

Net Emissions Analysis Tool (NEAT) Working Group

*Formally the Residential Commercial Appliance Life
Cycle Analysis Working Group*

Meeting #6
January 16th, 2019



Development Status Update

Sang-Mi Lee, Ph.D.

Planning and Rules Division



Working Group Meetings and Comment Letters to Date

- Six working group meetings (including today) and eight comment letters
- Working group meetings
 - Meeting #1 August 30, 2017
 - Meeting #2 November 16, 2017
 - Meeting #3 January 31, 2018
 - Meeting #4 April 18, 2018
 - Meeting #5 September 28, 2018
 - Meeting #6 January 16, 2019
- Comment Letters
 - Sierra Club – Nov. 2017
 - PSE Healthy Energy – Feb. 2018
 - Sustainable Analysis, LLC – Feb. 2018
 - SoCalGas – Mar. 2018
 - Sierra Club – Apr. 2018
 - Tim Kabat – Apr. 2018
 - SoCalGas – Jun. k2018
 - Sierra Club – Sep. 2018



Development Progress

- Meeting #1 August 30, 2017
 - Initiative to develop a tool to estimate cost effectiveness of emission reductions in residential sector
 - Solar Technology Initiative
- Meeting #2 November 16, 2017
 - Demand segment
 - Solar PV calculator
 - Collecting input data
- Meeting #3 January 31, 2018
 - Electric rate calculator
 - Net metering
 - Emissions from electricity generation



Development Progress (continued)

- Meeting #4 April 18, 2018
 - Natural gas rate calculator
 - Fugitive methane emissions from natural gas use
 - Continued discussions on emissions from electricity generation
- Meeting #5 September 28, 2018
 - Battery storage module
 - Electricity transmission and distribution loss
 - Renewable natural gas
 - Lifecycle Emissions from Gasoline and Diesel



Development Progress (continued)

- Meeting #6 January 16, 2019
 - Implementation of Battery Storage Module
 - Residential Rooftop Photovoltaic Cost Calculation
 - Live Demonstration of NEAT



Comments and Responses (since last meeting)

*Scott A. Epstein Ph.D. & Marc Carreras Sospedra Ph.D.
Planning and Rules Division*



Summary of Submitted Comments

- All comment letters posted to the NEAT website
 - www.aqmd.gov/NEAT
- No comment letters were submitted since last meeting, but we will discuss comments provided during last meeting

The screenshot shows the South Coast AQMD website. The header includes the AQMD logo and navigation menus for Language, F.I.N.D., About, Contact, Grants & Bids, Online Services, I'm Looking For, and a search bar. A secondary menu lists AIR QUALITY, RULES & COMPLIANCE, INCENTIVES & PROGRAMS, PERMITS, NEWS, AGENDAS, & WEBCASTS, TECHNOLOGY ADVANCEMENT, and RESOURCES. The main content area is titled "Net Emissions Analysis Tool (NEAT), formally known as the LifeCycle Analysis Working Group". It states the purpose of the working group is to assess the cost-effectiveness of technologies and life-cycle emissions. A detailed paragraph describes the formation of the working group to discuss assessing the cost-effectiveness of technologies and life-cycle emissions. Below this, there are sections for "Working Group Meeting #5" (Friday, September 28, 2018), "Working Group Meeting #4" (Wednesday, April 18, 2018), and "Working Group Meeting #3" (Wednesday, January 31, 2018), each with meeting details and links to agendas and presentations. A "For more information, please contact:" section lists Michael Krause, Planning and Rules Manager. A "Comment Letters" section lists several documents with dates and file sizes. A "YOU MAY ALSO LIKE ..." sidebar includes links for Business, Local Government, Rules, and Organization.



Comments and Responses

- Utility-Specific Electricity Transmission and Distribution Loss
 - Use utility-specific loss rates from EIA-861 schedule 2 for all utilities in database
 - *We added an option in the tool to use utility-specific loss rates from EIA-861*
 - *Loss rates are calculated as (total energy losses)/(total disposition)*
 - *Data from 2008 to 2017 was used for each utility*
 - *See <https://www.eia.gov/electricity/data/eia861/> for details*
 - *Users have the choice to use flat loss rate across all utilities, use hourly loss rate for all utilities, or use utility-specific loss rate*



Comments and Responses (continued)

Utility-Specific Electricity Transmission and Distribution Loss

UTILITY NAME	Years Available	Mean Loss Percentage
Azusa Light & Power	9	2.5
Bear Valley Electric Service	9	12.2
Burbank Water & Power	10	3.5
City of Anaheim Public Utilities Department	10	4.9
City of Banning Electric Department	10	6.8
City of Corona Department of Water & Power	10	2.7
City of Riverside	10	5.4
City of Vernon Municipal Light Department	10	3.9
Glendale Water & Power	10	2.7
Los Angeles Department of Water & Power	8	9
Moreno Valley Utility	9	5.5
Pasadena Water & Power	10	4.2
Rancho Cucamonga Municipal Utility	4	2.9
San Diego Gas & Electric	10	4.3
Southern California Edison	10	5.2

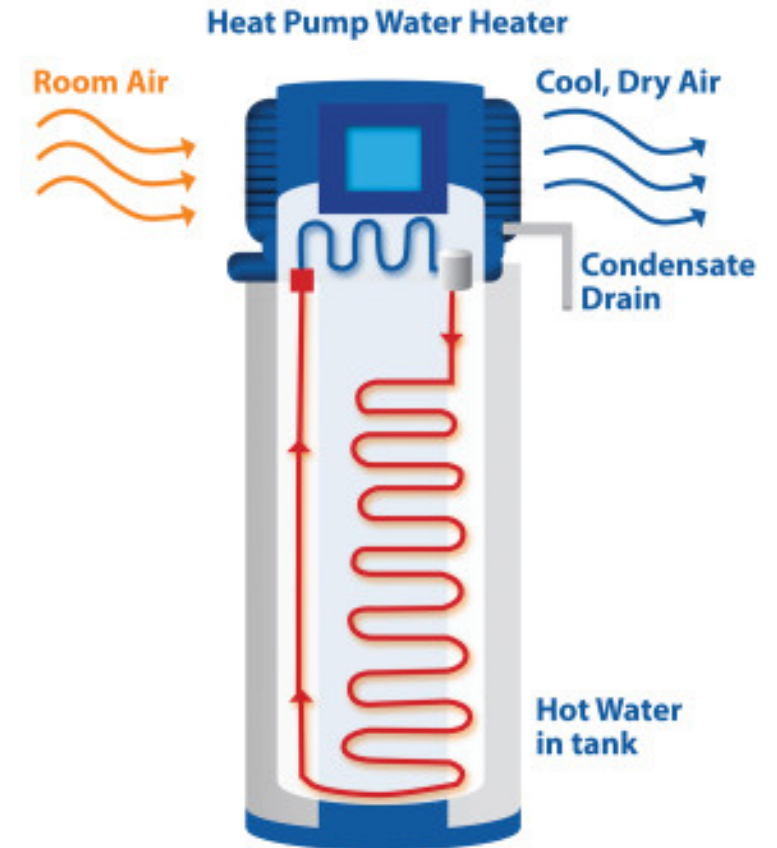


Comments and Responses (continued)

- Thermal Storage Heat Pump Water Heaters
 - Include thermal storage heat pump water heater profiles in NEAT
 - *We included two additional electric profiles for electric water heating with basic strategies to shift electric load*

Electric Thermal Storage Water Heating

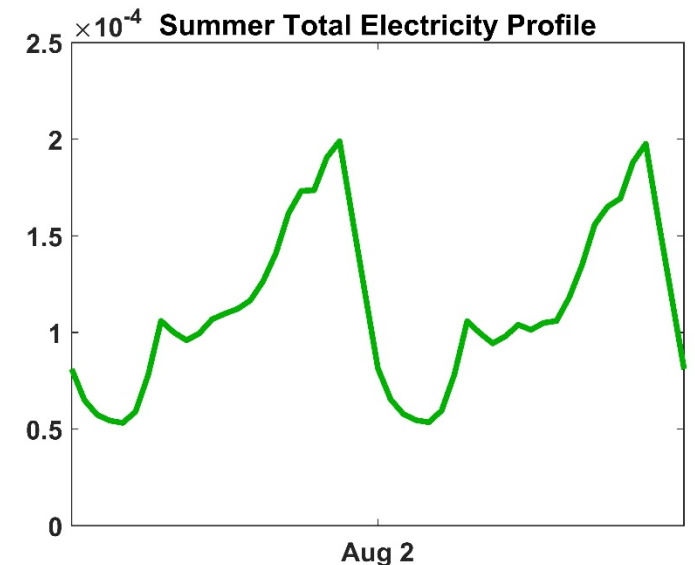
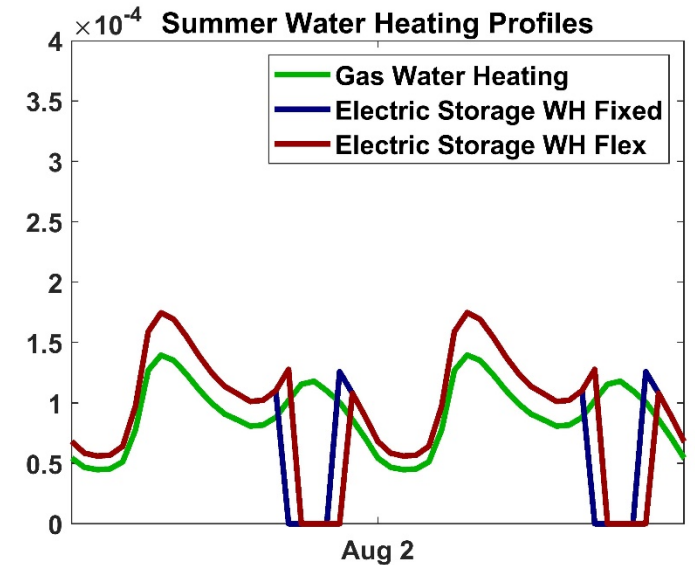
- Electric thermal storage water heating is an option to manage residential electrical load:
 - For peak shaving
 - For shifting demand to cheaper electricity rates
- Options include:
 - Electric resistance water heater (ERWH)
 - Heat pump water heater (HPWH)



<http://thesunriseguide.com>

Electric Thermal Storage Water Heating

- We implemented two basic thermal cycles that are based on the default water heating profile:
 - Fixed profile: water heating is turned off in the evening hours (5pm to 8pm)
 - Flex profile: water heating is turned off when the hourly electrical load is at the top 25% of a given day
- Overall electricity use is calculated using the Unit of Energy Consumption (UEC) that is specific to a given technology (ERWH, HPWH)



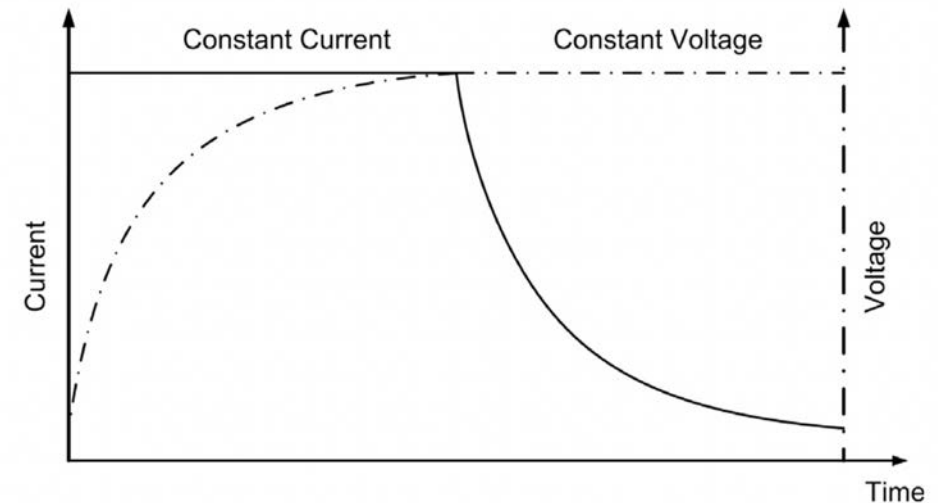
Comments and Responses (continued)

- EV Charging Profiles

- Add additional EV charging profiles to NEAT
- *We included two basic charging profiles for electric vehicles which correspond to Level 1 and Level 2 home EV chargers*

EV Charging Profiles

- We assumed that EV charging follows the strategy Constant Current/Constant Voltage (CC/CV) charging profile
- Vehicles are charged in the evening after 8 pm
- We included 2 charging profiles that represent Level 1 (~1.4 kW) and Level 2 (~5 kW) charging

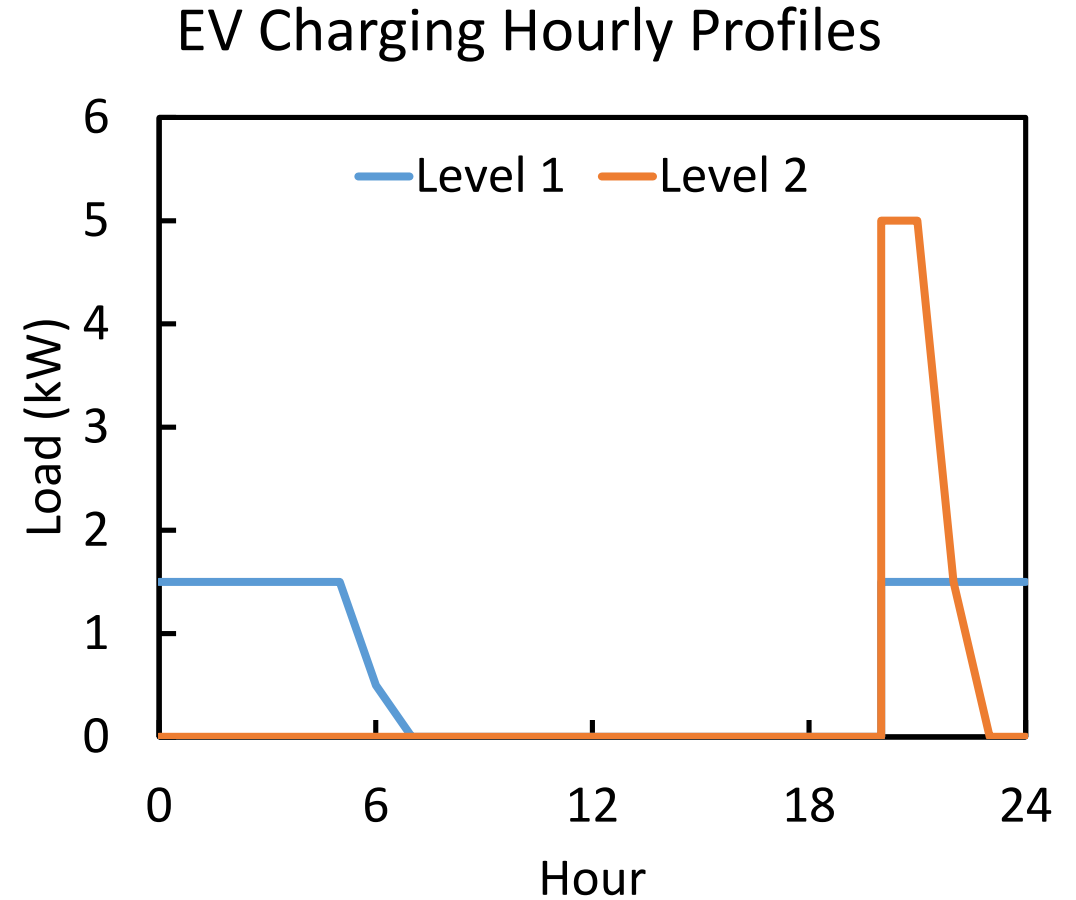


Ying et al., Renew. Sustain. Energy Rev., 2015



EV Charging Profiles

- Duration of charging cycle depends on the charger level:
 - Level 1: 8 pm to 6 am
 - Level 2: 8 pm to 11 pm
- Charging cycle is assumed to be the same throughout the year



Implementation of Residential Battery Modeling in NEAT

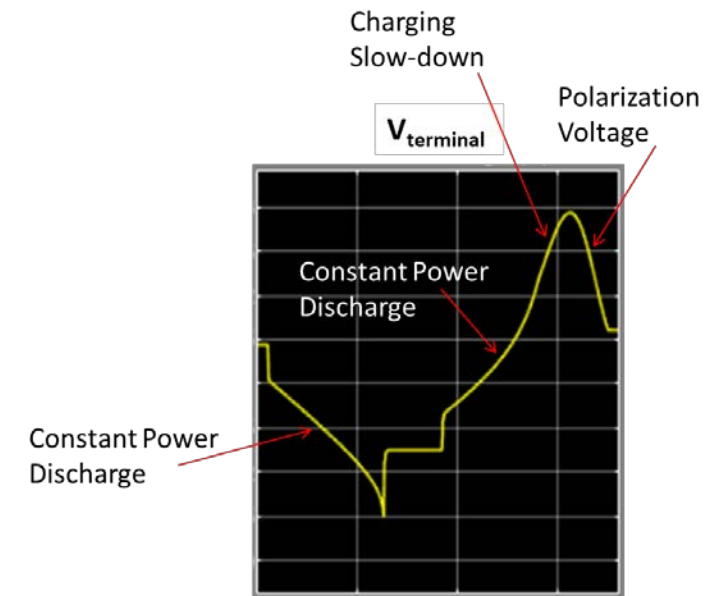
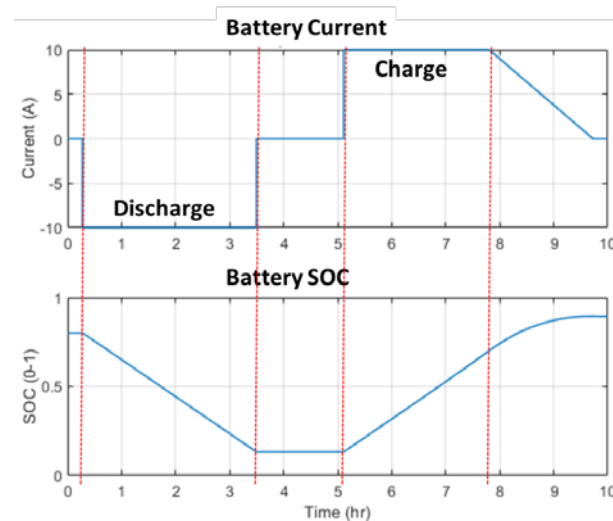
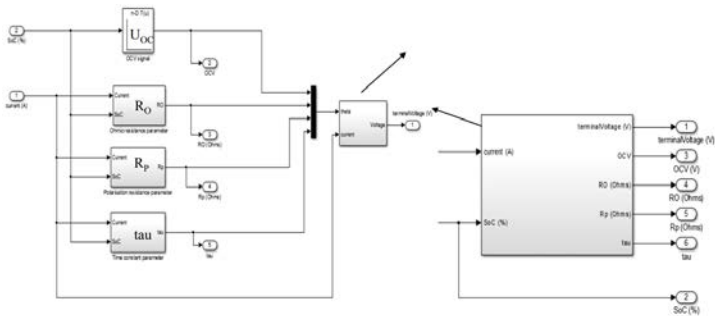
Seungbum Ha Ph.D.

Technology Advancement Office



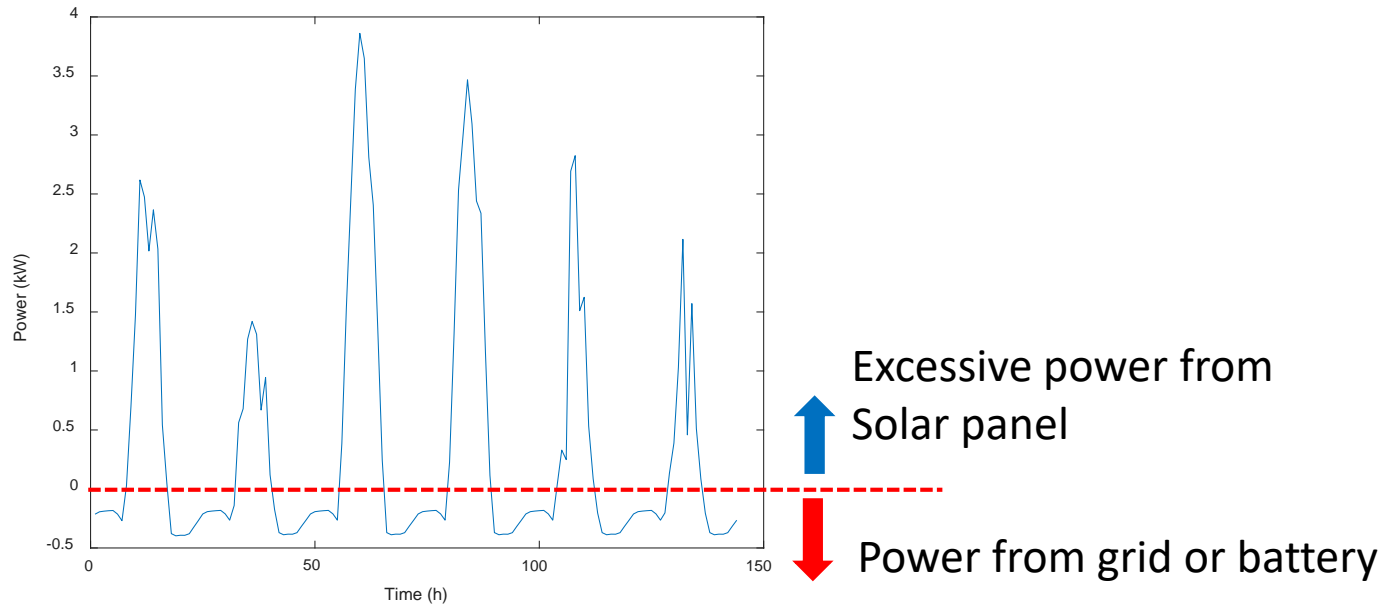
Summary of Previous Work

- Battery model has been developed
- Parameters for the model, test results from EV batteries, has been extracted from database provided by Argon National Laboratory
- Simple charging/discharging has been tested in the model



Integration of NEAT specific data into Model

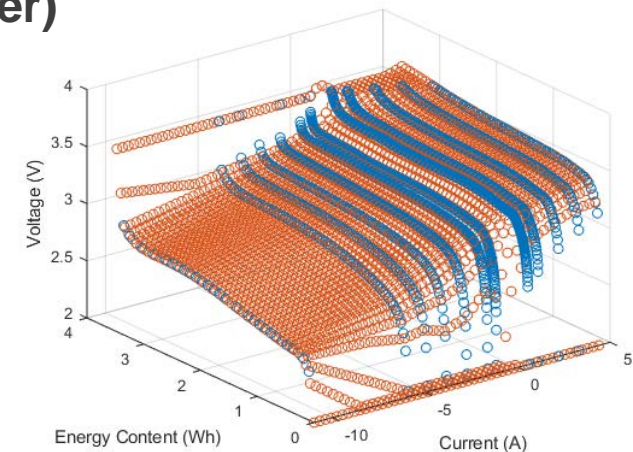
- ❑ Required power ($\text{Power}_{\text{solar}} - \text{Power}_{\text{elec use}}$) changes every hour.



