Adjustments, Reliability Services, Public Purpose Programs, Nuclear Decommissioning, Competition Transition Charges, Energy Cost Recovery Amount, Wildfire Fund Charge, and New System Generation Charges based on kWh usage times the corresponding unbundled rate component per kWh, with any residual revenue assigned to Distribution.

* Pursuant to D.23-02-014, disbursement of the April 2023 residential Climate Credit shall begin by March 1, 2023.

(Continued)

Advice Decision	7009-E	Issued by Meredith Allen Vice President, Regulatory Affairs	Submitted Effective Resolution	<u>August 25, 2023</u> <u>September 1, 2023</u>
-----------------	--------	--	--------------------------------------	--



Pacific Gas and Electric Company

U 39

Oakland, California

Cancelling Revised Revised

Cal. P.U.C. Sheet No. 56551-E
 Cal. P.U.C. Sheet No. 56230-E

ELECTRIC SCHEDULE E-TOU-C Sheet 3
 RESIDENTIAL TIME-OF-USE (PEAK PRICING 4 - 9 p.m. EVERY DAY)

RATES:
 (Cont'd.)

UNBUNDLING OF E-TOU-C TOTAL RATES

Energy Rates by Component (\$ per kWh)	PEAK		OFF-PEAK	
Generation:				
Summer (all usage)	\$0.19776		\$0.13432	
Winter (all usage)	\$0.14918		\$0.12413	
Distribution**:				
Summer (all usage)	\$0.17029	(I)	\$0.15029	(I)
Winter (all usage)	\$0.11618	(I)	\$0.11286	(I)
Conservation Incentive Adjustment (Baseline Usage)			(\$0.02216)	(I)
Conservation Incentive Adjustment (Over Baseline Usage)			\$0.06635	(I)
Transmission* (all usage)			\$0.05254	
Transmission Rate Adjustments* (all usage)			\$0.00059	
Reliability Services* (all usage)			\$0.00069	
Public Purpose Programs (all usage)			\$0.02578	
Nuclear Decommissioning (all usage)			\$0.00135	
Competition Transition Charges (all usage)			\$0.00030	
Energy Cost Recovery Amount (all usage)			(\$0.00071)	
Wildfire Fund Charge (all usage)			\$0.00530	
New System Generation Charge (all usage)**			\$0.00346	
Wildfire Hardening Charge (all usage)			\$0.00254	
Recovery Bond Charge (all usage)			\$0.00528	(R)
Recovery Bond Credit (all usage)			(\$0.00528)	(I)
Bundled Power Charge Indifference Adjustment (all usage)***			\$0.01309	

* Transmission, Transmission Rate Adjustments and Reliability Service charges are combined for presentation on customer bills.
 ** Distribution and New System Generation Charges are combined for presentation on customer bills.
 *** Direct Access, Community Choice Aggregation and Transitional Bundled Service Customers pay the applicable Vintaged Power Charge Indifference Adjustment. Generation and Bundled PCIA are combined for presentation on bundled customer bills.

(Continued)

Advice Decision	7009-E	Issued by Meredith Allen Vice President, Regulatory Affairs	Submitted Effective Resolution	August 25, 2023 September 1, 2023
-----------------	--------	--	--------------------------------	--------------------------------------



Pacific Gas and Electric Company

Oakland, California

Revised Cal. P.U.C. Sheet No. 56547-E
 Cancelling Revised Cal. P.U.C. Sheet No. 56226-E

ELECTRIC SCHEDULE E-ELEC Sheet 2
 RESIDENTIAL TIME-OF-USE (ELECTRIC HOME)
 SERVICE FOR CUSTOMERS WITH QUALIFYING ELECTRIC TECHNOLOGIES

RATES:(Cont'd.)

TOTAL BUNDLED RATES

Base Services Charge (\$ per meter per day)	\$0.49281			
Total Energy Rates (\$ per kWh)		<u>PEAK</u>	<u>PART-PEAK</u>	<u>OFF-PEAK</u>
Summer Usage		\$0.56589 (I)	\$0.40401 (I)	\$0.34733 (I)
Winter Usage		\$0.33438 (I)	\$0.31229 (I)	\$0.29843 (I)
California Climate Credit (per household, per semi-annual payment occurring in the March† and October bill cycles)	(\$38.39)			

Total bundled service charges shown on a customer's bills are unbundled according to the component rates shown below.

UNBUNDLING OF TOTAL RATES

Energy Rates by Component (\$ per kWh)	<u>PEAK</u>		<u>PART-PEAK</u>		<u>OFF-PEAK</u>
Generation:					
Summer Usage	\$0.28164		\$0.18253		\$0.13743
Winter Usage	\$0.11951		\$0.09954		\$0.08619
Distribution**:					
Summer Usage	\$0.17932 (I)		\$0.11655 (I)		\$0.10497 (I)
Winter Usage	\$0.10994 (I)		\$0.10782 (I)		\$0.10731 (I)
Transmission* (all usage)	\$0.05254		\$0.05254		\$0.05254
Transmission Rate Adjustments* (all usage)	\$0.00059		\$0.00059		\$0.00059
Reliability Services* (all usage)	\$0.00069		\$0.00069		\$0.00069
Public Purpose Programs (all usage)	\$0.02578		\$0.02578		\$0.02578
Nuclear Decommissioning (all usage)	\$0.00135		\$0.00135		\$0.00135
Competition Transition Charges (all usage)	\$0.00030		\$0.00030		\$0.00030
Energy Cost Recovery Amount (all usage)	(\$0.00071)		(\$0.00071)		(\$0.00071)
Wildfire Fund Charge (all usage)	\$0.00530		\$0.00530		\$0.00530
New System Generation Charge (all usage)**	\$0.00346		\$0.00346		\$0.00346
Wildfire Hardening Charge (all usage)	\$0.00254		\$0.00254		\$0.00254
Recovery Bond Charge (all usage)	\$0.00528 (R)		\$0.00528 (R)		\$0.00528 (R)
Recovery Bond Credit (all usage)	(\$0.00528) (I)		(\$0.00528) (I)		(\$0.00528) (I)
Bundled Power Charge Indifference Adjustment (all usage)***	\$0.01309		\$0.01309		\$0.01309

* Transmission, Transmission Rate Adjustments and Reliability Service charges are combined for presentation on customer bills.
 ** Distribution and New System Generation Charges are combined for presentation on customer bills.
 *** Direct Access, Community Choice Aggregation and Transitional Bundled Service Customers pay the applicable Vintaged Power Charge Indifference Adjustment. Generation and Bundled PCIA are combined for presentation on bundled customer bills.
 † Pursuant to D.23-02-014, disbursement of the April 2023 residential Climate Credit shall begin by March 1, 2023.

(Continued)

Advice	7009-E	Issued by	Submitted	August 25, 2023
Decision		Meredith Allen	Effective	September 1, 2023
		Vice President, Regulatory Affairs	Resolution	



Pacific Gas and Electric Company

San Francisco, California

Cancelling Revised

Revised Revised

Cal. P.U.C. Sheet No. 54734-E
Cal. P.U.C. Sheet No. 53424-E

54734-E
53424-E

ELECTRIC SCHEDULE D-CARE Sheet 1
LINE-ITEM DISCOUNT FOR CALIFORNIA ALTERNATE RATES FOR ENERGY (CARE)
CUSTOMERS

APPLICABILITY: This schedule is applicable to single-phase and polyphase residential service in single-family dwellings and in flats and apartments separately metered by PG&E and domestic submetered tenants residing in multifamily accommodations, mobilehome parks and to qualifying recreational vehicle parks and marinas and to farm service on the premises operated by the person whose residence is supplied through the same meter, where the applicant qualifies for California Alternate Rates for Energy (CARE) under the eligibility and certification criteria set forth in Electric Rule 19.1. CARE service is available on Schedules E-1, E-8, E-TOU-B, E-TOU-C, E-TOU-D, EV2, E-ELEC, EM, ES, ESR, ET and EM-TOU. (T)

TERRITORY: This rate schedule applies everywhere PG&E provides electric service.

