



2025 Cost- Effectiveness Study: Multifamily New Construction

Prepared by:
Frontier Energy, Inc
Misti Bruceri & Associates, LLC

Prepared for:
Kelly Cunningham, Codes and
Standards Program, Pacific Gas
and Electric

Revision: 1.1
Last modified: 2026/07/17

Legal Notice

Message paid for by customers.

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 2026, 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.



Table 1. Summary of Revisions

Date	Description	Reference (page or section)
5/15/2026	Original Release	N/A
7/17/2026	Utility Rates updated from May 2025 to May 2026. Changes to the utility rates include: Base Service Charge, Virtual Net Billing Tariff, and a new electrification rate for SDGE. Models ran in updated CBECC version.	Section 4

Acronym List

B/C – Lifecycle Benefit-to-Cost Ratio

BSC – Building Standards Commission

CA IOUs – California Investor-Owned Utilities

CASE – Codes and Standards Enhancement

CBECC – Computer program developed by the California Energy Commission for demonstrating compliance with the California Residential Building Energy Efficiency Standards

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

GHG – Greenhouse Gas

HPWH – Heat Pump Water Heater

HVAC – Heating, Ventilation, and Air Conditioning

IOU – Investor-Owned Utility

kBtu – kilo-British thermal unit

kWh – Kilowatt Hour

LCC – Lifecycle Cost

LSC – Long – Term System Cost

MF – Multifamily

NEM – Net Energy Metering

NPV – Net Present Value

PG&E – Pacific Gas and Electric Company

POU – Publicly-Owned-Utility

PV – Photovoltaic

SCE – Southern California Edison

SDG&E – San Diego Gas and Electric

SEER – Seasonal Energy Efficiency Ratio

SMUD – Sacramento Municipal Utility District

SoCalGas – Southern California Gas Company

SSF – Solar Savings Fraction

Therm – Unit for quantity of heat that equals 100,000 British thermal units

Title 24 – Title 24, Part 6

TOU – Time-Of-Use

Table of Contents

Executive Summary	5
1 Introduction.....	9
2 Energy Code Background & 2025 Updates	11
3 Methodology and Assumptions	14
3.1 Modeling.....	14
3.1.1 Analysis Tools	14
3.1.2 Prototypes	14
3.2 Cost-Effectiveness.....	17
3.2.1 Benefits	17
3.2.2 Costs	17
3.2.3 Metrics.....	17
3.2.4 Utility Rates	18
3.3 Greenhouse Gas Emissions	20
3.4 Measure Details and Cost.....	20
3.4.1 Mixed Fuel Efficiency + Increased Solar Thermal Package.....	20
3.4.2 Electric Heating Package.....	23
4 Results.....	27
4.1 Cost-Effectiveness Results	27
4.1.1 Electric Heating.....	27
4.1.2 Mixed Fuel Efficiency + Increased Solar Thermal	30
4.2 Greenhouse Gas Reductions.....	31
4.3 CARE Rate Comparison.....	33
5 Recommendations and Discussion.....	37
6 References	40
7 Appendices	43
7.1 Map of California Climate Zones.....	43
7.2 Utility Rate Schedules.....	44
7.2.1 Pacific Gas & Electric.....	44
7.2.2 Southern California Edison	53
7.2.3 Southern California Gas.....	58



7.2.4 San Diego Gas & Electric61

7.2.5 City of Palo Alto Utilities70

7.2.6 Sacramento Municipal Utilities District (Electric Only)75

7.2.7 Fuel Escalation Assumptions76

List of Tables

Table 1. Summary of Revisions.....	1
Table 2. 2025 Energy Code Requirements for Multifamily Space Conditioning Systems.....	11
Table 3. Prototype Characteristics.....	15
Table 4. Base Case Characteristics of the prototypes	16
Table 5. Investor-Owned Utility Tariffs Used Based on Climate Zone	19
Table 6. Publicly Owned Utility Tariffs Used Based on Climate Zone	19
Table 7. Mixed Fuel Efficiency + Increased Solar Thermal Package per Climate Zone.....	21
Table 8. Incremental Cost Assumptions for Efficiency Measures (Present Value (2025\$))...	22
Table 9. Solar Thermal Cost Assumptions by Climate Zone (Present Value (2025\$)).....	22
Table 10. Solar Thermal Size by Climate Zone.....	23
Table 11. Heat Pump Water Heater Specifications	24
Table 12. Heat Pump Water Heater Incremental System Costs (Present Value (2025\$))	25
Table 13. HVAC Costs per Dwelling Unit for Climate Zones 1 and 16 Only (Present Value (2025\$))	26
Table 14. Electric Water and Space Heating 3-Story Multifamily Cost-Effectiveness Results per Dwelling Unit.....	28
Table 15. Electric Water and Space Heating 5-Story Multifamily Cost-Effectiveness Results per Dwelling Unit.....	29
Table 16. Mixed Fuel + Efficiency + Solar Thermal 3-Story Multifamily Cost-Effectiveness Results per Dwelling Unit	30
Table 17. Mixed Fuel + Efficiency + Solar Thermal 5-Story Multifamily Cost-Effectiveness Results per Dwelling Unit	31
Table 18. Greenhouse Gas Reductions for Electric Heating Package in 3-Story and 5-Story per Dwelling unit (kg)	32
Table 19. Greenhouse Gas Reductions for Mixed Fuel Efficiency + Increased Solar Thermal 3-Story and 5-Story per Dwelling unit (kg).....	32
Table 20. Electric Heating 3-Story On-Bill Cost-Effectiveness with CARE Tariffs	33
Table 21. Electric Heating 5-Story On-Bill Cost-Effectiveness with CARE Tariffs	34
Table 22. Mixed Fuel Efficiency + Increased Solar Thermal 3-Story On-Bill Cost-Effectiveness with CARE Tariffs	35
Table 23. Mixed Fuel Efficiency + Increased Solar Thermal 5-Story On-Bill Cost-Effectiveness with CARE Tariffs	36
Table 24. Summary of Source Energy Margins and Cost-Effectiveness	39
Table 25. PG&E Baseline Territory by Climate Zone.....	49
Table 26. PG&E Monthly Gas Rate (\$/therm).....	49
Table 27. SCE Baseline Territory by Climate Zone	53
Table 28. SoCalGas Baseline Territory by Climate Zone	58
Table 29. SoCalGas Monthly Gas Rate (\$/therm).....	59
Table 30. SDG&E Baseline Territory by Climate Zone	62
Table 31. SDG&E Monthly Gas Rate (\$/therm)	67
Table 32. CPAU Monthly Gas Rate (\$/therm)	74

List of Figures

Figure 1. Map of California climate zones.43

Executive Summary

The California Codes and Standards (C&S) Reach Codes program provides technical support to local governments considering adopting a local ordinance (reach code) intended to support meeting local and/or statewide energy efficiency and greenhouse gas (GHG) reduction goals. The program facilitates adoption and implementation of the code when requested by local jurisdictions by providing technical support and resources such as cost-effectiveness studies, model language, sample findings, and other supporting documentation.

This report documents cost-effective combinations of measures that exceed the minimum state requirements, the 2025 Building Energy Efficiency Standards also known as Title 24, Part 6 or the Energy Code (California Energy Commission, 2025), which became effective on January 1, 2026. The analysis considers low-rise and mid-rise multifamily building types with central hot water systems in all 16 California climate zones (CZs).

The 2022 Energy Code established electric heat pumps as the prescriptive baseline for space heating in most climate zones (2-15). Heat pump water heaters are also prescriptively required for individual systems, with an exception that allows instantaneous gas water heaters in buildings four stories or more¹. Prescriptive requirements for central water heating systems include either heat pumps or gas systems with solar thermal.

Packages analyzed include an Electric Heating Package and a Mixed Fuel Efficiency Package. The Electric Heating Package includes a high efficiency heat pump central hot water system in all climate zones and a heat pump space heating system where heat pump space heaters are not prescriptively required (Climate Zone 16 for multifamily buildings three habitable stories or fewer, and Climate Zones 1 and 16 for multifamily buildings greater than three habitable stories). The Mixed Fuel Efficiency Package includes additional solar thermal capacity and other efficiency measures.

This analysis used two metrics to assess the cost-effectiveness of the proposed upgrades: On-Bill and Long-term Systemwide Cost. Both methodologies require estimating and quantifying the incremental costs and energy savings associated with each energy efficiency measure over a 30-year analysis period. On-Bill cost-effectiveness is a customer-based lifecycle cost (LCC) approach that values energy based on estimated site energy usage and customer utility bill savings using today's electricity, natural gas utility tariffs, and escalation rates. Long-term System Cost (LSC) is the California Energy Commission's LCC methodology for the 2025 Title 24, Part 6 (Title 24) code cycle, which is intended to capture the long-term projected cost of energy including costs for providing energy during peak periods of demand, carbon emissions, grid transmission and distribution impacts. This is the

¹ Jurisdictions within the South Coast Air Quality Management District (SCAQMD) are not permitted to install instantaneous gas water heaters in new buildings due to SCAQMD [Rule 1146.2](#). Effective January 1, 2026, the rule prohibits the installation of instantaneous gas-fired water heaters with a capacity of 200,000 Btu/hr or less in new construction.

methodology used by the Energy Commission in evaluating cost-effectiveness for efficiency measures in the Energy Code development process.

Two multifamily prototypes were evaluated in this study — a 3-story loaded corridor and a 5-story mixed use prototype, which combined are estimated to represent 91 percent of new multifamily construction in California (Statewide CASE Team, 2025).

The following are key takeaways and recommendations from the analysis.

- Both the Electric Heating and Mixed Fuel Efficiency Package are LSC cost-effective in every climate zone and in both the 3-story and 5-story prototypes.
- The Electric Heating Package is On-Bill cost-effective in all climate zones except Climate Zone 15 due to an electrification rate structure that includes lower baseline allowances in the summer for the electrification rate which yields higher utility bills.
- The Mixed Fuel Efficiency Package is On-Bill cost-effective in all climate zones in both the 3-story and 5-story prototypes.
- There are two recent utility rate changes that are included in this analysis: Base Services Charge and the Virtual Net Billing Tariff (NBTV). The Base Services Charge results in improved cost-effectiveness especially in the electric heating measure due to lower costs per kWh. Photovoltaic (PV) are prescriptively required so NBTV is applied to all utility results including the standard time of use (TOU) and electrification rate. However, an increased PV measure was not evaluated in this study, so the Virtual Net Billing Tariff does not have a significant impact on cost-effectiveness results.
- For new multifamily buildings, it can be challenging to find cost-effective measures that are not preempted by the Energy Policy and Conservation Act (EPCA).
 - In 2022, photovoltaics (PV) and battery measures were used in the Mixed Fuel Efficiency Package; however, in December of 2025, the federal investment tax credit (ITC) expired making the battery measure no longer cost-effective. The team also considered a measure to increase the PV² system size; however, this PV measure would only provide a 1-4% source energy margin in most climate zones.
 - Meanwhile, the increased solar thermal measure provides a 6-17% source energy margin and is cost-effective. To understand how this measure applies, it is important to distinguish between central and individual water heating baselines. In this case, the Mixed Fuel Efficiency Package is based on a central water heating baseline, where a shared gas-fired water heater serves multiple dwelling units and baseline performance is defined at the system level. In contrast, individual water heating baselines apply when each dwelling unit has its own dedicated water heater and are defined on a per-unit basis. Accordingly, the Mixed Fuel Efficiency Package with a gas central

² PV is prescriptively required in all multifamily buildings. In the 2022 Multifamily Reach Code analysis, the PV measure was increased to offset 100% of the electric energy load to not violate net energy metering (NEM) rules.

water heater includes a solar thermal water heating system with increased capacity to offset centralized hot water loads and distribution losses. Given the limited options available to reduce the source energy with the mixed fuel design, solar thermal presented the greatest opportunity to improve the system performance enough to achieve similar savings as the heat pump system.

- In 2025 the CEC changed the compliance metrics from TDV and EDR to LSC and source energy. The team evaluated solar thermal using both metrics and determined that solar thermal is valued more highly in the new 2025 metrics, LSC and source energy. Therefore, the source energy margin is higher in this study compared to the 2022 study.
- The team considered rooftop space availability for solar thermal and determined, based on contractor feedback from the 2022 Multifamily DHW CASE report, there is sufficient roof space to accommodate solar thermal systems for multifamily buildings up to 10 stories (Statewide CASE Team, Title24stakeholders, 2022).
- As an additional push for increased source margin, additional measures in select climate zones were added, including window U-factor and verified low leakage ducts in conditioned spaces.
- The Electric Heating and Mixed Fuel Efficiency Packages for both prototypes result in GHG reductions; however, the Electric Heating Package yields greater reductions.
- This study supports a reach code that requires a higher performance margin for buildings with central hot water systems. The study demonstrates that both gas systems with larger solar thermal systems and additional efficiency measures, as well as electric heat pump systems with higher efficiency components could cost-effectively comply.
- Applying the CARE rates in some climate zones has the overall impact of decreasing utility cost savings for both electric heating and mixed fuel + efficiency buildings, which reduces or eliminates (in some climate zones) On-Bill cost-effectiveness compared to the standard rates.
- One possible policy outcome from this study is to set the reach code at the lower margin between the mixed fuel and Electric Heating Package. For example, in the 3-story prototype in Climate Zone 4 the margin would be 9%.

Local jurisdictions may also adopt ordinances that amend different Parts of the California Building Standards Code or may elect to amend other state or municipal codes. The decision regarding which code to amend will determine the specific requirements that must be followed for an ordinance to be legally enforceable. For example, reach codes that amend Part 6 of the CA Building Code and require energy performance beyond state code minimums must demonstrate the proposed changes are cost-effective and obtain approval from the Energy Commission as well as the Building Standards Commission (BSC). Amendments to Part 11, such as requirements for increased water efficiency or electric vehicle infrastructure only require BSC approval. Although a cost-effectiveness study is only

required to amend Part 6 of the CA Building Code, this study provides valuable context for jurisdictions pursuing other ordinance paths to understand the economic impacts of any policy decision. This study documents the estimated costs, benefits, energy impacts and greenhouse gas emission reductions that may result from implementing an ordinance based on the results to help residents, local leadership, and other stakeholders make informed policy decisions.

This report documents the key results and conclusions from the Reach Codes Team analysis. A full dataset of all results can be downloaded at <https://localenergycodes.com/content/resources>. Results alongside policy options can also be explored using the Cost-effectiveness Explorer at <https://explorer.localenergycodes.com/>. Model ordinance language and other resources are posted on the C&S Reach Codes Program website at LocalEnergyCodes.com. Local jurisdictions that are considering adopting an ordinance may contact the program for further technical support at info@localenergycodes.com.

1 Introduction

California's Building Energy Efficiency Standards are Part 6 of Title 24, the California Building Code (California Energy Commission, 2025) — also referred to in this report as the Energy Code. It is maintained and updated every three years by two state agencies: the California Energy Commission (the CEC or Energy Commission) and the Building Standards Commission (BSC). The latest standards, adopted in 2025, are in effect as of January 1, 2026.

In addition to enforcing Title 24, local jurisdictions have the authority to adopt local energy efficiency ordinances—or reach codes—that exceed the minimum standards defined by Title 24, pursuant to Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards. Reach codes are typically adopted to support meeting local and/or statewide energy efficiency and greenhouse gas reduction goals.

To adopt a reach code, local jurisdictions must demonstrate that the requirements of the proposed ordinance are cost-effective (see Section 3.2), and result in buildings consuming less energy than is permitted by Title 24. In addition, the jurisdiction must obtain approval from the Energy Commission and the BSC for the ordinance to be legally enforceable.

In addition, the Department of Energy (DOE) sets minimum efficiency standards for equipment and appliances that are federally regulated under the National Appliance Energy Conservation Act, including heating, cooling, and water heating equipment (E-CFR, 2020). Although high efficiency appliances are often the easiest and most affordable measure to increase energy performance, state and local governments are prohibited from adopting higher minimum efficiencies than the federal standards require. Accordingly, this study focuses on identifying and evaluating cost-effective measure packages that do not include high efficiency heating, cooling, and water heating equipment. While federal preemption limits mandatory requirements in reach codes for covered appliances, in practice, builders may install any package of compliant measures to achieve the performance requirements.

Assembly Bill 130 (2025) limits the ability of local jurisdictions to amend the California Building Standards Code with respect to residential buildings unless specific criteria are met. Jurisdictions should consult with appointed legal counsel to determine the extent of their authorities.

The California Statewide Reach Codes Program provides technical support to local governments considering adopting a reach code. This program is part of the California Statewide Investor-Owned Utilities (IOUs) Codes and Standards (C&S) Program, and, with key consultants and engaged cities, are collectively known as the Statewide Reach Codes Team. The Reach Codes Program facilitates adoption and implementation of reach codes when requested by local jurisdictions by providing technical support and resources such as cost-effectiveness studies, model language, sample findings, and other supporting documentation.