- ❑ The model

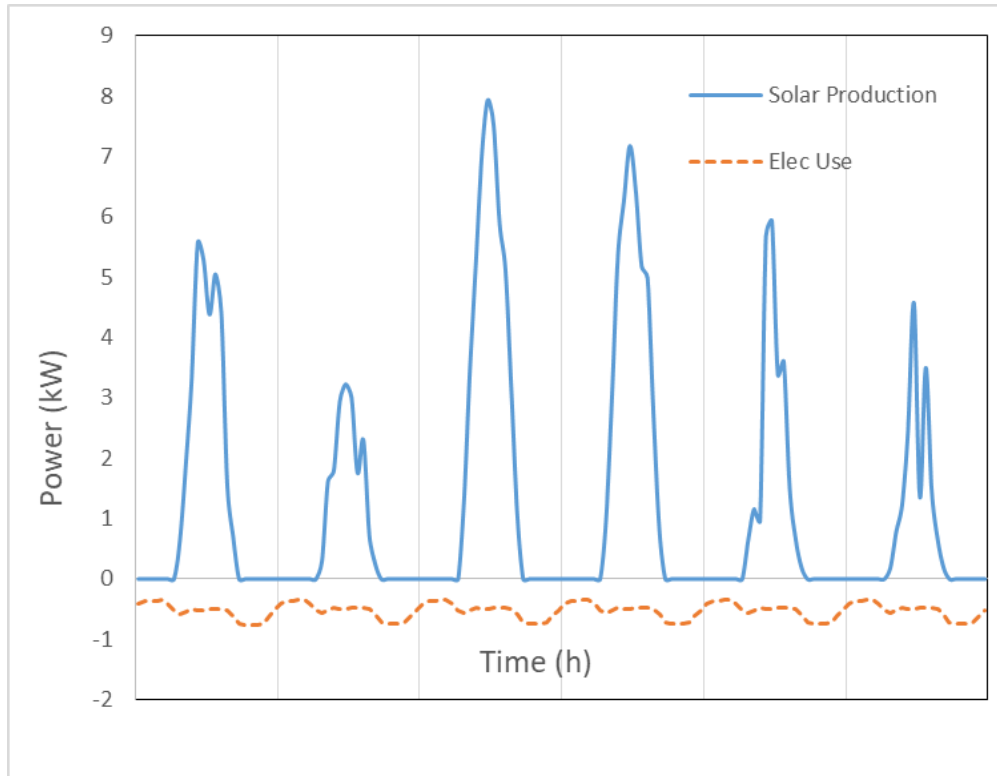
- Parameterizes battery with charging-discharging behavior from datasheets(experimental results)
- Calculates voltage profile as a function of SOC and input current (power)

- ❑ Voltage-SOC profile varies for input current (power)



Integration of NEAT specific data into Model

- Continued



Computation by battery model

- Given the load and PV profile, the model calculates voltage and SOC change for every time step.
- Upper and lower charging/discharging rate limit is applied based on battery characteristics.
- The battery is programmed to discharge (charge) before reaching the minimum (maximum) SOC.

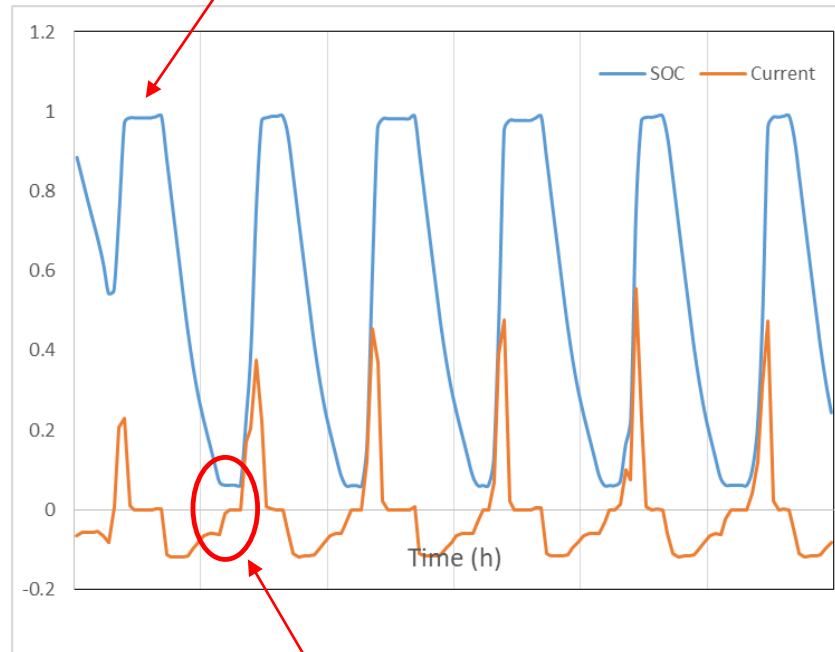
Integration of NEAT specific data into Model

- Continued

Tesla powerwall 1



Stop charging due to upper limit of SOC



Power, continuous and peak	3.3 kW
Energy*	6.4 kWh
Internal Battery Voltage	< 50 VDC
System Operating Voltage	350 V–450 V
Voltage in OFF State	0 VDC
Current	9.5 ADC
Round Trip Efficiency*	92.5% (for a 400 V–450 V DC bus)
Depth of Discharge	100%
Equivalent Cycles	Unlimited cycles (provided Powerwall is only used for solar self-consumption and backup)

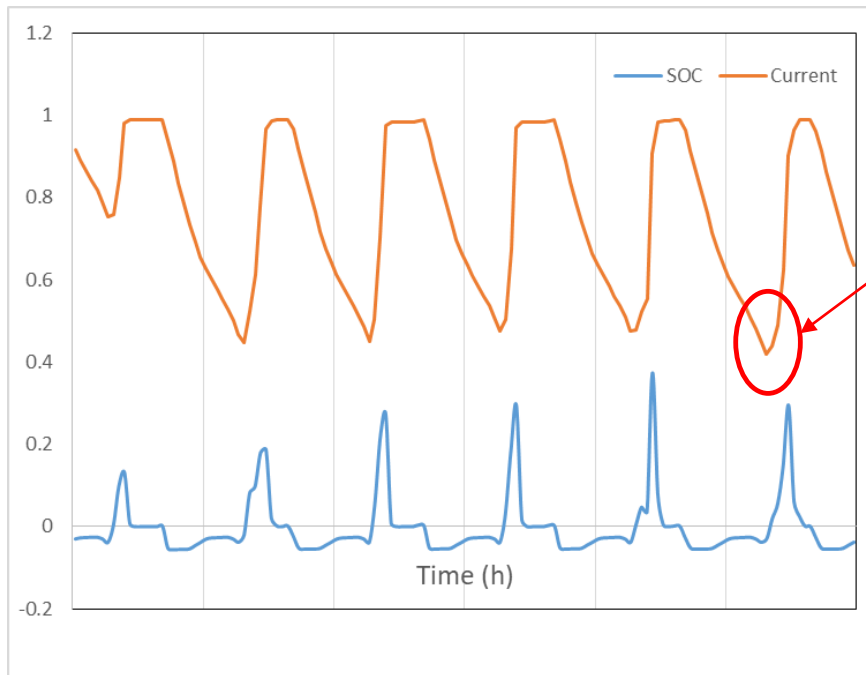
- Stop discharging due to lower limit of SOC
- Use grid power

Integration of NEAT specific data into Model

- Continued

Tesla powerwall 2

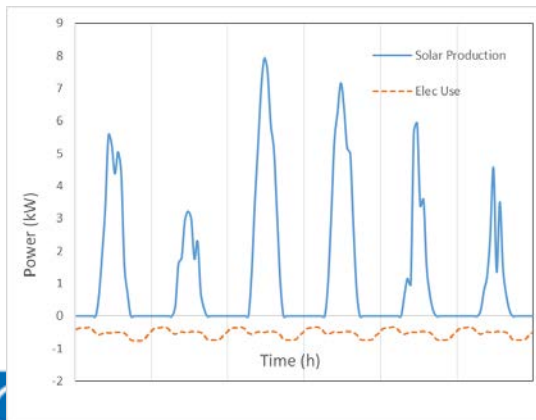
- 2x battery capacity
- Battery profile doesn't reach lower limit of SOC
→ minimizing use of grid power



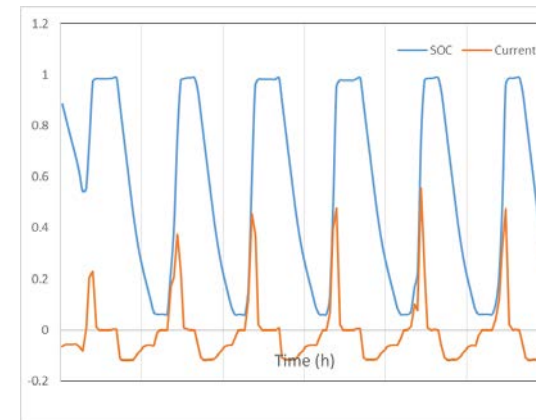
DC Energy ¹	13.5 kWh
Power, continuous	5 kW (charge and discharge)
Power, peak (10s)	7 kW (discharge only)
DC Voltage Range	350-550 V
DC Current, continuous	14.3 A
DC Current, peak (10s)	20 A
Depth of Discharge	100%
Internal Battery DC Voltage	50 V
Round Trip Efficiency ^{1,2}	91.8%
Warranty	10 years

Implementation of Battery model into NEAT

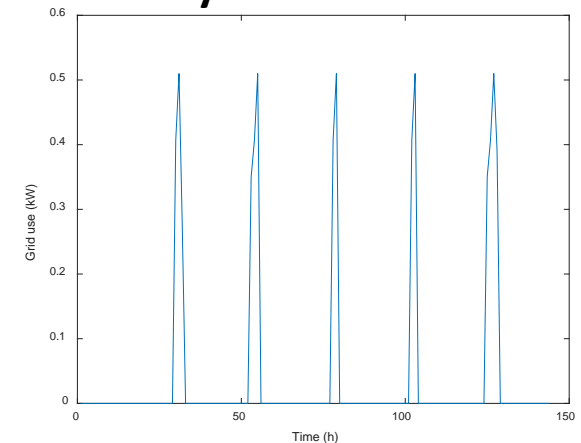
- Calculation algorithm needs to be optimized to implement into NEAT
- Adoptive charging/discharging control is required to develop
 - Charging/discharging strategy varies by battery characteristics, solar production profile, electricity use profile and Tier rates.
 - According to the strategy, electricity cost can be minimized.



- Enough solar production
- Relatively small and stable electricity use



Grid power is rarely used



Summary and Next steps

- **Where we are**

- Battery model is tested using NEAT specific data
- Two different types of residential batteries are simulated and charging/discharging profile is calculated.

- **What needs to be done next**

- Battery model will be implemented into NEAT
 - optimizing algorithm
 - adopting improved charging/discharging strategy
- Various scenarios will be tested.
 - Solar production, electricity use profile, battery size, tier rate



NEAT Demonstration

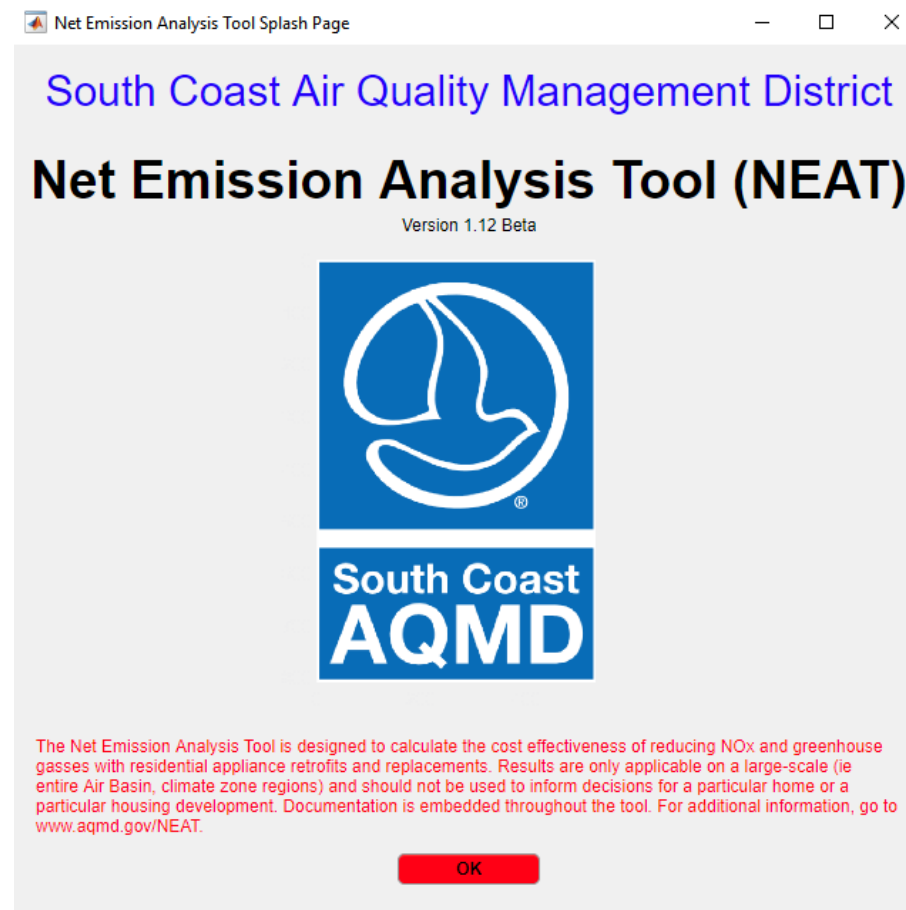
Scott A. Epstein Ph.D.
Planning and Rules Division



NEAT will still undergo extensive QA/QC from SCAQMD staff, the workgroup and other beta testers. Do not draw conclusions from demonstration results. Numbers are not final.



NEAT Splash Page



NEAT Starts in "Demand" Section

Residential Net Emissions Analysis Tool version 1.12 Beta

File Capture Screen Help

Demand Demand Input Summary Power Supply Economics Computation Results

Housing Category: Single-Family Multi-Family Mobile Home Aggregate

Climate Zone: 6 Coastal 8 S. Near-Coastal 9 N. Near-Coastal 10 S. Inland 15 S. Desert 16 Mountain All [CZ MAP](#)

Populate Baseline and Scenario Technology Mix Parameters

Load Default Parameters Load Saved Parameters

Populate List of New Technologies for Possible Implementation

Load Default Parameters Edit parameters in "Add Technology for Scenario Selection" and implement with "Replace Technology Tool" Load Saved Parameters

Hot water heating Kitchen Laundry Miscellaneous Pool Space heating and cooling Transportation

BASELINE TECHNOLOGY MIX PARAMETERS

Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Penetration
A Electric	Water Heat	2468	0	0	368	1700	13	0.0740
B Electric	Solar Water Heat with Electric Backup	1964	0	0	1411	3869	13	0
C NatGas	Conventional Water Heater	193	0.0023	11.7600	653	1900	13	0.7160
D NatGas	Solar Water Heat with Gas Backup	163	0.0023	11.7600	4349	3869	13	0

SCENARIO TECHNOLOGY MIX PARAMETERS

Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime
Electric	Water Heat	2468	0	0	368	1700	13
Electric	Solar Water Heat with Electric Backup	1964	0	0	1411	3869	13
NatGas	Conventional Water Heater	193	0.0023	11.7600	653	1900	13
NatGas	Solar Water Heat with Gas Backup	163	0.0023	11.7600	4349	3869	13

NEW TECHNOLOGY PARAMETERS

#	Fuel	Technology	Profile	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Notes
1	Electric	Water Heat	Water Heating	2468.4	0	0	368.01	1700	13	General technology c...
2	Electric	Solar Water Heat with Electric Backup	Water Heating	1963.7	0	0	1410.5	3869	13	General technology c...
3	NatGas	Conventional Water Heater	Water Heating	192.97	0.0023	11.76	653.27	1900	13	General technology c...
4	NatGas	Solar Water Heat with Gas Backup	Water Heating	162.78	0.0023	11.76	4348.5	3869	13	General technology c...
5	NatGas	Whole House Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
6	NatGas	High-Efficiency Condensing	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
7	Electric	Heat Pump	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
8	Electric	Standard Tank	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
9	Electric	Point of Use Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified

Save Baseline and Scenario Technology Mix Parameters to File

Replace Technology Tool

(All households with the baseline technology will switch to the replacement tech.)

Select baseline technology to phase-out:
A Electric Water Heat

Select technology to use instead:
1 Electric Water Heat

Implement

View Profile Definitions Add Technology Save List of New Technologies to File

RETURN TO PREVIOUS ADVANCE TO NEXT



Ability to Load Entire Setup of Run or Results

The screenshot shows the 'Residential Net Emissions Analysis Tool version 1.12 Beta' interface. A 'File' menu is open, highlighting the following options:

- File
- Capture Screen
- Help
- Load Setup
- Load Results
- Restart

The main interface includes sections for 'Demand Input Summary', 'Power Supply', 'Economics', 'Computation', and 'Results'. A 'Populate Baseline and Scenario Technology Mix Parameters' dialog box is also visible, containing buttons for 'Load Default Parameters' and 'Load Saved Parameters'. The 'NEW TECHNOLOGY PARAMETERS' table is shown below.

#	Fuel	Technology	Profile	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Notes
1	Electric	Water Heat	Water Heating	2468.4	0	0	368.01	1700	13	General technology c...
2	Electric	Solar Water Heat with Electric Backup	Water Heating	1963.7	0	0	1410.5	3869	13	General technology c...
3	NatGas	Conventional Water Heater	Water Heating	192.97	0.0023	11.76	653.27	1900	13	General technology c...
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5	NatGas	Whole House Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	-9999 Values not specified
6	NatGas	High-Efficiency Condensing	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	-9999 Values not specified
7	Electric	Heat Pump	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	-9999 Values not specified
8	Electric	Standard Tank	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	-9999 Values not specified
9	Electric	Point of Use Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	-9999 Values not specified



NEAT Starts in "Demand" Section

Capture any screen and open as .png file

The screenshot shows the 'Residential Net Emissions Analysis Tool version 1.12 Beta' interface. The 'Demand' tab is selected in the top navigation bar. The interface includes several sections:

- Housing Category:** Single-Family, Multi-Family, Mobile Home, **Aggregate** (selected).
- Climate Zone:** 6 Coastal, 8 S. Near-Coastal, 9 N. Near-Coastal, 10 S. Inland, 15 S. Desert, 16 Mountain, **All** (selected).
- Populate Baseline and Scenario Technology Mix Parameters:** Includes 'Load Default Parameters' and 'Load Saved Parameters' buttons.
- Populate List of New Technologies for Possible Implementation:** Includes 'Load Default Parameters' and 'Load Saved Parameters' buttons.
- Navigation Tabs:** Hot water heating, Kitchen, Laundry, Miscellaneous, Pool, Space heating and cooling, Transportation.
- BASELINE TECHNOLOGY MIX PARAMETERS:** A table with columns: Fuel, Technology, UEC, NOX EF, CO2e EF, Unit Cost, Install Cost, Lifetime, Penetration.
- SCENARIO TECHNOLOGY MIX PARAMETERS:** A table with columns: Fuel, Technology, UEC, NOX EF, CO2e EF, Unit Cost, Install Cost, Lifetime.
- NEW TECHNOLOGY PARAMETERS:** A table with columns: #, Fuel, Technology, Profile, UEC, NOX EF, CO2e EF, Unit Cost, Install Cost, Lifetime, Notes.
- Replace Technology Tool:** A panel for selecting baseline and replacement technologies.