RATES: Customers taking service on this rate schedule whose otherwise applicable rate schedule has no Delivery Minimum Bill Amount (Schedule E-ELEC) will receive a CARE percentage discount of 35.000% on their total bundled charges (except for the California Climate Credit, which will not be discounted). Customers taking service on this rate schedule whose otherwise applicable rate schedule has a Delivery Minimum Bill Amount (all other schedules) will receive a CARE percentage discount ("A" or "C" below) on their total bundled charges on their otherwise applicable rate schedule (except for the California Climate Credit, which will not be discounted) and also will receive a percentage discount ("B" or "D" below) on the delivery minimum bill amount, if applicable. The CARE discount will be calculated for direct access and community choice aggregation customers based on the total charges as if they were subject to bundled service rates. Discounts will be applied as a residual reduction to distribution charges, after D-CARE customers are exempted from the Wildfire Fund Charge, Recovery Bond Charge, Recovery Bond Credit, and the CARE surcharge portion of the public purpose program charge used to fund the CARE discount. These conditions also apply to master-metered customers and to qualified sub-metered tenants where the master-meter customer is jointly served under PG&E's Rate Schedule D-CARE and either Schedule EM, ES, ESR, ET, or EM-TOU. (N)
 |
 |
 (N)
 (T)
 |
 (T)
 (T)

For master-metered customers where one or more of the submetered tenants qualifies for CARE rates under the eligibility and certification criteria set forth in Rule 19.1, 19.2, or 19.3, the CARE discount is equal to a percentage ("C" below) of the total bundled charges, multiplied by the number of CARE units divided by the total number of units. In addition, master-metered customers eligible for D-CARE will receive a percentage discount ("D" below) on the delivery minimum bill amount, if applicable.

It is the responsibility of the master-metered customer to advise PG&E within 15 days following any change in the number of dwelling units and/or any decrease in the number of qualifying CARE applicants that results when such applicants move out of their submetered or non-submetered dwelling unit, or submetered permanent-residence RV or permanent-residence boat.

(L)
 |
 (L)

(Continued)



Pacific Gas and Electric Company

San Francisco, California

Cancelling Revised Cal. P.U.C. Sheet No. 56208-E
 Revised Cal. P.U.C. Sheet No. 56020-E

ELECTRIC SCHEDULE D-CARE Sheet 2
 LINE-ITEM DISCOUNT FOR CALIFORNIA ALTERNATE RATES FOR ENERGY (CARE)
 CUSTOMERS

RATES: (Cont'd)	A. D-CARE Discount:	34.965	% (Percent)	(I)
	B. Delivery Minimum Bill Discount:	50.000	% (Percent)	
	C. Master-Meter D-CARE Discount:	34.965	% (Percent)	(I)
	D. Master-Meter Delivery Minimum Bill Discount:	50.000	% (Percent)	

SPECIAL CONDITIONS:

1. OTHERWISE APPLICABLE SCHEDULE: The Special Conditions of the Customer's otherwise applicable rate schedule will apply to this schedule.
2. ELIGIBILITY: To be eligible to receive D-CARE the applicant must qualify under the criteria set forth in PG&E's Electric Rules 19.1, 19.2, and 19.3 and meet the certification requirements thereof to the satisfaction of PG&E. Qualifying Direct Access, Community Choice Aggregation Service, and Transitional Bundled Service customers are also eligible to take service on Schedule D-CARE. Applicants may qualify for D-CARE at their primary residence only. Customers or sub-metered tenants participating in the Family Electric Rate Assistance (FERA) program cannot concurrently participate in the CARE program.

Advice	8968-E	Issued by	Submitted	<u>June 23, 2023</u>
Decision		Meredith Allen	Effective	<u>July 1, 2023</u>
		Vice President, Regulatory Affairs	Resolution	

7.2.2 Southern California Edison

The following pages provide details on the SCE electricity tariffs applied in this study. Table 31 describes the baseline territories that were assumed for each climate zone. A net surplus compensation rate of \$ 0.06030/ kWh was applied to any net annual electricity generation based on a one-year average of the rates between December 2022 and November 2023.

Table 31: SCE Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
CZ06	6
CZ08	8
CZ09	9
CZ10	10
CZ14	14
CZ15	15

Summer Daily Allocations (June through September)

Baseline Region Number	Daily kWh Allocation	All-Electric Allocation
5	17.2	17.9
6	11.4	8.8
8	12.6	9.8
9	16.5	12.4
10	18.9	15.8
13	22.0	24.6
14	18.7	18.3
15	46.4	24.1
16	14.4	13.5

Winter Daily Allocations (October through May)

Baseline Region Number	Daily kWh Allocation	All-Electric Allocation
5	18.7	29.1
6	11.3	13.0
8	10.6	12.7
9	12.3	14.3
10	12.5	17.0
13	12.6	24.3
14	12.0	21.3
15	9.9	18.2
16	12.6	23.1

Schedule TOU-D TIME-OF-USE DOMESTIC (Continued)					Sheet 12	(T)		
SPECIAL CONDITIONS								
1. Applicable rate time periods are defined as follows:								
Option 4-9 PM, Option 4-9 PM-CPP, Option PRIME, Option PRIME-CPP :								
TOU Period	Weekdays		Weekends and Holidays		(T)			
	Summer	Winter	Summer	Winter				
On-Peak	4 p.m. - 9 p.m.	N/A	N/A	N/A			(T)	
Mid-Peak	N/A	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.				
Off-Peak	All other hours	9 p.m. - 8 a.m.	All other hours	9 p.m. - 8 a.m.				
Super-Off-Peak	N/A	8 a.m. - 4 p.m.	N/A	8 a.m. - 4 p.m.				
CPP Event Period	4 p.m. - 9 p.m.	4 p.m. - 9 p.m.	N/A	N/A				



Southern California Edison
 Rosemead, California (U 338-E)

Revised Cal. PUC Sheet No. 85111-E
 Cancelling Revised Cal. PUC Sheet No. 74502-E

Schedule TQU-D
 TIME-OF-USE
 DOMESTIC
 (Continued)

Sheet 2

RATES

Customers receiving service under this Schedule will be charged the applicable rates under Option 4-9 PM, Option 4-9 PM-CPP, Option 5-8 PM, Option 5-8 PM-CPP, Option PRIME, Option PRIME-CPP Option A, Option A-CPP, Option B, or Option B-CPP, as listed below. CPP Event Charges will apply to all energy usage during CPP Event Energy Charge periods and CPP Non-Event Energy Credits will apply as a reduction on CPP Non-Event Energy Credit Periods during Summer Season days, 4:00 p.m. to 9:00 p.m., as described in Special Conditions 1 and 3, below:

