California Energy Commission

CONSULTANT REPORT

2019 California Residential Appliance Saturation Study

Appendices

Prepared for: **California Energy Commission**
Prepared by: **DNV GL Energy Insights USA, Inc.**

DNV·GL

Gavin Newsom, Governor
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California Energy Commission

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ACKNOWLEDGEMENTS

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APPENDIX A:
2019 RASS Survey with Variables

This appendix contains the 2019 RASS survey instrument with variable names.

HOME ENERGY SURVEY

(Ident)

Thank you for participating in this important survey. Your responses will support statewide planning activities and help us to meet the electric and natural gas needs of all Californians. We appreciate your time and your input.

A-2

Your household can help improve the reliability of California's future energy needs by completing this survey today. This survey was sent to a limited number of households so each response counts!

To simplify and accelerate the survey submission process, we invite you to complete the survey online. Please visit the following secure website: https://calhes.com

Alternatively, you may fill-out this survey booklet. Using these instructions, please:

1. Use a pencil or a ball-point black or blue ink pen to fill out the survey.
2. Choose only one answer for each question unless the instructions state otherwise.
3. Fill in the circles completely.
4. To change your answer, erase completely or clearly cross out unintended response, as illustrated here:

5. Information in *blue ink* is printed on the survey to help clarify or direct you to the next question based on your response.
6. When you are finished, please return the survey in the enclosed postage-paid envelope or mail it to:

   CA Home Energy Survey
   Processing Center
   2672 Dow Ave.
   Tustin, CA 92780

| Correct Mark | Incorrect Marks | Change Answer |

Complete the survey in the next week for the address that is printed on the front page of this booklet. When answering the questions, provide responses that represent all household members, not just the person completing the survey.

Do your best to answer all questions, if you do not know the answer to one of the questions, move on to the next one.

Need assistance or have a question? Please email or call our survey contractor at support@calhes.dnvgl.com or call the customer support line at 1 (866) 363-7448. DNV GL Energy Insights USA, Inc. has been hired by the Energy Commission to manage this study they are available Monday through Friday, 8:30 a.m. to 5:00 p.m. Pacific time.

Esta encuesta tambien esta disponible en Español por el **internet**, si usted prefiere llenarla de ese modo. Por favor visite la página https://calhes.com. Para poder realizar nuestro análisis de energía, necesitamos que sus respuestas sean solo sobre su casa. Antes de empezar la encuesta por internet, necesitará información disponible en este libreto.

On behalf of the Energy Commission and our study sponsors we look forward to receiving your information and thank you for your participation.

Sponsored by:
Pacific Gas and Electric
San Diego Gas and Electric
SoCalGas

California Energy Commission
Southern California Edison
Los Angeles Dept. of Water and Power
Sacramento Municipal Utility District

Your Home & Lifestyle

A1   What type of building exists at the service address on the front cover of this survey? (DWLTYPE) (RES – Cleaned dwltype)

1⬭ Single-family detached house ➡ Number of stories: 1⬭ 1   2⬭ 2   3⬭ 3 or more (STORIES)

2⬭ Townhouse, duplex, or row house *(Shares walls with neighboring unit, but not roof or floor)*

3⬭ Apartment or condominium (2 – 4 units)

4⬭ Apartment or condominium (5 or more units)

5⬭ Mobile home

6⬭ Other *(Describe:*   (DWLOTH)_____*)*

A2   Do you own or rent this home? (OWNRENT)

1⬭ Own / buying 2⬭ Rent / lease

A3   How long have you lived at this address? (YRS_RES)

1⬭ 1 yr or less	6⬭ 6 years	11⬭ 11 years	16⬭ 16 – 20 years
2⬭ 2 years	7⬭ 7 years	12⬭ 12 years	17⬭ 21 – 30 years
3⬭ 3 years	8⬭ 8 years	13⬭ 13 years	18⬭ More than 30 years
4⬭ 4 years	9⬭ 9 years	14⬭ 14 years	
5⬭ 5 years	10⬭ 10 years	15⬭ 15 years	

A4   Which of the following best describes this residence? (SEASOCC)

1⬭ This is my permanent year-round residence. (Go to *A6.*)

2⬭ This is my partial-year or seasonal residence.

3⬭ This is my vacation home and is generally used only by my family.

4⬭ This is a vacation rental home.

A5   If this is a partial-year or vacation home, please indicate the months this home is typically occupied. *(Mark all months that apply.)*

1⬭ Jan (SEASJAN)	1⬭ Mar (SEASMAR)	1⬭ May (SEASMAY)	1⬭ Jul (SEASJUL)	1⬭ Sept (SEASSEP)	1⬭ Nov (SEASNOV)
1⬭ Feb (SEASFEB)	1⬭ Apr (SEASAPR)	1⬭ Jun (SEASJUN)	1⬭ Aug (SEASAUG)	1⬭ Oct (SEASOCT)	1⬭ Dec (SEASDEC)

A6   Approximately what year was this residence built? (BUILTYR)

(HOMEAGE: Cleaned, imputed average [continuous] BUILTYR)

1⬭ Before 1940	4⬭ 1960-1969	7⬭ 1979-1983	10⬭ 2000-2005
2⬭ 1940-1949	5⬭ 1970-1974	8⬭ 1984-1991	11⬭ 2006-2012
3⬭ 1950-1959	6⬭ 1975-1978	9⬭ 1992-1999	12⬭ 2013-2019

A7   How many bedrooms are in your home? (NUMROOM)

1⬭ No bedrooms (studio apartment)	4⬭ 3	7⬭ 6	10⬭ 9
2⬭ 1 bedroom	5⬭ 4	8⬭ 7	11⬭ 10
3⬭ 2 bedrooms	6⬭ 5	9⬭ 8	12⬭ More than 10

A8   How many square feet of **living space** are there in your residence, including bathrooms, foyers and hallways? *(Exclude garages, basements and unheated porches.)* (SQFT) (SQFT_A: Cleaned, imputed average [continuous] sqft, not including MM)

1⬭ Less than 250	5⬭ 1001 – 1250	9⬭ 2501 – 3000
2⬭ 250 – 500	6⬭ 1251 – 1500	10⬭ 3001 – 4000
3⬭ 501 – 750	7⬭ 1501 – 2000	11⬭ 4001 – 5000
4⬭ 751 –1000	8⬭ 2001 – 2500	12⬭ More than 5000

A9 Are your home's **exterior *(outside)* walls** insulated? (EXTWLINS)

₁⬭ Yes, all walls   ₁⬭ Yes, some walls   ₁⬭ No   ₁⬭ Unknown

CWAGE

A10 Is your home's **attic/ceiling** insulated? (ACEILINS)

₁⬭ Yes ➡ **A11**   If yes, estimate the number of inches of **attic/ceiling** insulation. (CEILINCH)

₂⬭ No

₁⬭ 0 – 3 inches *(R-value less than R-10)*

₂⬭ 4 – 6 inches *(R-11 to R-19)*

₃⬭ Unknown

₃⬭ 7 – 10 inches *(R-20 to R-30)*

₄⬭ More than 10 inches *(R-31 or higher)*

A12 Choose the statements that best describe your **windows**. (WINFPTYP: Combination window frame and pane categories)

PANE TYPE *(number of layers of glass)* (WINDTYPE)

₁⬭ All or most are single pane   ₂⬭ All or most are double pane   ₃⬭ Mixture of single and double pane   ⬭ Mixture of single, double and/or triple pane

FRAME TYPE (WINFRAME)

₁⬭ All or most have vinyl frames   ₂⬭ All or most have wood frames   ₃⬭ All or most have metal frames

A13 Has your home been remodeled in the past 12 months? (REMOD)

₁⬭ No *(Go to A15.)*

₂⬭ Yes ➡**A14**   If yes, what type of remodel did you do? *(Choose all that apply.)*

₁⬭ Room addition, added square footage to home (RMDROOM)

₁⬭ Kitchen or bath re-model (RMDKTBTH)

₁⬭ Re-built most of the home (RMDREBLT)

₁⬭ Other (RMDOTHR)

A15 For each of the following age groups, how many people, including yourself, usually live in this home? (NUMI: Imputed continuous number in household Excludes MM.) (KIDS: Number of residents 0-18) (ADULTS: Number of residents 19-64) (SENIORS: Number of residents 65+)

Age	None	1	2	3	4	5	6	7	Over 7
5 and under (NR0_5)	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭
6 – 18 (NR6_18)	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭
19 – 34 (NR19_34)	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭
35 – 54 (NR35_54)	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭
55 – 64 (NR55_64)	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭
65 and over (NR65_99)	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭	₁⬭

Number of People Usually Living In This Home

A16 Generally speaking, how often does a member of this household use major **electrical** appliances or equipment (e.g., clothes washer, electric range, dishwasher, air conditioner, etc.) on **weekdays from 4 p.m. to 9 p.m.**? (ONPKUSE)

₁⬭ Frequently *(3 – 5 weekdays per week)*

₂⬭ Occasionally *(1 – 2 weekdays per week)*

₃⬭ Rarely or Never *(Less than 1 weekday per week)*

A17 Is natural gas service from underground pipes from the gas utility available in your neighborhood? (NGSERV)

₁⬭ Yes   ₁⬭ No *(Go to A20.)*

A18 Do you have a natural gas line or hook-up to any part of your home? (NGLINE)

₁⬭ Yes   ₁⬭ No

A19 What utility do you pay for **natural gas** service to your home? (NGUTIL)

1 ⬭ Pacific Gas & Electric (PG&E) 4 ⬭ Southwest Gas Corporation
2 ⬭ San Diego Gas & Electric (SDG&E) 5 ⬭ City of Coalinga
3 ⬭ SoCalGas Company 6 ⬭ City of Long Beach Gas Department
   ("The Gas Company") 7 ⬭ Not sure

Electric Vehicles

A20 Does anyone in your household currently own or lease a plug-in battery electric vehicle or plug-in hybrid electric vehicle? (EVYN) (EVYN2: plugged EVYN)
⬭ Yes
⬭ No *(Go to B1)*

A21 How many electric vehicles of each type does your household own or lease?

	1	2	3 or more
Plug-in electric vehicle *(e.g. Tesla, Honda Clarity, Toyota Prius Prime, Chevy Bolt, Nissan Leaf, BWM i3)* (NUMBEV)	⬭	⬭	⬭
Hybrid electric plug-in vehicle *(e.g., Chevy Volt, Ford Fusion Energi)* (NUMHEV)	⬭	⬭	⬭

A22 On an average day, how many **total** miles do you drive your electric vehicles? *(Choose one answer for the total miles for all electric vehicles for the average weekday, and one answer for the average weekend day)*

	Monday-Friday (EVMDMF)	Saturday – Sunday (EVMDSS)
Less than 20 miles	⬭	⬭
21-40 miles	⬭	⬭
41-60 miles	⬭	⬭
61-100 miles	⬭	⬭
More than 101 miles	⬭	⬭

A23 How often do you charge your electric vehicle(s) at home, work or somewhere else? *(Choose one answer for each location that you charge the vehicles)*

	Home (EVTMCHH)	Work (EVTMCHW)	Some-where Else (EVTMCHO)
Daily	⬭	⬭	⬭
5-6 times per week	⬭	⬭	⬭
3-4 times per week	⬭	⬭	⬭
1-2 times per week	⬭	⬭	⬭
Less than once a week	⬭	⬭	⬭

A24 Is your primary charger used at **home** a Level 1 (120V) or Level 2 (240V)? (EVCHTYPE)
⬭ Level 1 (120V) standard wall outlet – slower charge
⬭ Level 2 (240V) charger - outlet like clothes dryer uses – faster charge
⬭ Don't know
⬭ Do not charge at home *(Go to B1)*

A25 When is/are the EV(s) normally charged **at home** using this primary charger? *(Choose all that apply.)*
⬭   Morning *(6am-9am)* (EVCHH6_9)
⬭   Day *(9am–5pm)* (EVCHH9_5)
⬭   Evening *(5pm–9pm)* (EVCHH5_9)
⬭   Night *(9pm–6am)* (EVCHH9_6)

Space Heating

B1 Do you pay to heat your home? (PAYHEAT) (PAYHEAT2 – cleaned PAYHEAT)

1 ⬭ Yes   2 ⬭ No, it is part of my rent/condo fee *(Go to B8.)*
             3 ⬭ No, do not have a heating system *(Go to B8.)*

B2 What type of heating system do you use to heat this home?
(If you use more than one heating system, mark the system that you use the most as "Main Heating" and mark all other systems as "Additional Heating.") (PHTFUEL3- plugged heating fuel)

	Main Heating *(Mark only ONE BOX below)*	Additional Heating *(Mark ALL BOXES that apply)*
NATURAL GAS (from gas utility)		
Central forced-air furnace *(fan circulates hot air through air ducts)*	1 ⬭ (PHTNGCNT)	1 ⬭ (AHTNGCNT)
Floor or wall heater/furnace	1 ⬭ (PHTNGFWL)	1 ⬭ (AHTNGFWL)
Hot water radiator (steam, hot water, fin tubes)	1 ⬭ (PHTNGRAD)	1 ⬭ (AHTNGRAD)
Fireplace (Gas)	1 ⬭ (PHTNGFP)	1 ⬭ (AHTNGFP)
Other system type	1 ⬭ (PHTNGOTH)	1 ⬭ (AHTNGOTH)
ELECTRIC		
Resistance (baseboard/ceiling/floor/wall)	1 ⬭ (PHTELBSB)	1 ⬭ (AHTELBSB)
Central forced air furnace *(fan circulates hot air through air ducts)*	1 ⬭ (PHTELCRH)	1 ⬭ (AHTELCRH)
Central heat pump *(heats and cools)*	1 ⬭ (PHTELCHP)	1 ⬭ (AHTELCHP)
Through-the-wall heat pump *(looks like a window/wall air conditioner, but also provides heat)*	1 ⬭ (PHTELWHP)	1 ⬭ (AHTELWHP)
Portable heaters	1 ⬭ (PHTELPOR)	1 ⬭ (AHTELPOR)
Other system type	1 ⬭ (PHTELOTH)	1 ⬭ (AHTELOTH)
BOTTLED GAS (propane, LP)		
Central forced air furnace *(fan circulates hot air through air ducts)*	1 ⬭ (PHTBGCNT)	1 ⬭ (AHTBGCNT)
Floor or wall heater/furnace	1 ⬭ (PHTBGFWL)	1 ⬭ (AHTBGFWL)
Hot water radiator	1 ⬭ (PHTBGRAD)	1 ⬭ (AHTBGRAD)
Other system type	1 ⬭ (PHTBGOTH)	1 ⬭ (AHTBGOTH)
WOOD		
Woodstove/pellet stove/fireplace insert	1 ⬭ (PHTWDWS)	1 ⬭ (AHTWDWS)
Fireplace (Wood-burning)	1 ⬭ (PHTWDFP)	1 ⬭ (AHTWDFP)
SOLAR		
Solar – no backup	1 ⬭ (PHTSLRN)	1 ⬭ (AHTSLRN)
Solar – natural gas backup	1 ⬭ (PHTSLRG)	1 ⬭ (AHTSLRG)
Solar – propane backup	1 ⬭ (PHTSLRP)	1 ⬭ (AHTSLRP)
Solar – electric backup	1 ⬭ (PHTSLRE)	1 ⬭ (AHTSLRE)
OTHER FUEL	1 ⬭ (PHTOTSYS)	1 ⬭ (AHTOTSYS)

(Describe): (HTOTSYSD)_____

B3 If your heating system(s) use natural gas for fuel, indicate whether it has a pilot light(s).