A red arrow points to the 'File' menu in the top-left corner of the application window.



NEAT Starts in "Demand" Section

General help & documentation

Residential Net Emissions Analysis Tool version 1.12 Beta

File Capture Screen Help

Demand Demand Input Summary Power Supply Economics Computation Results

Housing Category: Single-Family Multi-Family Mobile Home **Aggregate**

Climate Zone: 6 Coastal 8 S. Near-Coastal 9 N. Near-Coastal 10 S. Inland 15 S. Desert 16 Mountain **All** CZ MAP

Populate Baseline and Scenario Technology Mix Parameters

Load Default Parameters Load Saved Parameters

Populate List of New Technologies for Possible Implementation

Load Default Parameters Load Saved Parameters

Hot water heating Kitchen Laundry Miscellaneous Pool Space heating and cooling Transportation

BASELINE TECHNOLOGY MIX PARAMETERS

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6	NatGas	High-Efficiency Condensing	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
7	Electric	Heat Pump	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
8	Electric	Standard Tank	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
9	Electric	Point of Use Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified

Save Baseline and Scenario Technology Mix Parameters to File

Replace Technology Tool

(All households with the baseline technology will switch to the replacement tech.)

Select baseline technology to phase-out:
A Electric Water Heat

Select technology to use instead:
1 Electric Water Heat

Implement

View Profile Definitions Add Technology Save List of New Technologies to File

RETURN TO PREVIOUS ADVANCE TO NEXT



Simple Example: Electrify Hot Water Heating and Add Rooftop PV for Single-Family Homes

The screenshot displays the 'Demand Input Summary' tab of the software. It includes a navigation bar at the top with tabs for Demand, Demand Input Summary, Power Supply, Economics, Computation, and Results. The 'Demand Input Summary' section contains filters for Housing Category (Single-Family, Multi-Family, Mobile Home, Aggregate) and Climate Zone (6 Coastal, 8 S. Near-Coastal, 9 N. Near-Coastal, 10 S. Inland, 15 S. Desert, 16 Mountain, All). Below these are buttons for 'Load Default Parameters' and 'Load Saved Parameters' for both baseline and scenario technology mix parameters. The 'Hot water heating' sub-tab is active, showing two tables: 'BASELINE TECHNOLOGY MIX PARAMETERS' and 'SCENARIO TECHNOLOGY MIX PARAMETERS'. Both tables list technologies like Electric Water Heat, Solar Water Heat with Electric Backup, and Conventional Water Heater with their respective UEC, emissions, and costs. A 'NEW TECHNOLOGY PARAMETERS' table is also visible, listing various water heating technologies with their profiles and parameters. On the right side, there is a 'Replace Technology Tool' panel with dropdown menus to select a baseline technology to phase out and a replacement technology to use instead, along with an 'Implement' button. At the bottom, there are buttons for 'View Profile Definitions', 'Add Technology', 'Save List of New Technologies to File', 'RETURN TO PREVIOUS', and 'ADVANCE TO NEXT'. The South Coast AQMD logo is in the top right corner.



Select Single Family Homes

Single-Family
 Multi-Family
 Mobile Home
 Aggregate

Climate Zone: 6 Coastal 8 S. Near-Coastal 9 N. Near-Coastal 10 S. Inland 15 S. Desert 16 Mountain All [CZ MAP](#)

BASELINE TECHNOLOGY MIX PARAMETERS									SCENARIO TECHNOLOGY MIX PARAMETERS							
Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Penetration	Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime
A Electric	Water Heat	3169	0	0	361	1700	13	0.0500	Electric	Water Heat	3169	0	0	361	1700	13
B Electric	Solar Water Heat with Electric Backup	1877	0	0	1411	3869	13	0	Electric	Solar Water Heat with Electric Backup	1877	0	0	1411	3869	13
C NatGas	Conventional Water Heater	195	0.0023	11.7600	647	1900	13	0.9050	NatGas	Conventional Water Heater	195	0.0023	11.7600	647	1900	13
D NatGas	Solar Water Heat with Gas Backup	161	0.0023	11.7600	4349	3869	13	0	NatGas	Solar Water Heat with Gas Backup	161	0.0023	11.7600	4349	3869	13

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1	Electric	Water Heat	Water Heating	3169	0	0	361	1700	13	General technology c...
2	Electric	Solar Water Heat with Electric Backup	Water Heating	1877	0	0	1410.5	3869	13	General technology c...
3	NatGas	Conventional Water Heater	Water Heating	194.51	0.0023	11.76	647	1900	13	General technology c...
4	NatGas	Solar Water Heat with Gas Backup	Water Heating	161.44	0.0023	11.76	4348.5	3869	13	General technology c...
5	NatGas	Whole House Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
6	NatGas	High-Efficiency Condensing	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
7	Electric	Heat Pump	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
8	Electric	Standard Tank	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
9	Electric	Point of Use Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified

Replace Technology Tool

(All households with the baseline technology will switch to the replacement tech.)

Select baseline technology to phase-out:

A Electric Water Heat

Select technology to use instead:

1 Electric Water Heat



Implement Hot Water Heating Change

Demand Demand Input Summary Power Supply Economics Computation Results

Housing Category: Single-Family Multi-Family Mobile Home Aggregate

Climate Zone: 6 Coastal 8 S. Near-Coastal 9 N. Near-Coastal 10 S. Inland 15 S. Desert 16 Mountain All [CZ MAP](#)

Populate Baseline and Scenario Technology Mix Parameters

Populate List of New Technologies for Possible Implementation

Hot water heating Kitchen Laundry Miscellaneous Pool Space heating and cooling Transportation

BASELINE TECHNOLOGY MIX PARAMETERS

Hover over Fuel or Technology to see selected profile

Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Penetration
A Electric	Water Heat	3169	0	0	361	1700	13	0.0500
B Electric	Solar Water Heat with Electric Backup	1877	0	0	1411	3869	13	0
C NatGas	Conventional Water Heater	195	0.0023	11.7600	647	1900	13	0.9050
D NatGas	Solar Water Heat with Gas Backup	161	0.0023	11.7600	4349	3869	13	0

SCENARIO TECHNOLOGY MIX PARAMETERS

[View Tech Definitions](#) [Show Column Information](#)

Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime
Electric	Water Heat	3169	0	0	361	1700	13
Electric	Solar Water Heat with Electric Backup	1877	0	0	1411	3869	13
Electric	Water Heat	3169	0	0	361	1700	13
NatGas	Solar Water Heat with Gas Backup	161	0.0023	11.7600	4349	3869	13

NEW TECHNOLOGY PARAMETERS

#	Fuel	Technology	Profile	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Notes
1	Electric	Water Heat	Water Heating	3169	0	0	361	1700	13	General technology c...
2	Electric	Solar Water Heat with Electric Backup	Water Heating	1877	0	0	1410.5	3869	13	General technology c...
3	NatGas	Conventional Water Heater	Water Heating	194.51	0.0023	11.76	647	1900	13	General technology c...
4	NatGas	Solar Water Heat with Gas Backup	Water Heating	161.44	0.0023	11.76	4348.5	3869	13	General technology c...
5	NatGas	Whole House Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
6	NatGas	High-Efficiency Condensing	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
7	Electric	Heat Pump	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
8	Electric	Standard Tank	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
9	Electric	Point of Use Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified

Save Baseline and Scenario Technology Mix Parameters to File

Replace Technology Tool

(All households with the baseline technology will switch to the replacement tech.)

Select baseline technology to phase-out:

Select technology to use instead:

Implement

[View Profile Definitions](#) [Add Technology](#) [Save List of New Technologies to File](#)

[RETURN TO PREVIOUS](#) [ADVANCE TO NEXT](#)



View Hot Water Heating Profiles (leave unchanged)

Single-Family Multi-Family Mobile Home Aggregate
 6 Coastal 8 S. Near-Coastal 9 N. Near-Coastal 10 S. Inland 15 S. Desert 16 Mountain [CZ MAP](#)

Hot water heating Kitchen Laundry Miscellaneous Pool Space heating and cooling Transportation

BASELINE TECHNOLOGY MIX PARAMETERS

Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Penetration
A Electric	Water Heat	3169	0	0	361	1700	13	0.0500
B Electric	Solar Water Heat with Electric Backup	1877	0	0	1411	3869	13	0
C NatGas	Conventional Water Heater	3169	0	0	361	1700	13	0.0500
D NatGas	Solar Water Heat with Gas Backup	161	0.0023	11.7600	4349	3869	13	0

Hover over Fuel or Technology to see selected profile

SCENARIO TECHNOLOGY MIX PARAMETERS

Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime
Electric	Water Heat	3169	0	0	361	1700	13
Electric	Solar Water Heat with Electric Backup	1877	0	0	1411	3869	13
Electric	Water Heat	3169	0	0	361	1700	13
NatGas	Solar Water Heat with Gas Backup	161	0.0023	11.7600	4349	3869	13

NEW TECHNOLOGY PARAMETERS

#	Fuel	Technology	Profile	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Notes
1	Electric	Water Heat	Water Heating	3169	0	0	361	1700	13	General technology c...
2	Electric	Solar Water Heat with Electric Backup	Water Heating	1877	0	0	1411	3869	13	General technology c...
3	Electric	Water Heat	Water Heating	3169	0	0	361	1700	13	General technology c...
4	NatGas	Solar Water Heat with Gas Backup	Water Heating	161	0.0023	11.76	4349	3869	13	General technology c...
5	NatGas	Whole House Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
6	NatGas	High-Efficiency Condensing	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
7	Electric	Heat Pump	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
8	Electric	Standard Tank	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified
9	Electric	Point-of-Use Tankless System	Water Heating	-9999	-9999	-9999	-9999	-9999	-9999	Values not specified

Replace Technology Tool

(All households with the baseline technology will switch to the replacement tech.)

Select baseline technology to phase-out:

Select technology to use instead:

South Coast
Air Quality Management District

35

View Other Appliances (leave unchanged)


Demand
Demand Input Summary
Power Supply
Economics
Computation
Results

Housing Category

 Single-Family
 Multi-Family
 Mobile Home
 Aggregate

Climate Zone

 6 Coastal
 8 S. Near-Coastal
 9 N. Near-Coastal
 10 S. Inland
 15 S. Desert
 16 Mountain
 All [CZ MAP](#)



Populate Baseline and Scenario Technology Mix Parameters

Load Default Parameters

Load Saved Parameters

Populate List of New Technologies for Possible Implementation

Load Default Parameters Edit parameters in "Add Technology for Scenario Selection" and implement with "Replace Technology Tool"

Load Saved Parameters

Hot water heating
Kitchen
Laundry
Miscellaneous
Pool
Space heating and cooling
Transportation

BASELINE TECHNOLOGY MIX PARAMETERS

Hover over Fuel or Technology to see selected profile

Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Penetration
A Electric	Range Oven Combination	310	0	0	1000	140	18	0.4200
B Electric	Dishwasher	83	0	0	800	344	12	0.7400
C Electric	First Refrigerator	827	0	0	1999	108	17.5000	1
D Electric	Second Refrigerator	1286	0	0	1999	108	17.5000	0.3300
E Electric	Freezer	968	0	0	630	108	20	0.2300
F Electric	Microwave	133	0	0	180	158	12	0.9400
G NatGas	Range Oven Combination	36	0.0092	11.7600	1890	150	18	0.7170

SCENARIO TECHNOLOGY MIX PARAMETERS

[View Tech Definitions](#) [Show Column Information](#)

Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime
Electric	Range Oven Combination	310	0	0	1000	140	18
Electric	Dishwasher	83	0	0	800	344	12
Electric	First Refrigerator	827	0	0	1999	108	17.5000
Electric	Second Refrigerator	1286	0	0	1999	108	17.5000
Electric	Freezer	968	0	0	630	108	20
Electric	Microwave	133	0	0	180	158	12
NatGas	Range Oven Combination	36	0.0092	11.7600	1890	150	18

NEW TECHNOLOGY PARAMETERS

#	Fuel	Technology	Profile	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime	Notes
1	Electric	Range Oven Combination	Interior Appliance Equip...	310	0	0	1000	140	18	General technology categ...
2	Electric	Dishwasher	Interior Appliance Equip...	83	0	0	800	344	12	General technology categ...
3	Electric	First Refrigerator	Interior Appliance Equip...	827	0	0	1999	107.5	17.5	General technology categ...
4	Electric	Second Refrigerator	Interior Appliance Equip...	1286	0	0	1999	107.5	17.5	General technology categ...
5	Electric	Freezer	Interior Appliance Equip...	968	0	0	630	107.5	20	General technology categ...
6	Electric	Microwave	Interior Appliance Equip...	133	0	0	180	157.5	12	General technology categ...
7	NatGas	Range Oven Combination	Interior Appliance Equip...	36.333	0.0092	11.76	1890	150	18	General technology categ...

Save Baseline and Scenario Technology Mix Parameters to File

Replace Technology Tool

(All households with the baseline technology will switch to the replacement tech.)

Select baseline technology to phase-out:

A Electric Range Oven Combination

Select technology to use instead:

1 Electric Range Oven Combination

Implement

[View Profile Definitions](#) [Add Technology](#) [Save List of New Technologies to File](#)

[RETURN TO PREVIOUS](#) [ADVANCE TO NEXT](#)



Ability to Add Technologies (leave unchanged)

The screenshot displays the 'Demand' tab of the software, with sub-tabs for 'Demand Input Summary', 'Power Supply', 'Economics', 'Computation', and 'Results'. The 'Demand Input Summary' sub-tab is active, showing 'Housing Category' (Single-Family selected) and 'Climate Zone' (All selected). Below this are sections for 'Populate Baseline and Scenario Technology Mix Parameters' and 'Populate List of New Technologies for Possible Implementation', both with 'Load Default Parameters' and 'Load Saved Parameters' buttons.

The main interface is divided into three sections:

- BASELINE TECHNOLOGY MIX PARAMETERS:** A table with columns: Fuel, Technology, UEC, NOX EF, CO2e EF, Unit Cost, Install Cost, Lifetime, Penetration. It lists technologies like Range Oven Combination, Dishwasher, First Refrigerator, Second Refrigerator, Freezer, Microwave, and NatGas Range Oven Combination.
- SCENARIO TECHNOLOGY MIX PARAMETERS:** A table with columns: Fuel, Technology, UEC, NOX EF, CO2e EF, Unit Cost, Install Cost, Lifetime. It lists the same technologies as the baseline table.
- NEW TECHNOLOGY PARAMETERS:** A table with columns: #, Fuel, Technology, Profile, UEC, NOX EF, CO2e EF, Unit Cost, Install Cost, Lifetime, Notes. It lists the same technologies as the baseline table, with the last row being 'Undefined'.

At the bottom right, the 'Replace Technology Tool' is visible, with a yellow background. It contains the text: '(All households with the baseline technology will switch to the replacement tech.)', 'Select baseline technology to phase-out:', a dropdown menu showing 'A Electric Range Oven Combination', 'Select technology to use instead:', a dropdown menu showing '1 Electric Range Oven Combination', and an 'Implement' button.

At the bottom of the interface, there are buttons for 'View Profile Definitions', 'Add Technology' (highlighted with a red box), 'Save List of New Technologies to File', 'RETURN TO PREVIOUS', and 'ADVANCE TO NEXT'.



Ability to Assign Fuel, Profile, and Parameters to New Technology (leave unchanged)

The screenshot displays the 'Demand Input Summary' tab of the software. At the top, there are navigation tabs: Demand, Demand Input Summary, Power Supply, Economics, Computation, and Results. Below these are controls for 'Housing Category' (Single-Family, Multi-Family, Mobile Home, Aggregate) and 'Climate Zone' (6 Coastal, 8 S. Near-Coastal, 9 N. Near-Coastal, 10 S. Inland, 15 S. Desert, 16 Mountain, All). A 'CZ MAP' button is also present.

Two sections for parameter management are visible: 'Populate Baseline and Scenario Technology Mix Parameters' and 'Populate List of New Technologies for Possible Implementation'. Each has 'Load Default Parameters' and 'Load Saved Parameters' buttons with status indicators.

The main area is divided into 'BASELINE TECHNOLOGY MIX PARAMETERS' and 'SCENARIO TECHNOLOGY MIX PARAMETERS'. Both tables have columns for Fuel, Technology, UEC, NOX EF, CO2e EF, Unit Cost, Install Cost, Lifetime, and Penetration. The baseline table lists items like Range Oven Combination, Dishwasher, and Refrigerators. The scenario table shows a similar list but with a NatGas Range Oven Combination.

A 'NEW TECHNOLOGY PARAMETERS' table is also shown, listing items to be added with columns for #, Fuel, Technology, NOX EF, CO2e EF, Unit Cost, Install Cost, Lifetime, and Notes. The last row is 'Undefined' with values of -9999.

A 'Replace Technology Tool' dialog is open, showing a message: '(All households with the baseline technology will switch to the replacement tech.)'. It has two dropdown menus: 'Select baseline technology to phase-out:' (set to 'A Electric Range Oven Combination') and 'Select technology to use instead:' (set to '1 Electric Range Oven Combination'). An 'Implement' button is at the bottom.

At the bottom of the interface are buttons for 'View Profile Definitions', 'Add Technology', 'Save List of New Technologies to File', 'RETURN TO PREVIOUS', and 'ADVANCE TO NEXT'.



View Demand Input Summary (leave unchanged)

Single-Family
 Multi-Family
 Mobile Home
 Aggregate

Climate Zone:
 6 Coastal
 8 S. Near-Coastal
 9 N. Near-Coastal
 10 S. Inland
 15 S. Desert
 16 Mountain
 All [CZ MAP](#)

USER-SELECTED TECHNOLOGY MODIFICATIONS

Category	BASELINE			SCENARIO			PARAMETER CHANGES (SCENARIO - BASELINE)					
	Fuel	Technology	Profile	Fuel	Technology	Profile	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime
Hot water heating	NatGas	Conventional Water Heater	Water Heating	Electric	Water Heat	Water Heating	modified	-0.0023	-11.76	-286	-200	0

[← RETURN TO PREVIOUS](#)
 [ADVANCE TO NEXT →](#)



Modify Renewable/Fossil Natural Gas Mixture (leave unchanged)

[Demand](#) | [Demand Input Summary](#) | [Power Supply](#) | [Economics](#) | [Computation](#) | [Results](#)

Methane Emissions from Natural Gas

Natural Gas Leak Rates (As percentage of usage)

2018 EPA GHG Emissions Inventory: 1.27%
 The 16 Study Series Synthesis Report: 1.7%
 Alvarez et al., 2018 Science Paper: 2.3%
 Custom Value

Before Meter Leak Rate [%]:
 Behind Meter Leak Rate [%]:
 Global Warming Potential:
 Heat Content [Btu/ft³]:

GHG Emissions from Natural Gas Production

(For Advanced Users)

Type	Pathway	Supply Fraction	CO2e Emis. (lb/therm)
bio	landfill	0	-0.8604
bio	wastewater	0	-7.2321
bio	manure	0	-73.1118
bio	food & green waste	0	-17.0455
fossil	natural gas	1	6.8368

"Supply Fraction" column must sum to unity

Electricity Generation from Grid

Emission Factor of INCREASED Electricity Use

All additional electricity from centralized photovoltaics, wind, and centralized battery storage
 All additional electricity provided at the Basin-average dispatchable power emission factor
 All additional electricity provided by peaker plants
 Grid emission factor changes modeled with HiGRID

Emission Factor of REDUCED Electricity Use

Reductions in electricity generation emissions determined with the Basin-average dispatchable power emission factor
 Reductions in electricity generation emissions arise by curtailing peaker plant emissions
 Grid emission factor changes modeled with HiGRID

Transmission and Distribution Loss in Power Grid (For Advanced Users)

Use Flat Loss Percentage for all Utilities
 Use Hourly Loss Percentage for all Utilities
 Use Utility Specific Loss Percentages

Loss [%]:

Utility Name	Valid Years	Loss [%]
Azusa Light & Power	9	2.5
Bear Valley Electric Service	9	12.2
Burbank Water & Power	10	3.5
City of Anaheim Public Utilities Department	10	4.9
City of Banning Electric Department	10	6.8
City of Corona Department of Water & Power	10	2.7
City of Riverside	10	5.4

Well-to-Pump Emis. of Transportation

(For Advanced Users)

	NOx (lb/gal)	CO2e (lb/gal)	NOx (lb/gal)
Gasoline		1.1403	6.8343e-04
Diesel		0.9576	7.4957e-04

Distributed Solar Photovoltaics

Implement Rooftop Solar PV using PVWatts

For Advanced Users

Solar Cost Function: COST = where "X" is defined as the panel size in kW DC under standard test conditions.