	Delivery Service Total ¹	Generation ²	
		UG ³	DWREC ³
Option 4-9 PM / Option 4-9 PM-CPP			
Energy Charge - \$/kWh			
Summer Season - On-Peak	0.28829 (R)	0.28543 (I)	0.00000
Mid-Peak	0.28829 (R)	0.17707 (I)	0.00000
Off-Peak	0.24482 (R)	0.11362 (I)	0.00000
Winter Season - Mid-Peak	0.28829 (R)	0.21752 (I)	0.00000
Off-Peak	0.24482 (R)	0.13851 (I)	0.00000
Super-Off-Peak	0.22919 (R)	0.11890 (I)	0.00000
Baseline Credit ⁴ - \$/kWh	(0.09759) (I)	0.00000	
Fixed Recovery Charge - \$/kWh	0.00090 (R)		
Basic Charge - \$/day			
Single-Family Residence	0.031		
Multi-Family Residence	0.024		
Minimum Charge ⁴ - \$/day			
Single Family Residence	0.346		
Multi-Family Residence	0.346		
Minimum Charge (Medical Baseline) ⁴ - \$/day			
Single Family Residence	0.173		
Multi-Family Residence	0.173		
California Climate Credit ⁴	(71.00) (I)		
California Alternate Rates for Energy Discount - %	100.00 ⁴		
Family Electric Rate Assistance Discou	100.00		
Option 4-9 PM-CPP			
CPP Event Energy Charge - \$/kWh		0.80000	
Summer CPP Non-Event Credit			
On-Peak Energy Credit - \$/kWh		(0.15170)	
Maximum Available Credit - \$/kWh ⁴			
Summer Season		(0.67183) (R)	

¹ Represents 100% of the discount percentage as shown in the applicable Special Condition of this Schedule.
² The Minimum Charge is applicable when the Delivery Service Energy Charge, plus the applicable Basic Charge is less than the Minimum Charge.
³ The ongoing Competition Transition Charge CTC of (\$0.00003) per kWh is recovered in the UG component of Generation.
⁴ The Baseline Credit applies up to 100% of the Baseline Allocation, regardless of Time-of-Use time period. Additional Baseline Allocations apply for Customers with Heat Pump Water Heaters served under this Option. The Baseline Allocations are set forth in Preliminary Statement, Part H.
⁵ The Maximum Available Credit is the capped credit amount for CPP Customers dual participating in other demand response programs.
 1 Total = Total Delivery Service rates are applicable to Bundled Service, Direct Access (DA) and Community Choice Aggregation Service (CCA Service) Customers, except DA and CCA Service Customers are not subject to the DWRBC rate component of this Schedule but instead pay the DWRBC as provided by Schedule DA-CRS or Schedule CCA-CRS.
 2 Generation = The Gen rates are applicable only to Bundled Service Customers. See Special Condition below for PCIA recovery.
 3 DWREC = Department of Water Resources (DWR) Energy Credit - For more information on the DWR Energy Credit, see the Billing Calculation Special Condition of this Schedule.
 4 Applied on an equal basis, per household, semi-annually. See the Special Conditions of this Schedule for more information.

(Continued)

(To be inserted by utility)
 Advice 4929-E
 Decision _____
 2H13

Issued by
Michael Backstrom
 Vice President

(To be inserted by Cal. PUC)
 Date Submitted Dec 28, 2022
 Effective Jan 1, 2023
 Resolution E-5217



Southern California Edison
Rosemead, California (U 338-E)

Revised
Revised

Cal. PUC Sheet No. 86132-E
Cal. PUC Sheet No. 85624-E

Schedule TOU-D
TIME-OF-USE
DOMESTIC
(Continued)

Sheet 6

RATES (Continued)

	Delivery Service Total ¹	Generation ²	
		UG ^{**}	DWREC ³
Option PRIME / Option PRIME-CPP			
Energy Charge - \$/kWh/Meter/Day			
Summer Season			
On-Peak	0.22789 (I)	0.42789 (I)	0.00000
Mid-Peak	0.22789 (I)	0.15221 (I)	0.00000
Off-Peak	0.15191 (I)	0.10182 (I)	0.00000
Winter Season			
Mid-Peak	0.23353 (I)	0.36028 (I)	0.00000
Off-Peak	0.14530 (I)	0.08830 (I)	0.00000
Super-Off-Peak	0.14530 (I)	0.08830 (I)	0.00000
Fixed Recovery Charge - \$/kWh	0.00260 (I)		
Basic Charge - \$/Meter/Day	0.427 (I)		
EV Meter Credit (Separately Metered E	(0.323) (N)		
EV Submeter Credit - \$/Meter/Day	(0.111) (R)		
California Climate Credit ¹⁰	(71.00)		
California Alternate Rates for Energy Discount - %	100.00*		
Family Electric Rate Assistance Discou	100.00		
Medical Line Item Discount - %	100.000		
Option PRIME-CPP			
CPP Event Energy Charge - \$/kWh		0.80000	
Summer CPP Non-Event Credit			
On-Peak Energy Credit - \$/kWh		(0.15170)	
Maximum Available Credit - \$/kWh**** Summer Season		(0.71812) (R)	

* Represents 100% of the discount percentage as shown in the applicable Special Condition of this Schedule.
 ** The ongoing Competition Transition Charge (CTC) of (\$0.00003) per kWh is recovered in the UG component of Generation.
 **** The Maximum Available Credit is the capped credit amount for CPP Customers dual participating in other demand response programs.
 1 Total = Total Delivery Service rates are applicable to Bundled Service, Direct Access (DA) and Community Choice Aggregation Service (CCA Service) Customers, except DA and CCA Service Customers are not subject to the DWRBC rate component of this Schedule but instead pay the DWRBC as provided by Schedule DA-CRS or Schedule CCA-CRS.
 2 Generation = The Gen rates are applicable only to Bundled Service Customers. See Special Condition below for PCIA recovery.
 3 DWREC = Department of Water Resources (DWR) Energy Credit – For more information on the DWR Energy Credit, see the Billing Calculation Special Condition of this Schedule.
 4 Applied on an equal basis, per household, semi-annually. See the Special Conditions of this Schedule for more information.

(Continued)

(To be inserted by utility)
Advice 5041-E
Decision _____

Issued by
Michael Backstrom
Vice President

(To be inserted by Cal. PUC)
Date Submitted May 30, 2023
Effective Jun 1, 2023
Resolution _____

6/19



Southern California Edison
Rosemead, California (U 338-E)

Revised Cal. PUC Sheet No. 85618-E
Cancelling Revised Cal. PUC Sheet No. 85109-E

Schedule D-CARE Sheet 1
CALIFORNIA ALTERNATE RATES FOR ENERGY
DOMESTIC SERVICE

APPLICABILITY

Applicable to domestic service to CARE households residing in a permanent Single-Family Accommodation or Multifamily Accommodation where the customer meets all the Special Conditions of this Schedule. Customers enrolled in the CARE program are not eligible for the Family Electric Rate Assistance (FERA) program.

Pursuant to Special Condition 12 herein, customers receiving service under this Schedule are eligible to receive the California Climate Credit as shown in the Rates section below.

TERRITORY

Within the entire territory served.

RATES

The applicable charges set forth in Schedule D shall apply to Customers served under this Schedule.

CARE Discount:

A 29.8 percent discount is applied to a CARE Customer's bill prior to the application of the Public Utilities Commission Reimbursement Fee (PUCRF) and any applicable user fees, taxes, and late payment charges. CARE Customers are required to pay the PUCRF and any applicable user fees, taxes, and late payment charges in full. In addition, CARE Customers are exempt from paying the CARE Surcharge of \$0.00888 per kWh and the Wildfire Fund Non-Bypassable Charge of \$0.00530 per kWh. (R) The 29.8 percent discount, in addition to these exemptions result in an average effective CARE Discount of 32.5 percent.