The purpose of this study is to evaluate energy performance and determine cost-effectiveness of various energy efficiency upgrade measures in newly constructed multifamily buildings with central hot water systems. The analysis considers 3-story and 5-story multifamily building prototypes and evaluates measure package options in all sixteen California climate zones (CZs). The Mixed Fuel Efficiency Package includes reduced window U-factor in Climate Zone 16, low leakage ducts in conditioned space, and increased solar thermal water heating systems. The team looked at increasing the capacity of solar thermal water heating systems because battery measures are no longer cost-effective after the federal investment tax credit (ITC) expired. Solar thermal water heating is already prescriptively required in newly constructed multifamily buildings; this measure will increase the system capacity from 0.20 solar savings fraction (SSF) to 0.35 SSF in Climate Zones 1-9 and 0.35 to 0.50 in Climate Zones 10-16.

The largest potential for emissions savings comes from replacing central gas water heating with central heat pump water heating. The energy code already prescriptively requires heat pump space heaters in most climate zones (Climate Zones 2-15) and heat pump water heaters are prescriptively required for individual systems, with an exception that allows instantaneous gas water heaters in buildings four stories or more. As such, this analysis applies specifically to buildings with central hot water systems.

This report documents the key results and conclusions. A full dataset of all results can be downloaded at <https://localenergycodes.com/content/resources>. Results alongside policy options can also be accessed using the Cost-effectiveness Explorer at <https://explorer.localenergycodes.com/>.

2 Energy Code Background & 2025 Updates

To be compliant with the Energy Code, newly constructed multifamily buildings must follow the prescriptive approach, which sets standards for allowable building materials and construction practices, or the performance approach, where builders can deviate from prescriptive requirements as long as results meet or exceed minimum performance requirements. Both approaches must include mandatory measures that cannot be excluded or traded-off. While most builders utilize the performance approach, analyses by the Reach Codes Team are framed within the prescriptive standards “base case” because they represent building characteristics, and associated savings, used to calculate minimum compliance. These prescriptive standards are sometimes referred to as “prescriptively required” in this report, even if they can be traded off when using the performance approach.

Energy Codes are updated every three years to continue meeting statewide energy goals effectively. The latest standards, adopted in 2025, are in effect as of January 1, 2026. Among other updates to the 2025 Energy Code, heat pump water heaters are now prescriptively required for new multifamily buildings three stories or less with individual water heating systems. However, central gas hot water systems are still prescriptively allowed in all multifamily buildings if supplemented by solar thermal, and instantaneous gas water heaters (as well as heat pumps) are still prescriptively allowed for individual water heaters in buildings with four or more stories. However, in the South Coast Air Quality Management District (SCAQMD), beginning in January of 2028, central water heaters will be required to be zero NOx according to rule [1146.2](#).

Note that heat pump space heaters are already prescriptively required in Climate Zones 1-15 in multifamily buildings three stories or less and in Climate Zones 2-15 in buildings with five or more stories. See Table 2 for details.

Table 2. 2025 Energy Code Requirements for Multifamily Space Conditioning Systems

Climate Zone	3-Story Space Conditioning	5-Story Space Conditioning
1	HPSH	Dual Fuel Heat Pump
2 - 15	HPSH	HPSH
16	AC/Furnace	Dual Fuel Heat Pump

Another significant change in the 2025 standards is that the Energy Design Rating (EDR) metrics used in the 2022 code cycle have been replaced with the Long-term System Cost (LSC) metric and Source Energy metric. The changes in compliance metrics impact how energy is expressed, but the goal of the compliance metrics remains largely the same. Efficiency EDR and Total EDR have been replaced by Efficiency LSC and Total LSC, which is further explained in Section 3.2.1. The third component, Source EDR, has been replaced by Source Energy. The EDR metric was a unitless value that used a zero-to-100 scoring

system to compare a proposed design against a reference design that meets the 2006 International Energy Conservation Code (IECC). The LSC metric is a monetary representation with units in dollars, and source energy is presented in kilo-British thermal units (kBtu).

Listed below are the three metrics used to evaluate compliance — all of which need to be met for a project to be compliant with the Energy Code.

- Source Energy (Source) is a proxy for greenhouse gas emissions expressed via an hourly metric. It captures envelope measures, other building components, and on-site renewable energy systems. In addition to on-site fuel source(s), it accounts for the energy source used to generate electricity, which varies by hour (see Section 3.2 for more information).
- Efficiency LSC (LSCe) captures the long-term energy system cost impacts of end-uses, such as envelope measures and appliances/equipment, that save energy compared to their standard counterpart.
- Total LSC (LSCt) reflects both efficiency and on-site renewables along with “flexibility” measures, like batteries and pre-cooling, that enable load-shifting.

Efficiency LSC, Total LSC, and Source Energy are metrics which are intended to capture the total value or cost of energy use over 30 years. These metrics, defined by the Energy Commission, altogether incorporate the following considerations:

- Grid transmission and distribution impacts
- Fuel source (natural gas, electricity, and propane)
- Cap-and-trade-based carbon dioxide (CO₂) emissions (California Energy Commission, 2023).
- Time/Day/Seasonal energy use variability. Electricity used (or saved) during peak periods has a much higher value than electricity used (or saved) during off-peak periods due to the inefficient energy generation sources providing peak electricity.

Under the code, compliance with these metrics is measured against the energy budget for the standard design that incorporates all the prescriptive and mandatory measures for the particular building type. In the case of new multifamily buildings there are prescriptive pathways for both heat pump and gas systems, and the energy budget for the standard design varies accordingly, with the notable exception that now, under the 2025 code, the energy budget for low rise buildings with individual water heaters assumes electric heat pumps.

Perhaps the most significant impact to reach code development is the unprecedented legislative decision to place a moratorium on changes to California’s residential Energy Codes under [Assembly Bill 130 \(2025\)](#). Initially intended to enable the rebuilding of homes lost to wildfires in the Los Angeles area before it was expanded statewide, the bill’s requirements have created challenges for jurisdictions seeking to implement reach codes. As of the writing of this report, those challenges continue as entities attempt to interpret the

bill's language and real-world implications. The Reach Codes Team continues to support jurisdictions by providing the cost-effective analyses presented in this report. However, the considerations regarding how to apply the results should be done in coordination with appointed legal counsel.

3 Methodology and Assumptions

This section describes the approach to calculating cost-effectiveness including benefits, costs, metrics, and utility rate selection.

3.1 Modeling

Using the 2025 prescriptive baseline as the starting point, prospective energy efficiency measures were identified and modeled to determine the projected site energy (therm and kilowatt hour or kWh), source energy, GHG emissions, and LSC (long-term system cost) impacts. This section describes the prototypes and how they were used to identify cost-effective measures.

3.1.1 Analysis Tools

The Reach Codes Team performed energy simulations using the 2025 research version of the California Building Energy Code Compliance software (CBECC).

Annual utility costs were calculated using hourly data output from CBECC, and current (as of 05/01/2026) electricity and natural gas tariffs for each of the investor-owned utilities (IOUs) appropriate for that climate zone.

3.1.2 Prototypes

The Energy Commission defines building prototypes which it uses to evaluate the cost-effectiveness of proposed changes to Title 24 requirements. There are 4 multifamily prototypes used in code development: a 2-story garden style (with exterior front doors), a 3-story loaded corridor (front doors in interior corridor), a 5-story mixed use and a 10-story mixed use. Based on work completed for the 2022 Title 24 code development, the 3-story and the 5-story represent 33 percent and 58 percent, respectively, of new multifamily construction in California. As a result, only these two prototypes are used in this analysis. Additional details on all four prototypes can be found in the Multifamily Prototypes Report (TRC, 2019).

Table 3 describes the basic characteristics of the two prototype buildings used in this analysis.

Table 3. Prototype Characteristics

Characteristic	3-Story Loaded Corridor	5-Story Mixed Use
Conditioned Floor Area	39,372 ft ²	113,100 ft ² 33,660 ft ² nonresidential 79,440 ft ² residential
Num. of Stories	3	6 Stories total: 1 story parking garage (below grade) 1 story of nonresidential space 4 stories of residential space
Num. of Bedrooms	(6) Studio (12) 1-bed (12) 2-bed (6) 3-bed	(8) studios (40) 1-bed units (32) 2-bed units (8) 3-bed units
Window-to-Floor Area Ratio	25%	25%
Wall Type	Wall framed	Wood frame over a first-floor concrete podium
Foundation	Slab-on-grade	Concrete podium with underground parking

The analysis for the prototypical building types begins with a design that meets the minimum 2025 prescriptive requirements³ for buildings with central hot water. Table 170.2-A and 170.2-B in the 2025 Standards (California Energy Commission, 2025) list the prescriptive measures that determine the baseline design in each climate zone. Other features are designed to meet, but not exceed, the minimum requirements and are consistent with the Standard Design in the ACM Reference Manual (California Energy Commission, 2025). The analysis also assumes that electric resistance cooking appliances are installed in the apartment units, reflecting current market data. The 3-story building prototype includes a central laundry facility, and the 5-story assumes laundry in the units. Laundry equipment was assumed to be electric in all cases.

³ Due to existing assumptions regarding how the prescriptive requirements are applied in the Standard Design and challenges for certain space types with sizing heating and cooling equipment the same in the Proposed Design as in the Standards, the compliance margins for the base case models were not exactly zero percent.

Table 4 describes the base case equipment assumptions for the 3-story and 5-story prototypes.

Table 4. Base Case Characteristics of the prototypes

Characteristic	3- Story Loaded Corridor	5-Story Mixed Use
Space Heating/Cooling	Individual split systems with ducts in conditioned space CZ 1-15: Heat pump CZ 16: Natural gas furnace with air conditioner	Individual split systems with ducts in conditioned space CZ 2 -15: Heat pump CZ 1,16: Dual Fuel Heat Pump
Heating Efficiency	HSPF2: 7.5 AFUE: 0.80	HSPF2: 7.5 AFUE: 0.80
Cooling Efficiency	SEER2: 14.3 EER2: 11.7	SEER2: 14.3 EER2: 11.7
Ventilation	Individual balanced fans, continuously operating	Individual balanced fans, continuously operating
Water Heating	Natural gas central boiler with solar thermal sized to meet the prescriptive requirements by climate zone	Natural gas central boiler with solar thermal sized to meet the prescriptive requirements by climate zone
Water Heater Efficiency	Thermal Efficiency: 0.8	Thermal Efficiency: 0.8
Solar Thermal	0.20 SSF in CZ1-9 0.35 SSF in CZ 10-16	0.20 SSF in CZ1-9 0.35 SSF in CZ 10-16
Hot Water Distribution	Central recirculation	Central recirculation
Cooking	Electric	Electric
Clothes Drying	Electric (central)	Electric (in-unit)
PV System	Sized according to the prescriptive requirements in Equation 170.2-C of the 2025 Title 24 Standards. Size differs by climate zone ranging from 1.60 kW to 2.90kW per dwelling unit.	Sized according to the prescriptive requirements in Equation 170.2-D of the 2025 Title 24 Standards. Size differs by climate zone ranging from 2.56kW to 3.60kW per dwelling unit.
Battery System	None	Sized according to the prescriptive requirements in Equation 170.2-F of the 2025 Title 24 Standards. Size differs by climate zone ranging from 2.46kWh to 3.36kWh per dwelling unit.

3.2 Cost-Effectiveness

3.2.1 Benefits

This analysis used two different metrics to assess the cost-effectiveness of the proposed upgrades: Utility Bill Impacts (On-Bill) and Long-Term System Cost (LSC). Both methodologies require estimating and quantifying the incremental costs and energy savings associated with each energy efficiency measure. The main difference between the methodologies is how they value energy and thus how the cost savings of reduced or avoided energy use is calculated:

Utility Bill Impacts (On-Bill): This customer-based lifecycle cost (LCC) approach values energy based upon estimated site energy usage and customer utility bill savings using the latest electricity and natural gas utility tariffs available at the time of writing this report. Total savings are estimated over a 30-year duration and include discounting of future utility costs and energy cost inflation.

Long – Term System Cost (LSC): Formerly known as Time Dependent Valuation (TDV), LSC reflects the Energy Commission’s current lifecycle cost (LCC) methodology, which is intended to capture the total value or cost of energy use over 30 years. This method accounts for the hourly cost of marginal generation, transmission and distribution, fuel, capacity, losses, and cap-and-trade-based CO₂ emissions (California Energy Commission, 2023). This is the methodology used by the Energy Commission in evaluating cost-effectiveness for measures in the 2025 Energy Code.

3.2.2 Costs

The Reach Codes Team assessed the incremental costs of the measures and packages over a 30-year lifecycle. Incremental costs represent the equipment, installation, replacements, and maintenance costs of the proposed measure relative to the 2025 Energy Code minimum requirements or standard industry practices. Present value of replacement cost is included for measures with lifetimes less than the evaluation period.

3.2.3 Metrics

Cost-effectiveness is presented using net present value (NPV).

NPV: The lifetime NPV is reported as a cost-effectiveness metric; Equation 1 demonstrates how it is calculated. If the NPV of a package is positive, it is considered cost-effective. A negative value represents a net cost to the consumer over the 30-year lifetime.

Equation 1

$$NPV = \text{present value of lifetime benefit} - \text{present value of lifetime cost}$$

Improving the efficiency of a project often requires an initial investment. In most cases, the benefit of this investment is represented by annual On-Bill utility or TDV savings, and the

cost is represented by incremental first cost and replacement costs. Some packages result in initial construction cost savings (negative incremental cost), and either energy cost savings (positive benefits), or increased energy costs (negative benefits). In cases where both construction costs and energy-related savings are negative, the construction cost savings are treated as the 'benefit' while the increased energy costs are the 'cost.' In cases where a measure or package is cost-effective immediately (i.e., upfront construction cost savings and lifetime energy cost savings), B/C ratio cost-effectiveness is represented by ">1".

The lifetime costs or benefits are calculated according to Equation 2.

Equation 2

$$\text{Present value (PV) of lifetime cost or benefit} = \frac{\text{Future Value (FV)}}{(1 + r)^n}$$

Where:

1. n = analysis term in years
2. r = discount rate

In this study, an analysis term (n) of 30 years and a real discount rate (r) of three percent are applied in both methodologies.

3.2.4 Utility Rates

In coordination with the California Investor-Owned Utilities (CA IOU) rate team (comprised of representatives from Pacific Gas and Electric Company or PG&E, Southern California Edison or SCE, San Diego Gas and Electric or SDG&E, Sacramento Municipal Utility District or SMUD, and City of Palo Alto Utilities or CPAU), the Reach Codes Team determined appropriate utility rates for each climate zone to calculate utility costs and determine On-Bill cost-effectiveness for the proposed measures and packages. The utility tariffs, summarized in Section 7.2, were determined based on the most prevalent active rate in each territory. Utility rates were applied to each climate zone based on the predominant IOU serving the population of each zone, with a few climate zones evaluated multiple times under different utility scenarios. Climate Zones 10 and 14 were evaluated with both SCE for electricity and Southern California Gas Company (SoCalGas) for gas and SDG&E tariffs for both electricity and gas since each utility has customers within these climate zones. Climate Zone 5 is evaluated under both PG&E and SoCalGas natural gas rates. Two publicly-owned utilities (POUs) or municipal utility rates were evaluated: SMUD electricity rates in Climate Zone 12 and CPAU electricity and natural gas rates in Climate Zone 4.

First-year utility costs were calculated using hourly electricity and natural gas output from CBECC and applying the utility tariffs summarized in Table 5 and Table 6. Note that master metered buildings are excluded from the E-ELEC rate; however, this analysis assumes that the electricity is individually metered for each dwelling unit. The analysis incorporates the

Base Services Charge which was adopted pursuant to California Assembly Bill 205.⁴ Recently, residential electric rates for California's investor-owned utilities (PG&E, SCE, and SDG&E) were restructured to include a fixed monthly charge and correspondingly lower volumetric energy charges. This rate design shifts a portion of cost recovery from per-kWh charges to fixed charges. As a result, the customer economics of electrification may differ from those under previous rate structures.

For multifamily buildings with shared solar generation, the analysis incorporates the Virtual Net Billing Tariff (NBTv), which allocates solar export credits to participating tenant accounts. Under NBTv, exported electricity is generally compensated based on avoided-cost values rather than full retail electricity rates. As a result, solar exports typically receive lower bill credits than under legacy net-energy-metering structures, reducing the economic value of excess photovoltaic generation exported to the grid. Annual costs were also estimated for customers eligible for the CARE tariff discounts on both electricity and natural gas bills. The CARE tariff was only applied to the in-unit apartment meters. Appendix 7.2 includes details of each utility tariff. Homes with a heat pump in IOU territory are eligible for either the electrification or the standard tariff. Utility costs were calculated under both tariffs with results presented using the one that yielded the lower annual utility cost.