Module Type:
 Rooftop Area Availability Ratio:
 System Loss Value:
 Useful Lifespan [yrs]:
 Inverter Efficiency [%]:
 Panel Tilt [degrees]:
 DC to AC Size Ratio:

Residential Battery Storage

Implement Residential Battery using Battery Model

For Advanced Users

Battery System (all fields editable):
 Battery Capacity [kW-hr]:
 Installation Cost \$:
 Battery Power [kW]:
 Battery Cost \$:
 Lifetime [years]:



Modify Well-to-Pump Emissions of Transportation (leave unchanged)

[Demand](#) | [Demand Input Summary](#) | [Power Supply](#) | [Economics](#) | [Computation](#) | [Results](#)

Methane Emissions from Natural Gas

Natural Gas Leak Rates (As percentage of usage)

2018 EPA GHG Emissions Inventory: 1.27%
 The 16 Study Series Synthesis Report: 1.7%
 Alvarez et al., 2018 Science Paper: 2.3%
 Custom Value

Before Meter Leak Rate [%]:
 Behind Meter Leak Rate [%]:
 Global Warming Potential:
 Before Meter Transmission/Storage/Distribution Leak Rate [%]:
 Heat Content [Btu/ft³]:

Electricity Generation from Grid

Emission Factor of INCREASED Electricity Use

All additional electricity from centralized photovoltaics, wind, and centralized battery storage
 All additional electricity provided at the Basin-average dispatchable power emission factor
 All additional electricity provided by peaker plants
 Grid emission factor changes modeled with HiGRID

Emission Factor of REDUCED Electricity Use

Reductions in electricity generation emissions determined with the Basin-average dispatchable power emission factor
 Reductions in electricity generation emissions arise by curtailing peaker plant emissions
 Grid emission factor changes modeled with HiGRID

GHG Emissions from Natural Gas Production

(For Advanced Users)

Type	Pathway	Supply Fraction	CO2e Emis. (lb/therm)
bio	landfill	0	-0.8604
bio	wastewater	0	-7.2321
bio	manure	0	-73.1118
bio	food & green waste	0	-17.0455
fossil	natural gas	1	6.8368

"Supply Fraction" column must sum to unity

Well-to-Pump Emis. of Transportation

(For Advanced Users)

	NOx (lb/gal)	CO2e (lb/gal)	NOx (lb/gal)
Gasoline		1.1403	6.8343e-04
Diesel		0.9576	7.4957e-04

Transmission and Distribution Loss in Power Grid (For Advanced Users)

Use Flat Loss Percentage for all Utilities Loss [%]:
 Use Hourly Loss Percentage for all Utilities
 Use Utility Specific Loss Percentages

Utility Name	Valid Years	Loss [%]
Azusa Light & Power	9	2.5
Bear Valley Electric Service	9	12.2
Burbank Water & Power	10	3.5
City of Anaheim Public Utilities Department	10	4.9
City of Banning Electric Department	10	6.8
City of Corona Department of Water & Power	10	2.7
City of Riverside	10	5.4

Distributed Solar Photovoltaics

Implement Rooftop Solar PV using PVWatts

For Advanced Users

Solar Cost Function: COST = where "X" is defined as the panel size in kW DC under standard test conditions.

Module Type: Rooftop Area Availability Ratio:
 System Loss Value: Useful Lifespan [yrs]:
 Inverter Efficiency [%]: Panel Tilt [degrees]:
 DC to AC Size Ratio:

Residential Battery Storage

Implement Residential Battery using Battery Model

For Advanced Users

Battery System (all fields editable): Battery Capacity [kW-hr]: Installation Cost \$:
 Battery Setup B: Battery Power [kW]: Battery Cost \$:
 Lifetime [years]:



Implement Rooftop Solar PV

[Demand](#) | [Demand Input Summary](#) | [Power Supply](#) | [Economics](#) | [Computation](#) | [Results](#)

Methane Emissions from Natural Gas

Natural Gas Leak Rates (As percentage of usage)

2018 EPA GHG Emissions Inventory: 1.27%
 The 16 Study Series Synthesis Report: 1.7%
 Alvarez et al., 2018 Science Paper: 2.3%
 Custom Value

Before Meter Leak Rate [%]:
 Behind Meter Leak Rate [%]:
 Global Warming Potential:
 Before Meter Transmission/Storage/Distribution Leak Rate [%]:
 Heat Content [Btu/ft³]:

Electricity Generation from Grid

Emission Factor of INCREASED Electricity Use

All additional electricity from centralized photovoltaics, wind, and centralized battery storage
 All additional electricity provided at the Basin-average dispatchable power emission factor
 All additional electricity provided by peaker plants
 Grid emission factor changes modeled with HiGRID

Emission Factor of REDUCED Electricity Use

Reductions in electricity generation emissions determined with the Basin-average dispatchable power emission factor
 Reductions in electricity generation emissions arise by curtailing peaker plant emissions
 Grid emission factor changes modeled with HiGRID

GHG Emissions from Natural Gas Production

(For Advanced Users)

Type	Pathway	Supply Fraction	CO2e Emis. (lb/therm)
bio	landfill	0	-0.8604
bio	wastewater	0	-7.2321
bio	manure	0	-73.1118
bio	food & green waste	0	-17.0455
fossil	natural gas	1	6.8368

"Supply Fraction" column must sum to unity

Well-to-Pump Emis. of Transportation

(For Advanced Users)

	NOx (lb/gal)	CO2e (lb/gal)	NOx (lb/gal)
Gasoline		1.1403	6.8343e-04
Diesel		0.9576	7.4957e-04

Transmission and Distribution Loss in Power Grid (For Advanced Users)

Use Flat Loss Percentage for all Utilities Loss [%]:
 Use Hourly Loss Percentage for all Utilities
 Use Utility Specific Loss Percentages

Utility Name	Valid Years	Loss [%]
Azusa Light & Power	9	2.5
Bear Valley Electric Service	9	12.2
Burbank Water & Power	10	3.5
City of Anaheim Public Utilities Department	10	4.9
City of Banning Electric Department	10	6.8
City of Corona Department of Water & Power	10	2.7
City of Riverside	10	5.4

Distributed Solar Photovoltaics

Implement Rooftop Solar PV using PVWatts

For Advanced Users

Solar Cost Function: COST = where "X" is defined as the panel size in kW DC under standard test conditions.

Module Type:
 Rooftop Area Availability Ratio:
 System Loss Value:
 Useful Lifespan [yrs]:
 Inverter Efficiency [%]:
 Panel Tilt [degrees]:
 DC to AC Size Ratio:

Residential Battery Storage

Implement Residential Battery using Battery Model

For Advanced Users

Battery System (all fields editable)	Battery Capacity [kW-hr]	Installation Cost \$
Battery Setup A	<input type="text" value="13.5"/>	<input type="text" value="1400"/>
Battery Setup B		<input type="text" value="6200"/>
Battery Setup C		<input type="text" value="10"/>

Battery Power [kW]:
 Lifetime [years]:



Economics Tab (leave unchanged)

[Demand](#) | [Demand Input Summary](#) | [Power Supply](#) | **Economics** | [Computation](#) | [Results](#)

Low Income Rates Qualification

●

For Advanced Users

Net Metering

(default) Sell Electricity Back to Grid at Retail Rates \$ /kW-hr

Sell Electricity Back to Grid at Fixed Rate (specify)

Electricity Rates

●

For Advanced Users

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ per gallon

Average Diesel (On-Highway) Retail Price \$ per gallon

Natural Gas Rates

●

For Advanced Users

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances)

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Economics Tab (leave unchanged)

Demand | Demand Input Summary | Power Supply | **Economics** | Computation | Results

Low Income Rates Qualification

Load Default Low Income Fractions ●

Green light indicates that Values are loaded

For Advanced Users

View/Edit Low Income Fractions

Load Saved Low Income Fractions ●

Electricity Rates

Load Default Rate Structures ●

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures ●

Net Metering

No Net Metering (default) Sell Electricity Back to Grid at Retail Rates \$ /kW-hr

Use Net Metering Sell Electricity Back to Grid at Fixed Rate (specify)

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ per gallon

Average Diesel (On-Highway) Retail Price \$ per gallon

Natural Gas Rates

Load Default Rate Structures ●

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures ●

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances)

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Economics Tab (leave unchanged)

[Demand](#) | [Demand Input Summary](#) | [Power Supply](#) | **Economics** | [Computation](#) | [Results](#)

Low Income Rates Qualification

●

For Advanced Users

Net Metering

No Net Metering (default) |
 Sell Electricity Back to Grid at Retail Rates \$ /kW-hr
 Use Net Metering |
 Sell Electricity Back to Grid at Fixed Rate (specify)

Electricity Rates

●

For Advanced Users

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ per gallon

Average Diesel (On-Highway) Retail Price \$ per gallon

Natural Gas Rates

●

For Advanced Users

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances)

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



View/Edit Low Income Fractions (leave unchanged)

Rate Selector Analysis **Low Income Rates Qualification**

Values below represent the percentage of homes in each electric/gas utility combination, climate zone, and housing category that are eligible for low income rates. Default values are estimated with a comprehensive analysis of IPUMS harmonized American Community Survey data from 2016, the most current year on record. Household income, units in structure, Public Use Microdata Area (cross-referenced to climate zone), residents in household, age of residents, public health insurance coverage, welfare income, food stamp reciprocity, disability status, and veteran status, and military status are extracted. Residents living in group quarters were removed. The qualification criteria for low income rates for each utility was then identified and cross-referenced with the IPUMS data to determine the fraction of households in each climate zone and housing category that are eligible for the low income rates. In utilities with both California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA), only CARE rates are analyzed. Some utilities have low income rates that are a flat subsidy. These utilities are ignored in the low income rate analysis because NEAT performs a difference analysis and flat subsidy benefits cancel out when calculating the utility bill difference between the selected scenario case and the base case. The utilities without a low income rate or with flat subsidies for low income residents appropriate all residents into the "high income" designation for this analysis. The values that are currently stored in memory are initially loaded. Use the "Load Default Values" button to repopulate the table with the default values and then use the "Save to File" button to store the default values in memory. Any edits to the table must also be stored with the "Save to File" button.

Rate Type	Electric Utility	Rate Type	Gas Utility	SINGLE FAMILY HOMES [%]						MULTI FAMILY HOMES [%]						MOBILE HOMES [%]					
				CZ 6	CZ 8	CZ 9	CZ 10	CZ 15	CZ 16	CZ 6	CZ 8	CZ 9	CZ 10	CZ 15	CZ 16	CZ 6	CZ 8	CZ 9	CZ 10	CZ 15	CZ 16
high	Azusa Light & Power	high	CITY OF VERNON GAS SYSTEM	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
high	Azusa Light & Power	high	LONG BEACH GAS & OIL	92.23	81.35	84.33	80.77	83.66	85.55	82.06	62.99	68.17	58.99	55.95	64.76	72.66	65.56	61.48	65.35	65.98	75.65
high	Azusa Light & Power	low	LONG BEACH GAS & OIL	7.77	18.65	15.67	19.23	16.34	14.45	17.94	37.01	31.83	41.01	44.05	35.24	27.34	34.44	38.52	34.65	34.02	24.35
high	Azusa Light & Power	high	SOUTHERN CALIFORNIA GAS	92.14	81.07	84.09	80.58	83.47	85.03	82	62.77	67.89	58.42	55.95	64.24	72.14	64.31	60.81	64.85	65.7	74.8
high	Azusa Light & Power	low	SOUTHERN CALIFORNIA GAS	7.86	18.93	15.91	19.42	16.53	14.97	18	37.23	32.11	41.58	44.05	35.76	27.86	35.69	39.19	35.15	34.3	25.2
high	Azusa Light & Power	high	SOUTHWEST GAS CORP.	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
high	Azusa Light & Power	low	SOUTHWEST GAS CORP.	16.05	26.56	24.57	26.64	37.9	29.41	33.6	50.21	46.08	54.43	65.85	57.04	47.75	52.84	56.51	59.48	67.08	56.46
high	Bear Valley Electric Service	high	CITY OF VERNON GAS SYSTEM	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
low	Bear Valley Electric Service	high	CITY OF VERNON GAS SYSTEM	16.05	26.56	24.57	26.64	37.9	29.41	33.6	50.21	46.08	54.43	65.85	57.04	47.75	52.84	56.51	59.48	67.08	56.46
high	Bear Valley Electric Service	high	LONG BEACH GAS & OIL	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
low	Bear Valley Electric Service	high	LONG BEACH GAS & OIL	8.29	7.91	8.9	7.4	21.56	14.96	15.67	13.21	14.25	13.42	21.8	21.79	20.41	18.4	17.99	24.83	33.06	32.11
low	Bear Valley Electric Service	low	LONG BEACH GAS & OIL	7.77	18.65	15.67	19.23	16.34	14.45	17.94	37.01	31.83	41.01	44.05	35.24	27.34	34.44	38.52	34.65	34.02	24.35
high	Bear Valley Electric Service	high	SOUTHERN CALIFORNIA GAS	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
low	Bear Valley Electric Service	high	SOUTHERN CALIFORNIA GAS	8.19	7.63	8.66	7.21	21.36	14.44	15.61	12.99	13.97	12.85	21.8	21.27	19.89	17.15	17.31	24.33	32.79	31.26
low	Bear Valley Electric Service	low	SOUTHERN CALIFORNIA GAS	7.86	18.93	15.91	19.42	16.53	14.97	18	37.23	32.11	41.58	44.05	35.76	27.86	35.69	39.19	35.15	34.3	25.2
high	Bear Valley Electric Service	high	SOUTHWEST GAS CORP.	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
low	Bear Valley Electric Service	low	SOUTHWEST GAS CORP.	16.05	26.56	24.57	26.64	37.9	29.41	33.6	50.21	46.08	54.43	65.85	57.04	47.75	52.84	56.51	59.48	67.08	56.46
high	Burbank Water & Power	high	CITY OF VERNON GAS SYSTEM	90.18	88.05	87.16	87.59	81.21	81.43	85.27	81.25	80.49	78.38	72.98	75.3	64.15	73.27	64.67	62.34	59.41	58.71
low	Burbank Water & Power	high	CITY OF VERNON GAS SYSTEM	9.82	11.95	12.84	12.41	18.79	18.57	14.73	18.75	19.51	21.62	27.02	24.7	35.85	26.73	35.33	37.66	40.59	41.29
high	Burbank Water & Power	high	LONG BEACH GAS & OIL	85.62	76.03	78.12	75.46	71.28	73.53	74.62	57.79	62.67	52.93	41.63	53.57	55.36	50.49	47.4	44.45	39.85	48.49
high	Burbank Water & Power	low	LONG BEACH GAS & OIL	4.56	12.02	9.04	12.14	9.94	7.9	10.65	23.45	17.82	25.46	31.35	21.72	8.79	22.78	17.27	17.89	19.56	10.22
low	Burbank Water & Power	high	LONG BEACH GAS & OIL	6.62	5.32	6.2	5.31	12.39	12.01	7.45	5.2	5.5	6.06	14.32	11.18	17.3	15.07	14.08	20.9	26.13	27.17

IPUMS Data Source: Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. Integrated Public Use Microdata Series: Version 7.0 [dataset]. Minneapolis, MN: University of Minnesota, 2017.
<https://doi.org/10.18128/D010.V7.0>



View/Edit Low Income Fractions (leave unchanged)

Rate Selector Analysis **Low Income Rates Qualification**

Values below represent the percentage of homes in each electric/gas utility combination, climate zone, and housing category that are eligible for low income rates. Default values are estimated with a comprehensive analysis of IPUMS harmonized American Community Survey data from 2016, the most current year on record. Household income, units in structure, Public Use Microdata Area (cross-referenced to climate zone), residents in household, age of residents, public health insurance coverage, welfare income, food stamp reciprocity, disability status, and veteran status, and military status are extracted. Residents living in group quarters were removed. The qualification criteria for low income rates for each utility was then identified and cross-referenced with the IPUMS data to determine the fraction of households in each climate zone and housing category that are eligible for the low income rates. In utilities with both California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA), only CARE rates are analyzed. Some utilities have low income rates that are a flat subsidy. These utilities are ignored in the low income rate analysis because NEAT performs a difference analysis and flat subsidy benefits cancel out when calculating the utility bill difference between the selected scenario case and the base case. The utilities without a low income rate or with flat subsidies for low income residents appropriate all residents into the "high income" designation for this analysis. The values that are currently stored in memory are initially loaded. Use the "Load Default Values" button to repopulate the table with the default values and then use the "Save to File" button to store the default values in memory. Any edits to the table must also be stored with the "Save to File" button.

Rate Type	Electric Utility	Rate Type	Gas Utility	SINGLE FAMILY HOMES [%]						MULTI FAMILY HOMES [%]						MOBILE HOMES [%]					
				CZ 6	CZ 8	CZ 9	CZ 10	CZ 15	CZ 16	CZ 6	CZ 8	CZ 9	CZ 10	CZ 15	CZ 16	CZ 6	CZ 8	CZ 9	CZ 10	CZ 15	CZ 16
high	Azusa Light & Power	high	CITY OF VERNON GAS SYSTEM	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
high	Azusa Light & Power	high	LONG BEACH GAS & OIL	92.23	81.35	84.33	80.77	83.66	85.55	82.06	62.99	68.17	58.99	55.95	64.76	72.66	65.56	61.48	65.35	65.98	75.65
high	Azusa Light & Power	low	LONG BEACH GAS & OIL	7.77	18.65	15.67	19.23	16.34	14.45	17.94	37.01	31.83	41.01	44.05	35.24	27.34	34.44	38.52	34.65	34.02	24.35
high	Azusa Light & Power	high	SOUTHERN CALIFORNIA GAS	92.14	81.07	84.09	80.58	83.47	85.03	82	62.77	67.89	58.42	55.95	64.24	72.14	64.31	60.81	64.85	65.7	74.8
high	Azusa Light & Power	low	SOUTHERN CALIFORNIA GAS	7.86	18.93	15.91	19.42	16.53	14.97	18	37.23	32.11	41.58	44.05	35.76	27.86	35.69	39.19	35.15	34.3	25.2
high	Azusa Light & Power	high	SOUTHWEST GAS CORP.	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
high	Azusa Light & Power	low	SOUTHWEST GAS CORP.	16.05	26.56	24.57	26.64	37.9	29.41	33.6	50.21	46.08	54.43	65.85	57.04	47.75	52.84	56.51	59.48	67.08	56.46
high	Bear Valley Electric Service	high	CITY OF VERNON GAS SYSTEM	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
low	Bear Valley Electric Service	high	CITY OF VERNON GAS SYSTEM	16.05	26.56	24.57	26.64	37.9	29.41	33.6	50.21	46.08	54.43	65.85	57.04	47.75	52.84	56.51	59.48	67.08	56.46
high	Bear Valley Electric Service	high	LONG BEACH GAS & OIL	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
low	Bear Valley Electric Service	high	LONG BEACH GAS & OIL	8.29	7.91	8.9	7.4	21.56	14.96	15.67	13.21	14.25	13.42	21.8	21.79	20.41	18.4	17.99	24.83	33.06	32.11
low	Bear Valley Electric Service	low	LONG BEACH GAS & OIL	7.77	18.65	15.67	19.23	16.34	14.45	17.94	37.01	31.83	41.01	44.05	35.24	27.34	34.44	38.52	34.65	34.02	24.35
high	Bear Valley Electric Service	high	SOUTHERN CALIFORNIA GAS	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
low	Bear Valley Electric Service	high	SOUTHERN CALIFORNIA GAS	8.19	7.63	8.66	7.21	21.36	14.44	15.61	12.99	13.97	12.85	21.8	21.27	19.89	17.15	17.31	24.33	32.79	31.26
low	Bear Valley Electric Service	low	SOUTHERN CALIFORNIA GAS	7.86	18.93	15.91	19.42	16.53	14.97	18	37.23	32.11	41.58	44.05	35.76	27.86	35.69	39.19	35.15	34.3	25.2
high	Bear Valley Electric Service	high	SOUTHWEST GAS CORP.	83.95	73.44	75.43	73.36	62.1	70.59	66.4	49.79	53.92	45.57	34.15	42.96	52.25	47.16	43.49	40.52	32.92	43.54
low	Bear Valley Electric Service	low	SOUTHWEST GAS CORP.	16.05	26.56	24.57	26.64	37.9	29.41	33.6	50.21	46.08	54.43	65.85	57.04	47.75	52.84	56.51	59.48	67.08	56.46
high	Burbank Water & Power	high	CITY OF VERNON GAS SYSTEM	90.18	88.05	87.16	87.59	81.21	81.43	85.27	81.25	80.49	78.38	72.98	75.3	64.15	73.27	64.67	62.34	59.41	58.71
low	Burbank Water & Power	high	CITY OF VERNON GAS SYSTEM	9.82	11.95	12.84	12.41	18.79	18.57	14.73	18.75	19.51	21.62	27.02	24.7	35.85	26.73	35.33	37.66	40.59	41.29
high	Burbank Water & Power	high	LONG BEACH GAS & OIL	85.62	76.03	78.12	75.46	71.28	73.53	74.62	57.79	62.67	52.93	41.63	53.57	55.36	50.49	47.4	44.45	39.85	48.49
high	Burbank Water & Power	low	LONG BEACH GAS & OIL	4.56	12.02	9.04	12.14	9.94	7.9	10.65	23.45	17.82	25.46	31.35	21.72	8.79	22.78	17.27	17.89	19.56	10.22
low	Burbank Water & Power	high	LONG BEACH GAS & OIL	6.62	5.32	6.2	5.31	12.39	12.01	7.45	5.2	5.5	6.06	14.32	11.18	17.3	15.07	14.08	20.9	26.13	27.17

IPUMS Data Source: Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. Integrated Public Use Microdata Series: Version 7.0 [dataset]. Minneapolis, MN: University of Minnesota, 2017.
<https://doi.org/10.18128/D010.V7.0>

Use Buttons to Load and Save Values



Economics Tab (leave unchanged)

Demand | Demand Input Summary | Power Supply | **Economics** | Computation | Results

Low Income Rates Qualification

Load Default Low Income Fractions

For Advanced Users

View/Edit Low Income Fractions

Load Saved Low Income Fractions

Electricity Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Net Metering

No Net Metering (default) Sell Electricity Back to Grid at Retail Rates \$ 0.000 /kW-hr

Use Net Metering Sell Electricity Back to Grid at Fixed Rate (specify)

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ 3.605 per gallon

Average Diesel (On-Highway) Retail Price \$ 3.957 per gallon

Natural Gas Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances)

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



View/Edit Rate Structures (leave unchanged)

Rate Selector Analysis Low Income Rates Qualification

Select Utility: Southern California Edison Next Utility + Add Custom Rate

Select a Rate to view Period Codes and Rate Schedule: More Information Previous Utility Store Revised Check Marks

Standard Rates	Low Income Rates	Rate	Zone	SingleFam	MultiFam	MobileHome	NetMeter
		Domestic Service: D - Baseline Region 13	13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 9	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 8	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 10	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 14	14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 16	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 15	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 14	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 13	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 10	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 9	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 6	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 5	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 15	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 16	16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T-Region 5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 9	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T-Region 10	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 13	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 14	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 15	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 16	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic (NEM 2.0): TOU-D-T	all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rate Structure

Weekday Rates Weekend Rates

Period Codes

Month: J, F, M, A, M, J, J, A, S, O, N, D

Hour: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23

Edit Period Codes

Period 0 Period 1 Period 2 Period 3 Period 4 Period 5

Rate information shown for selected period. NaN indicates no rate or maximum at that tier.