(Continued)

(To be inserted by utility)
 Advice 4977-E
 Decision 23-01-002
 1HTZ 22-12-031

Issued by
Michael Backstrom
 Vice President

(To be inserted by Cal. PUC)
 Date Submitted Feb 27, 2023
 Effective Mar 1, 2023
 Resolution _____

7.2.3 Southern California Gas

Following are the SoCalGas natural gas tariffs applied in this study. Table 32 describes the baseline territories that were assumed for each climate zone.

Table 32: SoCalGas Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
CZ05	2
CZ06	1
CZ08	1
CZ09	1
CZ10	1
CZ14	2
CZ15	1

The SoCalGas monthly gas rate in \$/therm was applied on a monthly basis according to the rates shown in Table 33. These rates are based on applying a normalization curve to the November 2023 tariff based on ten years of historical gas data. Long-term historical natural gas rate data was only available for SoCalGas' procurement charges.²³ The baseline and excess transmission charges were found to be consistent over the course of a year and applied for the entire year based on 2023 rates. CARE rates reflect the 20 percent discount per the GR tariff.

Table 33: SoCalGas Monthly Gas Rate (\$/therm)

Month	Procurement Charge	Transportation Charge		Total Charge	
		Baseline	Excess	Baseline	Excess
January	\$0.72	\$0.86	\$1.31	\$1.92	\$2.36
February	\$0.50	\$0.86	\$1.31	\$1.57	\$2.02
March	\$0.44	\$0.86	\$1.31	\$1.48	\$1.93
April	\$0.39	\$0.86	\$1.31	\$1.39	\$1.84
May	\$0.41	\$0.86	\$1.31	\$1.43	\$1.87
June	\$0.46	\$0.86	\$1.31	\$1.49	\$1.93
July	\$0.47	\$0.86	\$1.31	\$1.51	\$1.96
August	\$0.51	\$0.86	\$1.31	\$1.58	\$2.03
September	\$0.46	\$0.86	\$1.31	\$1.52	\$1.96
October	\$0.45	\$0.86	\$1.31	\$1.48	\$1.92
November	\$0.48	\$0.86	\$1.31	\$1.54	\$1.99
December	\$0.57	\$0.86	\$1.31	\$1.63	\$2.08

Southern California Gas Company									
Residential Rates									
Nov-23									
Customer Type	Commodity	Rate	Procurement Charge	Transportation Charge	New Rate Effective	New Rate Effective	Absolute Rate Change	% Change	
Rate Schedule	Charge	Type	¢/therm	¢/therm	11/1/2023	10/1/2023			
Residential Individually Metered									
Schedule No. GR	GR	Baseline	67.806	86.490	154.296	125.096	29.200	23.3%	
Res. Service	GR	Non Baseline	67.806	131.037	198.843	169.726	29.117	17.2%	
	GT-R	Baseline	00.000	86.490	86.490	87.038	-00.548	-0.6%	
	GT-R	Non Baseline	00.000	131.037	131.037	131.668	-00.631	-0.5%	

²³ The SoCalGas procurement and transmission charges were obtained from the following site: <https://www.socalgas.com/for-your-business/energy-market-services/gas-prices RES2023.xlsx> (live.com)

7.2.4 San Diego Gas & Electric

Following are the SDG&E electricity and natural gas tariffs applied in this study. Table 34 describes the baseline territories that were assumed for each climate zone. A net surplus compensation rate of \$0.04542/ kWh was applied to any net annual electricity generation based on a one-year average of the rates between December 2022 and November 2023.

Table 34: SDG&E Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
CZ07	Coastal
CZ10	Inland
CZ14	Mountain

The SDG&E monthly gas rate in \$/therm was applied on a monthly basis according to the rates shown in Table 35. These rates are based on applying a normalization curve to the November 2023 tariff based on ten years of historical gas data. CARE rates reflect the 20 percent discount per the G-CARE tariff.

Table 35: SDG&E Monthly Gas Rate (\$/therm)

Month	Total Charge	
	Baseline	Excess
January	\$2.34	\$2.63
February	\$2.28	\$2.57
March	\$2.21	\$2.51
April	\$2.14	\$2.45
May	\$2.18	\$2.48
June	\$2.23	\$2.55
July	\$2.26	\$2.57
August	\$2.32	\$2.62
September	\$2.26	\$2.59
October	\$2.21	\$2.55
November	\$2.24	\$2.57
December	\$2.38	\$2.70

Baseline Usage: The following quantities of gas used in individually metered residences are to be billed at the baseline rates:

<u>All Customers:</u>	<u>Daily Therm Allowance</u>
Summer (May to Oct)	0.359
Winter On-Peak (Dec, Jan & Feb)	1.233
Winter Off-Peak (Nov, Mar, & Apr)	0.692



San Diego Gas & Electric Company
 San Diego, California

Revised Cal. P.U.C. Sheet No. 37022-E

Canceling Revised Cal. P.U.C. Sheet No. 36337-E

SCHEDULE TOU-DR1
RESIDENTIAL TIME-OF-USE

Sheet 2

RATES

Total Rates:

Description – TOU DR1	UDC Total Rate	DWR BC + WF-NBC	EECC Rate + DWR Credit	Total Rate
Summer:				
On-Peak	0.25752	R 0.00530	I 0.57043	I 0.83325
Off-Peak	0.25752	R 0.00530	I 0.25697	I 0.51979
Super Off-Peak	0.25752	R 0.00530	I 0.09233	I 0.35515
Winter:				
On-Peak	0.43809	I 0.00530	I 0.19307	I 0.63646
Off-Peak	0.43809	I 0.00530	I 0.10855	I 0.55194
Super Off-Peak	0.43809	I 0.00530	I 0.08402	I 0.52741
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.11724)	R		(0.11724) R
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.11724)	R		(0.11724) R
Minimum Bill (\$/day)	0.380	I		0.380 I

Description – TOU DR1-CARE	UDC Total Rate	DWR BC + WF-NBC	EECC Rate + DWR Credit	Total Rate	Total Effective Care Rate
Summer – CARE Rates:					
On-Peak	0.25682	R 0.00000	I 0.57043	I 0.82725	I 0.55368
Off-Peak	0.25682	R 0.00000	I 0.25697	I 0.51379	I 0.33965
Super Off-Peak	0.25682	R 0.00000	I 0.09233	I 0.34915	I 0.22725
Winter – CARE Rates:					
On-Peak	0.43739	I 0.00000	I 0.19307	I 0.63046	I 0.41930
Off-Peak	0.43739	I 0.00000	I 0.10855	I 0.54594	I 0.36160
Super Off-Peak	0.43739	I 0.00000	I 0.08402	I 0.52141	I 0.34485
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.11724)	R		(0.11724) R	(0.08004) R
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.11724)	R		(0.11724) R	(0.08004) R
Minimum Bill (\$/day)	0.190	I		0.190 I	0.190 I

Note:

- (1) Total Rates consist of UDC, Schedule DWR-BC (Department of Water Resources Bond Charge), Schedule WF-NBC (CA Wildfire Fund charge) and Schedule EECC (Electric Energy Commodity Cost) rates, with the EECC rates reflecting a DWR Credit. EECC rates are applicable to bundled customers only. See Special Condition 16 for PCIA (Power Charge Indifference Adjustment) recovery.
- (2) Total Rates presented are for customers that receive commodity supply and delivery service from Utility.
- (3) DWR-BC and WF-NBC charges do not apply to CARE customers.
- (4) As identified in the rates tables, customer bills will also include line-item summer and winter credits for usage up to 130% of baseline to provide the rate capping benefits adopted by Assembly Bill 1X and Senate Bill 695.
- (5) WF-NBC rate is 0.00530 + DWR-BC Bond Charge is 0.00000.