Main gas heating (MAINPILT)	1 ⬭ Yes, pilot light on all year	2 ⬭ Yes, pilot light on in winter only	3 ⬭ No pilot light
Secondary gas heating (SECPILT)	1 ⬭ Yes, pilot light(s) on all year	2 ⬭ Yes, pilot light(s) on in winter only	3 ⬭ No pilot light(s)

B4 How old is your main heating system? (HTSYSAGE)

1⬭ Less than one year   3⬭ 4 – 8 years   5⬭ 14 – 30 years
2⬭ 1 – 3 years   4⬭ 9 – 13 years   6⬭ Over 30 years

B5 What type of thermostat does your main heating system(s) use? (HTCTLTYP)

1⬭ Smart thermostat *(Can be used with home automation systems and may sense when you are home, e.g., Nest, Lyric, Sensi or Ecobee)*
1⬭ Programmable thermostat *(Can set heater to different temperatures for different times)*
2⬭ Non-programmable thermostat *(Can turn heater on/off and set temperature by hand)*
3⬭ No thermostat *(Simple on/off control or steam valve) (Go to B7.)*

B6 If your main heating system is controlled by a thermostat, what is the average thermostat temperature usually set for each time period during the heating season? *(Choose one answer for each time period. Provide the average setting if it varies.)*

	Off	Below 55°F	55 – 60°F	61 – 65°F	66 – 70°F	71 – 75°F	Over 75°F
Morning *(6am-9am)* (HMRNSET)		1⬭		1⬭	1⬭	1⬭	1⬭
Day *(9am-5pm)* (HDAYSET)	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭
Evening *(5pm-9pm)* (HEVNSET)	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭
Night *(9pm-6am)* (HNITESET)	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭

B7 Has maintenance been performed on your main heating system in the past 12 months? (HTMAINTN)

1⬭ Yes   2⬭ No

B8 How many electric portable heaters do you use? (NPORHTRS)

1⬭ I don't use portable heaters   3⬭ 2 portable heaters
2⬭ 1 portable heater   4⬭ 3 or more portable heaters

B9 How often do you use any additional heating system(s), including portable heaters, during the heating season? (USEADDHT)

1⬭ No additional heating   4⬭ Often *(2 to 4 days per week)*
2⬭ Rarely *(once per month)*   5⬭ Always *(5 to 7 days per week)*
3⬭ Sometimes *(once per week)*

Space Cooling

CENTRAL AIR CONDITIONING/COOLING

C1 Do you pay for central air conditioning/cooling for your home? (PAYCOOL)
(PAYCOOL2 – cleaned PAYCOOL)

1⬭ Yes   2⬭ No, it is part of my rent/condo fee *(Go to C7.)*
                3⬭ No, do not have central air conditioning *(Go to C7.)*

C2 What type and how many central air conditioning/cooling system(s) do you have in your home? (COOLING – Plugged combo of CAC/RAC types)
(CACCNT - Total number of types of central air conditioners)

	Number of Central Cooling Systems			Main system controlled using a Zoned Thermostat
	1	**2**	**3 or more**	
Central air conditioning (CTLACAGE)	1⬭	2⬭	3⬭	1⬭ (CTLACZON)
Central evaporative *(swamp)* cooler (CTEVPAGE)	1⬭	2⬭	3⬭	1⬭ (CTEVZON)
Heat pump *(heats and cools)* (HPAGE)	1⬭	2⬭	3⬭	1⬭ (HPZON)
Mini-split or "ductless" (MSDNUM)	1⬭	2⬭	3⬭	1⬭ (MSDZON)

C3 How old is your main central air conditioning/cooling unit? (CLCNTAGE)

1⬭ Less than one year   3⬭ 4 – 8 years   5⬭ 14 – 30 years
2⬭ 1 – 3 years   4⬭ 9 – 13 years   6⬭ Over 30 years

C4 What type of thermostat does your main cooling system(s) use? (CLCTLTYP)

1⬭ Smart thermostat *(Can be used with home automation systems and may sense when you are home, e.g., Nest, Lyric, Sensi or Ecobee)*
2⬭ Programmable thermostat *(Can set air conditioner (AC) to different temperatures for different times)*
3⬭ Non-programmable thermostat *(Can turn the AC on/off and set temperature by hand)*
4⬭ No thermostat *(Simple on/off control) (Go to C6.)*

C5 What is the typical thermostat temperature setting of your main central cooling system for each time period **during the cooling season?** *(Choose one answer for each time period.)*

	Off	Below 68°F	68 – 69°F	70 – 73°F	74 – 76°F	77 – 80°F	Over 80°F
Morning *(6am–9am)* (CMRNSET)	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭
Day *(9am-5pm)* (CDAYSET)	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭
Evening *(5pm-9pm)* (CEVNSET)	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭
Night *(9pm-6am)* (CNITESET)	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭	1⬭

C6 Has maintenance been performed on your central air conditioning system in the past 12 months? (CLMAINTN)

1⬭ Yes   2⬭ No

ROOM AIR CONDITIONING/COOLING (Window / Wall Units)

C7 Please tell us the characteristics of each room air conditioning/cooling unit below.

1⬭ No room air conditioning/cooling units *(Go to D1.)* (NOROOMAC)

(RACCNT - Total number of room air conditioners)	Unit 1	Unit 2	Unit 3
Type of Room AC/Cooling Unit	(ACTYP1)	(ACTYP2)	(ACTYP3)
Window/wall/portable air conditioner	1⬭	1⬭	1⬭
Window/wall heat pump	2⬭	2⬭	2⬭
Window/wall evaporative *(swamp)* cooler	3⬭	3⬭	3⬭
Age of Room AC/Cooling Unit	(ACAGE1)	(ACAGE2)	(ACAGE3)
Less than one year	1⬭	1⬭	1⬭
1 – 3 years	2⬭	2⬭	2⬭
4 – 8 years	3⬭	3⬭	3⬭
9 – 13 years	4⬭	4⬭	4⬭
More than 13 years	5⬭	5⬭	5⬭

C8 Please indicate how often your room air conditioning/cooling unit(s) is/are turned on during the cooling season. *(Choose one answer for each time period.)*

Time Period	Never	Rarely *(1-2 days per week)*	Sometimes *(3-4 days per week)*	Often *(5-6 days per week)*	Always *(7 days per week)*
Morning *(6am-9am)* (CMRNUSE)	1⬭	1⬭	1⬭	1⬭	1⬭
Day *(9am–5pm)* (CDAYUSE)	1⬭	1⬭	1⬭	1⬭	1⬭
Evening *(5pm–9pm)* (CEVNUSE)	1⬭	1⬭	1⬭	1⬭	1⬭
Night *(9pm–6am)* (CNITEUSE)	1⬭	1⬭	1⬭	1⬭	1⬭
Hot weekday afternoon *(noon–6pm)* (CHOTUSE)	1⬭	1⬭	1⬭	1⬭	1⬭

Water Heating

D1 Do you pay for heating water at your residence? (PAYWH) (PAYWH2- cleaned PAYWH)

1☐ Yes   2☐ No, it is part of my rent/condo fee *(Go to D6.)*
          3☐ No hot water heater *(Go to D6.)*

D2 What type of water heating systems do you use in your home? (PWHFUEL3- Plugged primary water heating fuel)

	Main Water Heater *(Mark only ONE BOX in this column)*	Additional Water Heater(s) *(Mark ALL BOXES that apply)*
NATURAL GAS		
Standard tank	1☐ (PWHNGTNK)	1☐ (AWHNGTNK)
Whole house tankless system	1☐ (PWHNGWHT)	1☐ (AWHNGWHT)
High-efficiency condensing (with plastic vent pipe)	1☐ (PWHNGHEC)	1☐ (AWHNGHEC)
ELECTRIC		
Standard tank	1☐ (PWHELTNK)	1☐ (AWHELTNK)
Heat pump	1☐ (PWHELHP)	1☐ (AWHELHP)
Whole house tankless system	1☐ (PWHELWHT)	1☐ (AWHELWHT)
Point-of use tankless system	1☐ (PWHELPNT)	1☐ (AWHELPNT)
PROPANE		
Standard tank	1☐ (PWHLPTNK)	1☐ (AWHLPTNK)
Whole house tankless system	1☐ (PWHLPWHT)	1☐ (AWHLPWHT)
SOLAR		
With no backup system	1☐ (PWHSLRN)	1☐ (AWHSLRN)
With natural gas backup	1☐ (PWHSLRG)	1☐ (AWHSLRG)
With propane backup	1☐ (PWHSLRP)	1☐ (AWHSLRP)
With electric backup	1☐ (PWHSLRE)	1☐ (AWHSLRE)
OTHER FUEL	1☐ (PWHOTSYS)	1☐ (AWHOTSYS)
Describe: (PWHOTTXT)_____		

D3 What is the typical hot water heater temperature setting? *(Medium is the standard factory setting.)* (WHTEMP)

1☐ Low *(below 130°F)*   2☐ Medium *(130°F – 150°F)*   3☐ High *(over 150°F)*

D4 How old is your primary water heating system? (PRWHAGE)

1☐ Less than one year   3☐ 4 – 8 years   5☐ 14 – 30 years
2☐ 1 – 3 years   4☐ 9 – 13 years   6☐ Over 30 years

D5 How many total showers and baths are taken in your home on a **typical day**?

	0	1	2	3	4	5	6	7	8	9	10 or more
Showers / day (SHWRDAY)	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐
Baths / day (BATHSDAY)	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐	1☐

D6 Do you have low-flow showerheads installed in the shower(s)? *(Low-flow showerheads use 1.8 gallons per minute or less and have been standard since 1993.)* (SHOWERHD)

1☐ Yes, all showers   2☐ Yes, some showers   3☐ No

D7 Do the faucets in your home have water-saving aerators? *(Aerators are add-on devices that reduce the water usage by mixing air into the water stream.)* (AERATORS)

1☐ Yes, all faucets   2☐ Yes, some faucets   3☐ No

Laundry

E1 Do you have the use of laundry equipment in your home? (LNDRYEQP)

1◯ Yes   2◯ No, laundry facilities are located in a common area of the building. *(Go to F1.)*
3◯ I do not use laundry facilities in my building *(Go to F1.)*

E2 What type of clothes washer do you have? (CWTYP)
(Do not include machines in common areas.)

1◯ Top loading washer   2◯ Front loading washer

E3 How old is your clothes washer? (CWAGE)

1◯ Less than one year   3◯ 6 – 8 years   5◯ 16 – 30 years
2◯ 1 – 5 years   4◯ 9 – 15 years   6◯ Over 30 years

E4 For each wash temperature below, how many loads of clothes do you wash in your home during a **typical week**?

Number Clothes Washer Loads per Week

	0	1	2	3	4	5	6	7	8	9	10 or more
Hot water (CWHWLD)	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯
Warm water (CWWWLD)	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯
Cold water (CWCWLD)	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯	1◯

E5 What type of clothes dryer do you have? (CDTYP)
(Do not include machines in common areas.)

1◯ I do not have a clothes dryer   3◯ Electric dryer
2◯ Natural gas dryer   4◯ Bottled gas *(Propane, Butane, LP)*

E6 How old is your clothes dryer? (CDAGE)

◯ Less than one year   ◯ 6 – 8 years   ◯ 16 – 30 years
◯ 1 – 5 years   ◯ 9 – 15 years   ◯ Over 30 years

E7 For each dry temperature below, how many loads of clothes do you dry in your home during a **typical week**?

Number of Clothes Dryer Loads per Week

	0	1	2	3	4	5	6	7	8	9	10 or more
High heat (DRYLDSH)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Medium heat (DRYLDSM)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯
Low heat (DRYLDSL)	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯

Food Preparation

F1 Which of the following cooking appliances are used in your home? *(Choose all that apply.)*

Cooking Appliance	Type of Fuel				Age In Years			
	Natural Gas	Electric	Bottled Gas	Other	0–5 yrs	6–10 yrs	11–15 years	Over 15 years
Cooktop, stovetop or Range	1◯ (CKRNTYP)	2◯	3◯	4◯	1◯ (CKRNA)	2◯	3◯	4◯
Oven(s)	1◯ (CKOVTYP)	2◯	3◯	4◯	1◯ (CKOVA)	2◯	3◯	4◯
Outdoor oven	1◯ (CKOOVTYP)	2◯	3◯	4◯	1◯ (CKOOVA)	2◯	3◯	4◯
Outdoor barbecue	1◯ (CKBBTYP)	2◯	3◯	4◯	1◯ (CKBBQA)	2◯	3◯	4◯
Microwave Oven		1◯ (CKMW)			1◯ (CKMWA)	2◯	3◯	4◯

F2 During a typical **week**, how often do you use the following cooking appliances?

	Never	Rarely *(less than once per week)*	Occasionally *(1 – 2 times per week)*	Sometimes *(3 – 4 times per week)*	Often *(5 – 7 times per week)*
Cooktop, stovetop or Range (WRNUSE)	1⬭	2⬭	3⬭	4⬭	5⬭
Oven(s) (WOVUSE)	1⬭	2⬭	3⬭	4⬭	5⬭
Microwave Oven (WMWUSE)	1⬭	2⬭	3⬭	4⬭	5⬭
Other (WOTHUSE)	1⬭	2⬭	3⬭	4⬭	5⬭

F3 Do you have a **dishwasher**? (DISHWASH)

1⬭ Yes   2⬭ No *(Go to G1.)*

F4 How old is your dishwasher? (DWAGE)

⬭ Less than one year   ⬭ 6 – 8 years   ⬭ 16 – 30 years
⬭ 1 – 5 years   ⬭ 9 – 15 years   ⬭ Over 30 years

F5 How many dishwasher loads are run in a **typical week**? (DWLOADS)

1⬭ None   3⬭ 2   5⬭ 4   7⬭ 6   9⬭ 8
2⬭ 1   4⬭ 3   6⬭ 5   8⬭ 7   10⬭ 9 or more

Refrigerators

G1 How many refrigerators do you have plugged in? (RFNUM)

1⬭ 0 *(Go to H1.)*   2⬭ 1   3⬭ 2   4⬭ 3 or more

G2 Please tell us the characteristics of each refrigerator in the table below.