Table 5. Investor-Owned Utility Tariffs Used Based on Climate Zone

Climate Zones	Electric / Gas Utility	Electricity Tariff: Standard Rate	Electricity Tariff: Electrification Rate	Natural Gas Tariff
1-5, 11-13, 16	PG&E / PG&E	E-TOU-C	E-ELEC	G1 (in-unit) & GM (central water heating)
5	PG&E / SoCalGas	E-TOU-C	E-ELEC	GM
6, 8-10, 14, 15	SCE / SoCalGas	TOU-D-4-9	TOU-D-PRIME	GM
7, 10, 14	SDG&E / SDG&E	TOU-DR-1	TOU-ELEC	GM

Table 6. Publicly Owned Utility Tariffs Used Based on Climate Zone

Climate Zones	Electric / Gas Utility Electricity Tariff: Standard Rate	Electricity Tariff: Electrification Rate	Natural Gas Tariff
4	CPAU / CPAU	E-1 (in-unit) & E-2 (central water heating)	G2
12	SMUD / PG&E	R-TOD, RT02 (in-unit & central water heating)	GM

⁴ [Assembly Bill No. 205 Chapter 61](#)

3.3 Greenhouse Gas Emissions

The analysis reports the greenhouse gas (GHG) emission estimates based on assumptions within CBECC. There are 8,760 hourly multipliers accounting for time dependent energy use and carbon based on source emissions, including renewable portfolio standard projections. There are two series of multipliers—one for Northern California climate zones, and another for Southern California climate zones. Four GHG emissions are reported as average annual metric tons of CO₂ equivalent over the 30-year analysis lifetime. The analysis period incorporates projected changes in California's Renewable Portfolio Standards — the state's requirements for renewable energy generation over time.

3.4 Measure Details and Cost

This section describes the measures analyzed and documents incremental costs for each. The Reach Codes Team evaluated two packages for each prototype and climate zone, as described below.

1. Mixed Fuel Efficiency + Increased Solar Thermal: This package includes the following measures: duct distribution efficiency measures, increased window efficiency, and increased solar thermal water heating systems. These measures do not preempt federal efficiency standards.
2. Electric Heating: This package includes a central heat pump water heater in all climate zones and a heat pump space heater in climate zones where it's not prescriptively required (i.e. Climate Zones 1 and 16, see Table 2 for details).

3.4.1 Mixed Fuel Efficiency + Increased Solar Thermal Package

To achieve a sufficiently high compliance margin to meet jurisdictional goals, several measures were combined into a single mixed fuel package. The recommended measures for each climate zone are shown in Table 7.

Table 7. Mixed Fuel Efficiency + Increased Solar Thermal Package per Climate Zone

Climate Zone	High Efficiency Windows	Low-Leakage Ducts in Conditioned Space	0.35 SSF Solar Thermal	0.50 SSF Solar Thermal
1		✓	✓	
2		✓	✓	
3		✓	✓	
4		✓	✓	
5		✓	✓	
6		✓	✓	
7		✓	✓	
8		✓	✓	
9		✓	✓	
10		✓		✓
11		✓		✓
12		✓		✓
13		✓		✓
14		✓		✓
15		✓		✓
16	✓	✓		✓

Window U-factor: Reduce window U-factor to 0.24. This measure is only included in Climate Zone 16 where the prescriptive U-factor currently is 0.28.

Verified Low Leakage Ducts in Conditioned Space: Seal the ducts to achieve a measured leakage no greater than 25 cubic feet per minute (cfm) to outside. This may be achieved by using a guarded blower door test to isolate leakage to outside. Alternatively, this can also be satisfied by demonstrating that total leakage is not greater than 25 cfm. Ducts are assumed to be in conditioned space in the baseline.

Solar Thermal: An upsized solar thermal system was added with efficiencies of 0.35 SSF for Climate Zones 1-9 and 0.50 SSF for Climate Zones 10-16. This is an increase from the prescriptive solar thermal requirement of 0.20 SSF in Climate Zones 1-9 and 0.35 SSF in Climate Zones 10-16.

Table 8. Incremental Cost Assumptions for Efficiency Measures (Present Value (2025\$))

Measure	Performance Level	3-Story Incremental Cost per Dwelling Unit (2025 PV\$)	5-Story Incremental Cost per Dwelling Unit (2025 PV\$)	Source & Notes
Window U-factor	0.24 vs. 0.28	\$207	\$200	A cost model developed by the 2025 Codes and Standards Enhancement (CASE) team using Energy Star data. (EPA, 2021)
Verified Low Leakage Ducts in Conditioned Space	≤ 25 cfm leakage to outside	\$140	\$140	From the 2022 multifamily new construction report and adjusted for inflation.

Table 9. Solar Thermal Cost Assumptions by Climate Zone (Present Value (2025\$))

Climate Zone	3-Story Incremental Cost per Dwelling Unit (2025 PV\$)	5-Story Incremental Cost per Dwelling Unit (2025 PV\$)
1	\$812	\$1,229
2	\$541	\$1,125
3	\$541	\$1,125
4	\$406	\$900
5	\$541	\$1,074
6	\$406	\$900
7	\$541	\$1,012
8	\$406	\$900
9	\$406	\$900
10	\$406	\$787
11	\$406	\$900
12	\$406	\$900
13	\$406	\$900
14	\$406	\$787
15	\$271	\$562
16	\$541	\$1,012

The methodology for determining the solar thermal system size differs from the previous analysis in that the team customized the number of solar collectors and the storage tank size to achieve the desired solar savings fraction (SSF) calculated in CBECC in each climate zone. Previously, the 2022 Multifamily reach code report (Statewide Reach Code Team, 2023) and the 2022 All-Electric CASE report (Statewide CASE Team, 2022), sized the solar thermal system to Climate Zone 3 and assumed the number of collectors and tank

size are a reasonable assumption for a 0.35 SSF system in Climate Zones 1-9. Those reports also used the Climate Zone 12 solar thermal system size as the assumption for a 0.50 SSF system in Climate Zones 10-16. However, in this analysis the team determined the differentiation in solar thermal system design was necessary to include because it makes a significant impact on the source energy margins, energy savings, and costs. The solar thermal system size is shown in Table 10 below. The solar thermal cost assumed in this analysis is \$190 per square foot of solar collector. This cost comes from the 2022 DHW CASE report (Statewide CASE Team, 2023), which assumes \$159 per square foot of collector, and is adjusted for inflation over four years.

Table 10. Solar Thermal Size by Climate Zone

Climate Zone	3-Story # of Collectors	3-Story Storage Tank Size (gallons)	5-Story # of Collectors	5-Story Storage Tank Size (gallons)
1	12	720	30	1800
2	8	480	20	1200
3	8	480	20	1200
4	6	360	16	960
5	8	480	18	1080
6	6	360	16	960
7	8	480	18	1080
8	6	360	16	960
9	6	360	16	960
10	9	540	21	1260
11	10	600	24	1440
12	10	600	25	1500
13	9	540	24	1440
14	8	480	20	1200
15	6	360	16	960
16	12	720	28	1680

3.4.2 Electric Heating Package

This package includes electric water heating in all climate zones and electric space heating in Climate Zones 1 and 16 where a heat pump space heater is not already prescriptively required. In Climate Zones 2-15 this “Electric Heating” Package is effectively a central heat pump water heating measure because a heat pump space heater is already prescriptively required; in other words, in Climate Zones 2-15, the only electrification is of the central heat pump water heating measure. The prescriptive baseline in a 5-story prototype in Climate Zones 1 and 16 is a dual fuel heat pump (DFHP) and an AC and gas furnace in a 3-story prototype in Climate Zone 16. This section describes the details and equipment costs of the measure. To determine cost-effectiveness for the Electric Heating Package, it's compared to the Mixed Fuel Efficiency Package, but for compliance purposes the Electric Heating Package is compared against the electric heating baseline.

Water Heating: Central water heaters are not federally regulated, so proposing a central HPWH with higher efficiency does not preempt the Energy Policy and Conservation Act (EPCA). Table 11 presents the proposed heat pump water heater designs come from the Central Heat Pump Water Heating Systems for Decarbonizing Multifamily Building ACEEE study (TRC and PG&E, 2024) which originates from the 2025 Multifamily Domestic Hot Water CASE report (Statewide CASE Team, 2023)⁵.

Table 11. Heat Pump Water Heater Specifications

Prototype	Qty.	Manufacturer	Model	Recovery Capacity (Btu/h)
3-Story Loaded Corridor	5	SanCO2	GS4	15,000
5-story Mid-rise Mixed Use	2	Mitsubishi	Heat2O	110,000

Table 12 reports costs for the central heat pump water heating systems relative to a gas boiler system with solar thermal that meets the prescriptive requirements of 0.20 solar fraction in Climate Zones 1 through 9 and 0.35 solar fraction in Climate Zones 10 through 16. Costs include equipment and labor, gas piping within the building for the boiler system, and additional electrical service necessary for the heat pump system. Replacement costs are based on an effective useful life of 25 years for the gas water heaters and tanks (DNV, 2024), and 20 years for the solar thermal collectors and heat pump water heater (HPWH (eTRM, 2026). For solar thermal systems, it’s also assumed that glycol is replaced at years 9, 18 and 27. Costs for the water heating system come from the Central Heat Pump Water Heating Systems for Decarbonizing Multifamily Building ACEEE study (TRC and PG&E, 2024).

⁵ Refer to Table 212-213 of the [2025 Multifamily Domestic Hot Water CASE report](#) for more details on the HPWH system design.

Table 12. Heat Pump Water Heater Incremental System Costs (Present Value (2025\$))

Item	CZ	3-Story Central Gas Boiler	3-Story Central Heat Pump	5-Story Central Gas Boiler	5-Story Central Heat Pump
First Cost	CZs 1-9	\$190,107	\$173,439	\$305,404	\$266,253
First Cost	CZs 10-16	\$199,994	\$173,439	\$329,166	\$266,253
Replacement Cost	CZs 1-9	\$24,355	\$26,230	\$45,949	\$46,286
Replacement Cost	CZs 10-16	\$29,438	\$26,230	\$56,266	\$46,286
Total Incremental	CZs 1-9	N/A	(\$14,793)	N/A	(\$38,814)
Total Incremental	CZs 10-16	N/A	(\$29,763)	N/A	(\$72,894)
Incremental Cost per Dwelling Unit	CZs 1-9	N/A	(\$411)	N/A	(\$441)
Incremental Cost per Dwelling Unit	CZs 10-16	N/A	(\$827)	N/A	(\$828)

Space Heating: Table 13 presents the costs for heat pump space heater conversion from gas equipment. In most climate zones, the baseline in the 2025 Energy Code is a heat pump space heater, so these costs are only applied in Climate Zone 16 for the 3-story prototype and Climate Zones 1 and 16 for the 5-story prototype. For the 3-story prototype, the baseline in Climate Zone 16 is a gas furnace and air conditioner. For the 5-story prototype, the baseline in Climate Zones 1 and 16 is a dual fuel heat pump with a gas furnace as backup. Costs include equipment and labor, gas piping within the building for the furnace system, and additional electrical service necessary for the heat pump system. Most of the cost difference between the two systems is attributed to more labor hours needed to install a gas system because of gas piping and venting. Replacement costs are based on an effective useful life of 15 years for gas furnaces, air conditioners and heat pumps. Costs are largely based on the 2022 Multifamily All-Electric CASE Report (Statewide CASE Team, 2022) with some updates to reflect online equipment cost research, labor cost alignments, and inflation.

Table 13. HVAC Costs per Dwelling Unit for Climate Zones 1 and 16 Only (Present Value (2025\$))

Item	3-Story Furnace + Split AC	3-Story Heat pump	5-Story Furnace + Split AC	5-Story Heat pump
First Cost	\$21,344	\$17,430	\$21,977	\$17,968
Replacement Cost	\$9,112	\$7,746	\$9,522	\$8,206
Residual Value	\$0	\$0	\$0	\$0
Total	\$30,456	\$25,177	\$31,498	\$26,173
Incremental Cost		(\$5,279)		(\$5,325)

4 Results

The primary objective of the evaluation is to identify cost-effective energy upgrade measures and packages for new multifamily buildings to support the design of local ordinances requiring upgrades that achieve performance beyond minimum state requirements. A full dataset of all results can be downloaded at <https://localenergycodes.com/content/resources>. Results alongside policy options can also be explored using the Cost-effectiveness Explorer at <https://explorer.localenergycodes.com/>.

4.1 Cost-Effectiveness Results

4.1.1 Electric Heating

Table 14 and Table 15 show the cost-effectiveness of an Electric Heating Package. “Electric Heating” refers to a measure package that includes electric heat pump water heating in all climate zones, and the addition of an electric heat pump space heater in those climate zones where it is not already prescriptively required (see Table 2). For compliance the electric heating building is compared to the standard design electric water heating baseline in all climate zones. Cost-effectiveness calculations (only) assume a central gas water heater in all climate zones, a natural gas furnace with air conditioner in Climate Zone 16 for 3-story, and dual fuel heat pump with natural gas backup in Climate Zones 1 and 16 for 5-story.

Table 14. Electric Water and Space Heating 3-Story Multifamily Cost-Effectiveness Results per Dwelling Unit

Climate Zone	Electric/Gas Utility	Efficiency LSC Margin	Source Comp Margin	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Incremental First-year Utility Savings	Incremental Lifecycle Cost (30-Year)	On-Bill NPV	LSC NPV
CZ01	PGE	25%	30%	(891)	129	\$98	(\$411)	\$10,256	\$10,634
CZ02	PGE	25%	30%	(813)	121	\$93	(\$411)	\$9,563	\$10,271
CZ03	PGE	25%	28%	(788)	119	\$110	(\$411)	\$9,840	\$10,267
CZ04	PGE	25%	32%	(777)	116	\$79	(\$411)	\$8,881	\$10,071
CZ04	CPAU	25%	32%	(777)	116	\$296	(\$411)	\$18,846	\$10,071
CZ05	PGE	26%	31%	(793)	120	\$107	(\$411)	\$9,805	\$10,317
CZ05	PGE/SCG	26%	31%	(793)	120	(\$32)	(\$411)	\$2,923	\$10,317
CZ06	SCE/SCG	27%	36%	(710)	110	\$17	(\$411)	\$3,730	\$9,932
CZ07	SDGE	25%	35%	(702)	108	\$234	(\$411)	\$12,535	\$9,630
CZ08	SCE/SCG	26%	33%	(692)	106	\$15	(\$411)	\$3,562	\$9,609
CZ09	SCE/SCG	26%	32%	(700)	107	(\$17)	(\$411)	\$2,824	\$9,707
CZ10	SCE/SCG	21%	31%	(692)	89	(\$61)	(\$827)	\$1,608	\$8,105
CZ10	SDGE	21%	31%	(692)	89	\$104	(\$827)	\$8,585	\$8,105
CZ11	PGE	19%	27%	(736)	92	(\$57)	(\$827)	\$4,476	\$8,036
CZ12	PGE	20%	28%	(762)	96	(\$20)	(\$827)	\$5,682	\$8,320
CZ12	SMUD/PGE	20%	28%	(762)	96	\$119	(\$827)	\$9,006	\$8,320
CZ13	PGE	19%	27%	(718)	90	(\$66)	(\$827)	\$4,159	\$8,037
CZ14	SCE/SCG	21%	33%	(751)	93	(\$57)	(\$827)	\$1,819	\$8,243
CZ14	SDGE	21%	33%	(751)	93	\$67	(\$827)	\$7,939	\$8,243
CZ15	SCE/SCG	18%	28%	(602)	76	(\$139)	(\$827)	(\$745)	\$7,319
CZ16	PGE	21%	44%	(1,164)	129	\$52	(\$6,106)	\$14,933	\$14,588

Table 15. Electric Water and Space Heating 5-Story Multifamily Cost-Effectiveness Results per Dwelling Unit

Climate Zone	Electric/Gas Utility	Efficiency LSC Margin	Source Comp Margin	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Incremental First-year Utility Savings	Incremental Lifecycle Cost (30-Year)	On-Bill NPV	LSC NPV
CZ01	PGE	19%	12%	(872)	124	\$183	(\$5,766)	\$17,326	\$15,038
CZ02	PGE	21%	14%	(796)	115	\$64	(\$441)	\$8,565	\$9,582
CZ03	PGE	19%	13%	(793)	114	\$75	(\$441)	\$8,724	\$9,022
CZ04	PGE	20%	13%	(776)	110	\$43	(\$441)	\$7,731	\$9,088
CZ04	CPAU	20%	13%	(776)	110	\$291	(\$441)	\$18,530	\$9,088
CZ05	PGE	20%	15%	(798)	115	\$72	(\$441)	\$8,666	\$9,195
CZ05	PGE/SCG	20%	15%	(798)	115	(\$64)	(\$441)	\$1,983	\$9,195
CZ06	SCE/SCG	23%	27%	(697)	104	\$0	(\$441)	\$3,158	\$9,177
CZ07	SDGE	21%	26%	(685)	103	\$158	(\$441)	\$10,407	\$8,852
CZ08	SCE/SCG	21%	22%	(670)	101	\$4	(\$441)	\$3,132	\$8,722
CZ09	SCE/SCG	21%	20%	(678)	102	(\$30)	(\$441)	\$2,342	\$8,854
CZ10	SCE/SCG	16%	18%	(666)	84	(\$83)	(\$828)	\$857	\$7,202
CZ10	SDGE	16%	18%	(666)	84	\$40	(\$828)	\$6,714	\$7,202
CZ11	PGE	13%	10%	(706)	87	(\$93)	(\$828)	\$3,307	\$6,873
CZ12	PGE	15%	12%	(742)	91	(\$60)	(\$828)	\$4,387	\$7,331
CZ12	SMUD/PGE	15%	12%	(742)	91	\$106	(\$828)	\$8,371	\$7,331
CZ13	PGE	13%	11%	(688)	85	(\$101)	(\$828)	\$2,972	\$6,778
CZ14	SCE/SCG	16%	14%	(722)	88	(\$87)	(\$828)	\$904	\$7,378
CZ14	SDGE	16%	14%	(722)	88	(\$20)	(\$828)	\$5,510	\$7,378
CZ15	SCE/SCG	12%	14%	(564)	70	(\$156)	(\$828)	(\$1,377)	\$6,121
CZ16	PGE	14%	8%	(904)	102	\$51	(\$6,153)	\$13,117	\$12,776

4.1.2 Mixed Fuel Efficiency + Increased Solar Thermal

Table 16 and Table 17 show the Mixed Fuel Efficiency Package described in section 3.4.1 with efficiency measures and an increased solar thermal system that achieves a 0.35 solar savings fraction (SSF) in Climate Zones 1-9 and 0.50 SSF in Climate Zones 10-16, compared to the prescriptive baseline requirements of 0.20 SSF in Climate Zones 1-9 and 0.35 SSF in Climate Zones 10-16.