R. I.

(Continued)

2C8

Advice Ltr. No. 4129-E

Decision No.

Issued by
Dan Skopec
 Senior Vice President
 Regulatory Affairs

Submitted Dec 30, 2022

Effective Jan 1, 2023

Resolution No. E-5217

Time Periods

All time periods listed are applicable to local time. The definition of time will be based upon the date service is rendered.

TOU Periods – Weekdays	Summer	Winter
On-Peak	4:00 p.m. – 9:00 p.m.	4:00 p.m. – 9:00 p.m.
Off-Peak	6:00 a.m. – 4:00 p.m.; 9:00 p.m. - midnight	6:00 a.m. – 4:00 p.m. Excluding 10:00 a.m. – 2:00 p.m. in March and April; 9:00 p.m. - midnight
Super Off-Peak	Midnight – 6:00 a.m.	Midnight – 6:00 a.m. 10:00 a.m. – 2:00 p.m. in March and April
TOU Period – Weekends and Holidays	Summer	Winter
On-Peak	4:00 p.m. – 9:00 p.m.	4:00 p.m. – 9:00 p.m.
Off-Peak	2:00 p.m. – 4:00 p.m.; 9:00 p.m. - midnight	2:00 p.m. – 4:00 p.m.; 9:00 p.m. - midnight
Super Off-Peak	Midnight – 2:00 p.m.	Midnight – 2:00 p.m.

Seasons: Summer June 1 – October 31
 Winter November 1 – May 31

15. Baseline Usage: The following quantities of electricity are used to calculate the baseline adjustment credit.

	Baseline Allowance For Climatic Zones*			
	Coastal	Inland	Mountain	Desert
Basic Allowance				
Summer (June 1 to October 31)	9.0	10.4	13.6	15.9
Winter (November 1 to May 31)	9.2	9.6	12.9	10.9
All Electric**				
Summer (June 1 to October 31)	6.0	8.7	15.2	17.0
Winter (November 1 to May 31)	8.8	12.2	22.1	17.1

* Climatic Zones are shown on the Territory Served, Map No. 1.

** All Electric allowances are available upon application to those customers who have permanently installed space heating or who have electric water heating and receive no energy from another source.



San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 37217-E

Canceling Revised Cal. P.U.C. Sheet No. 37016-E

SCHEDULE EV-TOU-5

Sheet 1

COST-BASED DOMESTIC TIME-OF-USE FOR HOUSEHOLDS WITH ELECTRIC VEHICLES

APPLICABILITY

Service under this schedule is specifically limited to customers who require service for charging of a currently registered Motor Vehicle, as defined by the California Motor Vehicle Code, which is: 1) a battery electric vehicle (BEV) or plug-in hybrid electric vehicle (PHEV) recharged via a recharging outlet at the customer's premises; or 2) a natural gas vehicle (NGV) refueled via a home refueling appliance (HRA) at the customer's premises. This schedule is not available to customers with a conventional charge sustaining (battery recharged solely from the vehicle's on-board generator) hybrid electric vehicle (HEV).

Residential customers taking service on Schedule NBT, who are required to utilize EV-TOU-5 as their otherwise applicable schedule (OAS) for electric service, do not require a qualifying motor vehicle, as described above to participate on Schedule EV-TOU-5.

N
N
N

Customers on this schedule may also qualify for a semi-annual California Climate Credit \$(60.70) per Schedule GHG-ARR.

TERRITORY

Within the entire territory served by the utility.

RATES

Total Rates:

Description – EV-TOU-5 Rates	UDC Total Rate	DWR BC + WF-NBC	EECC Rate + DWR Credit	Total Rate
Basic Service Fee	16.00			16.00
Summer				
On-Peak	0.28032	I 0.00530	I 0.53067	0.81629 I
Off-Peak	0.28032	I 0.00530	I 0.19567	0.48129 I
Super Off-Peak	0.05588	I 0.00530	I 0.09233	0.15351 I
Winter				
On-Peak	0.28032	I 0.00530	I 0.22587	0.51149 I
Off-Peak	0.28032	I 0.00530	I 0.16213	0.44775 I
Super Off-Peak	0.05588	I 0.00530	I 0.08402	0.14520 I

(Continued)

1C5

Issued by

Submitted Jan 30, 2023

Advice Ltr. No. 4154-E

Effective Mar 1, 2023

Decision No. D.22-12-056

Resolution No.



San Diego Gas & Electric Company
 San Diego, California

Revised Cal. P.U.C. Sheet No. 37019-E

Canceling Revised Cal. P.U.C. Sheet No. 35912-E

SCHEDULE EV-TOU-5

Sheet 4

COST-BASED DOMESTIC TIME-OF-USE FOR HOUSEHOLDS WITH ELECTRIC VEHICLES

Notes: Transmission Energy charges include the Transmission Revenue Balancing Account Adjustment (TRBAA) of \$(0.00242) per kWh and the Transmission Access Charge Balancing Account Adjustment (TACBAA) of \$(0.01631) per kWh. PPP Energy charges includes Low Income PPP rate (LI-PPP) \$0.01669/kWh, Non-low Income PPP rate (Non-LI-PPP) \$0.00333/kWh (pursuant to PU Code Section 399.8, the Non-LI-PPP rate may not exceed January 1, 2000 levels), Procurement Energy Efficiency Surcharge Rate of \$0.00422 /kWh, California Solar Initiative rate (CSI) of \$0.00000/kWh and Self-Generation Incentive Program rate (SGIP) \$0.00122/kWh. The basic service fee of \$16 per month is applied to a customer's bill and a 50% discount is applied for CARE, Medical Baseline, or Family Electric Rate Assistance Program (FERA) customers resulting in their basic service fees to be \$8 per month.

R, R
I
R
I
I

Rate Components

The Utility Distribution Company Total Rates (UDC Total) shown above are comprised of the following components (if applicable): (1) Transmission (Trans) Charges, (2) Distribution (Distr) Charges, (3) Public Purpose Program (PPP) Charges, (4) Nuclear Decommissioning (ND) Charge, (5) Ongoing Competition Transition Charges (CTC), (6) Local Generation Charge (LGC), (7) Reliability Services (RS), and (8) the Total Rate Adjustment Component (TRAC).

Certain Direct Access customers are exempt from the TRAC, as defined in Rule 1 – Definitions.

Franchise Fee Differential

A Franchise Fee Differential of 5.78% will be applied to the monthly billings calculated under this schedule for all customers within the corporate limits of the City of San Diego. Such Franchise Fee Differential shall be so indicated and added as a separate item to bills rendered to such customers.

Time Periods:

All time periods listed are applicable to actual "clock" time)

TOU Period – Weekdays	Summer	Winter
On-Peak	4:00 p.m. – 9:00 p.m.	4:00 p.m. – 9:00 p.m.
Off-Peak	6:00 a.m. – 4:00 p.m.; 9:00 p.m. – midnight	6:00 a.m. – 4:00 p.m. Excluding 10:00 a.m.–2:00 p.m. in March and April; 9:00 p.m. - midnight
Super-Off-Peak	Midnight – 6:00 a.m.	Midnight – 6:00 a.m. 10:00 a.m. – 2:00 p.m. in March and April

TOU Period – Weekends and Holidays	Summer	Winter
On-Peak	4:00 p.m. – 9:00 p.m.	4:00 p.m. – 9:00 p.m.
Off-Peak	2:00 p.m. – 4:00 p.m.; 9:00 p.m. – midnight	2:00 p.m. – 4:00 p.m. 9:00 p.m. - midnight
Super-Off-Peak	Midnight – 2:00 p.m.	Midnight – 2:00 p.m.