	Refrig 1	Refrig 2	Refrig 3
Door Style	(RF1STY)	(RF2STY)	(RF3STY)
Single-door	1⬭	1⬭	1⬭
Top Freezer – Bottom Refrigerator	2⬭	2⬭	2⬭
Top Refrigerator – Bottom Freezer	3⬭	3⬭	3⬭
Side-by-side	4⬭	4⬭	4⬭
Size, in Cubic Feet	(RF1SZ)	(RF2SZ)	(RF3SZ)
Mini *(under 13 cu. ft.)*	1⬭	1⬭	1⬭
Small *(13 – 16 cu. ft.)*	2⬭	2⬭	2⬭
Medium *(17 – 19 cu. ft.)*	3⬭	3⬭	3⬭
Large *(20 – 23 cu. ft.)*	4⬭	4⬭	4⬭
Very large *(over 23 cu. ft.)*	5⬭	5⬭	5⬭
Age of your Refrigerator	(RF1AGE)	(RF2AGE)	(RF3AGE)
Less than two years	1⬭	1⬭	1⬭
2 – 7 years	2⬭	2⬭	2⬭
8 – 10 years	3⬭	3⬭	3⬭
11 – 20 years	4⬭	4⬭	4⬭
More than 20 years	5⬭	5⬭	5⬭
Other Features	(RF1OTH)	(RF2OTH)	(RF3OTH)
Through-the-door ice and water dispenser	1⬭	1⬭	1⬭

Freezers

H1 How many **stand-alone** freezers do you have plugged in? (FZNUM)
(Do not include freezers that are part of your refrigerator.)
₁⟶ 0 *(Go to I1.)*   ₂⟶ 1   ₃⟶ 2 or more

H2 Please tell us the characteristics for each stand-alone freezer, and for any stand-alone freezer you discarded in the past 12 months, in the table below.

	Freezer 1	Freezer 2
Style	(FZ1STY)	(FZ2STY)
Upright, frost-free	₁⟶	₁⟶
Upright manual defrost	₂⟶	₂⟶
Chest frost-free	₃⟶	₃⟶
Chest manual defrost	₄⟶	₄⟶
Size, in Cubic Feet	(FZ1SZ)	(FZ2SZ)
Small *(under 13 cu. ft.)*	₁⟶	₁⟶
Medium *(13 – 16 cu. ft.)*	₂⟶	₂⟶
Large *(over 16 cu. ft.)*	₃⟶	₃⟶
Age of your Freezer	(FZ1AGE)	(FZ2AGE)
Less than two years	₁⟶	₁⟶
2 – 7 years	₂⟶	₂⟶
8 – 10 years	₃⟶	₃⟶
11 – 20 years	₄⟶	₄⟶
More than 20 years	₅⟶	₅⟶

Spas and Hot Tubs

I1 Do you have the use of a spa or hot tub at your home? (SPTYP)
(Do not include whirlpool tubs in your bathroom.)
₁⟶ Yes, and **I pay for its energy use**
₂⟶ Yes, but it is in a **common area** and **I do not pay for its energy use** *(Go to J1.)*
₃⟶ No spa or hot tub *(Go to J1.)*

I2 What fuel do you use to heat the spa or hot tub? (SPHTF)

₁⟶ Electricity   ₃⟶ Solar and electricity   ₅⟶ Bottled gas *(propane, butane, LP)*
₂⟶ Natural gas   ₄⟶ Solar and natural gas   ₆⟶ Other

I3 How large is the spa or hot tub? (SPSZ)
₁⟶ Small *(3 people or fewer)*   ₂⟶ Medium *(4 – 6 people)*   ₃⟶ Large *(7 or more people)*

I4 Where is the spa located? (SPLOC)
₁⟶ Outside, in the ground   ₂⟶ Outside, above ground   ₃⟶ Indoor spa

I5 Do you have an insulated cover on your spa or hot tub? (SPCOV)
₁⟶ Yes   ₂⟶ No

I6 How often do you run the filter pump on your spa or hot tub?

	Summer (May – Oct.)			Winter (Nov. – April)		
	Morning (6am-10am) (SMRNFLTPMP)	**Mid-Day** (10am-6pm) (SMDFLTPMP)	**Night** (6pm-6am) (SNITFLTPMP)	**Morning** (6am-10am) (WMRNFLTPMP)	**Mid-Day** (10am-6pm) (WMDFLTPMP)	**Night** (6pm-6am) (WNITFLTPMP)
Never	1	1	1	1	1	1
Rarely	2	2	2	2	2	2
Only when we use it	3	3	3	3	3	3
1 – 3 hours every day	4	4	4	4	4	4
4 – 6 hours every day	5	5	5	5	5	5

I7 Please indicate how often you **heat** your spa or hot tub in the winter and summer.

	Summer (May – Oct.)			Winter (Nov. – April)		
	Morning (6am-10am) (SMRNHTSPA)	**Mid-Day** (10am-6pm) (SMDHTSPA)	**Night** (6pm-6am) (SNITHTSPA)	**Morning** (6am-10am) (WMRNHTSPA)	**Mid-Day** (10am-6pm) (WMDHTSPA)	**Night** (6pm-6am) (WNITHTSPA)
Never	1	1	1	1	1	1
0 – 2 times per month	2	2	2	2	2	2
3 – 8 times per month	3	3	3	3	3	3
9 or more times per month	4	4	4	4	4	4
Maintain set temperature	5	5	5	5	5	5

Pools

J1 Do you have the use of a swimming pool at your home? (PLTYP)

1 Yes, and **I pay for its energy use**
2 Yes, but it is in a **common area** and **I do not pay for its energy use** *(Go to K1.)*
3 No pool *(Go to K1.)*

J2 How large is your pool? *(An average-size pool is about 5 ft. deep by 40 ft. long by 20 ft. wide and holds 30,000 gallons of water.)* (PLSZ)

1 Less than 20,000 gallons   2 20,000 – 40,000 gallons   3 More than 40,000 gallons

J3 How many **hours per day** do you operate your **swimming pool filter**?

Hours	Summer (May – Oct.)			Winter (Nov. – April)		
	Morning (6am-10am) (SMRNFLTHR)	**Mid-Day** (10am-6pm) (SMDFLTHR)	**Night** (6pm-6am) (SNITFLTHR)	**Morning** (6am-10am) (WMRNFLTHR)	**Mid-Day** (10am-6pm) (WMDFLTHR)	**Night** (6pm-6am) (WNITFLTHR)
None	1	1	1	1	1	1
1 – 2	2	2	2	2	2	2
3 – 4	3	3	3	3	3	3
5 – 7		4	4		4	4
8 – 12		5	5		5	5

J4 Which fuel do you use to heat your pool? (PLHTF)

1 Pool is not heated   5 Solar heater *(using solar collectors)*
2 Natural gas only   6 Bottled gas only *(propane, butane, LP)*
3 Electricity only   7 Other
4 Electric heat pump only

J5 Please indicate how often you **heat** your pool in the summer and winter.

	Summer (May – Oct.)			Winter (Nov. – April)		
	Morning *(6am-10am)* (SMRNHTPL)	**Mid-Day** *(10am-6pm)* (SMDHTPL)	**Night** *(6pm-6am)* (SNITHTPL)	**Morning** *(6am-10am)* (WMRNHTPL)	**Mid-Day** *(10am-6pm)* (WMDHTPL)	**Night** *(6pm-6am)* (WNITHTPL)
Never	1	1	1	1	1	1
Once a month	2	2	2	2	2	2
Once a week	3	3	3	3	3	3
2 – 4 times per week	4	4	4	4	4	4
Keep pool heated continuously	5	5	5	5	5	5

J6 What type of filtration pump does your pool have? (PMPTYP)

⬭ Single speed   ⬭ Two speed   ⬭ Variable speed   ⬭ No filtration pump

J7 Which of the following attributes does your pool have? *(Choose all that apply.)*

1⬭ Cover (PLCOV)   1⬭ Pool timer (PLTIMR)   1⬭ Pool sweep (PLSWEEP)   1⬭ Pool vacuum (PLVAC)   1⬭ Pool is indoors (PLINDOOR)

Entertainment and Technology

K1 How many televisions and accessories do you **use** in this home?

Televisions:	None	1	2	3 or more
OLED (organic light-emitting diode) or LED TV(s):				
(SMLLEDTV) ....smaller than 36 inches	1	1	1	1
(MEDLEDTV) …between 36 inches and 59 inches	1	1	1	1
(LRGLEDTV) ……… 60 inches or larger	1	1	1	1
LCD (liquid crystal display) TV(s):				
(SMLLCDTV) ……………smaller than 36 inches	1	1	1	1
(MEDLCDTV)…between 36 inches and 59 inches	1	1	1	1
(BIGLCDTV)……………60 inches or larger	1	1	1	1
Plasma display panel TV(s) (PLSMTV)	1	1	1	1
Cathode ray tube TV(s) *(CRT, tube style)* (STDTV)	1	1	1	1
DLP or rear-projection TV(s) (DLPTV)	1	1	1	1
Cable or satellite TV set-top boxes or receivers, DVR (DVRBOX)	1	1	1	1
Stand-alone movie players *(Blu-Ray/DVD/VCR)*(MOVPLA)	1	1	1	1
Gaming systems *(Nintendo, PlayStation, Xbox, Wii)* (GAMSYS)	1	1	1	1
Streaming media players *(Amazon Fire Stick, AppleTV, Chromecast, Roku)* (STREAM)	1	1	1	1
Home Theater system connected to TV (HTSYS)	1	1	1	1
Soundbar connected to TV (SNDBAR)	1	1	1	1
Separate sound or stereo system connected to TV (AUDTOTV)	1	1	1	1
Stand-alone stereo, iPod or MP3 docking station (SAMUSIC)	1	1	1	1

K2 How many **combined total hours** are your televisions on each day? *(Add up time for **all** TVs. Example: 13 hours a day for one + 16 for another equals 29 total hours.)*

	1 hour or less	1 – 8 hours	9 – 16 hours	17 – 24 hours	25 – 30 hours	Over 30 hours
TVs smaller than 36 inches (SMLTVUSE)	1	2	3	4	5	6
TVs 36 inches to 59 inches (MEDTVUSE)	1	2	3	4	5	6
TVs 60 inches or larger (LRGTVUSE)	1	2	3	4	5	6

K3 How many **personal computer(s)** *(PC, Macintosh, etc.)* do you **use** in this home?

	None	1	2	3 or more
Desktop(s) (NDSKPCS)	1 ⃝	2 ⃝	3 ⃝	4 ⃝
Laptop(s) (NLAPPCS)	1 ⃝	2 ⃝	3 ⃝	4 ⃝

K4 If you have one or more computer(s) in this home, how many **combined total hours** are they turned on each day? *(Add up time for **all** computers, including stand-by)*

	1 hour or less	1 – 8 hours	9 – 16 hours	17 – 24 hours	25 – 30 hours	Over 30 hours
Desktop(s) (DSKPCHRS)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝	6 ⃝
Laptop(s) (LAPPCHRS)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝	6 ⃝

K5 Do you (or someone else in your home) operate a business and/or work from your home? (WORKHOME)

1 ⃝ No *(Go to K8.)*

2 ⃝ Yes ➡ **K6** How many hours a week is someone working out of your home? (WKHRSHM)

　　1 ⃝ 0 – 10 hours per week
　　2 ⃝ 11 – 30 hours per week
　　3 ⃝ More than 30 hours per week

K7 How many of the following products do you **use** in this home?

	None	One	Two	Three or more
Printer, Scanner, Copier or Multifunction machine (PRNTSCAN)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Table computer or e-reader *(e.g., iPad or Kindle)* (TABLET)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Hubs, controllers, smart speakers *(Amazon Echo, Google Home, Apple HomePod)* (HUBS)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Smart home devices *(other than lighting)* (SMRTDEV)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
"Smart" cell phone (iPhone or Android) *)* (CELL) *(SMACELL in final survey data)*	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Other cell phone *(flip phone, candy bar phone)* (OTHCELL)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Dial-up internet access (PHINT)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
High-speed modem for Internet*(DSL/cable/satellite)* (HSMODINT)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Home network *(wired or wireless)* (HMNET)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Uninterrupted Power Supply *(UPS, power backup)* (UNPWRSUP)	1 ⃝	1 ⃝	1 ⃝	1 ⃝

Lighting

L1 What portion of light bulbs installed in the ceiling fixtures and lamps inside your home are the following types? *(Choose one answer for each type.)*

Incandescent
- *Classic glass bulb above the metal screw base*

CFL
- *"Twisty" tube can be covered*
- *Short plastic base*

LED
- *Spherical glass cover*
- *Large plastic base*

Lamp or Bulb Type	None	Some	About half	Most	All
Incandescent *(traditional light bulbs that have been around for 100 years)* (INCPort)	⃝	⃝	⃝	⃝	⃝
CFLs, Compact fluorescent *(sometimes have a "twisty", spiral shape, but the "twisty" can be covered in opaque glass)* (CFLPort)	⃝	⃝	⃝	⃝	⃝
LED, Light emitting diodes *(newest bulbs on the market, often with a large plastic base sometimes with ridges)* (LEDPort)	⃝	⃝	⃝	⃝	⃝

L2 How many lights inside your home are turned on during the following times of day? *(Choose one answer for each time period.)*

Time Period	None	Few lights *(about 25%)*	Some lights *(about 50%)*	Many lights *(about 75%)*	All lights *(100%)*
Morning *(6am-9am)* (LMRNUSEN)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝
Day *(9am–5pm)* (LDAYUSEN)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝
Evening *(5pm–9pm)* (LEVNUSEN)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝
Night *(9pm–6am)* (LNITEUSEN)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝

L3 How many of the following lighting products do you use **inside** your home?

Interior Lighting Products	None	1 – 2	3 – 5	6 – 10	11 or More
Fixtures on Timers (ICTLTIMR)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝
Fixtures on Motion Detectors or Occupancy Sensors (ICTLOCCS)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝
Fixtures on a Dimming Switch (ICTLDIM)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝
"Smart" (connected) light bulbs (ICTLCONN)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝
Nightlights (ICTLNITE)	1 ⃝	2 ⃝	3 ⃝	4 ⃝	5 ⃝

L4 How many of the following lighting products do you use **outside** your home? *(Include items in your garage. Only include exterior lights that are paid for on your electricity bill.)*

Exterior Fixtures	None	1 – 2	3 – 5	6 or More
Exterior incandescent fixtures (EXINC)	1 ⃝	2 ⃝	3 ⃝	4 ⃝
Exterior compact fluorescent fixtures (EXCFL)	1 ⃝	2 ⃝	3 ⃝	4 ⃝
Exterior light-emitting diode (LED) fixtures (EXLED)	1 ⃝	2 ⃝	3 ⃝	4 ⃝
Low voltage landscape light system (EXLOWV)	1 ⃝	2 ⃝	3 ⃝	4 ⃝
HID (sodium vapor, metal halide) fixture (EXHID)	1 ⃝	2 ⃝	3 ⃝	4 ⃝
Exterior Lighting Controls	1 ⃝	2 ⃝	3 ⃝	4 ⃝
Fixtures on Timers (ECTLTIMR)	1 ⃝	2 ⃝	3 ⃝	4 ⃝
Fixtures on Dusk-to-Dawn Sensors (ECTLDSK)	1 ⃝	2 ⃝	3 ⃝	4 ⃝
Fixtures on Motion Detectors (ECTLMOTN)	1 ⃝	2 ⃝	3 ⃝	4 ⃝

Miscellaneous Appliances

M1 How many of each of the following appliances or equipment do you **use** in your home? *(Choose all that apply.)*

	None	1	2	3 or More
Chargers left plugged in all the time *(phone/tablet/tools)* (CHRGRS)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Rechargeable vacuum *(Roomba, RoboVac, Botvac)* (RECHVAC)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Small cooking *(air fryer, Instant Pot, slow cooker)* (SMACOOK)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Portable fan (FNPORT)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Ceiling fan (FNCEIL)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Wind turbine attic ventilator (non-electric) (WNDATV)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Electric attic fan (FNATTIC)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Whole-house fan (FNWHOLE)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Electronic household air cleaner (AIRCLEAN)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Portable (room) air purifier (PORTPUR)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Humidifier or Dehumidifier (HUMDEH)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Wine or beverage cooler (WINCLR)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Water purification system (WHPURIFY)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Domestic hot water recirculation pump (DHWRPMP)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Sauna – electric (SAUNA)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Pond or water garden pump or fountain (POND)	1 ⃝	1 ⃝	1 ⃝	1 ⃝
Outdoor fire table/fire pit (FIREPIT)	1 ⃝	1 ⃝	1 ⃝	1 ⃝

M2 Do you use an electric well water pump to provide water for your home? (WLWTRPMP)

1 ☐ No *(Go to M5.)*

2 ☐ Yes ➡️ **M3** Does your home also have access to city/county water sources? (WTRSRCES) 1 ☐ Yes 2 ☐ No

M4 How do you use your well water? (WLWTUSE)

1 ☐ Only for gardening and landscaping

2 ☐ Only for household use

3 ☐ Both household and gardening/landscape use

M5 Select fuel type for any of the equipment that is **used** three or more hours per week.