	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum monthly Usage [kW-hr]					
Rate [\$/kW-hr]					
Adjustment Rate [\$/kW-hr]					

Power Access Charge (PAC)

PAC Defined Edit/View PAC Store Edited PAC

Store Edited Rate Values

RESET ALL TO DEFAULT LOAD ALL FROM FILE SAVE ALL TO FILE

Rate Structure Selector and Editor tool initialized at 08-Jan-2019 16:56:34. Select a rate to view and edit.



View/Edit Rate Structures (leave unchanged)

View/Edit
both
standard and
low income
rates

Rate Selector Analysis Low Income Rates Qualification

Select Utility: Southern California Edison

Select a Rate to view Period Codes and Rate Schedule:

Rate	Zone	SingleFam	MultiFam	MobileHome	NetMeter
Domestic Service: D - Baseline Region 13	13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Domestic Service: D - Baseline Region 9	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Domestic Service: D - Baseline Region 8	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Domestic Service: D - Baseline Region 10	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Domestic Service: D - Baseline Region 14	14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 16	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 15	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 14	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 13	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 10	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 9	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Domestic Service: D - Baseline Region 6	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Domestic Service: D - Baseline Region 5	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Domestic Service: D - Baseline Region 15	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Domestic Service: D - Baseline Region 16	16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T-Region 5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T - Region 6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T - Region 8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T - Region 9	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T-Region 10	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T - Region 13	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T - Region 14	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T - Region 15	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic: TOU-D-T - Region 16	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time-of-use Tiered Domestic (NEM 2.0): TOU-D-A	All	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rate Structure

Weekday Rates Weekend Rates

Period Codes

Hour

Period 0 Period 1 Period 2 Period 3 Period 4 Period 5

Rate information shown for selected period. NaN indicates no rate or maximum at that tier.

	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum monthly Usage [kW-hr]					
Rate [\$/kW-hr]					
Adjustment Rate [\$/kW-hr]					

Power Access Charge (PAC)

PAC Defined Edit/View PAC Store Edited PAC

RESET ALL TO DEFAULT LOAD ALL FROM FILE SAVE ALL TO FILE

Rate Structure Selector and Editor tool initialized at 08-Jan-2019 16:56:34. Select a rate to view and edit.



View/Edit Rate Structures (leave unchanged)

Rate Selector Analysis Low Income Rates Qualification

Select Utility: Southern California Edison

Select a Rate to view Period Codes and Rate Schedule:

Standard Rates	Low Income Rates	Rate	Zone	SingleFam	MultiFam	MobileHome	NetMeter
		Domestic Service: D - Baseline Region 13	13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 9	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 8	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 10	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 14	14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 16	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 15	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 14	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 13	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 10	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 9	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 6	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 5	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 15	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 16	16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T-Region 5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 9	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T-Region 10	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 13	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 14	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 15	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 16	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 10

Weekday Rates Weekend Rates

Period Codes

Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
J	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1
F	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1
M	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1
A	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1
M	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1
J	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	5	5	4	4	4	4	4	4
J	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	5	5	4	4	4	4	4	4
A	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	5	5	4	4	4	4	4	4
S	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	5	5	5	4	4	4	4	4	4
O	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1
N	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1
D	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1

Rate information shown for selected period. NaN indicates no rate or maximum at that tier.

	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum monthly Usage [kW-hr]	434.96	NaN	NaN	NaN	NaN
Rate [\$ /kW-hr]	0.10507	0.10299	NaN	NaN	NaN
Adjustment Rate [\$ /kW-hr]	0	0	0	0	0

Power Access Charge (PAC)

PAC Defined

RESET ALL TO DEFAULT LOAD ALL FROM FILE SAVE ALL TO FILE

Rate periods as a function of month and hour

Rate information for each rate period



View/Edit Rate Structures (leave unchanged)

Rate Selector Analysis Low Income Rates Qualification

Select Utility: Southern California Edison Next Utility + Add Custom Rate

Select a Rate to view Period Codes and Rate Schedule: More Information Previous Utility Store Revised Check Marks

Standard Rates	Low Income Rates	Rate	Zone	SingleFam	MultiFam	MobileHome	NetMeter
		Domestic Service: D - Baseline Region 13	13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 9	9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 8	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 10	10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 14	14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 16	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 15	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 14	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 13	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 10	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 9	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 6	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 5	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 15	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Domestic Service: D - Baseline Region 16	16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T-Region 5	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 9	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T-Region 10	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 13	13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 14	14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 15	15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic: TOU-D-T - Region 16	16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Time-of-use Tiered Domestic (NEM 2.0): TOU-D-T	all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rate Structure Selector and Editor tool initialized at 08-Jan-2019 16:56:34. Select a rate to view and edit.

Time-Of-Use Domestic Tiered Electric Vehicle Charging -TOU-D-TEV, Region 10

Weekday Rates Weekend Rates

Period Codes

Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
J	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
F	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
A	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
J	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
A	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
S	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
O	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
N	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
D	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Edit Period Codes

Period 0	Period 1	Period 2	Period 3	Period 4	Period 5
Rate information shown for selected period. NaN indicates no rate or maximum at that tier.					
Maximum monthly Usage [kW-hr]	Tier1	Tier2	Tier3	Tier4	Tier5
	434.96	NaN	NaN	NaN	NaN
Rate [\$/kW-hr]	0.10507	0.10299	NaN	NaN	NaN
Adjustment Rate [\$/kW-hr]	0	0	0	0	0

Power Access Charge (PAC) Store Edited Rate Values

PAC Defined Edit/View PAC Store Edited PAC

RESET ALL TO DEFAULT LOAD ALL FROM FILE SAVE ALL TO FILE



View/Edit Rate Structures (leave unchanged)

Rate Selector Analysis Low Income Rates Qualification

Select Utility: Los Angeles Department of Water & Power Next Utility + Add Custom Rate

Select a Rate to view Period Codes and Rate Schedule: More Information Previous Utility Store Revised Check Marks

Standard Rates	Low Income Rates	Rate	Zone	SingleFam	MultiFam	MobileHome	NetMeter
		Residential Service (R1): Zone 1	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Residential Service (R1): Zone 2	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Residential Time of Use (R-1)(B)	all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Residential Multi-Family (R-3)	all	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Residential Multi-Family (R-3)

Weekday Rates Weekend Rates **Period Codes**

Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Hour

Period 0 Period 1 Period 2 Period 3 Period 4 Period 5

Rate information shown for selected period. NaN indicates no rate or maximum at that tier.

	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum monthly Usage [kW-hr]	NaN	NaN	NaN	NaN	NaN
Rate [\$/kW-hr]	0.04182	NaN	NaN	NaN	NaN
Adjustment Rate [\$/kW-hr]	0.0727	0	0	0	0

Power Access Charge (PAC) Store Edited Rate Values

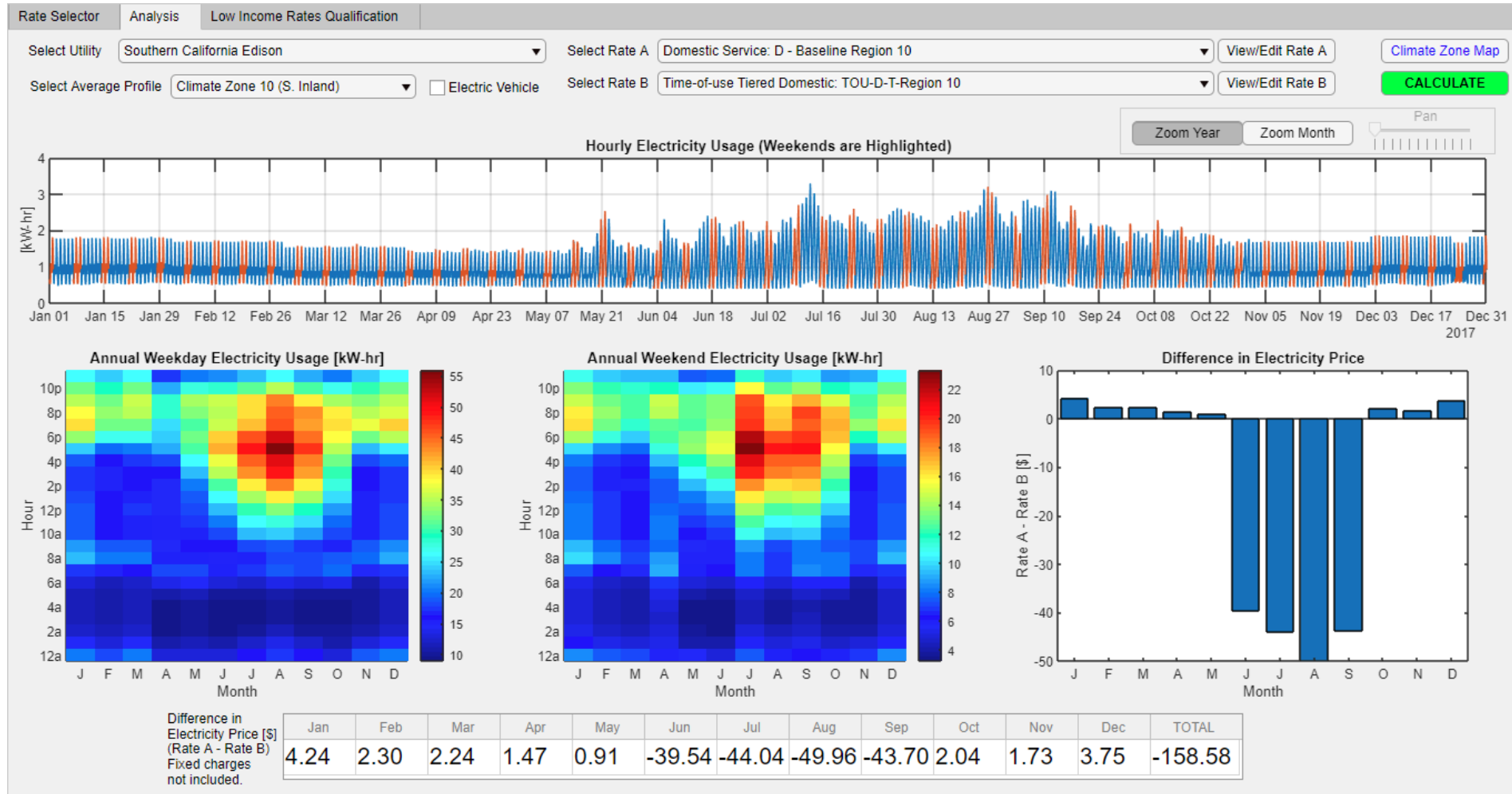
PAC Defined Edit/View PAC Store Edited PAC

RESET ALL TO DEFAULT LOAD ALL FROM FILE SAVE ALL TO FILE

Rate Structure Selector and Editor tool initialized at 08-Jan-2019 16:56:34. Select a rate to view and edit.



Compare Estimated Rate Differences (settings not used for calculation)



Net Metering

Demand | Demand Input Summary | Power Supply | **Economics** | Computation | Results

Low Income Rates Qualification

Load Default Low Income Fractions

For Advanced Users

View/Edit Low Income Fractions

Load Saved Low Income Fractions

Electricity Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Net Metering

No Net Metering (default) Sell Electricity Back to Grid at Retail Rates \$ /kW-hr

Use Net Metering Sell Electricity Back to Grid at Fixed Rate (specify)

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ per gallon

Average Diesel (On-Highway) Retail Price \$ per gallon

Natural Gas Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances)

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Select Net Metering

[Demand](#) | [Demand Input Summary](#) | [Power Supply](#) | [Economics](#) | [Computation](#) | [Results](#)

Low Income Rates Qualification

●

For Advanced Users

●

Net Metering

(default) | Sell Electricity Back to Grid at Retail Rates | \$ /kW-hr

| Sell Electricity Back to Grid at Fixed Rate (specify)

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ per gallon | |

Average Diesel (On-Highway) Retail Price \$ per gallon

Natural Gas Rates

●

For Advanced Users

●

Click to Select Net Metering

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances)

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

 |

Select Net Metering

Demand | Demand Input Summary | Power Supply | **Economics** | Computation | Results

Low Income Rates Qualification

Load Default Low Income Fractions

For Advanced Users

View/Edit Low Income Fractions

Load Saved Low Income Fractions

Electricity Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Net Metering

No Net Metering (default)
 Sell Electricity Back to Grid at Retail Rates
 /kW-hr
 Sell Electricity Back to Grid at Fixed Rate (specify)

Use Net Metering

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ per gallon

Average Diesel (On-Highway) Retail Price \$ per gallon

Natural Gas Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

This selection looks for rates identified as "net metering" in Electricity Rate Editor. If no "net metering" rate specified, uses standard rate corresponding CZ and housing type

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances) More Information

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Edit Gasoline and Diesel Prices (leave unchanged)

Demand | Demand Input Summary | Power Supply | **Economics** | Computation | Results

Low Income Rates Qualification

Load Default Low Income Fractions

For Advanced Users

View/Edit Low Income Fractions

Load Saved Low Income Fractions

Net Metering

No Net Metering (default) Sell Electricity Back to Grid at Retail Rates \$ 0.000 /kW-hr

Use Net Metering Sell Electricity Back to Grid at Fixed Rate (specify)

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ per gallon Set to Default View Current and Historical Prices from EIA

Average Diesel (On-Highway) Retail Price \$ per gallon

Electricity Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Natural Gas Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances) More Information

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

← RETURN TO PREVIOUS ADVANCE TO NEXT →



View/Edit Natural Gas Rate Structures

[Demand](#) | [Demand Input Summary](#) | [Power Supply](#) | [Economics](#) | [Computation](#) | [Results](#)

Low Income Rates Qualification

●

For Advanced Users

Net Metering

(default) | Sell Electricity Back to Grid at Retail Rates | \$ /kW-hr

| Sell Electricity Back to Grid at Fixed Rate (specify)

Electricity Rates

●

For Advanced Users

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ per gallon | |

Average Diesel (On-Highway) Retail Price \$ per gallon

Natural Gas Rates

●

For Advanced Users

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances)

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

|



Natural Gas Rate Structure Editor (leave unchanged)

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS
Next Utility
+ Add Custom Rate

Select a Rate to View Details:
 Previous Utility
Store Revised Table

Standard Rates	Low Income Rates				
Rate	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1	All Appliances	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 2	All Appliances	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 3	All Appliances	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 1	Primary Space Heat	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 2	Primary Space Heat	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 3	Primary Space Heat	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 1	Primary Space Heat	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Primary Space Heat	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Primary Space Heat	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Conventional Water Heater, Range Oven Combination, Solar W...	all	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	All Appliances	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	All Appliances	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	All Appliances	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	Primary Space Heat, Range Oven Combination	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Primary Space Heat, Range Oven Combination	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Primary Space Heat, Range Oven Combination	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Range Oven Combination	all	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Conventional Water Heater, Solar Water Heat with Gas Backup	all	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	Conventional Water Heater, Primary Space Heat, Solar Water ...	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Conventional Water Heater, Primary Space Heat, Solar Water ...	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Conventional Water Heater, Primary Space Heat, Solar Water ...	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 1	All Appliances	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 2	All Appliances	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 3	All Appliances	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 1	Primary Space Heat	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 2	Primary Space Heat	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 3	Primary Space Heat	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:40:02. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater
 Spa Heat
 Auxiliary Space Heating

Solar Water Heat with Gas Backup
 Pool Heat
 Dryer

Range Oven Combination
 Primary Space Heat
 Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: ▼
Store Revised Zone

Period Codes

JanFebMarAprMayJunJulAugSepOctNovDec

Specify a period code between 1 and 4
Store Period Codes

Rate Values

Period 1Period 2Period 3Period 4

Rate information shown for selected period. NaN indicates no rate or maximum at that tier.

	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum daily allowance [therm]					
Rate [\$/therm]					

Store Edited Rate Values

Monthly Fixed Charge [\$]

JanFebMarAprMayJunJulAugSepOctNovDec

Store Edited Monthly Fixed Charges

RESET ALL TO DEFAULT
LOAD ALL FROM FILE
SAVE ALL TO FILE



View/Edit Rate Structures (leave unchanged)

View/Edit
both
standard and
low income
rates

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS

Select a Rate to View Details:

Standard Rates | Low Income Rates

Rate	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1	All Appliances	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	All Appliances	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	All Appliances	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	Primary Space Heat	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Primary Space Heat	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Primary Space Heat	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	Primary Space Heat	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Primary Space Heat	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Primary Space Heat	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Conventional Water Heater, Range Oven Combination, Solar W...	all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	All Appliances	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	All Appliances	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	All Appliances	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	Primary Space Heat, Range Oven Combination	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Primary Space Heat, Range Oven Combination	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Primary Space Heat, Range Oven Combination	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Range Oven Combination	all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Conventional Water Heater, Solar Water Heat with Gas Backup	all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	Conventional Water Heater, Primary Space Heat, Solar Water ...	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Conventional Water Heater, Primary Space Heat, Solar Water ...	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Conventional Water Heater, Primary Space Heat, Solar Water ...	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 1	All Appliances	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR CARE climate zone 2	All Appliances	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR CARE climate zone 3	All Appliances	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR CARE climate zone 1	Primary Space Heat	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR CARE climate zone 2	Primary Space Heat	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR CARE climate zone 3	Primary Space Heat	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:40:02. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater Spa Heat Auxiliary Space Heating

Solar Water Heat with Gas Backup Pool Heat Dryer

Range Oven Combination Primary Space Heat Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: Store Revised Zone

Period Codes

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Specify a period code between 1 and 4

Store Period Codes

Rate Values

Period 1 | Period 2 | Period 3 | Period 4

Rate information shown for selected period. NaN indicates no rate or maximum at that tier.

	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum daily allowance [therm]	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Rate [\$/therm]	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Store Edited Rate Values

Monthly Fixed Charge [\$]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Store Edited Monthly Fixed Charges

RESET ALL TO DEFAULT LOAD ALL FROM FILE SAVE ALL TO FILE



View/Edit Rate Structures (leave unchanged)

View/Edit →
both
standard and
low income
rates

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS Next Utility + Add Custom Rate

Select a Rate to View Details: Previous Utility Store Revised Table

Standard Rates
Low Income Rates

Rate	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1	All Appliances	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 2	All Appliances	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 3	All Appliances	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 1	Primary Space Heat	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 2	Primary Space Heat	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 3	Primary Space Heat	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
GR climate zone 1	Primary Space Heat	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Primary Space Heat	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Primary Space Heat	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Conventional Water Heater, Range Oven Combination, Solar W...	all	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	All Appliances	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	All Appliances	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	All Appliances	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	Primary Space Heat, Range Oven Combination	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Primary Space Heat, Range Oven Combination	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Primary Space Heat, Range Oven Combination	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Range Oven Combination	all	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR all climate zones	Conventional Water Heater, Solar Water Heat with Gas Backup	all	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 1	Conventional Water Heater, Primary Space Heat, Solar Water ...	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 2	Conventional Water Heater, Primary Space Heat, Solar Water ...	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR climate zone 3	Conventional Water Heater, Primary Space Heat, Solar Water ...	3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 1	All Appliances	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 2	All Appliances	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 3	All Appliances	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 1	Primary Space Heat	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 2	Primary Space Heat	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GR CARE climate zone 3	Primary Space Heat	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:51:47. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater Spa Heat Auxiliary Space Heating

Solar Water Heat with Gas Backup Pool Heat Dryer

Range Oven Combination Primary Space Heat Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: ▼ Store Revised Zone

Period Codes

Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Specify a period code between 1 and 4 Store Period Codes

Rate Values

Period 1
Period 2
Period 3
Period 4

Rate information shown for selected period. NaN indicates no rate or maximum at that tier.