Table 16. Mixed Fuel + Efficiency + Solar Thermal 3-Story Multifamily Cost-Effectiveness Results per Dwelling Unit

Climate Zone	Electric/G as Utility	Efficiency LSC Margin	Source Comp Margin	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Incremental First-year Utility Savings	Incremental Lifecycle Cost (30-Year)	On-Bill NPV	LSC NPV
CZ01	PGE	7%	15%	21	22	\$64	\$952	\$2,057	\$1,860
CZ02	PGE	6%	14%	22	19	\$57	\$681	\$1,949	\$1,769
CZ03	PGE	6%	14%	19	20	\$58	\$681	\$2,033	\$1,828
CZ04	PGE	5%	11%	31	15	\$49	\$546	\$1,596	\$1,398
CZ04	CPAU	5%	11%	31	15	\$32	\$546	\$898	\$1,398
CZ05	PGE	8%	17%	18	23	\$65	\$681	\$2,397	\$2,155
CZ05	PGE/SCG	8%	17%	18	23	\$37	\$681	\$1,009	\$2,155
CZ06	SCE/SCG	5%	12%	5	14	\$21	\$546	\$447	\$1,196
CZ07	SDGE	7%	19%	4	22	\$61	\$681	\$2,255	\$1,981
CZ08	SCE/SCG	5%	13%	19	15	\$28	\$546	\$651	\$1,353
CZ09	SCE/SCG	6%	14%	25	16	\$31	\$546	\$765	\$1,536
CZ10	SCE/SCG	7%	17%	36	17	\$35	\$546	\$897	\$1,713
CZ10	SDGE	7%	17%	36	17	\$65	\$546	\$2,173	\$1,713
CZ11	PGE	6%	14%	60	16	\$62	\$546	\$2,007	\$1,707
CZ12	PGE	5%	12%	35	14	\$49	\$546	\$1,587	\$1,409
CZ12	SMUD/PGE	5%	12%	35	14	\$43	\$546	\$1,441	\$1,409
CZ13	PGE	5%	11%	57	13	\$53	\$546	\$1,560	\$1,285
CZ14	SCE/SCG	4%	8%	64	9	\$32	\$546	\$544	\$880
CZ14	SDGE	4%	8%	64	9	\$51	\$546	\$1,283	\$880
CZ15	SCE/SCG	5%	11%	126	9	\$54	\$411	\$1,209	\$1,243
CZ16	PGE	9%	19%	7	28	\$76	\$889	\$2,803	\$2,523

Table 17. Mixed Fuel + Efficiency + Solar Thermal 5-Story Multifamily Cost-Effectiveness Results per Dwelling Unit

Climate Zone	Electric/Gas Utility	Efficiency LSC Margin	Source Comp Margin	Annual Elec Savings (kWh)	Annual Gas Savings (therms)	Incremental First-year Utility Savings	Incremental Lifecycle Cost (30-Year)	On-Bill NPV	LSC NPV
CZ01	PGE	6%	13%	15	23	\$66	\$1,369	\$1,767	\$1,505
CZ02	PGE	6%	13%	22	20	\$60	\$1,265	\$1,498	\$1,272
CZ03	PGE	6%	14%	19	21	\$61	\$1,265	\$1,568	\$1,345
CZ04	PGE	5%	12%	35	18	\$59	\$1,040	\$1,551	\$1,314
CZ04	CPAU	5%	12%	35	18	\$38	\$1,040	\$686	\$1,314
CZ05	PGE	6%	13%	19	19	\$57	\$1,214	\$1,446	\$1,227
CZ05	PGE/SCG	6%	13%	19	19	\$33	\$1,214	\$236	\$1,227
CZ06	SCE/SCG	6%	15%	6	17	\$25	\$1,040	\$165	\$1,070
CZ07	SDGE	6%	16%	7	19	\$54	\$1,153	\$1,417	\$1,174
CZ08	SCE/SCG	6%	16%	27	18	\$36	\$1,040	\$439	\$1,295
CZ09	SCE/SCG	6%	16%	31	19	\$38	\$1,040	\$548	\$1,485
CZ10	SCE/SCG	5%	15%	45	15	\$37	\$928	\$488	\$1,199
CZ10	SDGE	5%	15%	45	15	\$64	\$928	\$1,630	\$1,199
CZ11	PGE	5%	12%	68	15	\$64	\$1,040	\$1,518	\$1,290
CZ12	PGE	5%	12%	40	16	\$54	\$1,040	\$1,301	\$1,115
CZ12	SMUD/PGE	5%	12%	40	16	\$47	\$1,040	\$1,124	\$1,115
CZ13	PGE	5%	14%	64	16	\$65	\$1,040	\$1,616	\$1,398
CZ14	SCE/SCG	5%	12%	68	14	\$41	\$928	\$523	\$1,162
CZ14	SDGE	5%	12%	68	14	\$65	\$928	\$1,550	\$1,162
CZ15	SCE/SCG	5%	13%	134	12	\$66	\$703	\$1,291	\$1,609
CZ16	PGE	6%	13%	67	19	\$74	\$1,352	\$1,658	\$1,389

4.2 Greenhouse Gas Reductions

Table 18 and Table 19 present greenhouse gas (GHG) reductions resulting from the installation of efficiency measures and packages in the 3-story and 5-story multifamily buildings, represented as annual averages over the 30-year analysis period. See Section 3.3 for details regarding this data and how it is calculated. Due to these details, GHG savings in each climate zone are not necessarily proportional to the electricity savings shown in Section 4.1 above. Still, all GHG reductions are due to reduced natural gas use and electricity use of the selected packages.

Table 18. Greenhouse Gas Reductions for Electric Heating Package in 3-Story and 5-Story per Dwelling unit (kg⁶)

Climate Zone	Electric/Gas Utility	3-Story	5-Story
CZ01	PGE	691.7	668.6
CZ02	PGE	647.8	620.6
CZ03	PGE	643.6	610.3
CZ04	PGE/CPAU	621.7	590.0
CZ05	PGE/SCG	646.4	615.2
CZ06	SCE/SCG	597.8	566.5
CZ07	SDGE	591.4	558.6
CZ08	SCE/SCG	577.2	544.8
CZ09	SCE/SCG	580.6	548.9
CZ10	SCE/SCG/SDGE	477.2	446.3
CZ11	PGE	483.3	451.8
CZ12	PGE/SMUD	508.6	477.8
CZ13	PGE	477.2	442.7
CZ14	SCE/SCG/SDGE	486.9	457.5
CZ15	SCE/SCG	404.4	370.1
CZ16	PGE	646.4	522.4

Table 19. Greenhouse Gas Reductions for Mixed Fuel Efficiency + Increased Solar Thermal 3-Story and 5-Story per Dwelling unit (kg)

Climate Zone	Electric/Gas Utility	3-Story	5-Story
CZ01	PGE	138.1	142.4
CZ02	PGE	119.4	124.0
CZ03	PGE	121.9	127.4
CZ04	PGE/CPAU	91.1	109.2
CZ05	PGE/SCG	138.9	118.9
CZ06	SCE/SCG	86.4	104.3
CZ07	SDGE	131.7	113.5
CZ08	SCE/SCG	92.2	110.5
CZ09	SCE/SCG	100.6	119.1
CZ10	SCE/SCG/SDGE	107.2	95.8
CZ11	PGE	102.2	99.9
CZ12	PGE/SMUD	91.4	98.4
CZ13	PGE	81.1	104.8
CZ14	SCE/SCG/SDGE	60.3	88.4
CZ15	SCE/SCG	60.8	80.7
CZ16	PGE	168.3	122.3

⁶ GHG reductions are typically expressed in metric tons; kilograms (kg) are utilized here to show more granularity – one kg is 1/1,000th of a metric ton.

4.3 CARE Rate Comparison

In this sensitivity analysis, utility rates under the California Alternate Rates for Energy (CARE) program are applied instead of standard utility rates to assess their impact on cost-effectiveness. CARE provides discounted utility bills for income-qualified households⁷. These impacts are shown below in Table 20 and Table 21 for the Electric Heating Package analysis and in Table 22 and Table 23 for the Mixed Fuel Efficiency + Increased Solar Thermal Packages analysis. POUs that do not offer CARE rates are represented by the “N/A” cells in the tables. As CARE analysis is centered on utility rates, it applies only to On-Bill cost-effectiveness.

For the Electric Heating 3-story Package remains cost-effective under CARE rates, but the magnitude decreases in some Climate Zones. Similarly, the 5-story Electric Heating Package is still cost-effective under the CARE rates. For the Mixed Fuel Efficiency package, the 3-story is still cost-effective, but the magnitude of the cost-effectiveness decreases from the prior result. The 5-story package is no longer cost-effective under CARE rates in Climate Zones 5 and 6.

Table 20. Electric Heating 3-Story On-Bill Cost-Effectiveness with CARE Tariffs

Climate Zone	Electric/ Gas Utility	Standard NPV	CARE NPV
CZ01	PGE	\$10,256	\$13,484
CZ02	PGE	\$9,563	\$12,583
CZ03	PGE	\$9,840	\$12,676
CZ04	PGE	\$8,881	\$11,895
CZ04	CPAU	\$18,846	N/A
CZ05	PGE	\$9,805	\$12,676
CZ05	PGE/SCG	\$2,923	\$3,995
CZ06	SCE/SCG	\$3,730	\$3,027
CZ07	SDGE	\$12,535	\$10,090
CZ08	SCE/SCG	\$3,562	\$2,885
CZ09	SCE/SCG	\$2,824	\$2,396
CZ10	SCE/SCG	\$1,608	\$1,595
CZ10	SDGE	\$8,585	\$8,573
CZ11	PGE	\$4,476	\$8,105
CZ12	PGE	\$5,682	\$9,109
CZ12	SMUD/PGE	\$9,006	N/A
CZ13	PGE	\$4,159	\$7,819
CZ14	SCE/SCG	\$1,819	\$1,793
CZ14	SDGE	\$7,939	\$8,953
CZ15	SCE/SCG	(\$745)	(\$117)
CZ16	PGE	\$14,933	\$18,664

⁷ See <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/care-fera-program>

Table 21. Electric Heating 5-Story On-Bill Cost-Effectiveness with CARE Tariffs

Climate Zone	Electric/ Gas Utility	Standard NPV	CARE NPV
CZ01	PGE	\$17,326	\$18,871
CZ02	PGE	\$8,565	\$11,589
CZ03	PGE	\$8,724	\$11,616
CZ04	PGE	\$7,731	\$10,809
CZ04	CPAU	\$18,530	N/A
CZ05	PGE	\$8,666	\$11,598
CZ05	PGE/SCG	\$1,983	\$3,208
CZ06	SCE/SCG	\$3,158	\$2,525
CZ07	SDGE	\$10,407	\$9,586
CZ08	SCE/SCG	\$3,132	\$2,479
CZ09	SCE/SCG	\$2,342	\$1,952
CZ10	SCE/SCG	\$857	\$960
CZ10	SDGE	\$6,714	\$8,058
CZ11	PGE	\$3,307	\$7,009
CZ12	PGE	\$4,387	\$7,920
CZ12	SMUD/PGE	\$8,371	N/A
CZ13	PGE	\$2,972	\$6,695
CZ14	SCE/SCG	\$904	\$1,023
CZ14	SDGE	\$5,510	\$8,404
CZ15	SCE/SCG	(\$1,377)	(\$659)
CZ16	PGE	\$13,117	\$16,016

**Table 22. Mixed Fuel Efficiency + Increased Solar Thermal 3-Story On-Bill
Cost-Effectiveness with CARE Tariffs**

Climate Zone	Electric/ Gas Utility	Standard NPV	CARE NPV
CZ01	PGE	\$2,057	\$1,988
CZ02	PGE	\$1,949	\$1,879
CZ03	PGE	\$2,033	\$1,962
CZ04	PGE	\$1,596	\$1,488
CZ04	CPAU	\$898	N/A
CZ05	PGE	\$2,397	\$2,331
CZ05	PGE/SCG	\$1,009	\$603
CZ06	SCE/SCG	\$447	\$219
CZ07	SDGE	\$2,255	\$1,634
CZ08	SCE/SCG	\$651	\$361
CZ09	SCE/SCG	\$765	\$445
CZ10	SCE/SCG	\$897	\$539
CZ10	SDGE	\$2,173	\$1,492
CZ11	PGE	\$2,007	\$1,811
CZ12	PGE	\$1,587	\$1,474
CZ12	SMUD/PGE	\$1,441	N/A
CZ13	PGE	\$1,560	\$1,372
CZ14	SCE/SCG	\$544	\$244
CZ14	SDGE	\$1,283	\$756
CZ15	SCE/SCG	\$1,209	\$730
CZ16	PGE	\$2,803	\$2,769

Table 23. Mixed Fuel Efficiency + Increased Solar Thermal 5-Story On-Bill Cost-Effectiveness with CARE Tariffs

Climate Zone	Electric/ Gas Utility	Standard NPV	CARE NPV
CZ01	PGE	\$1,767	\$1,713
CZ02	PGE	\$1,498	\$1,422
CZ03	PGE	\$1,568	\$1,495
CZ04	PGE	\$1,551	\$1,420
CZ04	CPAU	\$686	N/A
CZ05	PGE	\$1,446	\$1,377
CZ05	PGE/SCG	\$236	(\$118)
CZ06	SCE/SCG	\$165	(\$113)
CZ07	SDGE	\$1,417	\$865
CZ08	SCE/SCG	\$439	\$75
CZ09	SCE/SCG	\$548	\$157
CZ10	SCE/SCG	\$488	\$124
CZ10	SDGE	\$1,630	\$951
CZ11	PGE	\$1,518	\$1,292
CZ12	PGE	\$1,301	\$1,166
CZ12	SMUD/PGE	\$1,124	N/A
CZ13	PGE	\$1,616	\$1,400
CZ14	SCE/SCG	\$523	\$135
CZ14	SDGE	\$1,550	\$892
CZ15	SCE/SCG	\$1,291	\$709
CZ16	PGE	\$1,658	\$1,418

5 Recommendations and Discussion

The Reach Codes Team identified packages of electrification and energy efficiency measures, simulated them using building modeling software, and gathered costs to determine the cost-effectiveness of multiple scenarios. The Team coordinated with multiple utilities, cities, and building community experts to develop a set of assumptions considered reasonable in the current market.

Table 24 summarizes source energy margins for each prototype and measure. Because local reach codes must exceed both the Energy Commission performance budget (i.e., have a positive compliance margin) and be cost-effective, the Team compiled the compliance margins for all the packages. All results presented in this study have positive compliance margins and are cost-effective in at least one of the cost-effective metrics so they are all valid reach code measures.

- Cells highlighted in **yellow** are LSC cost-effective but not On-Bill cost-effective.

The following are key takeaways and recommendations from the analysis.

- Both the Electric Heating and Mixed Fuel Efficiency Package are LSC cost-effective in every climate zone and in both the 3-story and 5-story prototypes.
- The Electric Heating Package is On-Bill cost-effective in all climate zones except Climate Zone 15 due to an electrification rate structure that includes lower baseline allowances in the summer for the electrification rate which yields higher utility bills.
- The Mixed Fuel Efficiency Package is On-Bill cost-effective in all climate zones in both the 3-story and 5-story prototypes.
- There are two recent utility rate changes that are included in this analysis: Base Services Charge and the Virtual Net Billing Tariff (NBTV). The Base Services Charge results in improved cost-effectiveness especially in the electric heating measure due to lower costs per kWh. Photovoltaic (PV) are prescriptively required so NBTV is applied to all utility results including the standard time of use (TOU) and electrification rate. However, an increased PV measure was not evaluated in this study, so the Virtual Net Billing Tariff does not have a significant impact on cost-effectiveness results.
- For new multifamily buildings, it can be challenging to find cost-effective measures that are not preempted by the Energy Policy and Conservation Act (EPCA).
 - In 2022, photovoltaics (PV) and battery measures were used in the Mixed Fuel Efficiency Package; however, in December of 2025, the federal investment tax credit (ITC) expired making the battery measure no longer cost-effective. The team also considered a measure to increase the PV⁸

⁸ PV is prescriptively required in all multifamily buildings. In the 2022 Multifamily Reach Code analysis, the PV measure was increased to offset 100% of the electric energy load to not violate net energy metering (NEM) rules.

system size; however, this PV measure would only provide a 1-4% source energy margin in most climate zones.