	Electric	Natural Gas	Bottled Gas
Sump pump (SUMPPMP)	1 ☐		
Shop tools (SHOPTLS)	1 ☐		
Electric welding equipment (WELD)	1 ☐		
Electric air compressor (AIRCOMP)	1 ☐		
Charger for large battery (BATCHRGE)	1 ☐		
Kiln for ceramics and pottery (KILN)	1 ☐	1 ☐	1 ☐
Medical equipment (e.g., respirator) (MEDICAL)	1 ☐	1 ☐	1 ☐

M6 Do you have an electric bicycle, skateboard, wheelchair, or golf cart at your home? (ELVEH)

1 ☐ No *(Go to M8.)* (EWHLS1)

1 ☐ Yes, electric wheelchair/cart ➡️ (EWHLS2)

1 ☐ Yes, electric bicycle/skateboard ➡️ (EWHLS3

M7 Do you charge your electric wheelchair, cart, skateboard or bicycle at home? (CHRGELSC)

1 ☐ Yes 2 ☐ No

M8 Do you use any other equipment or large appliance that consumes a significant amount of electricity or natural gas in your home? (OLRGAPP)

1 ☐ No 2 ☐ Yes *(Please describe equipment and fuel.):* (OLRGEQP), (OLRGFUEL) ___

M9 Please indicate if you have **added or replaced** any of the following appliances in the past 12 months. If the new item replaced an existing unit, please be sure to answer question **M10** as well. *(Choose all that apply.)*

Appliance	Added a New Unit	Fuel Type of New Unit		
		Elec	Nat. Gas	Other
Central heating	1 ☐ (CHADD)	(CHFUEL) 1 ☐	1 ☐	1 ☐
Central cooling	1 ☐ (CCADD)	(CCFUEL) 1 ☐		
Wall or window air conditioner	1 ☐ (WWADD)	(WWFUEL) 1 ☐		
Evaporative *(swamp)* cooler	1 ☐ (EVCLADD)	(EVCLFUEL) 1 ☐		
Water heater	1 ☐ (WHADD)	(WHFUEL) 1 ☐	1 ☐	1 ☐
Refrigerator	1 ☐ (RFADD)	(RFFUEL) 1 ☐		
Stand-alone freezer	1 ☐ (FRZADD)	(FRZFUEL) 1 ☐		
Stove top	1 ☐ (STADD)	(STFUEL) 1 ☐	1 ☐	1 ☐
Oven	1 ☐ (OVADD)	(OVFUEL) 1 ☐	1 ☐	1 ☐
Microwave oven	1 ☐ (MWADD)	(MWFUEL) 1 ☐		
Dishwasher	1 ☐ (DWADD)	(DWFUEL) 1 ☐		
Clothes washer	1 ☐ (CWADD)	(CWFUEL) 1 ☐		
Clothes dryer	1 ☐ (CDADD)	(CDFUEL) 1 ☐	1 ☐	1 ☐
Pool heater	1 ☐ (PHADD)	(PHFUEL) 1 ☐	1 ☐	1 ☐
Pool pump	1 ☐ (PPADD)	(PPFUEL) 1 ☐		
Hot tub/spa heater	1 ☐ (TBADD)	(TBFUEL) 1 ☐	1 ☐	1 ☐

1 ☐ Have not **added or replaced** any of the above appliances. (NOADD)

M10 Please indicate if you have **discarded** any of the following appliances in the past 12 months. Include both items that were replaced and those that were discarded without being replaced. *(Choose all that apply.)*

Appliance	Age of Discarded Unit			Fuel Type of Discarded Unit		
	1–10 years	11–20 years	Over 20 years	Elec	Nat. Gas	Other
Central heating	(DCHAGE) 1 ▢	1 ▢	1 ▢	(DCHFL) 1 ▢	1 ▢	1 ▢
Central cooling	(DCCAGE) 1 ▢	1 ▢	1 ▢	(DCCFL) 1 ▢		
Wall or window air conditioner	(DWWAGE) 1 ▢	1 ▢	1 ▢	(DWWFL) 1 ▢		
Evaporative *(swamp)* cooler	(DEVCLAGE) 1 ▢	1 ▢	1 ▢	(DEVCLFL) 1 ▢		
Water heater	(DWHAGE) 1 ▢	1 ▢	1 ▢	(DWHFL) 1 ▢	1 ▢	1 ▢
Refrigerator	(DRFAGE) 1 ▢	1 ▢	1 ▢	(DRFFL) 1 ▢		
Stand-alone freezer	(DFZAGE) 1 ▢	1 ▢	1 ▢	(DFRZFL) 1 ▢		
Stove top	(DSTAGE) 1 ▢	1 ▢	1 ▢	(DSTFL) 1 ▢	1 ▢	1 ▢
Oven	(DOVAGE) 1 ▢	1 ▢	1 ▢	(DOVFL) 1 ▢	1 ▢	1 ▢
Microwave oven	(DMWAGE) 1 ▢	1 ▢	1 ▢	(DMWFL) 1 ▢		
Dishwasher	(DDWAGE) 1 ▢	1 ▢	1 ▢	(DDWFL) 1 ▢		
Clothes washer	(DCWAGE) 1 ▢	1 ▢	1 ▢	(DCWFL) 1 ▢		
Clothes dryer	(DCDAGE) 1 ▢	1 ▢	1 ▢	(DCDFL) 1 ▢	1 ▢	1 ▢
Pool heater	(DPHAGE) 1 ▢	1 ▢	1 ▢	(DPHFL) 1 ▢	1 ▢	1 ▢
Pool pump	(DPPAGE) 1 ▢	1 ▢	1 ▢	(DPPFL) 1 ▢		
Hot tub/spa heater	(DTBAGE) 1 ▢	1 ▢	1 ▢	(DTBFL) 1 ▢	1 ▢	1 ▢

1 ▢ Have not **discarded** any of the above appliances. (NODISCRD)

Renewable Energy Technologies

M11 Which of the following renewable energy technologies are **currently** used at this residence? *(Check all that apply.)*
▢ No renewable energy technologies (NORENEW)
▢ Solar electricity/photovoltaic (PV) cells (PVRENEW)
▢ Solar water heating (In-home water heated) (SORENEW)
▢ Battery storage connected to solar (BTRENEW)
▢ Wind generator (WGRENEW)
▢ Fuel cells (FCRENEW)

M12 In the next two years, do you plan to install any of the following renewable technologies? *(Check all that apply.)*
▢ No plans (NOPLAN)
▢ Solar electricity/photovoltaic (PV) cells (PVPLAN)
▢ Solar domestic water heating (In-home water heated) (SOWHPLAN)
▢ Solar pool water heating (Pool water heated) (SOPHPLAN)
▢ Battery storage connected to solar (BTPLAN)
▢ Wind generator (WGPLAN)
▢ Fuel cells (FCPLAN)
▢ Other: (OTHPLAN) *(describe)*_____

Household Information

Please provide answers to the following questions. **Your responses will be confidential** and no data will be used on an individual basis. The information is used to allow us to compare energy usage between various groups.

N1 In addition to the home described in this survey, do you own any other home in California that is occupied on a part-time basis by your family or as a vacation rental? *(Please do not answer yes for any full-time rental property or time-share units.)* (PTHME)
1⬭ Yes   2⬭ No (Go to *N3.*)

N2 Please provide the following information for your seasonal or vacation home that you own in California? *(Please do **not** provide information for the home described in this survey, any full-time rental property or any time-share units.)*

Location (PTHMELOC)	1⬭ In the mountains 2⬭ In the desert 3⬭ Near a lake or river	4⬭ Near the ocean 5⬭ Other	
Electricity is provided to this vacation home by: (PTHMEUTL)	1⬭ PG&E 2⬭ SCE 3⬭ SDG&E	4⬭ LADWP 5⬭ SMUD 6⬭ Other	
Natural gas is provided to this vacation home by: (PTHMGUTL)	1⬭ PG&E 2⬭ SDG&E	3⬭ SoCalGas 4⬭ Other	5⬭ None

N3 What was the highest level of education completed by any head of household in the home? (EDUC)
1⬭ Elementary *(grades 1 – 8)*   4⬭ Some college/trade/ vocational school
2⬭ Some high school *(grades 9 – 12)*   5⬭ College graduate
3⬭ High school graduate   6⬭ Postgraduate degree

N4 What is the primary language spoken in this home? (ETHNIC)
1⬭ English   3⬭ Spanish
2⬭ Asian/Pacific Island *(describe)* (ASIAETHD) _____   4⬭ Other *(describe)* (OTHETHD) _____

N5 Are any of the occupants of your home permanently disabled? (DISABLED)
1⬭ No   2⬭ Yes, 1 permanently disabled   3⬭ Yes, 2 or more permanently disabled

N6 Which of the following ethnic groups are represented by your head(s) of household? *(Choose all that apply.)*

	Head of Household # 1	Head of Household # 2
American Indian, Alaska Native	1⬭ (HOHIND1)	1⬭ (HOHIND2)
Asian or Pacific Islander	1⬭ (HOHASN1)	1⬭ (HOHASN2)
Black, African American	1⬭ (HOHBLK1)	1⬭ (HOHBLK2)
Hispanic / Latino	1⬭ (HOHLAT1)	1⬭ (HOHLAT2)
White, Caucasian	1⬭ (HOHWHT1)	1⬭ (HOHWHT2)
Other	1⬭ (HOHOTH1)	1⬭ (HOHOTH2)

N7 Please check the range that best describes your household's **total annual income**. (INCOME19) (Imputed income, not including MM: AVGINC)
1⬭ Less than $10,000   5⬭ $50,000 – $74,999   9⬭ $175,000 – $199,999
2⬭ $10,000 – $19,999   6⬭ $75,000 – $99,999   10⬭ $200,000 – $249,999
3⬭ $20,000 – $24,999   7⬭ $100,000 – $149,999   11⬭ $250,000 or more
4⬭ $25,000 – $49,999   8⬭ $150,000 – $174,999   12⬭ Prefer not to answer

Please return your survey in the enclosed envelope.
The sponsors greatly value your time and input.
Thank you very much for participating!

Frequently Asked Questions -

What is the California Home Energy Survey? The California Home Energy Survey is a comprehensive study of residential energy use. The survey asks households to provide information on appliances, equipment, and general energy use. The survey is conducted periodically, with two previous studies completed in 2009 and 2003.

Who is the sponsor of the California Home Energy Survey? The California Home Energy Survey is sponsored by the California Energy Commission and the following utilities: Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric Company (SDG&E), Southern California Gas Company (SoCalGas), Sacramento Municipal Utility District (SMUD), and the Los Angeles Department of Water and Power (LADWP). The sponsoring organizations have teamed up to conduct a common study, provide a central set of information to guide state-wide energy planning and minimize study costs.

How can I confirm the California Energy Commission sponsors the study?
The Commission provides more information about this survey on their official website at: www.energy.ca.gov/appliances/rass. Final reports from the 2009 and 2003 studies are also available to download from this website.

Where can I get help to complete this survey? DNV GL Energy Insights USA, Inc. has been hired by the California Energy Commission to manage this study. Contact the DNV GL survey support team by emailing them at: support@calhes.dnvgl.com or calling them on the toll-free line at 1 (866) 363-7448. DNV GL representatives are available to answer questions about this survey Monday through Friday, 8:30 a.m. to 5:00 p.m. Pacific Daylight Time.

What if I don't know the answer to some of the questions? Do your best to answer all of the questions. If you do not know the answer to a question, just move on to the next one. Please answer the questions as they pertain to your residence or unit only.

Will the California Energy Commission keep my information confidential? Yes. To protect your privacy a unique ID was assigned to your household. Survey results are reported in anonymous or summary form and will not reveal individual identities.

Why does my response matter to the California Energy Commission? The more people that complete their surveys, the better that we can plan for future energy needs in California. It is important that we get an up-to-date picture of how California uses energy so that we can ensure that there is adequate energy available to meet California's future needs.

How do I benefit by answering the California Home Energy Survey? Your participation supports state-wide planning activities that help your community, and the information you collect can reveal potential energy improvements in your own household.

APPENDIX B:
2019, 2009 and 2003 RASS Survey Variables

This appendix contains the list of variables for the 2019, 2009 and 2003 RASS surveys.