	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum daily allowance [therm]					
Rate [\$/therm]					

Store Edited Rate Values

Monthly Fixed Charge [\$]

Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Store Edited Monthly Fixed Charges

RESET ALL TO DEFAULT
LOAD ALL FROM FILE
SAVE ALL TO FILE

South Coast
Air Quality Management District

66

View/Edit Rate Structures (leave unchanged)

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS

Select a Rate to View Details:

Standard Rates	Low Income Rates	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1	All Appliances	1				
GR climate zone 2	All Appliances	2				
GR climate zone 3	All Appliances	3				
GR climate zone 1	Primary Space Heat	1				
GR climate zone 2	Primary Space Heat	2				
GR climate zone 3	Primary Space Heat	3				
GR climate zone 1	Primary Space Heat	1				
GR climate zone 2	Primary Space Heat	2				
GR climate zone 3	Primary Space Heat	3				
GR all climate zones	Conventional Water Heater, Range Oven Combination, Solar W...	all				
GR climate zone 1	All Appliances	1				
GR climate zone 2	All Appliances	2				
GR climate zone 3	All Appliances	3				
GR climate zone 1	Primary Space Heat, Range Oven Combination	1				
GR climate zone 2	Primary Space Heat, Range Oven Combination	2				
GR climate zone 3	Primary Space Heat, Range Oven Combination	3				
GR all climate zones	Range Oven Combination	all				
GR all climate zones	Conventional Water Heater, Solar Water Heat with Gas Backup	all				
GR climate zone 1	Conventional Water Heater, Primary Space Heat, Solar Water ...	1				
GR climate zone 2	Conventional Water Heater, Primary Space Heat, Solar Water ...	2				
GR climate zone 3	Conventional Water Heater, Primary Space Heat, Solar Water ...	3				
GR CARE climate zone 1	All Appliances	1		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	All Appliances	2		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	All Appliances	3		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 1	Primary Space Heat	1		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	Primary Space Heat	2		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	Primary Space Heat	3		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:40:02. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater Spa Heat Auxiliary Space Heating

Solar Water Heat with Gas Backup Pool Heat Dryer

Range Oven Combination Primary Space Heat Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: 1

Period Codes

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	2	2	2	1	1	1	1	2	2	2

Specify a period code between 1 and 4

Rate Values

Period 1	Period 2	Period 3	Period 4		
Rate information shown for selected period. NaN indicates no rate or maximum at that tier.					
	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum daily allowance [therm]	0.473	NaN	NaN	NaN	NaN
Rate [\$/therm]	0.77787	1.0406	NaN	NaN	NaN

Monthly Fixed Charge [\$]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
8.22	7.42	8.22	7.95	8.22	7.95	8.22	8.22	7.95	8.22	7.95	8.22

Click on rate to view details



View/Edit Rate Structures (leave unchanged)

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS

Select a Rate to View Details:

Rate	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1	All Appliances	1			
GR climate zone 2	All Appliances	2			
GR climate zone 3	All Appliances	3			
GR climate zone 1	Primary Space Heat	1			
GR climate zone 2	Primary Space Heat	2			
GR climate zone 3	Primary Space Heat	3			
GR climate zone 1	Primary Space Heat	1			
GR climate zone 2	Primary Space Heat	2			
GR climate zone 3	Primary Space Heat	3			
GR all climate zones	Conventional Water Heater, Range Oven Combination, Solar W...	all			
GR climate zone 1	All Appliances	1			
GR climate zone 2	All Appliances	2			
GR climate zone 3	All Appliances	3			
GR climate zone 1	Primary Space Heat, Range Oven Combination	1			
GR climate zone 2	Primary Space Heat, Range Oven Combination	2			
GR climate zone 3	Primary Space Heat, Range Oven Combination	3			
GR all climate zones	Range Oven Combination	all			
GR all climate zones	Conventional Water Heater, Solar Water Heat with Gas Backup	all			
GR climate zone 1	Conventional Water Heater, Primary Space Heat, Solar Water ...	1			
GR climate zone 2	Conventional Water Heater, Primary Space Heat, Solar Water ...	2			
GR climate zone 3	Conventional Water Heater, Primary Space Heat, Solar Water ...	3			
GR CARE climate zone 1	All Appliances	1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	All Appliances	2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	All Appliances	3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 1	Primary Space Heat	1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	Primary Space Heat	2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	Primary Space Heat	3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:40:02. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater Spa Heat Auxiliary Space Heating

Solar Water Heat with Gas Backup Pool Heat Dryer

Range Oven Combination Primary Space Heat Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: 1

Period Codes

Jan	Feb	Mar	Apr	May
2	2	2	2	

Specify a period code between 1 and 5

Rate Values

Period 1	Period 2	Period 3	Period 4		
Rate information shown for selected period. NaN indicates no rate or maximum at that tier.					
Maximum daily allowance [therm]	0.473	NaN	NaN	NaN	NaN
Rate [\$/therm]	0.77787	1.0406	NaN	NaN	NaN

Monthly Fixed Charge [\$]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
8.22	7.42	8.22	7.95	8.22	7.95	8.22	8.22	7.95	8.22	7.95	8.22

RESET ALL TO DEFAULT LOAD ALL FROM FILE SAVE ALL TO FILE

Rate applies to homes with only selected appliances. Rate labeled as "All Appliances" covers all appliances not directly specified with a rate



View/Edit Rate Structures (leave unchanged)

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS

Select a Rate to View Details:

Standard Rates	Low Income Rates	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1	All Appliances	1				
GR climate zone 2	All Appliances	2				
GR climate zone 3	All Appliances	3				
GR climate zone 1	Primary Space Heat	1				
GR climate zone 2	Primary Space Heat	2				
GR climate zone 3	Primary Space Heat	3				
GR climate zone 1	Primary Space Heat	1				
GR climate zone 2	Primary Space Heat	2				
GR climate zone 3	Primary Space Heat	3				
GR all climate zones	Conventional Water Heater, Range Oven Combination, Solar W...	all				
GR climate zone 1	All Appliances	1				
GR climate zone 2	All Appliances	2				
GR climate zone 3	All Appliances	3				
GR climate zone 1	Primary Space Heat, Range Oven Combination	1				
GR climate zone 2	Primary Space Heat, Range Oven Combination	2				
GR climate zone 3	Primary Space Heat, Range Oven Combination	3				
GR all climate zones	Range Oven Combination	all				
GR all climate zones	Conventional Water Heater, Solar Water Heat with Gas Backup	all				
GR climate zone 1	Conventional Water Heater, Primary Space Heat, Solar Water ...	1				
GR climate zone 2	Conventional Water Heater, Primary Space Heat, Solar Water ...	2				
GR climate zone 3	Conventional Water Heater, Primary Space Heat, Solar Water ...	3				
GR CARE climate zone 1	All Appliances	1		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	All Appliances	2		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	All Appliances	3		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 1	Primary Space Heat	1		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	Primary Space Heat	2		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	Primary Space Heat	3		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:40:02. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater Spa Heat Auxiliary Space Heating

Solar Water Heat with Gas Backup Pool Heat Dryer

Range Oven Combination Primary Space Heat Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: 1

Period Codes

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	2	2	2	1	1	1	1	2	2	2

Specify a period code between 1 and 4

Rate Values

Period 1	Period 2	Period 3	Period 4					
Rate information shown for selected period. NaN indicates no rate or maximum at that tier.								
	Tier1	Tier2	Tier3	Tier4	Tier5			
Maximum daily allowance [therm]	0.473	NaN	NaN	NaN	NaN			
Rate [\$/therm]	0.77787	1.0406	NaN	NaN	NaN			

Monthly Fixed Charge [\$]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
8.22	7.42	8.22	7.95	8.22	7.95	8.22	8.22	7.95	8.22	7.95	8.22

Set SoCalGas zone when creating custom rate



View/Edit Rate Structures (leave unchanged)

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS

Select a Rate to View Details:

Rate	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1	All Appliances	1			
GR climate zone 2	All Appliances	2			
GR climate zone 3	All Appliances	3			
GR climate zone 1	Primary Space Heat	1			
GR climate zone 2	Primary Space Heat	2			
GR climate zone 3	Primary Space Heat	3			
GR climate zone 1	Primary Space Heat	1			
GR climate zone 2	Primary Space Heat	2			
GR climate zone 3	Primary Space Heat	3			
GR all climate zones	Conventional Water Heater, Range Oven Combination, Solar W...	all			
GR climate zone 1	All Appliances	1			
GR climate zone 2	All Appliances	2			
GR climate zone 3	All Appliances	3			
GR climate zone 1	Primary Space Heat, Range Oven Combination	1			
GR climate zone 2	Primary Space Heat, Range Oven Combination	2			
GR climate zone 3	Primary Space Heat, Range Oven Combination	3			
GR all climate zones	Range Oven Combination	all			
GR all climate zones	Conventional Water Heater, Solar Water Heat with Gas Backup	all			
GR climate zone 1	Conventional Water Heater, Primary Space Heat, Solar Water ...	1			
GR climate zone 2	Conventional Water Heater, Primary Space Heat, Solar Water ...	2			
GR climate zone 3	Conventional Water Heater, Primary Space Heat, Solar Water ...	3			
GR CARE climate zone 1	All Appliances	1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	All Appliances	2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	All Appliances	3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 1	Primary Space Heat	1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	Primary Space Heat	2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	Primary Space Heat	3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:40:02. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater Spa Heat Auxiliary Space Heating

Solar Water Heat with Gas Backup Pool Heat Dryer

Range Oven Combination Primary Space Heat Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: 1

Period Codes

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	2	2	2	1	1	1	1	2	2	2

Specify a period code between 1 and 4

Rate Values

Period 1	Period 2	Period 3	Period 4		
Rate information shown for selected period. NaN indicates no rate or maximum at that tier.					
	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum daily allowance [therm]	0.473	NaN	NaN	NaN	NaN
Rate [\$/therm]	0.77787	1.0406	NaN	NaN	NaN

Monthly Fixed Charge [\$]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
8.22	7.42	8.22	7.95	8.22	7.95	8.22	8.22	7.95	8.22	7.95	8.22

View/edit monthly period codes



View/Edit Rate Structures (leave unchanged)

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS

Select a Rate to View Details:

Standard Rates	Low Income Rates	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1		All Appliances	1			
GR climate zone 2		All Appliances	2			
GR climate zone 3		All Appliances	3			
GR climate zone 1		Primary Space Heat	1			
GR climate zone 2		Primary Space Heat	2			
GR climate zone 3		Primary Space Heat	3			
GR climate zone 1		Primary Space Heat	1			
GR climate zone 2		Primary Space Heat	2			
GR climate zone 3		Primary Space Heat	3			
GR all climate zones		Conventional Water Heater, Range Oven Combination, Solar W...	all			
GR climate zone 1		All Appliances	1			
GR climate zone 2		All Appliances	2			
GR climate zone 3		All Appliances	3			
GR climate zone 1		Primary Space Heat, Range Oven Combination	1			
GR climate zone 2		Primary Space Heat, Range Oven Combination	2			
GR climate zone 3		Primary Space Heat, Range Oven Combination	3			
GR all climate zones		Range Oven Combination	all			
GR all climate zones		Conventional Water Heater, Solar Water Heat with Gas Backup	all			
GR climate zone 1		Conventional Water Heater, Primary Space Heat, Solar Water ...	1			
GR climate zone 2		Conventional Water Heater, Primary Space Heat, Solar Water ...	2			
GR climate zone 3		Conventional Water Heater, Primary Space Heat, Solar Water ...	3			
GR CARE climate zone 1		All Appliances	1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2		All Appliances	2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3		All Appliances	3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 1		Primary Space Heat	1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2		Primary Space Heat	2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3		Primary Space Heat	3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:40:02. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater Spa Heat Auxiliary Space Heating

Solar Water Heat with Gas Backup Pool Heat Dryer

Range Oven Combination Primary Space Heat Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: 1

Period Codes

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	2	2	2	1	1	1	1	2	2	2

Specify a period code between 1 and 4

Rate Values

Period 1	Period 2	Period 3	Period 4		
Rate information shown for selected period. NaN indicates no rate or maximum at that tier.					
	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum daily allowance [therm]	0.473	NaN	NaN	NaN	NaN
Rate [\$/therm]	0.77787	1.0406	NaN	NaN	NaN

Monthly Fixed Charge [\$]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
8.22	7.42	8.22	7.95	8.22	7.95	8.22	8.22	7.95	8.22	7.95	8.22

View/edit rates and tiers for each period code



View/Edit Rate Structures (leave unchanged)

Rate Selector

Select Utility: SOUTHERN CALIFORNIA GAS

Select a Rate to View Details:

Standard Rates	Low Income Rates	Appliances (use panel to edit -->)	Zone	SingleFamily	MultiFamily	MobileHome
GR climate zone 1	All Appliances	1				
GR climate zone 2	All Appliances	2				
GR climate zone 3	All Appliances	3				
GR climate zone 1	Primary Space Heat	1				
GR climate zone 2	Primary Space Heat	2				
GR climate zone 3	Primary Space Heat	3				
GR climate zone 1	Primary Space Heat	1				
GR climate zone 2	Primary Space Heat	2				
GR climate zone 3	Primary Space Heat	3				
GR all climate zones	Conventional Water Heater, Range Oven Combination, Solar W...	all				
GR climate zone 1	All Appliances	1				
GR climate zone 2	All Appliances	2				
GR climate zone 3	All Appliances	3				
GR climate zone 1	Primary Space Heat, Range Oven Combination	1				
GR climate zone 2	Primary Space Heat, Range Oven Combination	2				
GR climate zone 3	Primary Space Heat, Range Oven Combination	3				
GR all climate zones	Range Oven Combination	all				
GR all climate zones	Conventional Water Heater, Solar Water Heat with Gas Backup	all				
GR climate zone 1	Conventional Water Heater, Primary Space Heat, Solar Water ...	1				
GR climate zone 2	Conventional Water Heater, Primary Space Heat, Solar Water ...	2				
GR climate zone 3	Conventional Water Heater, Primary Space Heat, Solar Water ...	3				
GR CARE climate zone 1	All Appliances	1		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	All Appliances	2		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	All Appliances	3		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 1	Primary Space Heat	1		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 2	Primary Space Heat	2		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
GR CARE climate zone 3	Primary Space Heat	3		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Gas Rate Structure Selector and Editor tool initialized at 09-Jan-2019 07:40:02. Select a rate to view and edit.

Natural Gas Appliances (rate is valid if home contains only selected gas appliances)

Conventional Water Heater Spa Heat Auxiliary Space Heating

Solar Water Heat with Gas Backup Pool Heat Dryer

Range Oven Combination Primary Space Heat Miscellaneous Other

All Appliances

Southern California Gas Zone Editor (Only Available for Southern California Gas)

Edit Zone: 1

Period Codes

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	2	2	2	2	1	1	1	1	2	2	2

Specify a period code between 1 and 4

Rate Values

Period 1	Period 2	Period 3	Period 4		
Rate information shown for selected period. NaN indicates no rate or maximum at that tier.					
	Tier1	Tier2	Tier3	Tier4	Tier5
Maximum daily allowance [therm]	0.473	NaN	NaN	NaN	NaN
Rate [\$/therm]	0.77787	1.0406	NaN	NaN	NaN

Monthly Fixed Charge [\$]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
8.22	7.42	8.22	7.95	8.22	7.95	8.22	8.22	7.95	8.22	7.95	8.22

View/edit monthly fixed charges



Categorize Natural Gas Appliances (leave unchanged)

Demand | Demand Input Summary | Power Supply | Economics | Computation | Results

Low Income Rates Qualification

Load Default Low Income Fractions

For Advanced Users

View/Edit Low Income Fractions

Load Saved Low Income Fractions

Net Metering

No Net Metering (default) Sell Electricity Back to Grid at Retail Rates \$ 0.000 /kW-hr

Use Net Metering Sell Electricity Back to Grid at Fixed Rate (specify)

Electricity Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Gasoline and Diesel Prices

Average Gasoline (All Grades) Retail Price \$ 3.605 per gallon Set to Default View Current and Historical Prices from EIA

Average Diesel (On-Highway) Retail Price \$ 3.957 per gallon

Natural Gas Rates

Load Default Rate Structures

For Advanced Users

View/Edit Rate Structures

Load Saved Rate Structures

Natural Gas Appliance Categorization

For Advanced Users (Categorize all Natural Gas appliances for gas rate calculator. Every appliance must be assigned a single category. Used when adding new natural gas appliances) More Information

Category	Technology	Conventional Water Heater	Solar Water Heat with Gas Backup	Range Oven Combination	Spa Heat	Pool Heat	Primary Heat	Auxiliary Heat	Dryer	Other
Hot water heating	Conventional Water Heater	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot water heating	Solar Water Heat with Gas Backup	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kitchen	Range Oven Combination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Miscellaneous	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pool	Pool Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pool	Spa Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space heating and cooling	Auxiliary Heat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

← RETURN TO PREVIOUS ADVANCE TO NEXT →

Table must be used when adding new natural gas appliances



Computation Panel (Run Simulation)

Push
"Compute
Results" to
start
computation

The screenshot shows a software interface with a top navigation bar containing tabs for Demand, Demand Input Summary, Power Supply, Economics, Computation, and Results. The 'Computation' tab is active. Below the tabs, the 'Computation' panel is titled and contains a red 'Compute Results' button, a 'Save Setup and Results' button, a 'Cancel Computation' button, and a 'Clear History' button. A progress bar at the top right of the panel is labeled 'Waiting for Input...' and shows a scale from 0 to 100. At the bottom of the panel, there are two buttons: 'RETURN TO PREVIOUS' and 'ADVANCE TO NEXT'. A red arrow points from the text on the left to the 'Compute Results' button.

Computation Panel (View Simulation Status)

The screenshot displays the 'Computation' panel of a simulation software. At the top, there are tabs for 'Demand', 'Demand Input Summary', 'Power Supply', 'Economics', 'Computation', and 'Results'. The 'Computation' tab is active. Below the tabs, there are buttons for 'Compute Results' (highlighted in red), 'Save Setup and Results', 'Cancel Computation', and 'Clear History'. A progress bar at the top right shows the elapsed time as 301.8611 s, with a status message: '*** COMPUTATION COMPLETED SUCCESSFULLY! *** elapsed time: 301.8611 s'. The main area contains a log of simulation events, including: '09-Jan-2019 09:32:51: *** COMPUTATION COMPLETED SUCCESSFULLY! *** elapsed time: 301.8611 s', '09-Jan-2019 09:32:41: Storing Output Data', '09-Jan-2019 09:32:40: Finished expanding sample size to represent all households', '09-Jan-2019 09:32:40: Expanding: Task 6 of 6', '09-Jan-2019 09:32:40: Expanding: Task 5 of 6', '09-Jan-2019 09:32:39: Expanding: Task 4 of 6', '09-Jan-2019 09:32:39: Expanding: Task 3 of 6', '09-Jan-2019 09:32:39: Expanding: Task 2 of 6', '09-Jan-2019 09:32:38: Expanding: Task 1 of 6', '09-Jan-2019 09:32:37: Expanding sample size to represent all households', '09-Jan-2019 09:32:37: Finished computing Well to Pump Gasoline and Diesel Emissions', '09-Jan-2019 09:32:37: Computing Well to Pump Gasoline and Diesel Emissions', '09-Jan-2019 09:32:37: Finished Computing Natural Gas Production Emissions', '09-Jan-2019 09:32:37: Computing Natural Gas Production Emissions', '09-Jan-2019 09:32:37: Finished Computing Natural Gas Leak Rates', '09-Jan-2019 09:32:36: Computing Natural Gas Leak Rates', '09-Jan-2019 09:32:36: Finished Calculating Diesel and Gasoline Rates', '09-Jan-2019 09:32:36: Calculating Diesel and Gasoline Rates', '09-Jan-2019 09:32:36: Finished Calculating Natural Gas Rates', '09-Jan-2019 09:32:36: Calculating Natural Gas Rates', '09-Jan-2019 09:32:33: Finished Calculating Optimal Panel Area and Change in Electricity Emissions', '09-Jan-2019 09:32:32: Completed task 1 of 1', '09-Jan-2019 09:32:30: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ16', '09-Jan-2019 09:32:28: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ16', '09-Jan-2019 09:32:26: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ15', '09-Jan-2019 09:32:25: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ15', '09-Jan-2019 09:32:21: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ10', '09-Jan-2019 09:32:15: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ10', '09-Jan-2019 09:32:11: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ9', '09-Jan-2019 09:32:05: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ9', '09-Jan-2019 09:32:01: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ8', '09-Jan-2019 09:31:57: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ8', '09-Jan-2019 09:31:54: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ6', '09-Jan-2019 09:31:52: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ6', '09-Jan-2019 09:31:50: Finished Determining Most Cost Effective PV Panel Area', '09-Jan-2019 09:31:20: Determining Most Cost Effective PV Panel Area', '09-Jan-2019 09:31:20: Calculating Optimal Panel Area and/or Change in Electricity Emissions', '09-Jan-2019 09:31:20: Finished Calculating Electricity Rates'. At the bottom right, there are buttons for 'RETURN TO PREVIOUS' and 'ADVANCE TO NEXT'.