Seasons:

Summer June 1 – October 31
 Winter November 1 – May 31

(Continued)

4C8
 Advice Ltr. No. 4129-E
 Decision No. _____

Issued by
Dan Skopec
 Senior Vice President
 Regulatory Affairs

Submitted Dec 30, 2022
 Effective Jan 1, 2023
 Resolution No. E-5217



San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 35718-E
Canceling Revised Cal. P.U.C. Sheet No. 32576-E

SCHEDULE E-CARE

Sheet 1

CALIFORNIA ALTERNATE RATES FOR ENERGY

APPLICABILITY

This schedule provides a California Alternate Rates for Energy (CARE) discount to each of the following types of customers listed below that meet the requirements for CARE eligibility as defined in Rule 1, Definitions, and herein, and is taken in conjunction with the customer's otherwise applicable service schedule.

- 1) Customers residing in a permanent single-family accommodation, separately metered by the Utility.
- 2) Multi-family dwelling units and mobile home parks supplied through one meter on a single premises where the individual unit is submetered.
- 3) Non-profit group living facilities.
- 4) Agricultural employee housing facilities.

TERRITORY

Within the entire territory served by the Utility.

DISCOUNT

- 1) **Residential CARE:** Qualified residential CARE customers will receive a total effective discount according to the following:

	2015	2016	2017	2018	2019	2020 and beyond
Effective Discount	40%	39%	38%	38%	36% R	35%

Pursuant to Commission Decision (D.) 15-07-001, the average effective CARE discount for residential customers will decrease 1% each year until an average effective discount of 35% is reached in 2020.

The average effective CARE discount consists of: (a) exemptions from paying the CARE Surcharge, Department of Water Resources Bond Charge (DWR-BC), Vehicle-Grid Integration (VGI) costs, and California Solar Initiative (CSI); (b) a 50% minimum bill relative to Non-CARE; (c) the California Wildfire Fund Charge (WF-NBC) and (d) a separate line-item bill discount for all qualified residential CARE customers with the exclusion of CARE Medical Baseline customers taking service on tiered rates schedules. D.15-07-001 retained the rate subsidies in Non-CARE Medical Baseline tiered rates and thereby a separate line-item discount is provided for these CARE Medical Baseline customers

(Continued)

ICS
Advice Ltr. No. 3928-E

Issued by
Dan Skopec
Vice President

Submitted Dec 30, 2021
Effective Jan 1, 2022

7.2.5 City of Palo Alto Utilities

Following are the CPAU electricity and natural gas tariffs applied in this study. The CPAU monthly gas rate in \$/therm was applied on a monthly basis according to the rates shown in Table 36. These rates are based on applying a normalization curve to the October 2023 tariff based on seven years of historical gas data. The monthly service charge applied was \$14.01 per month per the November 2023 G-1 tariff.

Table 36: CPAU Monthly Gas Rate (\$/therm)

Month	G1 Volumetric Total Baseline	G1 Volumetric Total Excess
January	\$1.83532	\$3.35639
February	\$1.38055	\$2.59947
March	\$1.32506	\$2.47695
April	\$1.29680	\$2.44038
May	\$1.29511	\$2.43804
June	\$1.32034	\$2.45406
July	\$1.35688	\$2.61519
August	\$1.40696	\$2.67944
September	\$1.42130	\$2.70301
October	\$1.42310	\$2.48300
November	\$1.46286	\$2.45547
December	\$1.62415	\$2.62128

RESIDENTIAL ELECTRIC SERVICE

UTILITY RATE SCHEDULE E-1

A. APPLICABILITY:

This Rate Schedule applies to separately metered single-family residential dwellings receiving Electric Service from the City of Palo Alto Utilities.

B. TERRITORY:

This rate schedule applies everywhere the City of Palo Alto provides Electric Service.

C. UNBUNDLED RATES:

<u>Per kilowatt-hour (kWh)</u>	<u>Commodity</u>	<u>Distribution</u>	<u>Public Benefits</u>	<u>Total</u>
Tier 1 usage	\$ 0.09999	\$ 0.06954	\$ 0.00568	\$ 0.17521
Tier 2 usage Any usage over Tier 1	0.13873	0.10225	0.00568	0.24666
<u>Minimum Bill (\$/day)</u>				0.4181

D. SPECIAL NOTES:

1. Calculation of Cost Components

The actual bill amount is calculated based on the applicable rates in Section C above and adjusted for any applicable discounts, surcharges and/or taxes. On a Customer’s bill statement, the bill amount may be broken down into appropriate components as calculated under Section C.

2. Calculation of Usage Tiers

Tier 1 Electricity usage shall be calculated and billed based upon a level of 11 kWh per day, prorated by Meter reading days of Service. As an example, for a 30-day bill, the Tier 1 level would be 330 kWh. For further discussion of bill calculation and proration, refer to Rule and Regulation 11.

{End}

CITY OF PALO ALTO UTILITIES

Issued by the City Council



Supersedes Sheet No E-1-1
 dated 7-1-2022

Sheet No **E-1-1**
 Effective 7-1-2023

7.2.6 Sacramento Municipal Utilities District (Electric Only)

Following are the SMUD electricity tariffs applied in this study. The rates effective January 2023 were used.

Residential Time-of-Day Service Rate Schedule R-TOD

II. Firm Service Rates

A. Time-of-Day (5-8 p.m.) Rate

	Effective as of January 1, 2023	Effective as of January 1, 2024	Effective as of May 1, 2024	Effective as of January 1, 2025	Effective as of May 1, 2025
Time-of-Day (5-8 p.m.) Rate (RT02)					
Non-Summer Season (October - May)					
System Infrastructure Fixed Charge <i>per month per meter</i>	\$23.50	\$24.15	\$24.80	\$25.50	\$26.20
Electricity Usage Charge					
Peak \$/k Wh	\$0.1547	\$0.1590	\$0.1633	\$0.1678	\$0.1724
Off-Peak \$/k Wh	\$0.1120	\$0.1151	\$0.1183	\$0.1215	\$0.1248
Summer Season (June - September)					
System Infrastructure Fixed Charge <i>per month per meter</i>	\$23.50	\$24.15	\$24.80	\$25.50	\$26.20
Electricity Usage Charge					
Peak \$/k Wh	\$0.3279	\$0.3369	\$0.3462	\$0.3557	\$0.3655
Mid-Peak \$/k Wh	\$0.1864	\$0.1914	\$0.1967	\$0.2021	\$0.2077
Off-Peak \$/k Wh	\$0.1350	\$0.1387	\$0.1425	\$0.1464	\$0.1505

B. Optional Critical Peak Pricing Rate

- The CPP Rate base prices per time-of-day period are the same as the prices per time-of-day period for TOD (5-8 p.m.).
- The CPP Rate provides a discount per kWh on the Mid-Peak and Off-Peak prices during summer months.
- During CPP Events, customers will be charged for energy used at the applicable time-of-day period rate plus the CPP Rate Event Price per kWh as shown on www.smud.org.
- During CPP Events, energy exported to the grid will be compensated at the CPP Rate Event Price per kWh as shown on www.smud.org.
- The CPP Rate Event Price and discount will be updated annually at SMUD's discretion and posted on www.smud.org.