Table 1: 2019 RASS Survey Variables

		2019 RASS Survey Variables		
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
eutil	1	Electric utility	Administrative	
ngutil	2	Gas utility	Administrative	
cec_forcasting_zone	3	2016 CEC Forecast Zone	Administrative	
czt24	4	Title 24 Climate Zones	Administrative	
NAC_KWH	5	Normalized Annual Consumption - kWh - Individually Metered	Administrative	
NAC_Therms	6	Normalized Annual Consumption - Therms - Individually Metered	Administrative	
AcAn_kWh	7	Pre-normalized 12-month Average Usage – kwh – individually metered	Administrative	
ACAn_therms	8	Pre-normalized 12-month Average Usage – therms – individually metered	Administrative	
scg	9	Have SCG account data	Administrative	
elecMM	10	Master Metered Electric Account	Administrative	
res	11	Cleaned building type	Home & Lifestyle	
numi	12	Average continuous number in household	Home & Lifestyle	
homeage	13	Average home age	Home & Lifestyle	
SQFT_A	14	Average square footage	Home & Lifestyle	
rescnt	15	Total number of residents	Home & Lifestyle	
DWLTYPE	16	Type of building - A1	Home & Lifestyle	A1
STORIES	17	Number of stories if single family - A1	Home & Lifestyle	A1
OWNRENT	18	Own or rent home - A2	Home & Lifestyle	A2
YRS_RES	19	Length of time at this address - A3	Home & Lifestyle	A3
SEASOCC	20	Seasonal occupancy - A4	Home & Lifestyle	A4
SEASJAN	21	Seasonal occupancy, occupied in Jan - A5	Home & Lifestyle	A5
SEASFEB	22	Seasonal occupancy, occupied in Feb - A5	Home & Lifestyle	A5
SEASMAR	23	Seasonal occupancy, occupied in Mar - A5	Home & Lifestyle	A5
SEASAPR	24	Seasonal occupancy, occupied in Apr - A5	Home & Lifestyle	A5
SEASMAY	25	Seasonal occupancy, occupied in May - A5	Home & Lifestyle	A5
SEASJUN	26	Seasonal occupancy, occupied in Jun - A5	Home & Lifestyle	A5
SEASJUL	27	Seasonal occupancy, occupied in Jul - A5	Home & Lifestyle	A5
SEASAUG	28	Seasonal occupancy, occupied in Aug - A5	Home & Lifestyle	A5
SEASSEP	29	Seasonal occupancy, occupied in Sep - A5	Home & Lifestyle	A5
SEASOCT	30	Seasonal occupancy, occupied in Oct - A5	Home & Lifestyle	A5
SEASNOV	31	Seasonal occupancy, occupied in Nov - A5	Home & Lifestyle	A5
SEASDEC	32	Seasonal occupancy, occupied in Dec - A5	Home & Lifestyle	A5
BUILTYR	33	Year home built - A6	Home & Lifestyle	A6
NUMROOM	34	Number of bedrooms - A7	Home & Lifestyle	A7
SQFT	35	Square feet of living space - A8	Home & Lifestyle	A8
EXTWLINS	36	Home has insulated exterior walls - A9	Home & Lifestyle	A9

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
ACEILINS	37	Home has insulated attic - A10	Home & Lifestyle	A10
CEILINCH	38	Inches of attic insulation - A11	Home & Lifestyle	A11
WINDTYPE	39	Window pane type - A12	Home & Lifestyle	A12
WINFRAME	40	Window frame type - A12	Home & Lifestyle	A12
WINFPTYP	41	Window frame & pane	Home & Lifestyle	
REMOD	42	Home has been remodeled - A13	Home & Lifestyle	A13
RMDROOM	43	Remodel with room additon - A14	Home & Lifestyle	A14
RMDKTBTH	44	Remodel bath or kitchen - A14	Home & Lifestyle	A14
RMDREBLT	45	Rebuilt most of the home - A14	Home & Lifestyle	A14
RMDOTHR	46	Remodel other - A14	Home & Lifestyle	A14
kids	47	Number of residents 0-18	Home & Lifestyle	
adults	48	Number of residents 19-64	Home & Lifestyle	
seniors	49	Number of residents 65+	Home & Lifestyle	
NR0_5	50	Number under 5 years of age in home - A15	Home & Lifestyle	A15
NR6_18	51	Number 6-18 years of age in home - A15	Home & Lifestyle	A15
NR19_34	52	Number 19-34 years of age in home - A15	Home & Lifestyle	A15
NR35_54	53	Number 35-54 years of age in home - A15	Home & Lifestyle	A15
NR55_64	54	Number 55-64 years of age in home - A15	Home & Lifestyle	A15
NR65_99	55	Number 65-99 years of age in home - A15	Home & Lifestyle	A15
ONPKUSE	56	Peak time use of electrical appliances - A16	Home & Lifestyle	A16
NGSERV	57	Natural gas service available in area - A17	Home & Lifestyle	A17
NGLINE	58	Natural gas service available in home - A18	Home & Lifestyle	A18
NGUTIL	59	Natural gas utility - A19	Home & Lifestyle	A19
EVYN	60	Own or lease electric vehicle - A20	Electric Vehicle	A20
EVYN2	61	Cleaned own or lease electric vehicle	Electric Vehicle	
NUMBEV	62	Number of battery electric vehicles - A21	Electric Vehicle	A21
NUMHEV	63	Number of hybrid electric vehicles - A21	Electric Vehicle	A21
EVMDMF	64	Number of miles electric vehicle driven - Mon-Fri- A22	Electric Vehicle	A22
EVMDSS	65	Number of miles electric vehicle driven - Sat-Sun- A22	Electric Vehicle	A22
EVTMCHH	66	Number of times electric vehicle charged - Home - A23	Electric Vehicle	A23
EVTMCHW	67	Number of times electric vehicle charged - Work - A23	Electric Vehicle	A23
EVTMCHO	68	Number of times electric vehicle charged - Somewhere else - A23	Electric Vehicle	A23
EVCHTYPE	69	Primary home charger type - A24	Electric Vehicle	A24
EVCHH6_9	70	Time of day electric vehicle charged at home - 6am to 9am - A25	Electric Vehicle	A25
EVCHH9_5	71	Time of day electric vehicle charged at home - 9am to 5pm - A25	Electric Vehicle	A25
EVCHH5_9	72	Time of day electric vehicle charged at home - 5pm to 9pm - A25	Electric Vehicle	A25
EVCHH9_6	73	Time of day electric vehicle charged at home - 9pm to 6am - A25	Electric Vehicle	A25
EVMiles	74	Estimated Number of miles electric vehicle driven per year	Electric Vehicle	A25
EVMilesmf	75	Mon-Fri miles driven continuous variable	Electric Vehicle	A25
EVMilesss	76	Sat-Sun miles driven continuous variable	Electric Vehicle	A25
payheat2	77	Cleaned pays for space heating	Space Heating	
phtfuel3	78	Cleaned primary heating fuel	Space Heating	
phtfuel2	79	Cleaned primary heating fuel - individually metered	Space Heating	
PAYHEAT	80	Pays for heating - B1	Space Heating	B1
PHTNGCNT	81	Primary central forced air gas furnace - B2	Space Heating	B2

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
PHTNGFWL	82	Primary floor or wall gas furnace - B2	Space Heating	B2
PHTNGRAD	83	Primary hot water gas radiator - B2	Space Heating	B2
PHTNGFP	84	Primary Gas Fireplace - B2	Space Heating	B2
PHTNGOTH	85	Primary other gas heater - B2	Space Heating	B2
PHTELBSB	86	Primary resistance electric heater - B2	Space Heating	B2
PHTELCRH	87	Primary central forced air electric furnace - B2	Space Heating	B2
PHTELCHP	88	Primary central electric heat pump - B2	Space Heating	B2
PHTELWHP	89	Primary through-the-wall electric heat pump - B2	Space Heating	B2
PHTELPOR	90	Primary portable electric heater - B2	Space Heating	B2
PHTELOTH	91	Primary other electric heater - B2	Space Heating	B2
PHTBGCNT	92	Primary central forced air bottled gas furnace - B2	Space Heating	B2
PHTBGFWL	93	Primary floor or wall bottled gas heater - B2	Space Heating	B2
PHTBGRAD	94	Primary hot water bottled gas radiator - B2	Space Heating	B2
PHTBGOTH	95	Primary bottled gas heater other - B2	Space Heating	B2
PHTWDWS	96	Primary woodstove/fireplace insert - B2	Space Heating	B2
PHTWDFP	97	Primary wood fireplace - B2	Space Heating	B2
PHTSLRN	98	Primary solar heat, no backup - B2	Space Heating	B2
PHTSLRG	99	Primary solar heat, natural gas backup - B2	Space Heating	B2
PHTSLRP	100	Primary solar heat, propane backup - B2	Space Heating	B2
PHTSLRE	101	Primary solar heat, electric backup - B2	Space Heating	B2
PHTOTSYS	102	Primary 'other' heat - B2	Space Heating	B2
AHTNGCNT	103	Secondary central forced air gas furnace - B2	Space Heating	B2
AHTNGFWL	104	Secondary floor or wall gas furnace - B2	Space Heating	B2
AHTNGRAD	105	Secondary hot water gas radiator - B2	Space Heating	B2
AHTNGOTH	106	Secondary other gas heater - B2	Space Heating	B2
AHTELBSB	107	Secondary resistance electric heater - B2	Space Heating	B2
AHTELCRH	108	Secondary central forced air electric furnace - B2	Space Heating	B2
AHTELCHP	109	Secondary central electric heat pump - B2	Space Heating	B2
AHTELWHP	110	Secondary through-the-wall electric heat pump - B2	Space Heating	B2
AHTELPOR	111	Secondary portable electric heater - B2	Space Heating	B2
AHTELOTH	112	Secondary other electric heater - B2	Space Heating	B2
AHTBGCNT	113	Secondary central forced air bottled gas furnace - B2	Space Heating	B2
AHTBGFWL	114	Secondary floor or wall bottled gas heater - B2	Space Heating	B2
AHTBGRAD	115	Secondary hot water bottled gas radiator - B2	Space Heating	B2
AHTNGFP	116	Secondary gas fireplace - B2	Space Heating	B2
AHTBGOTH	117	Secondary bottled gas heater other - B2	Space Heating	B2
AHTWDWS	118	Secondary woodstove/fireplace insert - B2	Space Heating	B2
AHTWDFP	119	Secondary wood fireplace - B2	Space Heating	B2
AHTSLRN	120	Secondary solar heat, no backup - B2	Space Heating	B2
AHTSLRG	121	Secondary solar heat, natural gas backup - B2	Space Heating	B2
AHTSLRP	122	Secondary solar heat, propane backup - B2	Space Heating	B2
AHTSLRE	123	Secondary solar heat, electric backup - B2	Space Heating	B2
AHTOTSYS	124	Secondary 'other' heat - B2	Space Heating	B2
MAINPILT	125	Main heater has gas pilot light - B3	Space Heating	B3
SECPILT	126	Secondary heater has gas pilot light - B3	Space Heating	B3
HTSYSAGE	127	Age of main heating system - B4	Space Heating	B4
HTCTLTYP	128	Thermostat type for main heating system - B5	Space Heating	B5
HMRNSET	129	Heater thermostat setting in morning - B6	Space Heating	B6
HDAYSET	130	Heater thermostat setting in day - B6	Space Heating	B6

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
HEVNSET	131	Heater thermostat setting in evening - B6	Space Heating	B6
HNITESET	132	Heater thermostat setting in night - B6	Space Heating	B6
HTMAINTN	133	Maintenance preformed on heating system - B7	Space Heating	B7
NPORHTRS	134	Number of portable heaters - B8	Space Heating	B8
USEADDHT	135	Use of additional heating systems - B9	Space Heating	B9
phtcnt	136	Have a primary heater	Space Heating	
havesec	137	Have a secondary heater	Space Heating	
ahtcnt	138	Number of secondary heaters	Space Heating	
htng	139	Have a primary or secondary gas heater	Space Heating	
phtng	140	Have a primary gas heater	Space Heating	
ahtng	141	Have a secondary gas heater	Space Heating	
htelec	142	Have a primary or secondary electric heater	Space Heating	
phtelec	143	Have a primary electric heater	Space Heating	
ahtelec	144	Have a secondary electric heater	Space Heating	
htbg	145	Have a primary or secondary bottled gas heater	Space Heating	
phtbg	146	Have a primary bottled gas heater	Space Heating	
ahtbg	147	Have a secondary bottled gas heater	Space Heating	
htwdfp2	148	Have a primary or secondary wood heater	Space Heating	
phtwdfp2	149	Have a primary wood heater	Space Heating	
ahtwdfp2	150	Have a secondary wood heater	Space Heating	
htsolar	151	Have a primary or secondary solar heater	Space Heating	
phtsolar	152	Have a primary solar heater	Space Heating	
ahtsolar	153	Have a secondary solar heater	Space Heating	
htother	154	Have a primary or secondary 'other' heater	Space Heating	
phtother	155	Have a primary 'other' heater	Space Heating	
ahtother	156	Have a secondary 'other' heater	Space Heating	
htelwhp	157	Have a primary or secondary electric through-the-wall heat pump	Space Heating	
paycool2	158	Cleaned pays for central air conditioning	Space Cooling	
paycool3	159	Pays for central air conditioning	Space Cooling	
cooling	160	Cleaned cooling type	Space Cooling	
caccnt	161	Number of types of central air conditioners	Space Cooling	
RACCNT	162	Total number of room air conditioners	Space Cooling	
PAYCOOL	163	Pays for central air conditioning - C1	Space Cooling	C1
CTLACAGE	164	Number of central air conditioners - C2	Space Cooling	C2
CTEVZON	165	Primary Central Air Conditioning System is controlled by a Zoned Thermostat - C2	Space Cooling	C2
CTEVPAGE	166	Number of central evaporative coolers - C2	Space Cooling	C2
CTLACZON	167	Primary Central Evaporative Cooling System is controlled by a Zoned Themostat - C2	Space Cooling	C2
HPAGE	168	Number of heat pumps - C2	Space Cooling	C2
HPZON	169	Primary Heat Pump System is controlled by a Zoned Thermostat - C2	Space Cooling	C2
CLCNTAGE	170	Age of main central air conditioner - C3	Space Cooling	C3
CLCTLTYP	171	Thermostat type for main central air - C4	Space Cooling	C4
CMRNSET	172	AC thermostat setting in morning - C5	Space Cooling	C5
CDAYSET	173	AC thermostat setting in day - C5	Space Cooling	C5
CEVNSET	174	AC thermostat setting in evening - C5	Space Cooling	C5
CNITESET	175	AC thermostat setting in night - C5	Space Cooling	C5
CLMAINTN	176	Maintenance preformed on ac system - C6	Space Cooling	C6