Computation Panel (Save Setup & Results)

The screenshot displays the 'Computation' tab of a software application. At the top, a progress bar shows '*** COMPUTATION COMPLETED SUCCESSFULLY! *** elapsed time: 301.8611 s'. Below this, a log window contains the following text:

```
09-Jan-2019 09:32:51: *** COMPUTATION COMPLETED SUCCESSFULLY! *** elapsed time: 301.8611 s
09-Jan-2019 09:32:41: Storing Output Data
09-Jan-2019 09:32:40: Finished expanding sample size to represent all households
09-Jan-2019 09:32:40: Expanding: Task 6 of 6
09-Jan-2019 09:32:40: Expanding: Task 5 of 6
09-Jan-2019 09:32:39: Expanding: Task 4 of 6
09-Jan-2019 09:32:39: Expanding: Task 3 of 6
09-Jan-2019 09:32:39: Expanding: Task 2 of 6
09-Jan-2019 09:32:38: Expanding: Task 1 of 6
09-Jan-2019 09:32:37: Expanding sample size to represent all households
09-Jan-2019 09:32:37: Finished computing Well to Pump Gasoline and Diesel Emissions
09-Jan-2019 09:32:37: Computing Well to Pump Gasoline and Diesel Emissions
09-Jan-2019 09:32:37: Finished Computing Natural Gas Production Emissions
09-Jan-2019 09:32:37: Computing Natural Gas Production Emissions
09-Jan-2019 09:32:37: Finished Computing Natural Gas Leak Rates
09-Jan-2019 09:32:36: Computing Natural Gas Leak Rates
09-Jan-2019 09:32:36: Finished Calculating Diesel and Gasoline Rates
09-Jan-2019 09:32:36: Calculating Diesel and Gasoline Rates
09-Jan-2019 09:32:36: Finished Calculating Natural Gas Rates
09-Jan-2019 09:32:36: Calculating Natural Gas Rates
09-Jan-2019 09:32:33: Finished Calculating Optimal Panel Area and Change in Electricity Emissions
09-Jan-2019 09:32:32: Completed task 1 of 1
09-Jan-2019 09:32:30: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ16
09-Jan-2019 09:32:28: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ16
09-Jan-2019 09:32:26: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ15
09-Jan-2019 09:32:25: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ15
09-Jan-2019 09:32:21: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ10
09-Jan-2019 09:32:15: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ10
09-Jan-2019 09:32:11: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ9
09-Jan-2019 09:32:05: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ9
09-Jan-2019 09:32:01: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ8
09-Jan-2019 09:31:57: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ8
09-Jan-2019 09:31:54: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ6
09-Jan-2019 09:31:52: Using Utility-Specific Electricity Transmission/Distribution Loss Percentage in CZ6
09-Jan-2019 09:31:50: Finished Determining Most Cost Effective PV Panel Area
09-Jan-2019 09:31:20: Determining Most Cost Effective PV Panel Area
09-Jan-2019 09:31:20: Calculating Optimal Panel Area and/or Change in Electricity Emissions
09-Jan-2019 09:31:20: Finished Calculating Electricity Rates
```

A 'Select File to Save Results' dialog box is open, showing a file explorer view of the 'FinalResults' folder. The file list includes:

Name	Date modified	Type
allICZallCat_Gasify_All_No_DeltaElecEmis_...	1/7/2019 12:17 PM	RES
allICZallCat_Gasify_All_No_DeltaElecEmis_...	1/7/2019 11:30 AM	RES
allICZallCat_Gasify_All_updated.results	1/4/2019 10:44 AM	RES

The dialog box also shows a 'File name' field and a 'Save as type' dropdown set to (*.results). At the bottom of the main application window, there are two buttons: 'RETURN TO PREVIOUS' and 'ADVANCE TO NEXT'.



Computation Panel (Save Setup & Results)

Four files are created when clicking “Save Setup and Results”

- (“Filename”).setup is a binary file containing all the app settings. This can be loaded into NEAT with “File” menu
- (“Filename”).results is a binary file containing the results of the run that can be loaded into NEAT with “File” menu
- (“Filename”)_setup.txt is a text file containing all input parameters for use outside NEAT. Could be up to 12 MB.
- (“Filename”)_results.txt is a text file containing all results for use outside NEAT. Could be up to 225 MB.



Results Panel (tools for viewing and analyzing simulation)

The screenshot displays the 'Results' tab of a simulation software interface. The left sidebar contains several filter sections: 'Filter Homes' with 'Climate Zones' (8 Coastal, 9 S Near-Coastal, 10 S Inland, 15 S Desert, 16 Mountain, All Climate Zones), 'Housing Category' (Only Single Family Homes, Only Multi Family Homes, Only Mobile Homes, All Housing Types), 'Natural Gas Utilities' (Long Beach Gas & Oil, Southern California Gas, Southwest Gas Corp, City of Vernon Gas System), and 'Electric Utilities' (Azusa Light & Power, Bear Valley Electric Service, Burbank Water & Power, City of Anaheim Public Utilities Department, City of Banning Electric Department, City of Corona Department of Water & Power, City of Riverside, City of Vernon Municipal Light Department, Glendale Water & Power, Los Angeles Department of Water & Power, Moreno Valley Utility, Pasadena Water & Power, Rancho Cucamonga Municipal Utility, San Diego Gas & Electric, Southern California Edison). A 'Please Wait' dialog box is centered on the screen, displaying 'Loading Most Recent Results' with a progress bar. At the bottom, there are buttons for 'More Information', 'View CZ MAP', 'ANALYZE', 'RETURN TO PREVIOUS', and 'ADVANCE TO NEXT'. A status message reads 'Previous computation loaded. Run computed at 09-Jan-2019 09:32:41'.

Results Panel (tools for viewing and analyzing simulation)

Option to view specific climate zones, housing categories, and utilities

Press “Analyze” after selections are made

The screenshot shows a software interface with a top navigation bar containing tabs for Demand, Demand Input Summary, Power Supply, Economics, Computation, and Results. The Results tab is active. Below the navigation bar are two buttons: "Analyze Most Recent Results" and "Analyze Saved Results". The main content area is a large pink rectangle. On the left side of this area is a "Filter Homes" panel with the following sections:

- Climate Zones:** Radio buttons for 6 Coastal, 8 S. Near-Coastal, 9 N. Near-Coastal, 10 S. Inland, 15 S. Desert, 16 Mountain, and All Climate Zones (selected).
- Housing Category:** Radio buttons for Only Single Family Homes (selected), Only Mobile Homes, Only Multi Family Homes, and All Housing Types.
- Natural Gas Utilities:** Checkboxes for Long Beach Gas & Oil, Southern California Gas, Southwest Gas Corp., and City of Vernon Gas System (all checked).
- Electric Utilities:** Checkboxes for Azusa Light & Power, Bear Valley Electric Service, Burbank Water & Power, City of Anaheim Public Utilities Department, City of Banning Electric Department, City of Corona Department of Water & Power, City of Riverside, City of Vernon Municipal Light Department, Glendale Water & Power, Los Angeles Department of Water & Power, Moreno Valley Utility, Pasadena Water & Power, Rancho Cucamonga Municipal Utility, San Diego Gas & Electric, and Southern California Edison (all checked).

At the bottom of the Filter Homes panel are three buttons: "More Information", "View CZ MAP", and "ANALYZE". A red arrow points from the text "Press 'Analyze' after selections are made" to the "ANALYZE" button. Below the Filter Homes panel, the text "Previous computation loaded." is displayed. At the bottom right of the Results panel are two buttons: "RETURN TO PREVIOUS" and "ADVANCE TO NEXT".



Results Panel (Select Cost Effectiveness Subset)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland

8 S. Near-Coastal 15 S. Desert

9 N. Near-Coastal 16 Mountain

All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes

Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.

Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power

Bear Valley Electric Service

Burbank Water & Power

City of Anaheim Public Utilities Department

City of Banning Electric Department

City of Corona Department of Water & Power

City of Riverside

City of Vernon Municipal Light Department

Glendale Water & Power

Los Angeles Department of Water & Power

Moreno Valley Utility

Pasadena Water & Power

Rancho Cucamonga Municipal Utility

San Diego Gas & Electric

Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

[More Information](#) [View CZ MAP](#) [ANALYZE](#)

Results

Select Cost Effectiveness Subset Cost Effectiveness Appliance Mix Apply Prescribed Funding Query Individual Homes

Select Cost Calculation Option:

Stage-of-Life for Appliances Being Replaced:

Selection Criteria

Green regions are always cost effective. Yellow regions may be cost effective. Red regions are never cost effective. All values are per year

NOx Cost Effectiveness Selector

Minimum Selector [deg.] Maximum Selector [deg.]

CO2e Cost Effectiveness Selector

Minimum Selector [deg.] Maximum Selector [deg.]

# of Modified Homes Meeting Filter	# of Modified Homes in NOx Selector	# of Modified Homes in CO2e Selector	# of Modified Homes in Both Selectors
2928082	2928082	2928082	2928082

Previous computation loaded.

[RETURN TO PREVIOUS](#) [ADVANCE TO NEXT](#)



Results Panel (Select Cost Effectiveness Subset)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland

8 S. Near-Coastal 15 S. Desert

9 N. Near-Coastal 16 Mountain

All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes

Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.

Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power

Bear Valley Electric Service

Burbank Water & Power

City of Anaheim Public Utilities Department

City of Banning Electric Department

City of Corona Department of Water & Power

City of Riverside

City of Vernon Municipal Light Department

Glendale Water & Power

Los Angeles Department of Water & Power

Moreno Valley Utility

Pasadena Water & Power

Rancho Cucamonga Municipal Utility

San Diego Gas & Electric

Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

[More Information](#) [View CZ MAP](#) [ANALYZE](#)

Select Cost Effectiveness Subset **Cost Effectiveness** **Appliance Mix** **Apply Prescribed Funding** **Query Individual Homes**

Select Cost Calculation Option: Change in total annual cost (purchase + installation + utility costs)

Stage-of-Life for Appliances Being Replaced: Change in total annual cost (purchase + installation + utility costs)

Change in total annual utility cost

Upfront total installation and purchase cost (no consideration for value of base-case appliances)

Green regions are always cost effective. Yellow regions may be cost effective. Red regions are never cost effective. All values are per year

Selection Criteria

NOx Cost Effectiveness Selector

Minimum Selector [deg.] Maximum Selector [deg.]

CO2e Cost Effectiveness Selector

Minimum Selector [deg.] Maximum Selector [deg.]

# of Modified Homes Meeting Filter	# of Modified Homes in NOx Selector	# of Modified Homes in CO2e Selector	# of Modified Homes in Both Selectors
2928082	2928082	2928082	2928082

[Update Table](#)

M:\NEAT\software_ver_1_10\FinalResults\CZ6allCat_ElecWH_Solar_for_mtg.results loaded.
Run computed at 09-Jan-2019 10:56:25

[RETURN TO PREVIOUS](#) [ADVANCE TO NEXT](#)



Results Panel (Select Cost Effectiveness Subset)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power
 Bear Valley Electric Service
 Burbank Water & Power
 City of Anaheim Public Utilities Department
 City of Banning Electric Department
 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

[More Information](#) [View CZ MAP](#) [ANALYZE](#)

Results

Select Cost Effectiveness Subset Cost Effectiveness Appliance Mix Apply Prescribed Funding Query Individual Homes

Select Cost Calculation Option: Change in total annual cost (purchase + installation + utility costs)

Stage-of-Life for Appliances Being Replaced: Appliances that are replaced are at the end of their life

Green regions are always cost effective.

NOx Cost Effectiveness Selector

Minimum Selector [deg.] 180 Maximum Selector [deg.] 360

CO2e Cost Effectiveness Selector

Minimum Selector [deg.] 180 Maximum Selector [deg.] 360

# of Modified Homes Meeting Filter	# of Modified Homes in NOx Selector	# of Modified Homes in CO2e Selector	# of Modified Homes in Both Selectors
2928082	2928082	2928082	2928082

M:\NEAT\software_ver_1_10\FinalResults\CZ6allCat_ElecWH_Solar_for_mtg.results loaded.
Run computed at 09-Jan-2019 10:56:25

[RETURN TO PREVIOUS](#) [ADVANCE TO NEXT](#)



Results Panel (Select Cost Effectiveness Subset)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

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Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power
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 Burbank Water & Power
 City of Anaheim Public Utilities Department
 City of Banning Electric Department
 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

[More Information](#) [View CZ MAP](#) [ANALYZE](#)

Results

Select Cost Effectiveness Subset: **Cost Effectiveness** **Appliance Mix** **Apply Prescribed Funding** **Query Individual Homes**

Select Cost Calculation Option:

Stage-of-Life for Appliances Being Replaced:

Selection Criteria

Green regions are always cost effective. Yellow regions may be cost effective. Red regions are never cost effective. All values are per year

NOx Cost Effectiveness Selector

Minimum Selector [deg.] Maximum Selector [deg.]

CO2e Cost Effectiveness Selector

Minimum Selector [deg.] Maximum Selector [deg.]

# of Modified Homes Meeting Filter	# of Modified Homes in NOx Selector	# of Modified Homes in CO2e Selector	# of Modified Homes in Both Selectors
2928082	2928082	2928082	2928082

[Update Table](#)

Previous computation loaded.

[RETURN TO PREVIOUS](#) [ADVANCE TO NEXT](#)



Results Panel (Select Cost Effectiveness Subset)

Analyze Most Recent Results Analyze Saved Results

Filter Homes

Climate Zones
 6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category
 Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

Natural Gas Utilities
 Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities
 Azusa Light & Power
 Bear Valley Electric Service
 Burbank Water & Power
 City of Anaheim Public Utilities Department
 City of Banning Electric Department
 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
 53.5093% of the total homes in SoCAB meet filter criteria

Select Cost Effectiveness Subset **Cost Effectiveness** **Appliance Mix** **Apply Prescribed Funding** **Query Individual Homes**

Select Cost Calculation Option:

Stage-of-Life for Appliances Being Replaced:

Selection Criteria:

Green regions are always cost effective. Yellow regions may be cost effective. Red regions are never cost effective. All values are per year

NOx Cost Effectiveness Selector

Scenario NOx Emissions - Baseline NOx Emissions [lb] × 10⁵

Scenario Cost - Baseline Cost [\$]

Minimum Selector [deg.] Maximum Selector [deg.]

CO2e Cost Effectiveness Selector

Scenario CO2e Emissions - Baseline CO2e Emissions [lb] × 10⁵

Scenario Cost - Baseline Cost [\$]

Minimum Selector [deg.] Maximum Selector [deg.]

of Modified Homes Meeting Filter # of Modified Homes in NOx Selector # of Modified Homes in CO2e Selector # of Modified Homes in Both Selectors

M:\NEAT\software_ver_1_10\FinalResults\CZ6allCat_ElecWH_Solar_for_mtg.results loaded.
 Run computed at 09-Jan-2019 10:56:25

Change subset of homes in CE space to study using dials



Results Panel (Select Cost Effectiveness Subset)

Analyze Most Recent Results Analyze Saved Results

Filter Homes

Climate Zones
 6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category
 Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

Natural Gas Utilities
 Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities
 Azusa Light & Power
 Bear Valley Electric Service
 Burbank Water & Power
 City of Anaheim Public Utilities Department
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 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
 53.5093% of the total homes in SoCAB meet filter criteria

Results Panel

Select Cost Calculation Option:

Stage-of-Life for Appliances Being Replaced:

Selection Criteria:

Green regions are always cost effective. Yellow regions may be cost effective. Red regions are never cost effective. All values are per year

NOx Cost Effectiveness Selector

Minimum Selector [deg.] Maximum Selector [deg.]

CO2e Cost Effectiveness Selector

Minimum Selector [deg.] Maximum Selector [deg.]

# of Modified Homes Meeting Filter	# of Modified Homes in NOx Selector	# of Modified Homes in CO2e Selector	# of Modified Homes in Both Selectors
2928082	2928082	2928082	2928082

Previous computation loaded.

Update table after making changes to see number of homes selected



Results Panel (Cost Effectiveness)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland

8 S. Near-Coastal 15 S. Desert

9 N. Near-Coastal 16 Mountain

All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes

Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.

Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power

Bear Valley Electric Service

Burbank Water & Power

City of Anaheim Public Utilities Department

City of Banning Electric Department

City of Corona Department of Water & Power

City of Riverside

City of Vernon Municipal Light Department

Glendale Water & Power

Los Angeles Department of Water & Power

Moreno Valley Utility

Pasadena Water & Power

Rancho Cucamonga Municipal Utility

San Diego Gas & Electric

Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

[More Information](#) [View CZ MAP](#) [ANALYZE](#)

Cost Effectiveness of Homes in Selected Bins [Delta lb / Delta \$] per year

Region	Species	Mean	Median	Min	Max	# of Homes
Red	NOx					0
Red	CO2e					0
Yellow	NOx	-0.00254	-0.00223	-1.03	-0.0005	2686859
Yellow	CO2e	-3.46e+03	-2e+03	-3.17e+06	-980	2686859
Green	NOx	0.00239	0.00152	0.000664	1.38	241223
Green	CO2e	204	30	13.1	9.57e+05	241223

Cost Effectiveness of Homes in Selected Bins [Delta \$ / Delta ton] per year

Region	Species	Mean	Median	Min	Max	# of Homes
Red	NOx			\$	\$	0
Red	CO2e			\$	\$	0
Yellow	NOx	-\$991,306.69	-\$896,323.75	-\$3,999,817.75	-\$1,945.63	2686859
Yellow	CO2e	-\$0.93	-\$1.00	-\$2.04	-\$980.01	2686859
Green	NOx	\$1,289,217.00	\$1,313,607.00	\$1,449.88	\$3,010,387.75	241223
Green	CO2e	\$65.36	\$66.72	\$0.00	\$957,123.88	241223

Cost Effectiveness of NOx Reductions In Subset

Cost Effectiveness of NOx Reductions In Subset

Cost Effectiveness of CO2e Reductions In Subset

Cost Effectiveness of CO2e Reductions In Subset

Previous computation loaded. Run computed at 09-Jan-2019 09:32:41

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Results Panel (Appliance Mix)

Demand Demand Input Summary Power Supply Economics Computation Results

Analyze Most Recent Results Analyze Saved Results

Select Cost Effectiveness Subset Cost Effectiveness Appliance Mix Apply Prescribed Funding Query Individual Homes

TECHNOLOGY MODIFICATIONS (hover over Technology to see profile)

BASELINE			SCENARIO		PARAMETER CHANGES (SCENARIO - BASELINE)						
#	Category	Fuel	Technology	Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime
1	Hot water heating	NatGas	Conventional Water Heater	Electric	Water Heat	modified	-0.0023	-11.76	-286	-200	0

Pan Left Pan Right

2,928,082 Total Homes
Fraction of Homes with Specified Modifications In Cost Effectiveness Subset

Previous computation loaded. Run computed at 09-Jan-2019 09:32:41

← RETURN TO PREVIOUS ADVANCE TO NEXT →

Filter Homes

Climate Zones

6 Coastal
 8 S. Near-Coastal
 9 N. Near-Coastal

10 S. Inland
 15 S. Desert
 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes
 Only Multi Family Homes

Only Mobile Homes
 All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil
 Southern California Gas

Southwest Gas Corp.
 City of Vernon Gas System

Electric Utilities

Azusa Light & Power
 Bear Valley Electric Service
 Burbank Water & Power
 City of Anaheim Public Utilities Department
 City of Banning Electric Department
 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
 53.5093% of the total homes in SoCAB meet filter criteria

[More Information](#)
[View CZ MAP](#)
[ANALYZE](#)



Results Panel (Appliance Mix)

More complex example for this slide only

Demand Demand Input Summary Power Supply Economics Computation Results

Analyze Most Recent Results Analyze Saved Results

Select Cost Effectiveness Subset Cost Effectiveness Appliance Mix Apply Prescribed Funding Query Individual Homes

TECHNOLOGY MODIFICATIONS (hover over Technology to see profile)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power
 Bear Valley Electric Service
 Burbank Water & Power
 City of Anaheim Public Utilities Department
 City of Banning Electric Department
 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

409,427 homes meeting filter criteria above
7.3813% of the total homes in SoCAB meet filter criteria

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BASELINE		SCENARIO		PARAMETER CHANGES (SCENARIO - BASELINE)							
#	Category	Fuel	Technology	Fuel	Technology	UEC	NOX EF	CO2e EF	Unit Cost	Install Cost	Lifetime
1	Hot water heating	NatGas	Conventional Water Heater	Electric	Water Heat	modified	-0.0023	-11.76	-286	-200	0
2	Kitchen	NatGas	Range Oven Combination	Electric	Range Oven Combination	modified	-0.0092	-11.76	-890	-10	0
3	Space heating and cooling	Electric	Conventional Heat	NatGas	Primary Heat	modified	0.0066	11.76	2351	2	0

Pan Left 392,219 Total Homes Pan Right

Fraction of Homes with Specified Modifications In Cost Effectiveness Subset

Modification	Fraction
1	0.909
2	0.726
3	0
1,2	0.635
1,3	0
2,3	0
1,2,3	0

Previous computation loaded.