C. Plug-In Electric Vehicle Credit (rate categories RT02 and RTC1)

This credit is for residential customers who have a licensed passenger battery electric plug-in or plug-in hybrid electric vehicle.

Credit applies to all electricity usage charges from midnight to 6:00 a.m. daily.

Electric Vehicle Credit:..... ~~-\$0.0150/kWh~~

III. Electricity Usage Surcharges

Refer to the following rate schedules for details on these surcharges.

A. Hydro Generation Adjustment (HGA). Refer to Rate Schedule HGA.

IV. Rate Option Menu

A. Energy Assistance Program Rate. Refer to Rate Schedule EAPR.

B. Medical Equipment Discount Program. Refer to Rate Schedule MED.

C. Joint Participation in Medical Equipment Discount and Energy Assistance Program Rate. Refer to Rate Schedule MED.

A. Time-of-Day (5-8 p.m.) Rate (rate category RT02)

1. The TOD (5-8 p.m.) Rate is the standard rate for SMUD’s residential customers. Eligible customers can elect the Fixed Rate under Rate Schedule R as an alternative rate.
2. The TOD (5-8 p.m.) Rate is an optional rate for customers who have an eligible renewable electrical generation facility under Rate Schedule NEM1 that was approved for installation by SMUD prior to January 1, 2018.
3. This rate has five kilowatt-hour (kWh) prices, depending on the time-of-day and season as shown below. Holidays are detailed in Section V. Conditions of Service.

Summer (Jun 1 - Sept 30)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Mid-Peak	Weekdays between noon and midnight except during the Peak hours.
	Off-Peak	All other hours, including weekends and holidays ¹ .
Non-Summer (Oct 1 - May 31)	Peak	Weekdays between 5:00 p.m. and 8:00 p.m.
	Off-Peak	All other hours, including weekends and holidays ¹ .

¹ See Section V. Conditions of Service

7.2.7 Fuel Escalation Assumptions

The average annual escalation rates in Table 37 were used in this study. These are based on assumptions from the CPUC 2021 En Banc hearings on utility costs through 2030 (California Public Utilities Commission, 2021a). Escalation rates through the remainder of the 30-year evaluation period are based on the escalation rate assumptions within the 2022 TDV factors. No data was available to estimate electricity escalation rates for CPAU and SMUD, therefore electricity escalation rates for PG&E and statewide natural gas escalation rates were applied. Table 38 presents the average annual escalation rates used in the utility rate escalation sensitivity analysis shown in Section 4.6.3. Rates were applied for the same 30-year period and are based on the escalation rate assumptions within the 2025 LSC factors from 2027 through 2053.²⁴ These rates were developed for electricity use statewide (not utility-specific) and assume steep increases in gas rates in the latter half of the analysis period. Data was not available for years 2024, 2025, and 2026 and so the CPUC En Banc assumptions were applied for those years using the average rate across the three IOUs for statewide electricity escalation.

Table 37: Real Utility Rate Escalation Rate Assumptions, CPUC En Banc and 2022 TDV Basis

Year	Statewide Natural Gas Residential Average Rate (%/year, real)	Electric Residential Average Rate (%/year, real)		
		PG&E	SCE	SDG&E
2024	4.6%	1.8%	1.6%	2.8%
2025	4.6%	1.8%	1.6%	2.8%
2026	4.6%	1.8%	1.6%	2.8%
2027	4.6%	1.8%	1.6%	2.8%
2028	4.6%	1.8%	1.6%	2.8%
2029	4.6%	1.8%	1.6%	2.8%
2030	4.6%	1.8%	1.6%	2.8%
2031	2.0%	0.6%	0.6%	0.6%
2032	2.4%	0.6%	0.6%	0.6%
2033	2.1%	0.6%	0.6%	0.6%
2034	1.9%	0.6%	0.6%	0.6%
2035	1.9%	0.6%	0.6%	0.6%
2036	1.8%	0.6%	0.6%	0.6%
2037	1.7%	0.6%	0.6%	0.6%
2038	1.6%	0.6%	0.6%	0.6%
2039	2.1%	0.6%	0.6%	0.6%
2040	1.6%	0.6%	0.6%	0.6%
2041	2.2%	0.6%	0.6%	0.6%
2042	2.2%	0.6%	0.6%	0.6%
2043	2.3%	0.6%	0.6%	0.6%
2044	2.4%	0.6%	0.6%	0.6%
2045	2.5%	0.6%	0.6%	0.6%
2046	1.5%	0.6%	0.6%	0.6%
2047	1.3%	0.6%	0.6%	0.6%
2048	1.6%	0.6%	0.6%	0.6%
2049	1.3%	0.6%	0.6%	0.6%
2050	1.5%	0.6%	0.6%	0.6%
2051	1.8%	0.6%	0.6%	0.6%
2052	1.8%	0.6%	0.6%	0.6%
2053	1.8%	0.6%	0.6%	0.6%

²⁴ <https://www.energy.ca.gov/files/2025-energy-code-hourly-factors>. Actual escalation factors were provided by consultants E3.

Table 38: Real Utility Rate Escalation Rate Assumptions, 2025 LSC Basis

Year	Statewide Natural Gas Residential Average Rate (%/year, real)	Statewide Electricity Residential Average Rate (%/year, real)
2024	4.6%	2.1%
2025	4.6%	2.1%
2026	4.6%	2.1%
2027	4.2%	0.6%
2028	3.2%	1.9%
2029	3.6%	1.6%
2030	6.6%	1.3%
2031	6.7%	1.0%
2032	7.7%	1.2%
2033	8.2%	1.1%
2034	8.2%	1.1%
2035	8.2%	0.9%
2036	8.2%	1.1%
2037	8.2%	1.1%
2038	8.2%	1.0%
2039	8.2%	1.1%
2040	8.2%	1.1%
2041	8.2%	1.1%
2042	8.2%	1.1%
2043	8.2%	1.1%
2044	8.2%	1.1%
2045	8.2%	1.1%
2046	8.2%	1.1%
2047	3.1%	1.1%
2048	-0.5%	1.1%
2049	-0.6%	1.1%
2050	-0.5%	1.1%
2051	-0.6%	1.1%
2052	-0.6%	1.1%
2053	-0.6%	1.1%

7.3 Summary of Efficiency Measures

Table 39 provides the details of the efficiency (non-preempted) measures, by climate zone, included in the following packages for the single family prototype:

- Efficiency Only
- Efficiency + High Efficiency (Preempted) Equipment
- Efficiency + PV
- Efficiency + PV + Battery (all-electric only)

The efficiency measures for the single family mixed fuel Efficiency + PV + Battery package is presented in Table 40, and Table 41 presents the efficiency measures for all the ADU packages. In all tables, the lack of an “X” indicates that the prescriptive values for that climate zone were not changed. See Appendix 7.4 for a list of prescriptive values by climate zone. Efficiency measures are described in Section 3.3.1.