2019 VarName	Order	2019 Label	DataGroup	Question Num
		2019 RASS Survey Variables		
NOROOMAC	177	No room air conditioner - C7	Space Cooling	C7
ACTYP1	178	Type room air conditioner 1 - C7	Space Cooling	C7
ACTYP2	179	Type room air conditioner 2 - C7	Space Cooling	C7
ACTYP3	180	Type room air conditioner 3 - C7	Space Cooling	C7
ACAGE1	181	Age of room air conditioner 1 - C7	Space Cooling	C7
ACAGE2	182	Age of room air conditioner 2 - C7	Space Cooling	C7
ACAGE3	183	Age of room air conditioner 3 - C7	Space Cooling	C7
CMRNUSE	184	Use of room air conditioner in morning - C8	Space Cooling	C8
CDAYUSE	185	Use of room air conditioner in day - C8	Space Cooling	C8
CEVNUSE	186	Use of room air conditioner in evening - C8	Space Cooling	C8
CNITEUSE	187	Use of room air conditioner at night - C8	Space Cooling	C8
CHOTUSE	188	Use of room air conditioner on a hot weekday - C8	Space Cooling	C8
MSDNUM	189	Mini-split or ductless - Number of Central Cooling Systems - C2	Space Cooling	C2
MSDZON	190	Mini-split or ductless is controlled using a zoned thermostat - C2	Space Cooling	C2
paywh2	191	Cleaned pays for water heating	Water Heating	
pwhfuel3	192	Cleaned primary water heater fuel	Water Heating	
PWHFUEL2	193	Cleaned primary water heater fuel - individually metered	Water Heating	
PAYWH	194	Pay for water heater - D1	Water Heating	D1
PWHNGTNK	195	Standard tank gas water heater - D2	Water Heating	D2
PWHNGWHT	196	Whole house tankless gas water heater - D2	Water Heating	D2
PWHNGHEC	197	High Efficiency Condensing gas water heater - D2	Water Heating	D2
PWHELTNK	198	Standard tank electric water heater - D2	Water Heating	D2
PWHELHP	199	Heat pump electric water heater - D2	Water Heating	D2
PWHELWHT	200	Whole house tankless electric water heater - D2	Water Heating	D2
PWHELPNT	201	Point of use tankless electric water heater - D2	Water Heating	D2
PWHLPTNK	202	Standard tank propane water heater - D2	Water Heating	D2
PWHLPWHT	203	Whole house tankless propane water heater - D2	Water Heating	D2
PWHSLRN	204	Solar water heater, no backup - D2	Water Heating	D2
PWHSLRG	205	Solar water heater, natural gas backup - D2	Water Heating	D2
PWHSLRP	206	Solar water heater, propane backup - D2	Water Heating	D2
PWHSLRE	207	Solar water heater, electric backup - D2	Water Heating	D2
PWHOTSYS	208	Water heater, other fuel - D2	Water Heating	D2
AWHNGTNK	209	Additional standard tank gas water heater - D2	Water Heating	D2
AWHNGWHT	210	Additional whole house tankless gas water heater - D2	Water Heating	D2
AWHNGHEC	211	Additional High Efficiency Condensing gas water heater - D2	Water Heating	D2
AWHELTNK	212	Additional standard tank electric water heater - D2	Water Heating	D2
AWHELHP	213	Additional heat pump electric water heater - D2	Water Heating	D2
AWHELWHT	214	Additional whole house tankless electric water heater - D2	Water Heating	D2
AWHELPNT	215	Additional point of use tankless electric water heater - D2	Water Heating	D2
AWHLPTNK	216	Additional standard tank propane water heater - D2	Water Heating	D2
AWHLPWHT	217	Additional whole house tankless propane water heater - D2	Water Heating	D2
AWHSLRN	218	Additional solar water heater, no backup - D2	Water Heating	D2
AWHSLRG	219	Additional solar water heater, natural gas backup - D2	Water Heating	D2
AWHSLRP	220	Additional solar water heater, propane backup - D2	Water Heating	D2
AWHSLRE	221	Additional solar water heater, electric backup - D2	Water Heating	D2

2019 VarName	Order	2019 Label	DataGroup	Question Num
		2019 RASS Survey Variables		
AWHOTSYS	222	Additional water heater, other fuel - D2	Water Heating	D2
WHTEMP	223	Water heater temperature - D3	Water Heating	D3
PRWHAGE	224	Water heater age - D4	Water Heating	D4
SHWRDAY	225	Number of showers - D5	Water Heating	D5
BATHSDAY	226	Number of baths - D5	Water Heating	D5
SHOWERHD	227	Low flow shower head - D6	Water Heating	D6
AERATORS	228	Faucet aerators - D7	Water Heating	D7
whng	229	Have a gas water heater	Water Heating	
whelec	230	Have an electric water heater	Water Heating	
whbg	231	Have a bottled gas water heater	Water Heating	
whsl	232	Have a solar water heater	Water Heating	
whoth	233	Have an other water heater	Water Heating	
whngtnk	234	Have a primary or secondary standard tank gas water heater	Water Heating	
whngwht	235	Have a primary or secondary whole house tankless gas water heater	Water Heating	
wheltnk	236	Have a primary or secondary standard tank electric water heater	Water Heating	
whelhp	237	Have a primary or secondary heat pump electric water heater	Water Heating	
whelwht	238	Have a primary or secondary whole house tankless electric water heater	Water Heating	
whelpnt	239	Have a primary or secondary point of use tankless electric water heater	Water Heating	
whlptnk	240	Have a primary or secondary standard tank propane water heater	Water Heating	
whlpwht	241	Have a primary or secondary whole house tankless propane water heater	Water Heating	
whslrn	242	Have a primary or secondary solar water heater, no backup	Water Heating	
whslrg	243	Have a primary or secondary solar water heater, gas backup	Water Heating	
whslrp	244	Have a primary or secondary solar water heater, propane backup	Water Heating	
whslre	245	Have a primary or secondary solar water heater, electric backup	Water Heating	
whotsys	246	Have a primary or secondary water heater, other fuel	Water Heating	
gdry	247	Have gas dryer	Laundry	
edry	248	Have electric dryer	Laundry	
numwash	249	Total number of clothes washes per week	Laundry	
LNDRYEQP	250	Laundry equipment in home - E1	Laundry	E1
CWTYP	251	Type of clothes washer - E2	Laundry	E2
CWAGE	252	Clothes washer age - E3	Laundry	E3
CWHWLD	253	Number of hot water washes per week - E4	Laundry	E4
CWWWLD	254	Number of warm water washes per week - E4	Laundry	E4
CWCWLD	255	Number of cold water washes per week - E4	Laundry	E4
CDTYP	256	Type of clothes dryer - E5	Laundry	E5
CDAGE	257	Age of clothes dryer- E6	Laundry	E6
DRYLDS	258	Number of dryer loads per week	Laundry	
DRYLDSH	259	Number of dryer loads per week - high heat - E7	Laundry	E7
DRYLDSM	260	Number of dryer loads per week - medium heat - E7	Laundry	E7
DRYLDSL	261	Number of dryer loads per week - low heat - E7	Laundry	E7
CKRNTYP	262	Fuel for cooktop - F1	Food Prep	F1

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
CKRNA	263	Age of cooktop - F1	Food Prep	F1
CKOVTYP	264	Fuel for oven - F1	Food Prep	F1
CKOVA	265	Age of oven - F1	Food Prep	F1
CKOOVTYP	266	Fuel for outdoor oven - F1	Food Prep	F1
CKOOVA	267	Age of outdoor oven - F1	Food Prep	F1
CKBBTYP	268	Fuel for barbecue - F1	Food Prep	F1
CKBBQA	269	Age of barbecue - F1	Food Prep	F1
CKMW	270	Fuel for microwave - F1	Food Prep	F1
CKMWA	271	Age of microwave - F1	Food Prep	F1
WRNUSE	272	Weekly Use of cooktop, stovetop or range - F2	Food Prep	F2
WOVUSE	273	Weekly Use of oven - F2	Food Prep	F2
WMWUSE	274	Weekly Use of microwave - F2	Food Prep	F2
WOTHUSE	275	Weekly Use of other cooking appliance - F2	Food Prep	F2
DISHWASH	276	Have dishwasher - F3	Food Prep	F3
DWAGE	277	Age of Dishwasher - F4	Food Prep	F3
DWLOADS	278	Number of dishwasher loads per week - F5	Food Prep	F4
RFNUM	279	Number of refrigerators - G1	Refrigerators	G1
RF1STY	280	Door style of first refrigerator - G2	Refrigerators	G2
RF2STY	281	Door style of second refrigerator - G2	Refrigerators	G2
RF3STY	282	Door style of third refrigerator - G2	Refrigerators	G2
RF1SZ	283	Size of first refrigerator - G2	Refrigerators	G2
RF2SZ	284	Size of second refrigerator - G2	Refrigerators	G2
RF3SZ	285	Size of third refrigerator - G2	Refrigerators	G2
RF1AGE	286	Age of first refrigerator - G2	Refrigerators	G2
RF2AGE	287	Age of second refrigerator - G2	Refrigerators	G2
RF3AGE	288	Age of third refrigerator - G2	Refrigerators	G2
RF1OTH	289	Door ice in first refrigerator - G2	Refrigerators	G2
RF2OTH	290	Door ice in second refrigerator - G2	Refrigerators	G2
RF3OTH	291	Door ice in third refrigerator - G2	Refrigerators	G2
rfdiscrd	292	Old refrigerator discarded in the last 12 months	Refrigerators	
FZNUM	293	Number of stand alone freezers - H1	Freezers	H1
FZ1STY	294	Style of first freezer - H2	Freezers	H2
FZ1SZ	295	Size of first freezer - H2	Freezers	H2
FZ1AGE	296	Age of first freezer - H2	Freezers	H2
FZ2STY	297	Style of second freezer - H2	Freezers	H2
FZ2SZ	298	Size of second freezer - H2	Freezers	H2
FZ2AGE	299	Age of second freezer - H2	Freezers	H2
fzdiscrd	300	Old freezer discarded in the last 12 months	Freezers	
SPTYP	301	Spa or hot tub - I1	Spas and Hot Tubs	I1
SPHTF	302	Spa fuel - I2	Spas and Hot Tubs	I2
SPSZ	303	Spa size - I3	Spas and Hot Tubs	I3
SPLOC	304	Spa location - I4	Spas and Hot Tubs	I4
SPCOV	305	Spa cover - I5	Spas and Hot Tubs	I5
SMRNFLTPMP	306	Frequency of spa filtration summer morning - I6	Spas and Hot Tubs	I6
SMDFLTPMP	307	Frequency of spa filtration summer mid-day - I6	Spas and Hot Tubs	I6
SNITFLTPMP	308	Frequency of spa filtration summer night - I6	Spas and Hot Tubs	I6
WMRNFLTPMP	309	Frequency of spa filtration winter morning - I6	Spas and Hot Tubs	I6
WMDFLTPMP	310	Frequency of spa filtration winter mid-day - I6	Spas and Hot Tubs	I6
WNITFLTPMP	311	Frequency of spa filtration winter night - I6	Spas and Hot Tubs	I6

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
SMRNHTSPA	312	Frequency of spa heat in summer morning - I7	Spas and Hot Tubs	I7
SMDHTSPA	313	Frequency of spa heat in summer mid-day - I7	Spas and Hot Tubs	I7
SNITHTSPA	314	Frequency of spa heat in summer night - I7	Spas and Hot Tubs	I7
WMRNHTSPA	315	Frequency of spa heat in winter morning - I7	Spas and Hot Tubs	I7
WMDHTSPA	316	Frequency of spa heat in winter mid-day - I7	Spas and Hot Tubs	I7
WNITHTSPA	317	Frequency of spa heat in winter night - I7	Spas and Hot Tubs	I7
PLTYP	318	Pool, pay for energy - J1	Pools	J1
PLSZ	319	Pool size - J2	Pools	J2
SMRNFLTHR	320	Hours per day filter pool summer morning - J3	Pools	J3
SMDFLTHR	321	Hours per day filter pool summer mid-day - J3	Pools	J3
SNITFLTHR	322	Hours per day filter pool summer night - J3	Pools	J3
WMRNFLTHR	323	Hours per day filter pool winter morning - J3	Pools	J3
WMDFLTHR	324	Hours per day filter pool winter mid-day - J3	Pools	J3
WNITFLTHR	325	Hours per day filter pool winter night - J3	Pools	J3
PLHTF	326	Fuel to heat pool - J4	Pools	J4
SMRNHTPL	327	Frequency heat pool summer morning - J5	Pools	J5
SMDHTPL	328	Frequency heat pool summer mid-day - J5	Pools	J5
SNITHTPL	329	Frequency heat pool summer night - J5	Pools	J5
WMRNHTPL	330	Frequency heat pool winter morning - J5	Pools	J5
WMDHTPL	331	Frequency heat pool winter mid-day - J5	Pools	J5
WNITHTPL	332	Frequency heat pool winter night - J5	Pools	J5
PMPTYP	333	Type of pool filtration pump - J6	Pools	J6
PLCOV	334	Pool cover - J7	Pools	J7
PLTIMR	335	Pool timer - J7	Pools	J7
PLSWEEP	336	Pool sweep - J7	Pools	J7
PLVAC	337	Pool vacuum - J7	Pools	J7
PLINDOOR	338	Pool is indoors - J7	Pools	J7
tvcnt	339	Number of TVs	Entertainment & Technology	
SMLLEDTV	340	Number of small OLED or LED tvs less than 36 inches - K1	Entertainment & Technology	K1
MEDLEDTV	341	Number of medium OLED or LED tvs between 36 inches and 59 inches - K1	Entertainment & Technology	K1
LRGLEDTV	342	Number of large OLED or LED tvs 60 inches or larger- K1	Entertainment & Technology	K1
SMLLCDTV	343	Number of small LCD tvs less than 36 inches - K1	Entertainment & Technology	K1
MEDLCDTV	344	Number of medium LCD tvs between 36 inches and 59 inches - K1	Entertainment & Technology	K1
BIGLCDTV	345	Number of large LCD tvs 60 inches or larger- K1	Entertainment & Technology	K1
PLSMTV	346	Number of plasma tvs - K1	Entertainment & Technology	K1
STDTV	347	Number of cathode ray tube (standard) tvs - K1	Entertainment & Technology	K1
DLPTV	348	Number of DLP or rear-projection TVs - K1	Entertainment & Technology	K1
DVRBOX	349	Number of cable or satellite TV set-top boxes or receivers, DVR - K1	Entertainment & Technology	K1
MOVPLA	350	Number of stand-alone movie players - K1	Entertainment & Technology	K1
GAMSYS	351	Number of gaming systems - K1	Entertainment & Technology	K1

2019 RASS Survey Variables				
2019 VarName	Order	2019 Label	DataGroup	Question Num
STREAM	352	Number of streaming media players - K1	Entertainment & Technology	K1
HTSYS	353	Number of home theater systems connected to TVs - K1	Entertainment & Technology	K1
SNDBAR	354	Number of soundbars connected to TVs - K1	Entertainment & Technology	K1
AUDTOTV	355	Number of separate sound or stereo systems connected to TV - K1	Entertainment & Technology	K1
SAMUSIC	356	Number of stand alone stereo, I-pod or MP3 docking stations - K1	Entertainment & Technology	K1
SMLTVUSE	357	Hours per day Use of Small TVs - K2	Entertainment & Technology	K2
MEDTVUSE	358	Hours per day Use of Medium TVs - K2	Entertainment & Technology	K2
BIGTVUSE	359	Hours per day Use of Large TVs - K2	Entertainment & Technology	K2
lrgtvuse	360	Hours per day Use of Medium and Large TVs	Entertainment & Technology	
NDSKPCS	361	Number of desktop PCs K3	Entertainment & Technology	K3
NLAPPCS	362	Number of laptop PCs - K3	Entertainment & Technology	K3
DSKPCHRS	363	Hours per day Use of desktop PC's - K4	Entertainment & Technology	K4
LAPPCHRS	364	Hours per day Use of laptop PC's - K4	Entertainment & Technology	K4
WORKHOME	365	Work from home - K5	Entertainment & Technology	K6
WKHRSHM	366	Hours per week work from home - K6	Entertainment & Technology	K7
PRNTSCAN	367	Number of printer, scanner, copier or multifunction machines - K7	Entertainment & Technology	K7
TABLET	368	Number of tablet computers or e-readers - K7	Entertainment & Technology	K7
HUBS	369	Number of hubs, controllers or smart speakers - K7	Entertainment & Technology	K7
SMRTDEV	370	Number of smart home devices - K7	Entertainment & Technology	K7
SMACELL	371	Number of smart cell phones - K7	Entertainment & Technology	K7
OTHCELL	372	Number of other cell phones - K7	Entertainment & Technology	K7
HSMODINT	373	Number of high-speed modems - K7	Entertainment & Technology	K8
HMNET	374	Number of home networks - K7	Entertainment & Technology	K8
UNPWRSUP	375	Number of uninterrupted power supplies - K7	Entertainment & Technology	K8
CELL	376	Number of cell phones	Entertainment & Technology	
INCPORT	377	Portion of incandescent light bulbs installed inside the home - L1	Lighting	L1
CFLPORT	378	Portion of CFLs, compact fluorescent light bulbs installed inside the home - L1	Lighting	L1
LEDPORT	379	Portion of LED, light emitting diodes light bulbs installed inside the home - L1	Lighting	L1
LMRNUSEN	380	Percent of lights on in home in morning - L2	Lighting	L2
LDAYUSEN	381	Percent of lights on in home in daytime - L2	Lighting	L2