← RETURN TO PREVIOUS ADVANCE TO NEXT →



Results Panel (Apply Prescribed Funding)

Enter Funding Amount [\$]
Funding is applied only to households filtered on the "Select Cost Effectiveness Subset"

Cost Share by Homeowner [%]

Filter Homes

Climate Zones

6 Coastal
 10 S. Inland
 8 S. Near-Coastal
 15 S. Desert
 9 N. Near-Coastal
 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes
 Only Mobile Homes
 Only Multi Family Homes
 All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil
 Southwest Gas Corp.
 Southern California Gas
 City of Vernon Gas System

Electric Utilities

Azusa Light & Power
 Bear Valley Electric Service
 Burbank Water & Power
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 City of Banning Electric Department
 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
 53.5093% of the total homes in SoCAB meet filter criteria

Description (click on a variable to view histograms)	Value
Approximate Number of Projects Funded	144
Number of Possible Projects in "Cost Effectiveness Subset"	2928082
SCAQMD Cost to Fund All Projects in "Cost Effectiveness Subset" (only considers purchase and installation costs)	\$20,405,961,360.66
Cumulative Change in NOx Emissions [lb/yr]	-6.90e+01
Cumulative Change in NOx Emissions [TPD]	-9.45e-05
Cumulative Change in CO2e Emissions [lb/yr]	-6.55e+07
Cumulative Change in CO2e Emissions [TPD]	-8.97e+01
Average Incentive Amount Provided to Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$6,891.27
Median Incentive Amount Provided to Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$8,411.46
Average Cost-Share from Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$6,891.27
Median Cost-Share from Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$8,411.46
Average Change in Annual Utility and Fuel Costs for Homeowner	\$-261.38
Median Change in Annual Utility and Fuel Costs for Homeowner	\$-284.40
Average Change in Amortized Appliance Purchase and Installation Costs Borne By Homeowner Including PV and Battery (if selected)	\$223.23
Median Change in Amortized Appliance Purchase and Installation Costs Borne By Homeowner Including PV and Battery (if selected)	\$278.74

No Plot Available

No Plot Available

Previous computation loaded. Run computed at 09-Jan-2019 09:32:41

Enter funding amount and cost share for calculation



Results Panel (Apply Prescribed Funding)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power
 Bear Valley Electric Service
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 City of Banning Electric Department
 City of Corona Department of Water & Power
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 City of Vernon Municipal Light Department
 Glendale Water & Power
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 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

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Results

Apply Prescribed Funding

Enter Funding Amount [\$] Funding is applied only to households filtered on the "Select Cost Effectiveness Subset" Cost Share by Homeowner [%]

Description (click on a variable to view histograms)	Value
Approximate Number of Projects Funded	80
Number of Possible Projects in "Cost Effectiveness Subset"	2928082
SCAQMD Cost to Fund All Projects in "Cost Effectiveness Subset" (only considers purchase and installation costs)	\$36,730,730,449.68
Cumulative Change in NOx Emissions [lb/yr]	-3.85e+01
Cumulative Change in NOx Emissions [TPD]	-5.27e-05
Cumulative Change in CO2e Emissions [lb/yr]	-3.64e+07
Cumulative Change in CO2e Emissions [TPD]	-4.98e+01
Average Incentive Amount Provided to Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$12,467.32
Median Incentive Amount Provided to Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$15,140.62
Average Cost-Share from Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$1,385.26
Median Cost-Share from Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$1,682.29
Average Change in Annual Utility and Fuel Costs for Homeowner	-\$266.00
Median Change in Annual Utility and Fuel Costs for Homeowner	-\$309.44
Average Change in Amortized Appliance Purchase and Installation Costs Borne By Homeowner Including PV and Battery (if selected)	\$44.93
Median Change in Amortized Appliance Purchase and Installation Costs Borne By Homeowner Including PV and Battery (if selected)	\$55.75

No Plot Available

No Plot Available

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Results Panel (Apply Prescribed Funding)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power
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 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

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Results

Apply Prescribed Funding

Enter Funding Amount [\$] Funding is applied only to households filtered on the "Select Cost Effectiveness Subset" Cost Share by Homeowner [%]

Description (click on a variable to view histograms)	Value
Approximate Number of Projects Funded	719
Number of Possible Projects in "Cost Effectiveness Subset"	2928082
SCAQMD Cost to Fund All Projects in "Cost Effectiveness Subset" (only considers purchase and installation costs)	\$20,405,961,360.66
Cumulative Change in NOx Emissions [lb/yr]	-3.49e+02
Cumulative Change in NOx Emissions [TPD]	-4.78e-04
Cumulative Change in CO2e Emissions [lb/yr]	-3.38e+08
Cumulative Change in CO2e Emissions [TPD]	-4.63e+02
Average Incentive Amount Provided to Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$6,945.27
Median Incentive Amount Provided to Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$8,411.46
Average Cost-Share from Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$6,945.27
Median Cost-Share from Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$8,411.46
Average Change in Annual Utility and Fuel Costs for Homeowner	\$-248.57
Median Change in Annual Utility and Fuel Costs for Homeowner	\$-276.48
Average Change in Amortized Appliance Purchase and Installation Costs Borne By Homeowner Including PV and Battery (if selected)	\$223.56
Median Change in Amortized Appliance Purchase and Installation Costs Borne By Homeowner Including PV and Battery (if selected)	\$276.55

No Plot Available

No Plot Available

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Results Panel (Apply Prescribed Funding)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities

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 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

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Results

Apply Prescribed Funding

Enter Funding Amount [\$] Funding is applied only to households filtered on the "Select Cost Effectiveness Subset" Cost Share by Homeowner [%]

Description (click on a variable to view histograms)	Value
Approximate Number of Projects Funded	719
Number of Possible Projects in "Cost Effectiveness Subset"	2928082
SCAQMD Cost to Fund All Projects in "Cost Effectiveness Subset" (only considers purchase and installation costs)	\$20,405,961,360.66
Cumulative Change in NOx Emissions [lb/yr]	-3.49e+02
Cumulative Change in NOx Emissions [TPD]	-4.78e-04
Cumulative Change in CO2e Emissions [lb/yr]	-3.38e+08
Cumulative Change in CO2e Emissions [TPD]	-4.63e+02
Average Incentive Amount Provided to Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$6,945.27
Median Incentive Amount Provided to Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$8,411.46
Average Cost-Share from Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$6,945.27
Median Cost-Share from Homeowner to Purchase and Install Appliances, PV (if selected), and Battery (if selected)	\$8,411.46
Average Change in Annual Utility and Fuel Costs for Homeowner	\$-248.57
Median Change in Annual Utility and Fuel Costs for Homeowner	\$-276.48
Average Change in Amortized Appliance Purchase and Installation Costs Borne By Homeowner Including PV and Battery (if selected)	\$223.56
Median Change in Amortized Appliance Purchase and Installation Costs Borne By Homeowner Including PV and Battery (if selected)	\$276.55

Change in Annual Utility Costs (all homes) [\$]

Change in Annual Utility Costs (homes with funded projects) [\$]

Previous computation loaded. Run computed at 09-Jan-2019 09:32:41

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Click on cost to view histogram



Results Panel (Query Individual Homes)

[Demand](#) | [Demand Input Summary](#) | [Power Supply](#) | [Economics](#) | [Computation](#) | [Results](#)

[Analyze Most Recent Results](#) | [Analyze Saved Results](#) |
 [Select Cost Effectiveness Subset](#) | [Cost Effectiveness](#) | [Appliance Mix](#) | [Apply Prescribed Funding](#) | [Query Individual Homes](#)

Filter Homes

Climate Zones

6 Coastal 10 S. Inland
 8 S. Near-Coastal 15 S. Desert
 9 N. Near-Coastal 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes
 Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.
 Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power
 Bear Valley Electric Service
 Burbank Water & Power
 City of Anaheim Public Utilities Department
 City of Banning Electric Department
 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

Specify Regions of Cost Effectiveness Space

Green NOx Green CO2e
 Yellow NOx Yellow CO2e
 Red NOx Red CO2e

Specify Units of Cost Effectiveness

[Delta lb / Delta \$] [Delta \$ / Delta ton]

Select a home to populate panels on right:

NOx Cost Eff.	CO2e Cost Eff.	# Homes
1.3794	2.7197e+04	1
1.3794	2.7197e+04	10
1.0627	8.8239e+05	7
0.8650	7.3347e+05	3
0.7057	1.3913e+04	2
0.7057	1.3913e+04	10
0.6505	1.2825e+04	1
0.4366	8.5955e+03	3
0.4366	8.5955e+03	5
0.3248	2.7239e+05	4
0.3105	9.5712e+05	2
0.2988	5.8822e+03	2
0.2988	5.8822e+03	4
0.2946	2.4458e+05	6
0.2623	2.1778e+05	6
0.2543	5.0147e+03	1
0.2543	5.0147e+03	10
0.2507	4.9521e+03	6
0.2507	4.9521e+03	27
0.2415	1.1765e+05	4
0.2370	7.3055e+05	1
0.2205	4.2542e+03	3

2,928,082 homes selected

Home Details

- Costs
- Fuel Use
- Emissions
- Solar & Battery

Variable	Parameter
Housing type	
Climate zone	
Electric Utility	
Electric rate low/standard income	
Base-case electric rate description	
Scenario-case electric rate description	
Gas Utility	
Gas rate low/standard income	
Base-case natural gas rate description	
Base-case natural gas rate appliance criteria	
Scenario-case electric rate description	
Base-case natural gas rate appliance criteria	
Baseline Appliance Mix	
Scenario Appliance Mix	

Fuel	Appliance	Quantity	Fuel	Appliance	Quantity

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Results Panel (Query Individual Homes)

Click on home to view details

Demand Demand Input Summary Power Supply Economics Computation Results

Analyze Most Recent Results Analyze Saved Results

Select Cost Effectiveness Subset
Cost Effectiveness
Appliance Mix
Apply Prescribed Funding
Query Individual Homes

Filter Homes

Climate Zones

6 Coastal 10 S. Inland

8 S. Near-Coastal 15 S. Desert

9 N. Near-Coastal 16 Mountain

All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes

Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.

Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power

Bear Valley Electric Service

Burbank Water & Power

City of Anaheim Public Utilities Department

City of Banning Electric Department

City of Corona Department of Water & Power

City of Riverside

City of Vernon Municipal Light Department

Glendale Water & Power

Los Angeles Department of Water & Power

Moreno Valley Utility

Pasadena Water & Power

Rancho Cucamonga Municipal Utility

San Diego Gas & Electric

Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

Specify Regions of Cost Effectiveness Space

Green NOx Green CO2e

Yellow NOx Yellow CO2e

Red NOx Red CO2e

Specify Units of Cost Effectiveness

[Delta lb / Delta \$] [Delta \$ / Delta ton]

Select a home to populate panels on right:

Sort NOx Sort CO2e Sort # Homes

NOx Cost Eff.	CO2e Cost Eff.	# Homes
-1.0279	-3.1683e+06	1
-1.0278	-3.1680e+06	1
-1.0010	-8.3111e+05	7
-0.8654	-7.1853e+05	7
-0.7765	-6.4476e+05	7
-0.4956	-4.2023e+05	3
-0.4049	-3.3622e+05	7
-0.3343	-2.8035e+05	4
-0.3325	-2.7886e+05	4
-0.2431	-7.4920e+05	1
-0.2242	-1.9058e+05	1
-0.2184	-6.73071	1
-0.2184	-6.73071	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7304e+05	2
-0.2184	-6.7304e+05	1
-0.2184	-6.7304e+05	1
-0.2184	-6.7304e+05	1
-0.2184	-6.7304e+05	1

2,928,082 homes selected

Home Details

Costs

Fuel Use

Emissions

Solar & Battery

Variable	Parameter
Housing type	SingleFamily
Climate zone	CZ16
Electric utility	Bear Valley Electric Service
Electric rate low/standard income	standard
Base-case electric rate description	D Domestic Service Single Family Accomodation
Scenario-case electric rate description	D Domestic Service Single Family Accomodation
Gas Utility	Southwest Gas Corp.
Gas rate low/standard income	standard
Base-case natural gas rate description	GS-10 Big Bear
Base-case natural gas rate appliance criteria	All Appliances
Scenario-case electric rate description	GS-10 Big Bear
Base-case natural gas rate appliance criteria	All Appliances

Baseline Appliance Mix			Scenario Appliance Mix		
Fuel	Appliance	Quantity	Fuel	Appliance	Quantity
NatGas	Conventional Water Heater	1	Electric	Water Heat	1
Electric	Dishwasher	1	Electric	Dishwasher	1
Electric	First Refrigerator	1	Electric	First Refrigerator	1
Electric	Second Refrigerator	1	Electric	Second Refrigerator	1
Electric	Microwave	1	Electric	Microwave	1
NatGas	Range Oven Combination	1	NatGas	Range Oven Combination	1
Electric	Clothes Washer	1	Electric	Clothes Washer	1
NatGas	Dryer	1	NatGas	Dryer	1
Electric	TV	1	Electric	TV	1
Electric	Outdoor Lighting	1	Electric	Outdoor Lighting	1
Electric	PC	1	Electric	PC	1
Electric	Other	1	Electric	Other	1
Electric	Pool Pump	1	Electric	Pool Pump	1
Electric	Furnace Fan	1	Electric	Furnace Fan	1
NatGas	Primary Heat	1	NatGas	Primary Heat	1
Electric	Attic Ceiling Fan	1	Electric	Attic Ceiling Fan	1
Electric	Central Air Conditioning	1	Electric	Central Air Conditioning	1

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Run computed at 09-Jan-2019 10:56:25

More Information
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Results Panel (Query Individual Homes)

Results | Query Individual Homes

Filter Homes

Climate Zones

6 Coastal 10 S. Inland

8 S. Near-Coastal 15 S. Desert

9 N. Near-Coastal 16 Mountain

All Climate Zones

Housing Category

Only Single Family Homes Only Mobile Homes

Only Multi Family Homes All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil Southwest Gas Corp.

Southern California Gas City of Vernon Gas System

Electric Utilities

Azusa Light & Power

Bear Valley Electric Service

Burbank Water & Power

City of Anaheim Public Utilities Department

City of Banning Electric Department

City of Corona Department of Water & Power

City of Riverside

City of Vernon Municipal Light Department

Glendale Water & Power

Los Angeles Department of Water & Power

Moreno Valley Utility

Pasadena Water & Power

Rancho Cucamonga Municipal Utility

San Diego Gas & Electric

Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

[More Information](#) [View CZ MAP](#) [ANALYZE](#)

Specify Regions of Cost Effectiveness Space

Green NOx Green CO2e

Yellow NOx Yellow CO2e

Red NOx Red CO2e

Specify Units of Cost Effectiveness

[Delta lb / Delta \$] [Delta \$ / Delta ton]

Select a home to populate panels on right:

NOx Cost Eff.	CO2e Cost Eff.	# Homes
-1.0279	-3.1683e+06	1
-1.0278	-3.1680e+06	1
-1.0010	-8.3111e+05	7
-0.8654	-7.1853e+05	7
-0.7765	-6.4476e+05	7
-0.4956	-4.2023e+05	3
-0.4049	-3.3622e+05	7
-0.3343	-2.8035e+05	4
-0.3325	-2.7886e+05	4
-0.2431	-7.4920e+05	1
-0.2242	-1.9058e+05	1
-0.2184	-673071	1
-0.2184	-673071	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1

2,928,082 homes selected

Home Details

Costs

Utility Cost Description	Cost [\$]
Annual Change in Electricity Cost	-313.76
Annual Change in Natural Gas Cost	-251.92
Annual Change in Gasoline Cost	0
Annual Change in Diesel Cost	0
Net Change In Utility Cost	-565.68

Emissions

Solar & Battery

Appliance Cost Description	Cost [\$]
Increased Yearly Cost of Replacing Appliances at Beginning of Life	158.54
Increased Yearly Cost of Replacing Appliances at 50% of Lifetime	68.112
Increased Yearly Cost of Replacing Appliances at 75% of Lifetime	7.8284
Increased Yearly Cost of Replacing Appliances at End of Life	-37.385
Cost of Installing and Purchasing New Appliances	2061
Cost of Installing Rooftop PV per year [ammortized by lifetime]	603.7
Cost of Installing Residential Battery Storage per year [ammortized by lifetime]	0

Change in Monthly Electricity Cost [Scenario - Baseline]

Electricity Cost vs Month

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Results Panel (Query Individual Homes)

Filter Homes

Climate Zones

6 Coastal
 10 S. Inland
 8 S. Near-Coastal
 15 S. Desert
 9 N. Near-Coastal
 16 Mountain
 All Climate Zones

Housing Category

Only Single Family Homes
 Only Mobile Homes
 Only Multi Family Homes
 All Housing Types

Natural Gas Utilities

Long Beach Gas & Oil
 Southwest Gas Corp.
 Southern California Gas
 City of Vernon Gas System

Electric Utilities

Azusa Light & Power
 Bear Valley Electric Service
 Burbank Water & Power
 City of Anaheim Public Utilities Department
 City of Banning Electric Department
 City of Corona Department of Water & Power
 City of Riverside
 City of Vernon Municipal Light Department
 Glendale Water & Power
 Los Angeles Department of Water & Power
 Moreno Valley Utility
 Pasadena Water & Power
 Rancho Cucamonga Municipal Utility
 San Diego Gas & Electric
 Southern California Edison

2,968,064 homes meeting filter criteria above
53.5093% of the total homes in SoCAB meet filter criteria

Specify Regions of Cost Effectiveness Space

Green NOx
 Green CO2e
 Yellow NOx
 Yellow CO2e
 Red NOx
 Red CO2e

Specify Units of Cost Effectiveness

[Delta lb / Delta \$]
 [Delta \$ / Delta ton]

Select a home to populate panels on right:

NOx Cost Eff.	CO2e Cost Eff.	# Homes
-1.0279	-3.1683e+06	1
-1.0278	-3.1680e+06	1
-1.0010	-8.3111e+05	7
-0.8654	-7.1853e+05	7
-0.7765	-6.4476e+05	7
-0.4956	-4.2023e+05	3
-0.4049	-3.3622e+05	7
-0.3343	-2.8035e+05	4
-0.3325	-2.7886e+05	4
-0.2431	-7.4920e+05	1
-0.2242	-1.9058e+05	1
-0.2184	-673071	1
-0.2184	-673071	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1

2,928,082 homes selected

Home Details

Costs

Fuel Use

Emissions

Solar & Battery

Fuel Type	Fuel Use
Baseline electricity use [kw-hr]	11809
Scenario electricity use [kw-hr]	14978
Scenario electricity use with PV and Battery (if selected) [kw-hr]	10413
Baseline natural gas use [therms]	453.38
Scenario natural gas use [therms]	258.38
Baseline gasoline use [gal]	509.35
Scenario gasoline use [gal]	509.35
Baseline diesel use [gal]	0
Scenario diesel use [gal]	0

Electricity Profile

Natural Gas Profile

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ANALYZE
RETURN TO PREVIOUS
ADVANCE TO NEXT



Results Panel (Query Individual Homes)

Demand | Demand Input Summary | Power Supply | Economics | Computation | Results

Analyze Most Recent Results | Analyze Saved Results | Select Cost Effectiveness Subset | Cost Effectiveness | Appliance Mix | Apply Prescribed Funding | Query Individual Homes

Filter Homes

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More Information View CZ MAP ANALYZE

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 Yellow NOx Yellow CO2e
 Red NOx Red CO2e

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[Delta lb / Delta \$] [Delta \$ / Delta ton]

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-0.3325	-2.7886e+05	4
-0.2431	-7.4920e+05	1
-0.2242	-1.9058e+05	1
-0.2184	-673071	1
-0.2184	-673071	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
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-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7306e+05	1
-0.2184	-6.7304e+05	2
-0.2184	-6.7304e+05	1
-0.2184	-6.7304e+05	1
-0.2184	-6.7304e+05	1
-0.2184	-6.7304e+05	1

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Emissions

Solar & Battery

Emission Type	Baseline [lb]	Scenario [lb]
Point-of-use NOx Emissions	5.4897	5.0412
Point-of-use CO2e Emissions	14834	12541
Well-to-pump NOx Emissions from Gasoline and Diesel	0.34811	0.34811
Well-to-pump CO2e Emissions from Gasoline and Diesel	580.81	580.81
Fugitive Natural Gas CO2e Emissions from Residential Gas Use	1.2e+06	6.8387e+05
Natural Gas Production and Distribution CO2e Emissions from Residential Gas ...	3099.7	1766.5

Emission Type	Change in Emissions [lb]
Change in NOx Emissions from Electricity Generation	-0.18119
Change in CO2e Emissions from Electricity Generation	-2645.9
Change in CO2e Emissions from Fugitive Methane in Electricity Generation	-460.79

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Results Panel (Query Individual Homes)

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[Analyze Most Recent Results](#) | [Analyze Saved Results](#)

[Select Cost Effectiveness Subset](#) | [Cost Effectiveness](#) | [Appliance Mix](#) | [Apply Prescribed Funding](#) | [Query Individual Homes](#)

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-0.2242	-1.9058e+05	1
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-0.2184	-6.7306e+05	1
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-0.2184	-6.7304e+05	1
-0.2184	-6.7304e+05	1

2,928,082 homes selected

Home Details

Costs

Fuel Use

Emissions

Solar & Battery

Parameter Description	Value
Approximate optimum DC panel solar size that minimizes installation and utility cost	3
Solar panel installation cost to acheive the optimum DC installtion size amortized by panel lifetime	603.7
Solar panel installation cost to acheive the optimum DC installtion size	15092
Battery Installation Cost per year [ammortized by battery lifetime]	0

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Next Steps

- Full integration of battery module
- Intensive QA/QC of the tool
- Beta version to be released to working group members

Discussion and Public Comment