- Meanwhile, the increased solar thermal measure provides a 6-17% source energy margin and is cost-effective. To understand how this measure applies, it is important to distinguish between central and individual water heating baselines. In this case, the Mixed Fuel Efficiency Package is based on a central water heating baseline, where a shared gas-fired water heater serves multiple dwelling units and baseline performance is defined at the system level. In contrast, individual water heating baselines apply when each dwelling unit has its own dedicated water heater and are defined on a per-unit basis. Accordingly, the Mixed Fuel Efficiency Package with a gas central water heater includes a solar thermal water heating system with increased capacity to offset centralized hot water loads and distribution losses. Given the limited options available to reduce the source energy with the mixed fuel design, solar thermal presented the greatest opportunity to improve the system performance enough to achieve similar savings as the heat pump system.
- In 2025 the CEC changed the compliance metrics from TDV and EDR to LSC and source energy. The team evaluated solar thermal using both metrics and determined that solar thermal is valued more highly in the new 2025 metrics, LSC and source energy. Therefore, the source energy margin is higher in this study compared to the 2022 study.
- The team considered rooftop space availability for solar thermal and determined, based on contractor feedback from the 2022 Multifamily DHW CASE report, there is sufficient roof space to accommodate solar thermal systems for multifamily buildings up to 10 stories (Statewide CASE Team, Title24stakeholders, 2022).
- As an additional push for increased source margin, additional measures in select climate zones were added, including window U-factor and verified low leakage ducts in conditioned spaces.
- The Electric Heating and Mixed Fuel Efficiency Packages for both prototypes result in GHG reductions; however, the Electric Heating Package yields greater reductions.
- This study supports a reach code that requires a higher performance margin for buildings with central hot water systems. The study demonstrates that both gas systems with larger solar thermal systems and additional efficiency measures, as well as electric heat pump systems with higher efficiency components could cost-effectively comply.
- Applying the CARE rates in some climate zones has the overall impact of decreasing utility cost savings for both electric heating and mixed fuel + efficiency buildings, which reduces or eliminates (in some climate zones) On-Bill cost-effectiveness compared to the standard rates.
- One possible policy outcome from this study is to set the reach code at the lower margin between the mixed fuel and Electric Heating Package. For example, in the 3-story prototype in Climate Zone 4 the margin would be 9%.

Table 24. Summary of Source Energy Margins and Cost-Effectiveness

Climate Zone	Electric/Gas Utility	3-Story Electric Heating	3-Story Mixed Fuel + Efficiency + Solar Thermal	5-Story Electric Heating	5-Story Mixed Fuel + Efficiency + Solar Thermal
CZ01	PGE	30%	15%	12%	13%
CZ02	PGE	30%	14%	14%	13%
CZ03	PGE	28%	14%	13%	14%
CZ04	PGE	32%	11%	13%	12%
CZ04	CPAU	32%	11%	13%	12%
CZ05	PGE	31%	17%	15%	13%
CZ05	PGE/SCG	31%	17%	15%	13%
CZ06	SCE/SCG	36%	12%	27%	15%
CZ07	SDGE	35%	19%	26%	16%
CZ08	SCE/SCG	33%	13%	22%	16%
CZ09	SCE/SCG	32%	14%	20%	16%
CZ10	SCE/SCG	31%	17%	18%	15%
CZ10	SDGE	31%	17%	18%	15%
CZ11	PGE	27%	14%	10%	12%
CZ12	PGE	28%	12%	12%	12%
CZ12	SMUD/PGE	28%	12%	12%	12%
CZ13	PGE	27%	11%	11%	14%
CZ14	SCE/SCG	33%	8%	14%	12%
CZ14	SDGE	33%	8%	14%	12%
CZ15	SCE/SCG	28%	11%	14%	13%
CZ16	PGE	44%	19%	8%	13%

Local jurisdictions may also adopt ordinances that amend different parts of the California Building Standards Code or may elect to amend other state or municipal codes. The decision regarding which code to amend will determine the specific requirements that must be followed for an ordinance to be legally enforceable. Reach codes that amend Part 6 of the California Building Code and require energy performance beyond state code minimums must demonstrate the proposed changes are cost-effective and obtain approval from the Energy Commission.

6 References

- California Energy Commission, C. (2025). *2025 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*. Retrieved from https://www.energy.ca.gov/sites/default/files/2025-07/CEC-400-2025-010-F_0.pdf
- California Energy Commission. (2017). Rooftop Solar PV System. Measure number: 2019-Res-PV-D Prepared by Energy and Environmental Economics, Inc. Retrieved from <https://efiling.energy.ca.gov/getdocument.aspx?tn=221366>
- California Energy Commission. (2021b). *Final Express Terms for the Proposed Revisions to the 2022 Energy Code Reference Appendices*. Retrieved from <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-BSTD-01>
- California Energy Commission. (2023). *2025 Energy code Hourly Factors*. Retrieved from <https://www.energy.ca.gov/files/2025-energy-code-hourly-factors>
- California Energy Commission. (2023). *Draft 2025 Energy Code Express Terms*. Retrieved from <https://efiling.energy.ca.gov/GetDocument.aspx?tn=252915&DocumentContentId=88051>
- California Energy Commission. (2025). *2025 Building Energy Efficiency Standards for Residential and Nonresidential Buildings*. Retrieved from <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>
- California Energy Commission. (2025). *Nonresidential and Multifamily Alternative Calculation Method Reference Manual*. Retrieved from <https://www.energy.ca.gov/sites/default/files/2025-11/CEC-400-2025-007-CMF.pdf>
- California Public Utilities Commission. (2021a). *Utility Costs and Affordability of the Grid of the Future: An Evaluation of Electric Costs, Rates, and Equity Issues Pursuant to P.U. Code Section 913.1*. Retrieved from https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2021/senate-bill-695-report-2021-and-en-banc-whitepaper_final_04302021.pdf
- California Public Utilities Commission. (2021b). *Database for Energy-Efficient resources (DEER2021 Update)*. Retrieved April 13, 2021, from <http://www.deeresources.com/index.php/deer-versions/deer2021>
- Commision, California Energy. (2022b). *2022 Reference Appendices for the 202 Building Energy Efficiency Standards*. Retrieved from CEC-400-2022-010-AP: <https://www.energy.ca.gov/sites/default/files/2022-08/CEC-400-2022-010-AP.pdf>
- DNV. (2024). *Residential HVAC and DHW Measure Effective Useful Life Study Final Report*. Retrieved from <https://www.caetrm.com/media/reference->

documents/CPUC_Group_A_2023_Res_HVAC_and_DHW_EUL_Study_Final_Report.pdf

E-CFR. (2020). https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=8de751f141aaa1c1c9833b36156faf67&mc=true&n=pt10.3.431&r=PART&ty=HTML#se10.3.431_197. Retrieved from Electronic Code of Federal Regulations: https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=8de751f141aaa1c1c9833b36156faf67&mc=true&n=pt10.3.431&r=PART&ty=HTML#se10.3.431_197

EPA. (2021). *ENERGY STAR Windows, Doors, and Skylights Version 7.0 Criteria Analysis Report*. Environmental Protection Agency.

eTRM, C. (2026). *Large Heat Pump Water Heater, Commercial and Multifamily, Fuel Substitution*. Retrieved from California eTRM: <https://www.caetrm.com/measure/SWWH028/08/>

Statewide CASE Team. (2022). *All-Electric Multifamily Compliance Pathway*. Codes and Standards Enhancement (CASE).

Statewide CASE Team. (2022). *Title24stakeholders*. Retrieved from https://title24stakeholders.com/wp-content/uploads/2018/10/2022_T24-Draft-CASE-Report_MF-DHW.pdf

Statewide CASE Team. (2023). *Multifamily Domestic Hot Water*. Retrieved from https://title24stakeholders.com/wp-content/uploads/2023/08/2025_T24_CASE-Report_MF-DHW-Final-1.pdf

Statewide CASE Team. (2023). *Residential HVAC Performance*. Retrieved from https://title24stakeholders.com/wp-content/uploads/2023/11/Revised_2025_T24_Final-CASE-Report-RES-HVAC-Performance.pdf

Statewide CASE Team. (2025). Retrieved from <https://title24stakeholders.com/wp-content/uploads/2025/04/Multifamily-DHW.pdf>

Statewide Reach Code Team. (2022b). *Nonresidential New Construction Reach Code Cost-effectiveness Study*. (Prepared by Avani Goyal, Farhad Farahmand, TRC Companies) Retrieved from <https://localenergycodes.com/content/resources>

Statewide Reach Code Team. (2023). *2022 Cost-Effectiveness Study: Multifamily New Construction*.

Statewide Reach Codes Team. (2021). *2019 Cost-Effectiveness Study: Existing Single Family Residential Building Upgrades*. Retrieved from <https://localenergycodes.com/content/resources>

- TRC. (2018). *2019 Title 24 Energy Reach Code Cost-Effectiveness Analysis Draft*. Retrieved from City of Palo Alto: <https://cityofpaloalto.org/civicax/filebank/documents/66742>
- TRC. (2019). *Multifamily Prototypes*. Retrieved from https://title24stakeholders.com/wp-content/uploads/2019/06/SCE-MFModeling_MultifamilyPrototypesReport_2019-06-07_clean.pdf
- TRC. (2021). *All-Electric Multifamily Compliance Pathway*. CASE.
- TRC and PG&E. (2024). *Central Heat Pump Water Heating Systems for Decarbonizing Multifamily Buildings: Market Assessment, Energy Performance and Cost Impact Analysis*. ACEEE Summer Study on Energy Efficiency in Buildings.

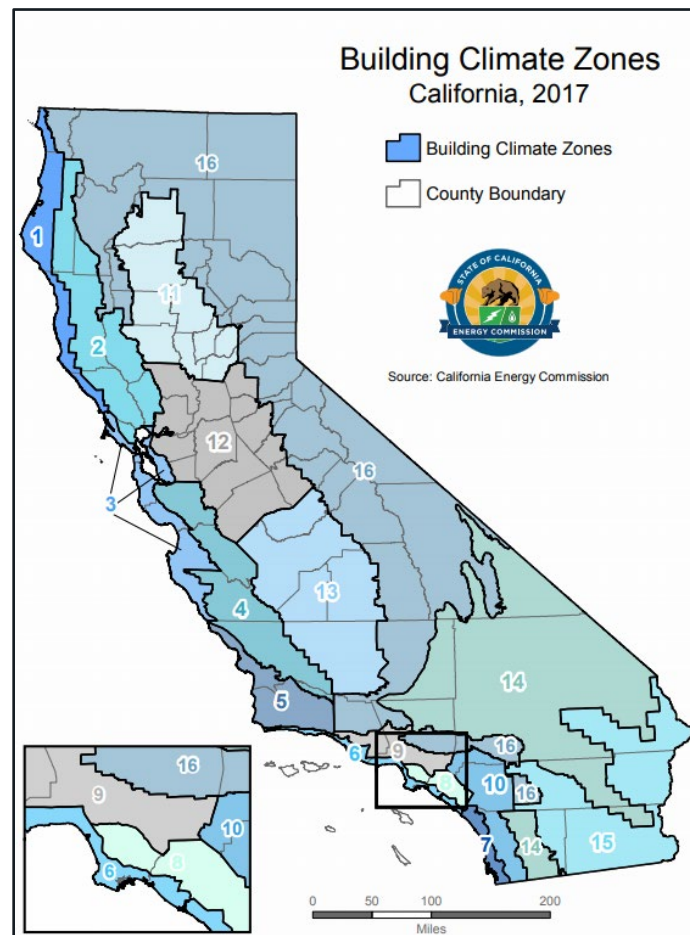
7 Appendices

7.1 Map of California Climate Zones

Climate zone geographical boundaries are depicted in Figure 1. Map of California climate zones. The map in Figure 1 along with a zip-code search directory is available at:

https://ww2.energy.ca.gov/maps/renewable/building_climate_zones.html

Figure 1. Map of California climate zones.



7.2 Utility Rate Schedules

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 25 describes the baseline territories that were assumed for each climate zone. A net surplus compensation rate of \$0.02962/ kWh was applied to any net annual electricity generation based on a one-year average of the rates between June 2025 and May 2026.

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

Sheet 4

**SPECIAL
CONDITIONS:**

- 1. BASELINE (TIER 1) QUANTITIES:** The following quantities of electricity are to be used to define usage eligible for the baseline credit:

BASELINE QUANTITIES (kWh PER DAY)												
Baseline Territory*	Code B - Basic Quantities				Code H - All-Electric Quantities							
	Summer		Winter		Summer		Winter					
	Tier 1		Tier 1		Tier 1		Tier 1					
P	13.5	(R)	11.0	(R)	15.2	(R)	26.0	(R)				
Q	9.8	(R)	11.0	(R)	8.5	(R)	26.0	(R)				
R	17.7	(R)	10.4	(R)	19.9	(R)	26.7	(R)				
S	15.0	(R)	10.2	(R)	17.8	(R)	23.7	(R)				
T	6.5	(R)	7.5	(R)	7.1	(R)	12.9	(R)				
V	7.1	(R)	8.1	(R)	10.4	(R)	19.1	(I)				
W	19.2	(R)	9.8	(R)	22.4	(R)	19.0	(R)				
X	9.8	(R)	9.7	(R)	8.5	(R)	14.6	(R)				
Y	10.5	(R)	11.1	(R)	12.0	(R)	24.0	(R)				
Z	5.9	(R)	7.8	(R)	6.7	(R)	15.7	(R)				

- 2. TIME PERIODS FOR E-TOU-C:** Times of the year and times of the day are defined as follows:

Summer (service from June 1 through September 30):

Peak: 4:00 p.m. to 9:00 p.m. All days

Off-Peak: All other times

Winter (service from October 1 through May 31):

Peak: 4:00 p.m. to 9:00 p.m. All days

Off-Peak: All other times

* The applicable baseline territory is described in Part A of the Preliminary Statement

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	\$0.52240	\$0.39940
Baseline Credit (Applied to Baseline Usage Only)	(\$0.08140)	(\$0.08140)
<i>Winter</i>		
Total Usage	\$0.39757	\$0.36757
Baseline Credit (Applied to Baseline Usage Only)	(\$0.08140)	(\$0.08140)
Base Services Charge Rates (\$ per customer per day)		
Income Tier 1	\$0.19713	
Income Tier 2	\$0.39688	
Income Tier 3	\$0.79343	
		(D)
		(D)

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

(Continued)				
Advice	7869-E	Issued by Shilpa Ramaiya Vice President Regulatory and Rates	Submitted	March 27, 2026
Decision	D.26-03-013		Effective	March 27, 2026
			Resolution	

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

Sheet 3

RATES:(Cont'd.)

UNBUNDLING OF TOTAL RATES

Energy Rates by Component (\$ per kWh)	PEAK	PART-PEAK	OFF-PEAK	
Generation:				
Summer Usage	\$0.26299	\$0.16388	\$0.11878	
Winter Usage	\$0.10086	\$0.08089	\$0.06754	
Distribution**:				
Summer Usage	\$0.23199 (I)	\$0.16922 (I)	\$0.15764 (I)	
Winter Usage	\$0.16261 (I)	\$0.16049 (I)	\$0.15998 (I)	
Transmission* (all usage)	\$0.04638	\$0.04638	\$0.04638	
Transmission Rate Adjustments* (all usage)	\$0.00453 (I)	\$0.00453 (I)	\$0.00453 (I)	
Reliability Services* (all usage)	\$0.00013	\$0.00013	\$0.00013	
Public Purpose Programs (all usage)	\$0.00614 (R)	\$0.00614 (R)	\$0.00614 (R)	
Nuclear Decommissioning (all usage)	(\$0.00002)	(\$0.00002)	(\$0.00002)	
Competition Transition Charges (all usage)	\$0.00027	\$0.00027	\$0.00027	
Energy Cost Recovery Amount (all usage)	\$0.00002	\$0.00002	\$0.00002	
Wildfire Fund Charge (all usage)	\$0.00591	\$0.00591	\$0.00591	
New System Generation Charge (all usage)**	\$0.00000 (R)	\$0.00000 (R)	\$0.00000 (R)	
Wildfire Hardening Charge (all usage)	\$0.00391 (I)	\$0.00391 (I)	\$0.00391 (I)	
Recovery Bond Charge (all usage)	\$0.00857 (I)	\$0.00857 (I)	\$0.00857 (I)	
Recovery Bond Credit (all usage)	(\$0.00857) (R)	(\$0.00857) (R)	(\$0.00857) (R)	
Bundled Power Charge Indifference Adjustment (all usage)***	(\$0.01011)	(\$0.01011)	(\$0.01011)	(L)

Base Services Charge Rates by Component (\$
per customer per day)

Distribution		
Income Tier 1	(\$0.10751)	(N)
Income Tier 2	(\$0.02710)	(N)
Income Tier 3	\$0.36945	(N)
Public Purpose Program		
Income Tier 1	\$0.19131	(N)
Income Tier 2	\$0.31065	(N)
Income Tier 3	\$0.31065	(N)
Nuclear Decommissioning		
Income Tier 1	\$0.00000	(N)
Income Tier 2	\$0.00000	(N)
Income Tier 3	\$0.00000	(N)
New System Generation Charge		
Income Tier 1	\$0.11333	(N)
Income Tier 2	\$0.11333	(N)
Income Tier 3	\$0.11333	(N)

- * 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	7846-E	Issued by	Submitted	February 27, 2026
Decision		Shilpa Ramaiya	Effective	March 1, 2026
		Vice President	Resolution	
		Regulatory and Rates		

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

RATES: (Cont'd)	A. D-CARE Discount:	35.000	% (Percent)	(I)
	B. Delivery Minimum Bill Discount:	50.000	% (Percent)	
	C. Master-Meter D-CARE Discount:	35.000	% (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.			