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
LEVNUSEN	382	Percent of lights on in home in evening - L2	Lighting	L2
LNITEUSEN	383	Percent of lights on in home in night - L2	Lighting	L2
ICTLTIMR	384	Number of interior timers - L3	Lighting	L3
ICTLOCCS	385	Number of interior motion detectors - L3	Lighting	L3
ICTLDIM	386	Number of interior dimmers - L3	Lighting	L3
ICTLCONN	387	Number of interior smart, connected light bulbs - L3	Lighting	L3
ICTLNITE	388	Number of nightlights - L3	Lighting	L3
EXINC	389	Number of exterior incandescent fixtures- L4	Lighting	L4
EXCFL	390	Number of exterior CFL fixtures - L4	Lighting	L4
EXLED	391	Number of exterior LED fixtures - L4	Lighting	L4
EXLOWV	392	Number of exterior low volt landscape - L4	Lighting	L4
EXHID	393	Number of exterior metal halide - L4	Lighting	L4
ECTLTIMR	394	Number of exterior timers - L4	Lighting	L4
ECTLDSK	395	Number of exterior light sensors - L4	Lighting	L4
ECTLMOTN	396	Number of exterior motion detectors - L4	Lighting	L4
CHRGRS	397	Number of charges left plugged all the time - M1	Misc Appliances	M1
RECHVAC	398	Number of rechargeable vacuum - M1	Misc Appliances	M1
SMACOOK	399	Number of small cooking - M1	Misc Appliances	M1
FNPORT	400	Number of portable fans - M1	Misc Appliances	M1
FNCEIL	401	Number of ceiling fans - M1	Misc Appliances	M1
WNDATV	402	Number of wind turbine attic ventilators - M1	Misc Appliances	M1
FNATTIC	403	Number of electric attic fans - M1	Misc Appliances	M1
FNWHOLE	404	Number of whole house fans - M1	Misc Appliances	M1
AIRCLEAN	405	Number of household air cleaners - M1	Misc Appliances	M1
PORTPUR	406	Number of portable room air purifier - M1	Misc Appliances	M1
HUMDEH	407	Number of Humidifiers/Dehumidifiers - M1	Misc Appliances	M1
WINCLR	408	Number of wine or beverage coolers - M1	Misc Appliances	M1
WHPURIFY	409	Number of water purification systems - M1	Misc Appliances	M1
DHWRPMP	410	Number of Domestic Hot Water Recirculation Pumps - M1	Misc Appliances	M1
SAUNA	411	Number of electric saunas - M1	Misc Appliances	M1
POND	412	Number of pond pumps or fountains - M1	Misc Appliances	M1
FIREPIT	413	Number of outdoor fire table or firepit - M1	Misc Appliances	M1
WLWTRPMP	414	Use of electric well water pump - M2	Misc Appliances	M2
WTRSRCES	415	Access to city water - M3	Misc Appliances	M3
WLWTUSE	416	How do you use well water - M4	Misc Appliances	M4
SUMPPMP	417	Use sump pump - M5	Misc Appliances	M5
SHOPTLS	418	Use shop tools - M5	Misc Appliances	M5
WELD	419	Use electric welding equipment - M5	Misc Appliances	M5
AIRCOMP	420	Use electric air compressor - M5	Misc Appliances	M5
BATCHRGE	421	Use large battery charger - M5	Misc Appliances	M5
KILN	422	Fuel for Pottery kiln - M5	Misc Appliances	M5
MEDICAL	423	Fuel for medical equipment - M5	Misc Appliances	M5
EWHLS1	424	Does not have electric bicycle, skateboard, wheelchair or golf cart - M6	Misc Appliances	M6
EWHLS2	425	Has electric wheelchair or cart - M6	Misc Appliances	M6
EWHLS3	426	Has electric bicycle or skateboard - M6	Misc Appliances	M6
CHRGELSC	427	Charges electric whellchair, cart, skateboard or bicycle at home - M7	Misc Appliances	M7
OLRGAPP	428	Other large electric or gas appliances - M8	Misc Appliances	M8

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
CHADD	429	Added central heating - M9	Misc Appliances	M9
CHFUEL	430	Fuel for added central heating - M9	Misc Appliances	M9
CCADD	431	Added central cooling - M9	Misc Appliances	M9
CCFUEL	432	Fuel for added central cooling - M9	Misc Appliances	M9
WWADD	433	Added window or wall cooling - M9	Misc Appliances	M9
WWFUEL	434	Fuel for added window or wall cooling - M9	Misc Appliances	M9
EVCLADD	435	Added Evaporative Cooler - M9	Misc Appliances	M9
EVCLFUEL	436	Fuel for added Evaporative Cooler - M9	Misc Appliances	M9
WHADD	437	Added water heater - M9	Misc Appliances	M9
WHFUEL	438	Fuel for added water heater - M9	Misc Appliances	M9
RFADD	439	Added Refrigerator - M9	Misc Appliances	M9
RFFUEL	440	Fuel for added Refrigerator - M9	Misc Appliances	M9
FRZADD	441	Added Stand-alone Freezer - M9	Misc Appliances	M9
FRZFUEL	442	Fuel for added Stand-alone Freezer - M9	Misc Appliances	M9
STADD	443	Added stove top - M9	Misc Appliances	M9
STFUEL	444	Fuel for added stove top - M9	Misc Appliances	M9
OVADD	445	Added oven - M9	Misc Appliances	M9
OVFUEL	446	Fuel for added oven - M9	Misc Appliances	M9
MWADD	447	Added microwave - M9	Misc Appliances	M9
MWFUEL	448	Fuel for added microwave - M9	Misc Appliances	M9
DWADD	449	Added dishwasher - M9	Misc Appliances	M9
DWFUEL	450	Fuel for added dishwasher - M9	Misc Appliances	M9
CWADD	451	Added clothes washer - M9	Misc Appliances	M9
CWFUEL	452	Fuel for added clothes washer - M9	Misc Appliances	M9
CDADD	453	Added clothes dryer - M9	Misc Appliances	M9
CDFUEL	454	Fuel for added clothes dryer - M9	Misc Appliances	M9
PHADD	455	Added pool heater - M9	Misc Appliances	M9
PHFUEL	456	Fuel for added pool heater - M9	Misc Appliances	M9
PPADD	457	Added pool pump - M9	Misc Appliances	M9
PPFUEL	458	Fuel for added pool pump - M9	Misc Appliances	M9
TBADD	459	Added hot tub/spa heater - M9	Misc Appliances	M9
TBFUEL	460	Fuel for added hot tub/spa heater - M9	Misc Appliances	M9
NOADD	461	Have not added or replaced major appliance - M9	Misc Appliances	M9
DCHAGE	462	Age of discarded central heater - M10	Misc Appliances	M10
DCHFL	463	Fuel of discarded central heater - M10	Misc Appliances	M10
DCCAGE	464	Age of discarded central cooling - M10	Misc Appliances	M10
DCCFL	465	Fuel of discarded central cooling - M10	Misc Appliances	M10
DWWAGE	466	Age of discarded wall cooling - M10	Misc Appliances	M10
DWWFL	467	Fuel of discarded wall cooling - M10	Misc Appliances	M10
DEVCLAGE	468	Age of discarded Evaporative Cooler - M10	Misc Appliances	M10
DEVCLFL	469	Fuel of discarded Evaporative Cooler - M10	Misc Appliances	M10
DWHAGE	470	Age of discarded water heater - M10	Misc Appliances	M10
DWHFL	471	Fuel of discarded water heater - M10	Misc Appliances	M10
DRFAGE	472	Age of discarded Refrigerator - M10	Misc Appliances	M10
DRFFL	473	Fuel of discarded Refrigerator - M10	Misc Appliances	M10
DFZAGE	474	Age of discarded Stand-alone Freezer - M10	Misc Appliances	M10
DFRZFL	475	Fuel of discarded Stand-alone Freezer - M10	Misc Appliances	M10
DSTAGE	476	Age of discarded stove top - M10	Misc Appliances	M10
DSTFL	477	Fuel of discarded stove top - M10	Misc Appliances	M10

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
DOVAGE	478	Age of discarded oven - M10	Misc Appliances	M10
DOVFL	479	Fuel of discarded oven - M10	Misc Appliances	M10
DMWAGE	480	Age of discarded microwave - M10	Misc Appliances	M10
DMWFL	481	Fuel of discarded microwave - M10	Misc Appliances	M10
DDWAGE	482	Age of discarded dishwasher - M10	Misc Appliances	M10
DDWFL	483	Fuel of discarded dishwasher - M10	Misc Appliances	M10
DCWAGE	484	Age of discarded clothes washer - M10	Misc Appliances	M10
DCWFL	485	Fuel of discarded clothes washer - M10	Misc Appliances	M10
DCDAGE	486	Age of discarded clothes dryer - M10	Misc Appliances	M10
DCDFL	487	Fuel of discarded clothes dryer - M10	Misc Appliances	M10
DPHAGE	488	Age of discarded pool heater - M10	Misc Appliances	M10
DPHFL	489	Fuel of discarded pool heater - M10	Misc Appliances	M10
DPPAGE	490	Age of discarded pool pump - M10	Misc Appliances	M10
DPPFL	491	Fuel of discarded pool pump - M10	Misc Appliances	M10
DTBAGE	492	Age of discarded hot tub - M10	Misc Appliances	M10
DTBFL	493	Fuel of discarded hot tub - M10	Misc Appliances	M10
NODISCRD	494	Have not discarded above appliances - M10	Misc Appliances	M10
NORENEW	495	No renewable energy technologies - M11	Renewable Energy Technology	M11
PVRENEW	496	Have solar electricity/PV cells - M11	Renewable Energy Technology	M11
SORENEW	497	Have solar water heat (In-home) - M11	Renewable Energy Technology	M11
BTRENEW	498	Have battery stor to solar - M11	Renewable Energy Technology	M11
WGRENEW	499	Have wind generator - M11	Renewable Energy Technology	M11
FCRENEW	500	Have fuel cells - M11	Renewable Energy Technology	M11
NOPLAN	501	No plans for renewable energy technologies - M12	Renewable Energy Technology	M12
PVPLAN	502	Plans for solar electricity, photovoltaic , PV cells - M12	Renewable Energy Technology	M12
SOWHPLAN	503	Plans for solar domestic water heating - M12	Renewable Energy Technology	M12
SOPHPLAN	504	Plans for solar pool water heating - M12	Renewable Energy Technology	M12
BTPLAN	505	Plans for battery storage connected to solar - M12	Renewable Energy Technology	M12
WGPLAN	506	Plans for wind generator - M12	Renewable Energy Technology	M12
FCPLAN	507	Plans for fuel cells - M12	Renewable Energy Technology	M12
OTHPLAN	508	Plans for other renewable energy technology-M12	Renewable Energy Technology	M12
samEth	509	Heads of household are same ethnicity	Household Info	
mixedeth	510	Heads of household are different ethnicity	Household Info	
PTHME	511	Other homes in California occupied by family - N1	Household Info	N1
PTHMELOC	512	Location of other home - N2	Household Info	N2
PTHMEUTL	513	Electric utility of other home - N2	Household Info	N2
PTHMGUTL	514	Gas utility of other home - N2	Household Info	N2
EDUC	515	Education of head of household - N3	Household Info	N3
ETHNIC	516	Primary language - N4	Household Info	N4

2019 RASS Survey Variables				
2019 VarName	**Order**	**2019 Label**	**DataGroup**	**Question Num**
DISABLED	517	Occupant is disabled - N5	Household Info	N5
HOHETH	518	Head of household ethnicity	Household Info	
HOHIND1	519	Head of household 1 is American Indian - N6	Household Info	N6
HOHIND2	520	Head of household 2 is American Indian - N6	Household Info	N6
HOHASN1	521	Head of household 1 is Asian/Pacific Islander - N6	Household Info	N6
HOHASN2	522	Head of household 2 is Asian/Pacific Islander - N6	Household Info	N6
HOHBLK1	523	Head of household 1 is African American - N6	Household Info	N6
HOHBLK2	524	Head of household 2 is African American - N6	Household Info	N6
HOHLAT1	525	Head of household 1 is Hispanic/Latino - N6	Household Info	N6
HOHLAT2	526	Head of household 2 is Hispanic/Latino - N6	Household Info	N6
HOHWHT1	527	Head of household 1 is Caucasian - N6	Household Info	N6
HOHWHT2	528	Head of household 2 is Caucasian - N6	Household Info	N6
HOHOTH1	529	Head of household 1 - Other - N6	Household Info	N6
HOHOTH2	530	Head of household 2 - Other - N6	Household Info	N6
INCOME19	531	Household total income - N7	Household Info	N7
occtype	538	Presence of Seniors/Children	Household Info	
avginc	540	Average continuous income - individually metered	Household Info	

Table 2: 2009 RASS Survey Variables

2009 RASS Survey Variables				
09 VarName	**Order**	**09 Label**	**DataGroup**	**Question Num**
eutil	1	Electric utility	Administrative	
ngutil	2	Gas utility	Administrative	
cecfast	3	Forecast climate zone (CEC)	Administrative	
czt24	4	Title 24 Climate Zones	Administrative	
NAC_KWH	5	Normalized Annual Consumption - kWh - Individually Metered	Administrative	
NAC_Therms	6	Normalized Annual Consumption - Therms - Individually Metered	Administrative	
AcAn_kWh	7	Pre-normalized 12-month Average Usage – kwh – individually metered	Administrative	
ACAn_therms	8	Pre-normalized 12-month Average Usage – therms – individually metered	Administrative	
UTILSDGE	9	Utility specific climate zone - SDGE	Administrative	
scg	10	Have SCG account data	Administrative	
elecMM	11	Master Metered Electric Account	Administrative	
res	12	Cleaned building type	Home & Lifestyle	
numi	13	Average continuous number in household	Home & Lifestyle	
homeage	14	Average home age	Home & Lifestyle	
SQFT_A	15	Average square footage	Home & Lifestyle	
rescnt	16	Total number of residents	Home & Lifestyle	
DWLTYPE	17	Type of building - A1	Home & Lifestyle	A1
STORIES	18	Number of stories if single family - A1	Home & Lifestyle	A1
OWNRENT	19	Own or rent home - A2	Home & Lifestyle	A2
YRS_RES	20	Length of time at this address - A3	Home & Lifestyle	A3
SEASOCC	21	Seasonal occupancy - A4	Home & Lifestyle	A4
SEASJAN	22	Seasonal occupancy, occupied in Jan - A5	Home & Lifestyle	A5
SEASFEB	23	Seasonal occupancy, occupied in Feb - A5	Home & Lifestyle	A5