Table 39: All-Electric Single Family Efficiency Measures, Various Packages

Climate Zone	3 ACH50	R-10 Slab	Attic Ceiling Insulation	0.25 Roof Solar Reflectance	0.24 U-Factor / 0.50 SHGC Windows	0.35 W/cfm	Buried Ducts	Basic Compact Hot Water Credit
1		X	R-60				X	
2		X	R-60			X	X	X
3			R-60			X	X	X
4		X	R-60			X	X	X
5			R-49			X	X	X
6			R-60			X	X	X
7			R-49				X	X
8			R-60			X	X	X
9			R-60			X	X	X
10			R-60	X		X	X	X
11		X	R-60	X		X	X	X
12		X	R-60	X		X	X	X
13		X	R-60	X		X	X	X
14	X	X	R-60	X		X	X	X
15		X	R-60	X		X	X	X
16			R-60		X	X	X	

Table 40: Mixed Fuel Single Family Measures, Efficiency + PV + Battery Package²⁵

Climate Zone	3 ACH50	R-10 Slab	Attic	0.25 Roof Solar Reflectance	0.24 U-Factor / 0.50 SHGC Windows	0.30 U-Factor / 0.50 SHGC Windows	0.35 W/cfm	Buried Ducts	Basic Compact Hot Water Credit
1		X				X		X	
2		X	R-49				X	X	X
3			R-38			X		X	X
4		X	R-49				X	X	X
5		X	R-49				X	X	X
6			R-49				X	X	X
7			R-49				X	X	X
8			R-49				X	X	X
9			R-49				X	X	X
10			R-49				X	X	X
11			R-49				X	X	X
12			R-49	X			X	X	X
13			R-49	X			X	X	X
14		X	R-49	X			X	X	X
15		X	R-49	X			X	X	X
16			R-49		X		X	X	

Table 41: Efficiency Measures for All ADU Packages

Climate Zone	3 ACH50	R-10 Slab	0.25 Roof Solar Reflectance	0.24 U-Factor / 0.50 SHGC Windows	Ductless VCHP ¹	Basic Compact Hot Water Credit ¹
1		X			X	
2		X			X	X
3					X	X
4		X			X	X
5					X	X
6					X	X
7					X	X
8					X	X
9					X	X
10			X		X	X
11		X	X		X	X
12		X	X		X	X
13		X	X		X	X
14	X	X	X		X	X
15		X	X		X	X
16				X	X	

¹ The ductless VCHP and compact hot water measures are only applied to the all-electric packages and not the mixed fuel packages.

²⁵ The efficiency measures for the all-electric version of this package follow those listed in Table 39.

7.4 Summary of Applicable Prescriptive Base Case Measures

This appendix lists the prescriptive values, by climate zone, of building components relevant to the measures included in this analysis. Table 42 outlines envelope, PV, and battery values;

Table 43 outlines space conditioning values, and Table 44 outlines domestic water heating (DHW) values.

Table 42 Prescriptive Envelope, PV, and Battery Measures by Climate Zone

CZ	Air Infiltration ¹	Foundation	Wall Insulation ²	Attic Insulation ³	Roof Aged Solar Reflectivity	Window U-Factor / SHGC	PV ⁴	Battery
1	5 ACH50	Uninsulated slab	R-21 + R-5	R-38	0.1	0.30 / 0.35	code min.	none
2	5 ACH50	Uninsulated slab	R-21 + R-5	R-38	0.1	0.30 / 0.23	code min.	none
3	5 ACH50	Uninsulated slab	R-21 + R-5	R-30	0.1	0.30 / 0.35	code min.	none
4	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.1	0.30 / 0.23	code min.	none
5	5 ACH50	Uninsulated slab	R-21 + R-5	R-30	0.1	0.30 / 0.35	code min.	none
6	5 ACH50	Uninsulated slab	R-15 + R-4	R-30	0.1	0.30 / 0.23	code min.	none
7	5 ACH50	Uninsulated slab	R-15 + R-4	R-30	0.1	0.30 / 0.23	code min.	none
8	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.1	0.30 / 0.23	code min.	none
9	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.1	0.30 / 0.23	code min.	none
10	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.2	0.30 / 0.23	code min.	none
11	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.2	0.30 / 0.23	code min.	none
12	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.2	0.30 / 0.23	code min.	none
13	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.2	0.30 / 0.23	code min.	none
14	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.2	0.30 / 0.23	code min.	none
15	5 ACH50	Uninsulated slab	R-21 + R-5	R-38 + R-19	0.2	0.30 / 0.23	code min.	none
16	5 ACH50	R-7, 16" slab insulation	R-21 + R-5	R-38 + R-19	0.1	0.30 / 0.35	code min.	none

¹ 5 ACH50 is prescriptively required however verification is not required.

² Cavity wall insulation + continuous rigid insulation.

³ Ceiling/attic insulation R-value. R-38 + R-19 reflect High Performance Attics (HPAs) as defined by Option B in Table 150.1-A.

⁴ Prescriptive PV capacities (kW-DC) by climate zone are summarized in Table 4.

Table 43 Prescriptive HVAC Measures by Climate Zone

CZ	Heating Type	AC Type	Heating Efficiency ¹	HVAC Efficiency (SEER2/EER2)	HVAC Fan Efficacy (W/cfm)	Ducts ²
1	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
2	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
3	Heat pump	Heat pump	7.5	14.3 / 11.7	0.45	R-6, 5%, in attic (not buried)
4	Heat pump	Heat pump	7.5	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
5	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-6, 5%, in attic (not buried)
6	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-6, 5%, in attic (not buried)
7	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-6, 5%, in attic (not buried)
8	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
9	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
10	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
11	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
12	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
13	Heat pump	Heat pump	7.5	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
14	Heat pump	Heat pump	7.5	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
15	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)
16	Gas Furnace	AC	80%	14.3 / 11.7	0.45	R-8, 5%, in attic (not buried)

¹ AFUE for gas furnaces, HSPF2 for heat pumps.

² Duct insulation R-value, duct leakage, duct location.

Table 44 Prescriptive Water Heating Measures by Climate Zone

CZ	DHW Type	DHW Location		DHW: Basic Compact Distribution Credit
		Single Family	ADU	
1	Heat pump	Garage	In conditioned space, ducted to/from outside	Yes
2	Heat pump	Garage	In conditioned space, ducted to/from outside	No
3	Gas tankless	Garage	In conditioned space, ducted to/from outside	No
4	Gas tankless	Garage	In conditioned space, ducted to/from outside	No
5	Heat pump	Garage	In conditioned space, ducted to/from outside	No
6	Heat pump	Garage	In conditioned space, ducted to/from outside	No
7	Heat pump	Garage	In conditioned space, ducted to/from outside	No
8	Heat pump	Garage	In conditioned space, ducted to/from outside	No
9	Heat pump	Garage	In conditioned space, ducted to/from outside	No
10	Heat pump	Garage	In conditioned space, ducted to/from outside	No
11	Heat pump	Garage	In conditioned space, ducted to/from outside	No
12	Heat pump	Garage	In conditioned space, ducted to/from outside	No
13	Gas tankless	Garage	In conditioned space, ducted to/from outside	No
14	Gas tankless	Garage	In conditioned space, ducted to/from outside	No
15	Heat pump	Garage	In conditioned space, ducted to/from outside	No
16	Heat pump	Garage	In conditioned space, ducted to/from outside	Yes

Get In Touch

The adoption of reach codes can differentiate jurisdictions as efficiency leaders and help accelerate the adoption of new equipment, technologies, code compliance, and energy savings strategies.

As part of the Statewide Codes & Standards Program, the Reach Codes Subprogram is a resource available to any local jurisdiction located throughout the state of California.

Our experts develop robust toolkits as well as provide specific technical assistance to local jurisdictions (cities and counties) considering adopting energy reach codes. These include cost-effectiveness research and analysis, model ordinance language and other code development and implementation tools, and specific technical assistance throughout the code adoption process.

If you are interested in finding out more about local energy reach codes, the Reach Codes Team stands ready to assist jurisdictions at any stage of a reach code project.



Visit LocalEnergyCodes.com to access our resources and sign up for newsletters.



Contact info@localenergycodes.com for no-charge assistance from expert Reach Code advisors.



Follow us on [LinkedIn](#)