**Pacific Gas and
Electric Company®**

U 39

Oakland, California

Cancelling Revised Cal. P.U.C. Sheet No. 59851-E
Revised Cal. P.U.C. Sheet No. 58856-E

ELECTRIC SCHEDULE NBTV
VIRTUAL NET BILLING SERVICE

Sheet 1

APPLICABILITY: This virtual net billing schedule is applicable to a multi-tenant or multi-meter¹ Eligible NBTV installation on a single eligible Property, as defined below, and that includes the following:

a. A Generator Account that:

- 1) consists of a Renewable Electrical Generation Facility (REGF)², sized no larger than the energy requirements of all Benefitting Accounts;
- 2) is residential must take service on an applicable TOU rate^{3,4}, but not required to be on a highly differentiated TOU rate;
- 3) is non-residential must take service on any applicable rate that the Generator Account is otherwise eligible;
- 4) has no load other than that required by the REGF or the combination of such (except as described in Special Condition 6); and
- 5) takes service, with the generator owner or their designee as the Customer of record ("Owner"); and

b. Benefitting Account(s), each of which:

- 1) takes service from PG&E;
- 2) is an individually metered, electric account serving a tenant or common area;
- 3) if residential, it must take service on an applicable TOU rate^{3,4}, but not required to be on a highly differentiated TOU rate;
- 4) if non-residential, it must take service on any applicable rate that the Benefitting Account is otherwise eligible; and
- 5) does not participate in another virtual net energy metering/Net Billing program or the RES-BCT program.

(T)

¹ Multi-meter* means two or more utility revenue meters, including master meters, participating in the NBTV program, in addition to the Generator Account meter.

² Consistent with Decision 22-12-056, multiple REGFs on an eligible Property served by different Electric Accounts are allowed to be treated as one generator, with credits allocated across Benefitting Accounts on the Property. Also, consistent with Decision 14-05-033, and as modified by Decision 16-01-044, NBT paired storage may interconnect under this tariff subject to the metering and sizing requirements specified in D.14-05-033. For a REGF with storage (NBTV Storage), please see Special Condition 6.

³ Customers on Schedules such as ET, ES, ESR, which have no available corresponding TOU Rate are not required to switch to TOU rates, unless and until such a rate becomes available.

⁴ When a NEMV Arrangement switches from Schedule NEMV to Schedule NBTV, customers, including those residential Benefitting Accounts, are required to take service on any applicable TOU rate, beginning at the time the customer switches to the NBTV, pursuant to D.14-03-041, D.16-01-044, and D.23-11-068. Any residential account not found to be on a TOU rate will automatically be defaulted to the specified TOU rate defined in the "Rate" section below.

Table 25. 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 in \$/therm was applied on a monthly basis according to the rates shown in Table 26. The gas rates were developed based on the latest available gas rate for May 2026 and a normalized curve that reflects how natural gas prices fluctuate with seasonal supply and demand. The seasonal curve was estimated from PG&E's monthly residential tariffs between 2016 and 2025. For each of the ten years, 12-month curves were created from the monthly gas rates. The ten annual curves were then averaged to arrive at an average normalized annual curve. The baseline and excess transmission charges were found to be consistent over the course of a year; May 2026 rates were applied in our calculations for the entire year. The costs presented in the table were then derived by establishing the baseline and excess rates from the latest May 2026 tariff as a reference point and then using the normalized curve to estimate the cost for the remaining months relative to the May rates. Corresponding CARE tariffs reflect the discount per the G-CARE tariff.

Table 26. PG&E Monthly Gas Rate (\$/therm)

Month	Total Charge	
	Baseline	Excess
January	\$2.71	\$3.19
February	\$2.72	\$3.20
March	\$2.49	\$2.98
April	\$2.31	\$2.81
May	\$2.29	\$2.79
June	\$2.29	\$2.80
July	\$2.34	\$2.85
August	\$2.42	\$2.93
September	\$2.51	\$3.03
October	\$2.62	\$3.12
November	\$2.73	\$3.22
December	\$2.81	\$3.31



**Pacific Gas and
Electric Company®**
San Francisco, California

Cancelling Revised
Revised

Cal. P.U.C. Sheet No. 37762-G
Cal. P.U.C. Sheet No. 35436-G

**GAS SCHEDULE G-1
RESIDENTIAL SERVICE**

Sheet 2

**BASELINE
QUANTITIES:**

The delivered quantities of gas shown below are billed at the rates for baseline use.

<u>Baseline Territories</u> ***	BASELINE QUANTITIES (Therms Per Day Per Dwelling Unit)			(T)
	Summer	Winter Off-Peak	Winter On-Peak	
	(April-October)	(Nov, Feb, Mar)	(Dec, Jan)	
	Effective Apr. 1, 2022	Effective Nov. 1, 2022	Effective Dec. 1, 2022	
P	0.39	1.88	2.19	(I)
Q	0.56 (R)	1.48 (R)	2.00 (R)	
R	0.36	1.24 (R)	1.81 (R)	
S	0.39	1.38	1.94 (R)	
T	0.56 (R)	1.31 (R)	1.68 (R)	
V	0.59 (R)	1.51	1.71 (R)	
W	0.39	1.14 (R)	1.68 (R)	
X	0.49	1.48 (R)	2.00 (R)	
Y	0.72 (I)	2.22 (I)	2.58 (R)	

**SEASONAL
CHANGES:**

The summer season is April-October, the winter off-peak season is November, February and March, and the winter on-peak season is December and January. Baseline quantities for bills that include the April 1, November 1 and December 1 seasonal changeover dates will be calculated by multiplying the applicable daily baseline quantity for each season by the number of days in each season for the billing period.

**STANDARD
MEDICAL
QUANTITIES:**

Additional medical quantities (Code M) are available as provided in Rule 19.

SURCHARGES:

Customers served under this schedule in conjunction with Schedule G-CT, or in conjunction with noncore service, are subject to a franchise fee surcharge under Schedule G-SUR for gas volumes purchased from parties other than PG&E and transported by PG&E.

Customers served under this schedule are subject to a gas Public Purpose Program (PPP) Surcharge under Schedule G-PPPS.

**ALTERNATIVE
PROCUREMENT
OPTIONS:**

Customers may procure gas supply from a party other than PG&E by taking this schedule in conjunction with Schedule G-CT—Core Gas Aggregation Service. Customers who procure their own gas supply will not pay the Procurement Charge component of this rate schedule shown above and will be subject to the applicable rates specified in Schedule G-CT.

*** The applicable baseline territory is described in Preliminary Statement, Part A.



**Pacific Gas and
Electric Company**

Oakland, California

Cancelling Revised
Revised

Cal. P.U.C. Sheet No. 41003-G
Cal. P.U.C. Sheet No. 34305-G

GAS SCHEDULE GM
MASTER-METERED MULTIFAMILY SERVICE

Sheet 1

APPLICABILITY: This rate schedule¹ applies to natural gas service to Core End-Use Customers on PG&E's Transmission and/or Distribution Systems. To qualify, service must be master-metered for residential use in a multifamily accommodation on a single premise where all of the residential dwelling units are not separately submetered in accordance with Rule 18. This schedule also applies to residential hotels as defined in Rule 1 and to residential RV parks which rent at least fifty (50) percent of their spaces on a month-to-month basis for at least nine (9) months of the year to RV units used as permanent residences. This schedule is closed to new installations and additions to existing meters, except to new installations where individual dwelling units contain appliances that do not require venting.

Where gas is furnished to residential units that receive gas through a single meter to an apartment house, mobilehome park or other multi-family accommodation, where the only vented appliance is a decorative gas appliance, or the water and/or space heating is supplied by solar or cogeneration technology, the residential unit is not required to be separately metered and may receive its gas supply through a master meter. This schedule may be taken in conjunction with Schedule G-EG; however, electric generators permanently classified as Noncore End-Use Customers, per Rule 1, must procure gas from a third-party supplier, not from a Core Procurement Group, as defined in gas Rule 1.

Per D.15-10-032 and D.18-03-017, transportation rates include GHG Compliance Cost for non-covered entities. Customers who are directly billed by the Air Resources Board (ARB), i.e., covered entities, are exempt from paying AB 32 GHG Compliance Costs through PG&E's rates.² A "Cap-and-Invest Cost Exemption"³ credit for these costs will be shown as a line item on exempt customers' bills.^{4,5}

(T)
(T)

TERRITORY: Schedule GM applies everywhere within PG&E's natural gas Service Territory.

¹ PG&E's gas tariffs are available online at www.pge.com.

² Covered entities are not exempt from paying costs associated with LUAF Gas and Gas used by Company Facilities.

³ Cap-and-Trade was renamed Cap-and-Invest under Assembly Bill (AB) 1207 (Irwin), Statutes 2025, Chapter 117. (N)

⁴ The exemption credit will be equal to the effective non-exempt AB 32 GHG Compliance Cost Rate (\$ per therm) included in Preliminary Statement – Part B, multiplied by the customer's billed volumes (therms) for each billing period. (N)

⁵ PG&E will update its billing system annually to reflect newly exempt or newly excluded customers to conform with lists of Directly Billed Customers provided annually by the ARB. (T)

(Continued)

Advice	5223-G	Issued by	Submitted	June 1, 2026
Decision	D.26-04-036	Shilpa Ramaiya	Effective	June 1, 2026
		Vice President	Resolution	
		Regulatory and Rates		



Pacific Gas and Electric Company[®]
San Francisco, California

	Revised	Cal. P.U.C. Sheet No.	35058-G
Cancelling	Revised	Cal. P.U.C. Sheet No.	23367-G

SCHEDULE G-CARE

Sheet 1

CARE PROGRAM SERVICE FOR QUALIFIED FACILITIES

(T)

APPLICABILITY:

This schedule is applicable to Facilities which meet the criteria for California Alternate Rates for Energy (CARE) set forth in Rules 19.2, 19.3 or 19.4*

(N)

TERRITORY:

Schedule G-CARE applies everywhere PG&E provides natural gas service.

RATES:

If the Facility qualifies for residential service, the facility's account will be served on the appropriate residential CARE rate schedule.

Qualified Facilities served on a nonresidential rate schedule will not pay the CARE rate component shown in Preliminary Statement Part B, and will receive a 20 percent discount on the charges billed under the otherwise applicable rate schedule. For the purpose of calculating the G-CARE bill, the otherwise applicable commodity or volumetric charge will be the adopted charge less the PPP-CARE rate component.

Core transport Qualified Facilities receiving service in conjunction with Schedule G-CT will receive a 20 percent discount on the transportation charges billed under their otherwise-applicable rate schedule. They will receive an additional 20 percent discount on the procurement charge from their otherwise-applicable rate schedule. This is to assure that the Customer receives the same CARE discount whether they are procuring gas from PG&E or from a party other than PG&E.

See Preliminary Statement, Part B, for the Default Tariff Rate Components.

7.2.2 Southern California Edison

The following pages provide details on the SCE electricity tariffs applied in this study. Table 27 describes the baseline territories that were assumed for each climate zone. A net surplus compensation rate of \$ 0.01848/ kWh was applied to any net annual electricity generation based on a one-year average of the rates between June 2025 and May 2026. Corresponding CARE rate reflects the discount per the D-CARE tariff.

Table 27. 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



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

Cancelling Revised Cal. P.U.C. Sheet No. 90937-E
Revised Cal. P.U.C. Sheet No. 90669-E

Schedule TOU-D
TIME-OF-USE
DOMESTIC

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:

<u>Option 4-9 PM / Option 4-9 PM-CPP</u>	<u>Delivery Service</u>	<u>Generation²</u>	
	<u>Total¹</u>	<u>UG***</u>	<u>DWREC³</u>
Energy Charge - \$/kWh			
Summer Season - On-Peak	0.33082 (R)	0.25448 (R)	0.00000
Mid-Peak	0.33082 (R)	0.13441 (R)	0.00000
Off-Peak	0.27338 (R)	0.07360 (R)	0.00000
Winter Season - Mid-Peak	0.33082 (R)	0.18077 (R)	0.00000
Off-Peak	0.27338 (R)	0.10212 (R)	0.00000
Super-Off-Peak	0.25272 (R)	0.08364 (R)	0.00000
Baseline Credit**** - \$/kWh	(0.10108) (I)		
Fixed Recovery Charge - \$/kWh	0.00619 (I)		
MCAM Charge - \$/kWh	0.00223 (I)		
Base Services Charge (BSC) - \$/Meter/Day	0.794		
BSC Adjustment - Deed Restricted - \$/Meter/Day	(0.332) (I)		
California Climate Credit ¹⁰	(36.00) (R)		
California Alternate Rates for Energy Discount - %	100.00**		
Family Electric Rate Assistance Discount - %	100.00		
<u>Option 4-9 PM-CPP</u>			
CPP Event Energy Charge - \$/kWh		0.80000	
Summer CPP Non-Event Credit		(0.15170)	
On-Peak Energy Credit - \$/kWh			
Maximum Available Credit - \$/kWh***			
Summer Season		(0.58794) (I)	

* Represents 100% of the discount percentage as shown in the applicable Special Condition of this Schedule.

** The ongoing Competition Transition Charge CTC of \$0.00014 per kWh is recovered in the UG component of Generation. (I)

*** 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.

**** 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.

5 The Modified Cost Allocation Mechanism (MCAM) charge recovers the net cost associated with system reliability procurement ordered by the CPUC that SCE has procured on behalf of customers whose generation services are provided by certain Electric Service Providers or Community Choice Aggregators.

(Continued)

(To be inserted by utility)

Advice 5725-E

Decision

Issued By

Michael Backstrom

Sr. Vice President

(To be inserted by Cal. PUC)

Date Submitted Dec 30, 2025

Effective Jan 1, 2026

Resolution E-5217



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

Cancelling Revised Cal. P.U.C. Sheet No. 90941-E
Revised Cal. P.U.C. Sheet No. 90673-E

Schedule TOU-D
TIME-OF-USE
DOMESTIC

Sheet 6

RATES (Continued)

<u>Option PRIME / Option PRIME-CPP</u>	<u>Delivery Service</u> <u>Total¹</u>	<u>Generation²</u>	
		<u>UG^{***}</u>	<u>DWREC³</u>
Energy Charge - \$/kWh/Meter/Day			
Summer Season			
On-Peak	0.29558 (I)	0.29667 (R)	0.00000
Mid-Peak	0.29558 (I)	0.10558 (R)	0.00000
Off-Peak	0.19737 (R)	0.07049 (R)	0.00000
Winter Season			
Mid-Peak	0.30091 (I)	0.26489 (R)	0.00000
Off-Peak	0.18785 (R)	0.05958 (R)	0.00000
Super-Off-Peak	0.18785 (R)	0.05958 (R)	0.00000
Fixed Recovery Charge - \$/kWh	0.00619 (I)		
MCAM Charge - \$/kWh	0.00223 (I)		
Base Services Charge (BSC) - \$/Meter/Day	0.794		
BSC Adjustment - Deed Restricted - \$/Meter/Day	(0.332) (I)		
EV Meter Credit (Separately Metered EV Option) - \$	(0.451)		
(R) EV Submeter Credit - \$/Meter/Day			
(0.152) California Climate Credit ⁴			
3.010000 Alternate Rates for			
Energy Discount - %	100.00**		
Family Electric Rate Assistance Discount - %	100.00		
Medical Baseline Credit - %Discount	100.00		
<u>Option PRIME-CPP</u>			
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		(0.58794) (I)	

- * Represents 100% of the discount percentage as shown in the applicable Special Condition of this Schedule.
- ** The ongoing Competition Transition Charge (CTC) of \$0.00014 per kWh is recovered in the UG component of Generation. (I)
- **** 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.
- 5 The Modified Cost Allocation Mechanism (MCAM) charge recovers the net cost associated with system reliability procurement ordered by the CPUC that SCE has procured on behalf of customers whose generation services are provided by certain Electric Service Providers or Community Choice Aggregators.

(Continued)

(To be inserted by utility)

Advice 5725-E
Decision _____

Issued By
Michael Backstrom
Sr. Vice President

(To be inserted by Cal. PUC)

Date Submitted Dec 30, 2025
Effective Jan 1, 2026
Resolution E-5217



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

Cancelling Revised Cal. P.U.C. Sheet No. 90647-E
Revised Cal. P.U.C. Sheet No. 87431-E

Schedule D-CARE
CALIFORNIA ALTERNATE RATES FOR ENERGY
DOMESTIC SERVICE

Sheet 6

14. San Joaquin Valley Disadvantaged Communities Pilot Projects (SJV Pilot) Bill Protection Discount: In accordance with Decision 18-12-015 and Resolution E-5034, Customers participating in the SJV Pilot and entering into the associated service agreement will receive a 10-year Bill Protection Discount beginning after the first electric appliance is installed in a participant's home and one full billing cycle has concluded. The monthly Bill Protection Discount will be provided as follows:

Years 1-5 of SJV Pilot participation: 20 percent discount
Years 6-10 of SJV Pilot participation: 10 percent or 20 percent discount

SCE will evaluate Pilot participants' total energy costs savings beginning three and half years after the first SJV Pilot participant receives a Bill Protection Discount. This evaluation will analyze total energy costs for all SJV Pilot participants who have received at least 24 consecutive months of electricity bills with a Bill Protection Discount, and it will be based on collected and modeled propane data and actual participant's electricity costs pre-Pilot and post-Pilot;

- a. If the evaluation finds that all participants in the evaluation study, except quantitatively-measurable statistical outliers, experience energy costs savings (i.e., total energy costs have not increased), SCE shall reduce the monthly electricity bill discount to a 10 percent discount for an additional five years; or
- b. If the evaluation finds that any participants in the evaluation study, except quantitatively-measurable statistical outliers, experience an energy cost increase, SCE shall continue to provide a 20 percent discount for an additional five years.

If the customer service agreement changes during the 10-year bill protection period (i.e., change of property ownership, change in occupancy) the Bill Protection Discount and Transitional Community Solar Discount shall be terminated. A new customer moving into an electrified house shall not receive the SJV Pilot Bill Protection Discount or Transitional Community Solar Discount.

15. Transitional Community Solar Discount: SJV Pilot participants eligible for the Community Solar-Green Tariff (CSGT) or the Disadvantaged Communities-Green Tariff (DAC-GT) program shall be provided a 20 percent Transitional Community Solar monthly bill credit for the 10-year bill protection period if neither program is available when the SJV Pilot participant receives the first Bill Protection Discount. If the DAC-GT or CSGT programs are available, yet a customer cannot participate due to subscription or locational limitations, the 20 percent Transitional Community Solar Discount will still apply. The Transitional Community Solar discount will not apply to customers who have onsite solar through the Single-Family Affordable Solar Homes (SASH) program, the Disadvantaged Communities SASH (DAC-SASH) program, Net Energy Metering (NEM), or through another program.

(To be inserted by utility)

Advice 5654-E
Decision 24-05-028

Issued By

Michael Backstrom
Sr. Vice President

(To be inserted by Cal. PUC)

Date Submitted Oct 16, 2025
Effective Nov 15, 2025
Resolution E-5356



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

Original Cal. P.U.C. Sheet No. 87610-E

NBT-V
Virtual Net Billing Tariff

Sheet 1

APPLICABILITY

This Schedule is applicable to Qualified Customers and Benefitting Customers served on Otherwise Applicable Tariffs (OAT)ⁱ rates for whom the SCE revenue meters are located within a multi-tenant and multi-meterⁱⁱ Property upon which one or more eligible Renewable Electrical Generating Facilitiesⁱⁱⁱ have been installed pursuant to California Public Utilities (PU) Code Section 2827.1 and California Public Utilities Commission (Commission) Decisions including (D.)16-01-044, D.22-12-056 and D.23-11-068, subject to the additional terms and conditions contained herein and any other applicable state or federal laws; and for which the Owner or Operator of the Property contracts with SCE to have all eligible energy produced by the Renewable Electrical Generating Facilities and exported to the grid for the sole purpose of providing Allocated Energy Exports to Benefitting Customers.

Qualified Customers and Benefitting Customers who participate in Direct Access (DA), Community Choice Aggregation (CCA) or Community Aggregation (CA) Service are eligible for service under this Schedule consistent with the Virtual Net Billing Tariff (NBT-V) services that SCE provides to its Bundled Service Qualified Customers and Benefitting Customers, except as otherwise provided herein, provided the Electric Service Provider (ESP), Community Choice Aggregator or Community Aggregator offers a tariff, schedule or program consistent with the provisions of this Schedule. DA, CCA or CA Service Qualified Customers must look to their ESP, Community Choice Aggregator or Community Aggregator for NBT-V services related to the generation charges and credits that result from receiving service under this Schedule.

This Schedule is also applicable to Qualified Customers whose eligible Renewable Electrical Generating Facilities meet the definition of an NBT-V-Paired Storage System as defined in Special Condition 1.i below. Such Qualified Customers shall be additionally subject to the provisions of Special Condition 5 below.

NBT-V Legacy Qualified Customers, as defined in Special Condition 8, who replace a Renewable Electrical Generating Facility due to impacts of a Natural Disaster will remain eligible under this Schedule pursuant to Special Condition 9.

ⁱ Residential benefitting accounts must be served on a Time of Use (TOU) rate.
ⁱⁱ Multi-meter means two or more utility revenue meters eligible to participate in the NBT-V program, in addition to the Generating Account meter.
ⁱⁱⁱ Multiple generators on a property may have the generation combined from a billing perspective and the credits allocated across all the Benefitting Customers accounts on the same property.

(Continued)

(To be inserted by utility)
Advice 5227-E-A
Decision 23-11-068

Issued By
Michael Backstrom
Vice President

(To be inserted by Cal. PUC)
Date Submitted Nov 8, 2024
Effective Jun 12, 2025
Resolution E-5374

7.2.3 Southern California Gas

Following are the SoCalGas natural gas tariffs applied in this study. Table 28 describes the baseline territories that were assumed for each climate zone.

Table 28. 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 applied in this analysis is shown in Table 29. The baseline rate reflects the lower gas price applied to a specified level of natural gas usage for each territory, while the excess gas rate is the higher price applied to any consumption exceeding that baseline allowance. The gas rates were developed based on the latest available gas rate for May 2026 and a curve to reflect how natural gas prices fluctuate with seasonal supply and demand. The seasonal curve was estimated from SoCalGas's monthly residential tariffs between 2015 and 2024. 12-month curves were created from monthly gas rates for each of the ten years. The ten annual curves were then averaged to arrive at an average normalized annual curve. Long-term historical natural gas rate data was only available for SoCalGas' procurement charges.^[1] 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 May 2026 rates. The costs presented in Table 29 were then derived by establishing the baseline and excess rates from the latest May 2026 tariff as a reference point, and then using the normalized curve to estimate the cost for the remaining months relative to the May rates. Corresponding CARE rate reflects the discount per the G-CARE tariff.

^[1] 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)

Table 29. SoCalGas Monthly Gas Rate (\$/therm)

Month	Procurement Charge	Transportation Charge		Total Charge	
		Baseline	Excess	Baseline	Excess
January	\$0.60	\$0.83	\$1.33	\$1.44	\$1.93
February	\$0.42	\$0.83	\$1.33	\$1.25	\$1.74
March	\$0.36	\$0.83	\$1.33	\$1.19	\$1.68
April	\$0.29	\$0.83	\$1.33	\$1.12	\$1.61
May	\$0.29	\$0.83	\$1.33	\$1.13	\$1.62
June	\$0.33	\$0.83	\$1.33	\$1.16	\$1.66
July	\$0.35	\$0.83	\$1.33	\$1.19	\$1.68
August	\$0.40	\$0.83	\$1.33	\$1.23	\$1.72
September	\$0.36	\$0.83	\$1.33	\$1.19	\$1.68
October	\$0.34	\$0.83	\$1.33	\$1.18	\$1.67
November	\$0.40	\$0.83	\$1.33	\$1.24	\$1.73
December	\$0.46	\$0.83	\$1.33	\$1.29	\$1.79

Schedule No. GM
MULTI-FAMILY SERVICE
(Includes GM-E, GM-C, GM-EC, GM-CC, GT-ME, GT-MC and all GMB Rates)

Sheet 1

APPLICABILITY

This schedule is closed as of July 13, 1978 for gas service to: (a) new residential Mobilehome Parks where such Mobilehome Park tenants use gas directly in gas appliances in each occupancy; and (b) new Multi-family Accommodation structures where such multi-unit tenants use gas directly in gas appliances in each occupancy and which require venting, except where equipped with only vented decorative appliances.

Applicable to natural gas procurement service for Multi-family Accommodations supplying Baseline uses only or in a combination of Baseline uses and common facilities through one meter on a premises, in accordance with the provisions of Rule No. 24. Such gas service will be billed under rates designated for GM-E, GM-BE or GM-BEC, as appropriate. This schedule also applies to accommodations defined in Rule No. 1 as Residential Hotels. Natural gas supplied through a single meter to common facilities (swimming pools, recreation rooms, saunas, spas, etc.) only, will be billed under rates designated for GM-C, GM-BC or GM-BCC, as appropriate.

The California Alternate Rates for Energy (CARE) discount of 20%, reflected as a separate line item on the bill, is applicable to natural gas service for customers who operate Non Profit Group Living Facilities or Agricultural Employee Housing Facilities that provide Multi-family Accommodations where:

1. There are individually metered residential units whose residential services for each or any unit are provided from a central source,
2. Such central facility receives natural gas service directly through a separate meter, and
3. Residents meet the requirements for the CARE as set forth in Schedule No. G-CARE.

Customers who otherwise operate Non-Profit Group Living Facilities or Agricultural Employee Housing Facilities are served under Schedule No. G-10.

Master metered Customers who have averaged at least 100,000 therms of weather-normalized usage for the previous two calendar years, January through December, will be billed under the GMB rate which includes the GM-BE, GM-BC, GM-BEC, GM-BCC, GT-MBE and GT-MBC rates. Submetered customers are not eligible for GMB rates.

The cross-over rate (GM-EC, GM-CC, GM-BEC and GM-BCC) is a core procurement option for Multi-family Accommodation residential core transportation customers with annual consumption over 50,000 therms as set forth in Special Condition 10.

The GT-ME, GT-MC, GT-MBE and GT-MBC rate is applicable to Core Aggregation Transportation service, as set forth in Special Condition 11, for Baseline uses and/or common facilities as described in paragraph 2 above.

Schedule No. G-CARE
CALIFORNIA ALTERNATE RATES FOR ENERGY (CARE) PROGRAM

Sheet 1

APPLICABILITY

This schedule provides a California Alternate Rates for Energy (CARE) discount to each of the following types of customers listed below that meets the requirements for CARE eligibility as defined in Rule No. 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

Applicable throughout the service territory.

DISCOUNT

The qualified customer will receive a 20% CARE discount on all customer, commodity, and transportation charges on their otherwise applicable service schedule. In addition, the customer will not pay the CARE portion of the Public Purpose Programs Surcharge as specified in Schedule No. G-PPPS.

The qualified customer shall also pay a discounted CARE Service Establishment Charge as specified in Rule No. 10, Service Charges, to establish or re-establish service each time an account is opened.

SPECIAL CONDITIONSALL CUSTOMERS

1. Applicable Conditions: All special conditions contained in the customer's otherwise applicable schedule are applicable to service under this schedule.
2. Application and Eligibility Declaration: An application and eligibility declaration, on a form authorized by the Commission, is required for service under the CARE program unless otherwise authorized by the Commission. Renewal of a customer's eligibility declaration, also referred to as recertification, is required at the request of the Utility.

7.2.4 San Diego Gas & Electric

Following are the SDG&E electricity and natural gas tariffs applied in this study. Table 30 describes the baseline territories that were assumed for each climate zone. A net surplus compensation rate of \$ 0.01667/ kWh was applied to any net annual electricity generation based on a one-year average of the rates between June 2025 and May 2026. Corresponding CARE rate reflect the discount per the E-CARE tariff.

Table 30. SDG&E Baseline Territory by Climate Zone

Climate Zone	Baseline Territory
CZ07	Coastal
CZ10	Inland
CZ14	Mountain

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.

64819-E

Canceling Revised Cal. P.U.C. Sheet No.

64669-E

SCHEDULE TOU-DR1

Sheet 2

RESIDENTIAL TIME-OF-USE

RATES

Total Rates:

Description – TOU DR1	UDC Total Rate	DWR BC + WF-NBC	EECC Rate	Total Rate
Base Services Charge (\$/Day)	0.79343			0.79343
Base Services Charge - DRAH (\$/Day)	0.39688			0.39688
Base Services Charge – FERA (\$/Day)	0.39688			0.39688
Summer:				
On-Peak	0.32948	R 0.00591	0.34920	0.68459 R
Off-Peak	0.32948	R 0.00591	0.12853	0.46392 R
Super Off-Peak	0.32948	R 0.00591	0.04121	0.37660 R
Winter:				
On-Peak	0.32948	R 0.00591	0.27475	0.61014 R
Off-Peak	0.32948	R 0.00591	0.19304	0.52843 R
Super Off-Peak	0.32948	R 0.00591	0.10228	0.43767 R
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.10663)	I		(0.10663) I
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.10663)	I		(0.10663) I

Description – TOU DR1-CARE	UDC Total Rate	DWR BC + WF-NBC	EECC Rate	Total Rate	Total Effective CARE Rate
Base Services Charge - CARE (\$/Day)	0.19713			0.19713	0.19713
Summer – CARE Rates:					
On-Peak	0.32948	R 0.00000	0.34920	0.67868 R	0.43553 R
Off-Peak	0.32948	R 0.00000	0.12853	0.45801 R	0.29209 R
Super Off-Peak	0.32948	R 0.00000	0.04121	0.37069 R	0.23533 R
Winter – CARE Rates:					
On-Peak	0.32948	R 0.00000	0.27475	0.60423 R	0.38713 R
Off-Peak	0.32948	R 0.00000	0.19304	0.52252 R	0.33402 R
Super Off-Peak	0.32948	R 0.00000	0.10228	0.43176 R	0.27503 R
Summer Baseline Adjustment Credit up to 130% of Baseline	(0.10663)	I		(0.10663) I	(0.06931) I
Winter Baseline Adjustment Credit up to 130% of Baseline	(0.10663)	I		(0.10663) I	(0.06931) I

Notes:

- (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. 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 0.00591 + DWR-BC Bond Charge is 0.00000.
- (6) Total Effective CARE Rate is presented for illustrative purposes only and reflects discounts CARE customers receive which consists of (a) exemptions from paying the CARE Surcharge and DWR-BC + WF-NBC; (b) a reduced Base Services Charge; and (c) a separate line-item bill discount for all qualified residential CARE Customers.
- (7) The Medical Baseline program does not provide a BSC discount, MB customers who are also enrolled in an income-qualifying program will receive the discounted BSC associated with that program.

(Continued)

2P6

Advice Ltr. No. 4843-E

Decision No. _____

Issued by
Dan Skopec
Senior Vice President
Regulatory Affairs

Submitted May 29, 2026

Effective _____

Resolution No. _____



San Diego Gas & Electric Company
San Diego, California

Revised Cal. P.U.C. Sheet No. 64825-E
Canceling Revised Cal. P.U.C. Sheet No. 64673-E

SCHEDULE TOU-ELEC

Sheet 1

DOMESTIC TIME-OF-USE FOR HOUSEHOLDS WITH ELECTRIC VEHICLES, ENERGY STORAGE, OR ELECTRIC HEAT PUMPS

APPLICABILITY

Service under this schedule is available on a voluntary basis for all residential customers who meet one or more of the following criteria: 1) require service for charging of a currently registered Motor Vehicle, as defined by the California Motor Vehicle Code, which is: a) a battery electric vehicle (BEV) or plug-in hybrid electric vehicle (PHEV) recharged via a recharging outlet at the customer's premises; or b) a natural gas vehicle (NGV) refueled via a home refueling appliance (HRA) at the customer's premises; 2) have a behind-the-meter energy storage device that is interconnected through Electric Rule 21; or 3) have an electric heat pump for water heating or climate control. 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).

This schedule is also available to customers who meet the above criteria as well as qualify for the California Alternate Rates for Energy (CARE) Program as outlined in Schedule E-CARE, and/or Medical Baseline as outlined in Special Condition (SC) 5. The rates for CARE customers and/or Medical Baseline are identified in the rate tables below as TOU-ELEC-CARE and TOU-ELEC-MB rates, respectively.

There is a cap of 10,000 customers who may take service on this rate, as defined in SC 10.

Customers on this schedule may also qualify for a semi-annual California Climate Credit \$(49.36) per Schedule GHG-ARR.

TERRITORY

Within the entire territory served by the utility.

RATES

Total Rates:

Description – TOU-ELEC Rates	UDC Total Rate	DWR BC + WF-NBC	EECC Rate	Total Rate
Base Services Charge (\$/Day)	0.79343			0.79343
Base Services Charge – DRAH (\$/Day)	0.39688			0.39688
Base Services Charge - FERA (\$/Day)	0.39688			0.39688
Summer				
On-Peak	0.25317	R 0.00591	0.45690	0.71598 R
Off-Peak	0.25317	R 0.00591	0.12945	0.38853 R
Super Off-Peak	0.25317	R 0.00591	0.08637	0.34545 R
Winter				
On-Peak	0.25317	R 0.00591	0.24311	0.50219 R
Off-Peak	0.25317	R 0.00591	0.11774	0.37682 R
Super Off-Peak	0.25317	R 0.00591	0.07856	0.33764 R

(Continued)

1P4

Advice Ltr. No. 4843-E

Decision No. _____

Issued by
Dan Skopec
Senior Vice President
Regulatory Affairs

Submitted May 29, 2026

Effective _____

Resolution No. _____

SCHEDULE E-CARE
CALIFORNIA ALTERNATE RATES FOR ENERGY

Sheet 1

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.
- 5) Homekey housing facilities, administered by the California Department of Housing and Community Development (HCD)

TERRITORY

Within the entire territory served by the Utility.

DISCOUNT**1) Residential CARE:**

Pursuant to D. 24-05-028, the applicable CARE discount rate is to be between 30% and 35%, with the intended CARE discount rate to be 35% for SDG&E, specifically, applied as a fixed CARE line-item discount.

In addition to the CARE line-item discount, the total effective CARE discount consists of: (a) exemptions from paying the CARE Surcharge, Department of Water Resources Bond Charge (DWR-BC), California Wildfire Fund Charge (WF-NBC), and (b) a 50% minimum bill or a reduced base services charge relative to Non-CARE.



San Diego Gas & Electric Company
San Diego, California

Original _____ Cal. P.U.C. Sheet No. 61782-E
Canceling _____ Cal. P.U.C. Sheet No. _____

SCHEDULE NBT-V

Sheet 1

VIRTUAL NET BILLING TARIFF FOR MULTI-TENANT AND MULTI-METER PROPERTIES

APPLICABILITY

Optionally available to Qualified Customers, as defined in Special Condition (SC) 3, owning, renting, or leasing space within a multi-tenant or multi-meter¹ property, which includes all residential (whether rental properties or condominiums), commercial and industrial properties, where the Owner of the property has installed a Renewable Electrical Generation Facility ("REGF"), as defined in SC 1.a), that is intended primarily to offset part or all of the eligible property's electrical requirements² (hereinafter "eligible customer-generator") and contracts with the Utility to have all eligible output from the REGF supplied to the Utility for the purpose of providing a credit to the Qualified Customers. The terms of this rate schedule shall apply to any Qualified Customer that is designated by the Owner on a Generation Credit Allocation Request Form for Net Billing Tariff – 142-02786 ("Credit Allocation Form"), unless the customer provides written notification to the Utility declining to receive a credit. Virtual Net Billing Tariff (NBT-V) facilitates cost savings for Owners by avoiding the installation of an eligible customer-generator on each individual tenant's unit, and also provides Qualified Customers with benefits that would otherwise be provided under Schedule NBT.

This schedule shall become available to eligible customer-generators upon request.

Accounts not fully utilizing energy allocated to them under this schedule may be eligible for additional compensation at the conclusion of their Relevant Period as described in Special Condition 8.e.

¹ Multi-meter" means two or more utility revenue meters receiving service under this schedule, in addition to the Net Generation Output Meter.

² Electrical requirements means the recorded kWh usage associated with all identified Qualified Customer accounts over the most recent 12-month period preceding the submission of an interconnection agreement.

(Continued)

1C8
Advice Ltr. No. 4394-E
Decision No. D.23-11-068

Issued by
Dan Skopec
Senior Vice President
Regulatory Affairs

Submitted Feb 14, 2024
Effective Jun 12, 2025
Resolution No. _____

The SDG&E monthly gas rate in \$/therm was applied on a monthly basis according to the rates shown in Table 31. The baseline rate reflects the lower gas price applied to a specified level of natural gas usage for each territory, while the excess gas rate is the higher price applied to any consumption exceeding that baseline allowance. The gas rates were developed based on the latest available gas rate for May 2026 and a curve to reflect how natural gas prices fluctuate with seasonal supply and demand. The seasonal curve was estimated from SDG&E's monthly residential tariffs between 2015 and 2024. 12-month curves were created from monthly gas rates for each of the ten years. The ten annual curves were then averaged to arrive at an average normalized annual curve. 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 May 2026 rates. The costs presented in Table 31 were then derived by establishing the baseline and excess rates from the latest May 2026 tariff as a reference point, and then using the normalized curve to estimate the cost for the remaining months relative to the May rates. Corresponding CARE rate reflects the discount per the G-CARE tariff.

Table 31. SDG&E Monthly Gas Rate (\$/therm)

Month	Total Charge	
	Baseline	Excess
January	\$2.71	\$3.19
February	\$2.72	\$3.20
March	\$2.49	\$2.98
April	\$2.31	\$2.81
May	\$2.29	\$2.79
June	\$2.29	\$2.80
July	\$2.34	\$2.85
August	\$2.42	\$2.93
September	\$2.51	\$3.03
October	\$2.62	\$3.12
November	\$2.73	\$3.22
December	\$2.81	\$3.31

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

SCHEDULE GM

Sheet 1

MULTI-FAMILY NATURAL GAS SERVICE
(Includes Rates for GM, GM-C and GTC/GTCA)**APPLICABILITY**

This schedule is closed as of July 13, 1978 for gas service to: (a) new residential Mobilehome Parks where such Mobilehome Park tenants use gas directly in gas appliances in each occupancy; and (b) new Multi-family Accommodation structures where such multi-unit tenants use gas directly in gas appliances in each occupancy and which requires venting, except where equipped with only vented decorative appliances.

The GM rate is applicable to natural gas procurement service for Multi-family Accommodations, including service to common central space and/or water heating facilities, supplied through one meter on a single premises in accordance with the provisions of Rule 19. This schedule also applies to accommodations defined in Rule 1 as Residential Hotels.

The GM-C, cross-over rate, is a core procurement option for residential core transportation customers with annual consumption over 50,000 therms as set forth in Special Condition 11.

The GTC/GTCA rate is applicable to intrastate gas transportation-only services, as set forth in Special Condition 12.

This schedule is applicable to income-qualified households that meet the requirements for the California Alternate Rates for Energy (CARE) as set forth in Schedule G-CARE.

Non-profit group living facilities taking service under this schedule may be eligible for a 20% low-income rate discount on their bill, if such facilities qualify to receive service under the terms and conditions of Schedule G-CARE.

Agricultural Employee Housing Facilities, as defined in Schedule G-CARE, may qualify for a 20% CARE discount on the bill if all eligibility criteria set forth in Form 142-4032 or Form 142-4035 is met.

Multi-family Accommodations built prior to July 13, 1978 and served under GM rate may also be eligible for service under Schedule GS. If an eligible Multi-family Accommodation or residential hotel served under GM rate converts to an applicable submetered tariff, the tenant rental charges shall be revised for the duration of the lease to reflect the removal of the energy related charges.

Eligibility for service hereunder is subject to verification by the Utility.

TERRITORY

Within the entire territory served natural gas by the Utility.

SCHEDULE G-CARE

Sheet 1

CALIFORNIA ALTERNATE RATES FOR ENERGY (CARE) PROGRAM**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.
- 5) Homekey housing facilities, administered by the California Department of Housing and Community Development (HCD)

TERRITORY

Within the entire territory served natural gas by the Utility.

DISCOUNT

The qualified customer will receive a 20% CARE discount on all customer, commodity, and transportation charges on their otherwise applicable service schedule. In addition, the customer will not pay the CARE portion of the Public Purpose Programs Surcharge as specified in Schedule G-PPPS.

SPECIAL CONDITIONS**ALL CUSTOMERS**

1. Applicable Conditions. All special conditions contained in the customer's otherwise applicable schedule are applicable to service under this schedule.
2. Application and Eligibility Declaration.* An application and eligibility declaration, on a form authorized by the Commission, is required for service under the CARE program unless otherwise authorized by the Commission. Renewal of a customer's eligibility declaration, also referred to as recertification, will be required at the request of the Utility.
3. Commencement of CARE Discount. Eligible customers shall begin receiving the CARE discount no later than one billing period after receipt of a completed and approved application by the Utility or as may otherwise be authorized by the Commission.

*Per SDG&E Advice Letter 3516-E-C/2854-G-C, submitted pursuant to Resolution M-4842, certain customer protections will be offered to eligible customers effective March 4, 2020 through April 16, 2021, or as otherwise extended.

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 32. The gas rates were developed based on the latest available gas rate for May2025 and a curve to reflect how natural gas prices fluctuate with seasonal supply and demand. The seasonal curve was estimated from CPAU’s monthly residential tariffs between 2019 and 2025. 12-month curves were created from monthly gas rates for each of the seven years. The seven annual curves were then averaged to arrive at an average normalized annual curve. 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 May 2026 rates. The costs presented in Table 32 were then derived by establishing the baseline and excess rates from the latest May 2026 tariff as a reference point and then using the normalized curve to estimate the cost for the remaining months relative to the May rates.

UTILITY RATE SCHEDULE E-2

A. APPLICABILITY:

This Rate Schedule applies to the following Customers receiving Electric Service from the City of Palo Alto Utilities:

- 1. Non-residential Customers receiving Non-Demand metered Electric Service; and
- 2. Customers with Accounts at Master-Metered multi-family facilities receiving Non-Demand metered Electric Service.

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>
Summer Period	\$ 0.15075	\$ 0.10806	\$ 0.00604	\$ 0.26485
Winter Period	0.09334	0.07352	0.00604	0.17290
<u>Customer Charge (\$/month)</u>				6.22

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. Seasonal Rate Changes

The Summer Period is effective May 1 to October 31 and the Winter Period is effective from November 1 to April 30. When the billing period includes use in both the Summer and the Winter Periods, the usage will be prorated based on the number of days in each seasonal period, and the charges based on the applicable rates therein. For further discussion of bill calculation and proration, refer to Rule and Regulation 11.

CITY OF PALO ALTO UTILITIES
Issued by the City Council

Supersedes Sheet No E-2-1
dated 7-1-2024



Sheet No E-2-1
Effective 7-1-2025

UTILITY RATE SCHEDULE E-2**A. APPLICABILITY:**

This Rate Schedule applies to the following Customers receiving Electric Service from the City of Palo Alto Utilities:

1. Non-residential Customers receiving Non-Demand metered Electric Service; and
2. Customers with Accounts at Master-Metered multi-family facilities receiving Non-Demand metered Electric Service.

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>
Summer Period	\$ 0.15075	\$ 0.10806	\$ 0.00604	\$ 0.26485
Winter Period	0.09334	0.07352	0.00604	0.17290
<u>Customer Charge (\$/month)</u>				6.22

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. Seasonal Rate Changes

The Summer Period is effective May 1 to October 31 and the Winter Period is effective from November 1 to April 30. When the billing period includes use in both the Summer and the Winter Periods, the usage will be prorated based on the number of days in each seasonal period, and the charges based on the applicable rates therein. For further discussion of bill calculation and proration, refer to Rule and Regulation 11.

CITY OF PALO ALTO UTILITIES

Issued by the City Council

*Supersedes Sheet No E-2-1
dated 7-1-2024*



Sheet No **E-2-1**
Effective 7-1-2025

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	\$ 0.10373	\$ 0.09593	\$ 0.00604	\$ 0.20570
Tier 2 usage	0.13372	0.08968	0.00604	0.22944
Any usage over Tier 1				
<u>Customer Charge</u> <u>(\$/month)</u>				5.15

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 15 kWh per day, prorated by Meter reading days of Service. As an example, for a 30-day bill, the Tier 1 level would be 450 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 7-1-2024*



Sheet No **E-1-1**
Effective 7-1-2025

UTILITY RATE SCHEDULE E-2

A. APPLICABILITY:

This Rate Schedule applies to the following Customers receiving Electric Service from the City of Palo Alto Utilities:

- 1. Non-residential Customers receiving Non-Demand metered Electric Service; and
- 2. Customers with Accounts at Master-Metered multi-family facilities receiving Non-Demand metered Electric Service.

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>
Summer Period	\$ 0.15075	\$ 0.10806	\$ 0.00604	\$ 0.26485
Winter Period	0.09334	0.07352	0.00604	0.17290
<u>Customer Charge (\$/month)</u>				6.22

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. Seasonal Rate Changes

The Summer Period is effective May 1 to October 31 and the Winter Period is effective from November 1 to April 30. When the billing period includes use in both the Summer and the Winter Periods, the usage will be prorated based on the number of days in each seasonal period, and the charges based on the applicable rates therein. For further discussion of bill calculation and proration, refer to Rule and Regulation 11.

CITY OF PALO ALTO UTILITIES

Issued by the City Council

Supersedes Sheet No E-2-1
dated 7-1-2024



Sheet No E-2-1
Effective 7-1-2025

Table 32. CPAU Monthly Gas Rate (\$/therm)

Month	G2 Volumetric Total
January	\$2.45
February	\$1.92
March	\$1.81
April	\$1.77
May	\$1.77
June	\$1.80
July	\$1.90
August	\$2.00
September	\$1.98
October	\$1.99
November	\$2.08
December	\$2.23



CITY OF
PALO ALTO
UTILITIES

City of Palo Alto
Utility Rate Schedule G-2 – Residential Master-Metered and Commercial Gas Service
Monthly Gas Volumetric and Service Charges

Effective Date	Commodity Charge	Cap and Trade Compliance Charge	Transportation Charge	Carbon Offset Charge	Total Supply Charge	Distribution Charge	Total Volumetric Charge	Monthly Service Charge (by Meter Capacity)		
	(a)	(b)	(c)	(d)	(a)+(b)+(c)+(d)=(e)	(f)	(e)+(f)	≤ 220 scfh	> 220, < 4,000 scfh	≥ 4,000 scfh
	\$ per Therm							\$ per Month		
6/1/2026	0.2094	0.1238	0.2640	0.0300	0.6272	1.2204	1.8476	29.24	94.56	419.08
5/1/2026	0.1552	0.1238	0.2640	0.0300	0.5730	1.2204	1.7934	29.24	94.56	419.08
4/1/2026	0.2100	0.1238	0.2640	0.0300	0.6278	1.2204	1.8482	29.24	94.56	419.08
3/1/2026	0.2265	0.1262	0.2640	0.0300	0.6467	1.2204	1.8671	29.24	94.56	419.08
2/1/2026	0.3511	0.1262	0.2631	0.0300	0.7744	1.2204	1.9948	29.24	94.56	419.08
1/1/2026	0.3928	0.1262	0.2631	0.0300	0.8121	1.1749	1.9870	170.55		
12/1/2025	0.5364	0.1204	0.2672	0.0300	0.9540	1.1749	2.1289	170.55		
11/1/2025	0.4140	0.1204	0.2672	0.0300	0.8316	1.1749	2.0065	170.55		
10/1/2025	0.4109	0.1204	0.2163	0.0300	0.7776	1.1749	1.9525	170.55		
9/1/2025	0.3639	0.1081	0.2163	0.0300	0.7183	1.1749	1.8932	170.55		
8/1/2025	0.3788	0.1081	0.2168	0.0300	0.7337	1.1749	1.9086	170.55		
7/1/2025	0.3705	0.1081	0.2122	0.0700	0.7608	1.1749	1.9357	170.55		
6/1/2025	0.3528	0.1226	0.2122	0.0700	0.7576	1.0809	1.8385	156.90		
5/1/2025	0.2855	0.1226	0.2122	0.0700	0.6903	1.0809	1.7712	156.90		
4/1/2025	0.3361	0.1226	0.2122	0.0700	0.7409	1.0809	1.8218	156.90		
3/1/2025	0.4177	0.1339	0.2122	0.0700	0.8338	1.0809	1.9147	156.90		
2/1/2025	0.4207	0.1339	0.2122	0.0700	0.8368	1.0809	1.9177	156.90		
1/1/2025	0.4911	0.1339	0.2122	0.0700	0.9072	1.0809	1.9881	156.90		
12/1/2024	0.5144	0.1182	0.2715	0.0700	0.9741	1.0809	2.0550	156.90		
11/1/2024	0.4850	0.1182	0.2715	0.0700	0.9447	1.0809	2.0256	156.90		
10/1/2024	0.4450	0.1182	0.2500	0.0700	0.8832	1.0809	1.9641	156.90		
9/1/2024	0.3411	0.1451	0.2500	0.0700	0.8062	1.0809	1.8871	156.90		
8/1/2024	0.5179	0.1451	0.2201	0.0700	0.9531	1.0809	2.0340	156.90		
7/1/2024	0.4197	0.1451	0.2206	0.0700	0.8554	1.0809	1.9363	156.90		

7.2.6 Sacramento Municipal Utilities District (Electric Only)

Following are the SMUD electricity tariffs applied in this study. The rates effective May 2026 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 May 1, 2025	Effective as of January 1, 2026	Effective as of January 1, 2027
Time-of-Day (5-8 p.m.) Rate (RT02)			
Non-Summer Season (October - May)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$26.20	\$27.00	\$27.80
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.1724	\$0.1776	\$0.1829
Off-Peak <i>\$/kWh</i>	\$0.1248	\$0.1285	\$0.1324
Summer Season (June - September)			
System Infrastructure Fixed Charge <i>per month per meter</i>	\$26.20	\$27.00	\$27.80
Electricity Usage Charge			
Peak <i>\$/kWh</i>	\$0.3655	\$0.3765	\$0.3878
Mid-Peak <i>\$/kWh</i>	\$0.2077	\$0.2139	\$0.2203
Off-Peak <i>\$/kWh</i>	\$0.1505	\$0.1550	\$0.1596

7.2.7 Fuel Escalation Assumptions

The average annual escalation rates in Table 33 were used in this study. 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 2053.⁹ 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.

Table 33: 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%

⁹ <https://www.energy.ca.gov/files/2025-energy-code-hourly-factors>. Actual escalation factors were provided by consultants E3.

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



Explore

The [Cost-Effectiveness Explorer](#) is a free resource to help California local governments and stakeholders develop energy policies for buildings.



Follow

us on LinkedIn

Revision: 1.1

Last modified: 2026/07/17