SEASMAR	24	Seasonal occupancy, occupied in Mar - A5	Home & Lifestyle	A5
SEASAPR	25	Seasonal occupancy, occupied in Apr - A5	Home & Lifestyle	A5
SEASMAY	26	Seasonal occupancy, occupied in May - A5	Home & Lifestyle	A5
SEASJUN	27	Seasonal occupancy, occupied in Jun - A5	Home & Lifestyle	A5
SEASJUL	28	Seasonal occupancy, occupied in Jul - A5	Home & Lifestyle	A5
SEASAUG	29	Seasonal occupancy, occupied in Aug - A5	Home & Lifestyle	A5
SEASSEP	30	Seasonal occupancy, occupied in Sep - A5	Home & Lifestyle	A5
SEASOCT	31	Seasonal occupancy, occupied in Oct - A5	Home & Lifestyle	A5
SEASNOV	32	Seasonal occupancy, occupied in Nov - A5	Home & Lifestyle	A5
SEASDEC	33	Seasonal occupancy, occupied in Dec - A5	Home & Lifestyle	A5
BUILTYR	34	Year home built - A6	Home & Lifestyle	A6
NUMROOM	35	Number of bedrooms - A7	Home & Lifestyle	A7
SQFT	36	Square feet of living space - A8	Home & Lifestyle	A8
EXTWLINS	37	Home has insulated exterior walls - A9	Home & Lifestyle	A9
ACEILINS	38	Home has insulated attic - A10	Home & Lifestyle	A10
CEILINCH	39	Inches of attic insulation - A11	Home & Lifestyle	A11
WINDTYPE	40	Window pane type - A12	Home & Lifestyle	A12
WINFRAME	41	Window frame type - A12	Home & Lifestyle	A12
WINFPTYP	42	Window frame & pane	Home & Lifestyle	
REMOD	43	Home has been remodeled - A13	Home & Lifestyle	A13
RMDROOM	44	Remodel with room additon - A14	Home & Lifestyle	A14
RMDKTBTH	45	Remodel bath or kitchen - A14	Home & Lifestyle	A14
RMDREBLT	46	Rebuilt most of the home - A14	Home & Lifestyle	A14
RMDOTHR	47	Remodel other - A14	Home & Lifestyle	A14
kids	48	Number of residents 0-18	Home & Lifestyle	
adults	49	Number of residents 19-64	Home & Lifestyle	
seniors	50	Number of residents 65+	Home & Lifestyle	
NR0_5	51	Number under 5 years of age in home - A15	Home & Lifestyle	A15
NR6_18	52	Number 6-18 years of age in home - A15	Home & Lifestyle	A15
NR19_34	53	Number 19-34 years of age in home - A15	Home & Lifestyle	A15
NR35_54	54	Number 35-54 years of age in home - A15	Home & Lifestyle	A15
NR55_64	55	Number 55-64 years of age in home - A15	Home & Lifestyle	A15
NR65_99	56	Number 65-99 years of age in home - A15	Home & Lifestyle	A15
ONPKUSE	57	Peak time use of electrical appliances - A16	Home & Lifestyle	A16
NGSERV	58	Natural gas service available in area - A17	Home & Lifestyle	A17
NGLINE	59	Natural gas service available in home - A18	Home & Lifestyle	A18
NGUTIL	60	Natural gas utility - A19	Home & Lifestyle	A19
NUMVEH	61	Number of Vehicles at the Residence - A20	Home & Lifestyle	A20
VEH1OWM	62	Number of one-way miles on regular weekday trips for the first vehicle - A21	Home & Lifestyle	A21
VEH1TMD	63	Total miles driven in a year with the first vehicle - A21	Home & Lifestyle	A21
VEH1GRG	64	First vehicle is parked in garage - A21	Home & Lifestyle	A21
VEH1CPT	65	First vehicle is parked in carport - A21	Home & Lifestyle	A21
VEH1OSP	66	First vehicle is parked in outside space - A21	Home & Lifestyle	A21
VEH1OST	67	First vehicle is parked on street - A21	Home & Lifestyle	A21
VEH1POW	68	Power outlet within reach of the first vehicle parking space - A21	Home & Lifestyle	A21
VEH2OWM	69	Number of one-way miles on regular weekday trips for the second vehicle - A21	Home & Lifestyle	A21
VEH2TMD	70	Total miles driven in a year with the second vehicle - A21	Home & Lifestyle	A21
VEH2GRG	71	Second vehicle is parked in garage - A21	Home & Lifestyle	A21
VEH2CPT	72	Second vehcile is parked in carport - A21	Home & Lifestyle	A21
VEH2OSP	73	Second vehicle is parked in outside space - A21	Home & Lifestyle	A21

VEH2OST	74	Second vehicle is parked on street - A21	Home & Lifestyle	A21
VEH2POW	75	Power outlet within reach of the second vehicle's parking space - A21	Home & Lifestyle	A21
VEH3OWM	76	Number of one-way miles on regular weekday trips for the third vehicle - A21	Home & Lifestyle	A21
VEH3TMD	77	Total miles driven in a year with the third vehicle - A21	Home & Lifestyle	A21
VEH3GRG	78	Third vehicle is parked in garage - A21	Home & Lifestyle	A21
VEH3CPT	79	Third vehcile is parked in carport - A21	Home & Lifestyle	A21
VEH3OSP	80	Third vehicle is parked in outside space - A21	Home & Lifestyle	A21
VEH3OST	81	Third vehicle is parked on street - A21	Home & Lifestyle	A21
VEH3POW	82	Power outlet within reach of the third vehicle's parking space - A21	Home & Lifestyle	A21
payheat2	83	Cleaned pays for space heating	Space Heating	
phtfuel3	84	Cleaned primary heating fuel	Space Heating	
phtfuel2	85	Cleaned primary heating fuel - individually metered	Space Heating	
PAYHEAT	86	Pays for heating - B1	Space Heating	B1
PHTNGCNT	87	Primary central forced air gas furnace - B2	Space Heating	B2
PHTNGFWL	88	Primary floor or wall gas furnace - B2	Space Heating	B2
PHTNGRAD	89	Primary hot water gas radiator - B2	Space Heating	B2
PHTNGFP	90	Primary Gas Fireplace - B2	Space Heating	B2
PHTNGOTH	91	Primary other gas heater - B2	Space Heating	B2
PHTELBSB	92	Primary resistance electric heater - B2	Space Heating	B2
PHTELCRH	93	Primary central forced air electric furnace - B2	Space Heating	B2
PHTELCHP	94	Primary central electric heat pump - B2	Space Heating	B2
PHTELWHP	95	Primary through-the-wall electric heat pump - B2	Space Heating	B2
PHTELPOR	96	Primary portable electric heater - B2	Space Heating	B2
PHTELOTH	97	Primary other electric heater - B2	Space Heating	B2
PHTBGCNT	98	Primary central forced air bottled gas furnace - B2	Space Heating	B2
PHTBGFWL	99	Primary floor or wall bottled gas heater - B2	Space Heating	B2
PHTBGRAD	100	Primary hot water bottled gas radiator - B2	Space Heating	B2
PHTBGOTH	101	Primary bottled gas heater other - B2	Space Heating	B2
PHTWDWS	102	Primary woodstove/fireplace insert - B2	Space Heating	B2
PHTWDFP	103	Primary wood fireplace - B2	Space Heating	B2
PHTSLRN	104	Primary solar heat, no backup - B2	Space Heating	B2
PHTSLRG	105	Primary solar heat, natural gas backup - B2	Space Heating	B2
PHTSLRP	106	Primary solar heat, propane backup - B2	Space Heating	B2
PHTSLRE	107	Primary solar heat, electric backup - B2	Space Heating	B2
PHTOTSYS	108	Primary 'other' heat - B2	Space Heating	B2
AHTNGCNT	109	Secondary central forced air gas furnace - B2	Space Heating	B2
AHTNGFWL	110	Secondary floor or wall gas furnace - B2	Space Heating	B2
AHTNGRAD	111	Secondary hot water gas radiator - B2	Space Heating	B2
AHTNGOTH	112	Secondary other gas heater - B2	Space Heating	B2
AHTELBSB	113	Secondary resistance electric heater - B2	Space Heating	B2
AHTELCRH	114	Secondary central forced air electric furnace - B2	Space Heating	B2
AHTELCHP	115	Secondary central electric heat pump - B2	Space Heating	B2
AHTELWHP	116	Secondary through-the-wall electric heat pump - B2	Space Heating	B2
AHTELPOR	117	Secondary portable electric heater - B2	Space Heating	B2
AHTELOTH	118	Secondary other electric heater - B2	Space Heating	B2
AHTBGCNT	119	Secondary central forced air bottled gas furnace - B2	Space Heating	B2
AHTBGFWL	120	Secondary floor or wall bottled gas heater - B2	Space Heating	B2
AHTBGRAD	121	Secondary hot water bottled gas radiator - B2	Space Heating	B2
AHTNGFP	122	Secondary gas fireplace - B2	Space Heating	B2
AHTBGOTH	123	Secondary bottled gas heater other - B2	Space Heating	B2

AHTWDWS	124	Secondary woodstove/fireplace insert - B2	Space Heating	B2
AHTWDFP	125	Secondary wood fireplace - B2	Space Heating	B2
AHTSLRN	126	Secondary solar heat, no backup - B2	Space Heating	B2
AHTSLRG	127	Secondary solar heat, natural gas backup - B2	Space Heating	B2
AHTSLRP	128	Secondary solar heat, propane backup - B2	Space Heating	B2
AHTSLRE	129	Secondary solar heat, electric backup - B2	Space Heating	B2
AHTOTSYS	130	Secondary 'other' heat - B2	Space Heating	B2
MAINPILT	131	Main heater has gas pilot light - B3	Space Heating	B3
SECPILT	132	Secondary heater has gas pilot light - B3	Space Heating	B3
HTSYSAGE	133	Age of main heating system - B4	Space Heating	B4
HTCTLTYP	134	Thermostat type for main heating system - B5	Space Heating	B5
HMRNSET	135	Heater thermostat setting in morning - B6	Space Heating	B6
HDAYSET	136	Heater thermostat setting in day - B6	Space Heating	B6
HEVNSET	137	Heater thermostat setting in evening - B6	Space Heating	B6
HNITESET	138	Heater thermostat setting in night - B6	Space Heating	B6
HTMAINTN	139	Maintenance preformed on heating system - B7	Space Heating	B7
NPORHTRS	140	Number of portable heaters - B8	Space Heating	B8
USEADDHT	141	Use of additional heating systems - B9	Space Heating	B9
phtcnt	142	Have a primary heater	Space Heating	
havesec	143	Have a secondary heater	Space Heating	
ahtcnt	144	Number of secondary heaters	Space Heating	
htng	145	Have a primary or secondary gas heater	Space Heating	
phtng	146	Have a primary gas heater	Space Heating	
ahtng	147	Have a secondary gas heater	Space Heating	
htelec	148	Have a primary or secondary electric heater	Space Heating	
phtelec	149	Have a primary electric heater	Space Heating	
ahtelec	150	Have a secondary electric heater	Space Heating	
htbg	151	Have a primary or secondary bottled gas heater	Space Heating	
phtbg	152	Have a primary bottled gas heater	Space Heating	
ahtbg	153	Have a secondary bottled gas heater	Space Heating	
htwdfp2	154	Have a primary or secondary wood heater	Space Heating	
phtwdfp2	155	Have a primary wood heater	Space Heating	
ahtwdfp2	156	Have a secondary wood heater	Space Heating	
htsolar	157	Have a primary or secondary solar heater	Space Heating	
phtsolar	158	Have a primary solar heater	Space Heating	
ahtsolar	159	Have a secondary solar heater	Space Heating	
htother	160	Have a primary or secondary 'other' heater	Space Heating	
phtother	161	Have a primary 'other' heater	Space Heating	
ahtother	162	Have a secondary 'other' heater	Space Heating	
htelwhp	163	Have a primary or secondary electric through-the-wall heat pump	Space Heating	
paycool2	164	Pays for central air conditioning	Space Cooling	
cooling	165	Cleaned cooling type	Space Cooling	
caccnt	166	Total number of central air conditioners	Space Cooling	
RACCNT	167	Total number of room air conditioners	Space Cooling	
PAYCOOL	168	Pays for central air conditioning - C1	Space Cooling	C1
CTLACAGE	169	Number of central air conditioners - C2	Space Cooling	C2
CTEVZON	170	Primary Central Air Conditioning System is controlled by a Zoned Thermostat - C2	Space Cooling	C2
CTEVPAGE	171	Number of central evaporative coolers - C2	Space Cooling	C2
CTLACZON	172	Primary Central Evaporative Cooling System is controlled by a Zoned Themostat - C2	Space Cooling	C2
HPAGE	173	Number of heat pumps - C2	Space Cooling	C2

HPZON	174	Primary Heat Pump System is controlled by a Zoned Thermostat - C2	Space Cooling	C2
CLCNTAGE	175	Age of main central air conditioner - C3	Space Cooling	C3
CLCTLTYP	176	Thermostat type for main central air - C4	Space Cooling	C4
CMRNSET	177	AC thermostat setting in morning - C5	Space Cooling	C5
CDAYSET	178	AC thermostat setting in day - C5	Space Cooling	C5
CEVNSET	179	AC thermostat setting in evening - C5	Space Cooling	C5
CNITESET	180	AC thermostat setting in night - C5	Space Cooling	C5
CLMAINTN	181	Maintenance preformed on ac system - C6	Space Cooling	C6
NOROOMAC	182	No room air conditioner - C7	Space Cooling	C7
ACTYP1	183	Type room air conditioner 1 - C7	Space Cooling	C7
ACTYP2	184	Type room air conditioner 2 - C7	Space Cooling	C7
ACTYP3	185	Type room air conditioner 3 - C7	Space Cooling	C7
ACAGE1	186	Age of room air conditioner 1 - C7	Space Cooling	C7
ACAGE2	187	Age of room air conditioner 2 - C7	Space Cooling	C7
ACAGE3	188	Age of room air conditioner 3 - C7	Space Cooling	C7
CMRNUSE	189	Use of room air conditioner in morning - C8	Space Cooling	C8
CDAYUSE	190	Use of room air conditioner in day - C8	Space Cooling	C8
CEVNUSE	191	Use of room air conditioner in evening - C8	Space Cooling	C8
CNITEUSE	192	Use of room air conditioner at night - C8	Space Cooling	C8
CHOTUSE	193	Use of room air conditioner on a hot weekday - C8	Space Cooling	C8
paywh2	194	Cleaned pays for water heating	Water Heating	
pwhfuel3	195	Cleaned primary water heater fuel	Water Heating	
PWHFUEL2	196	Cleaned primary water heater fuel - individually metered	Water Heating	
PAYWH	197	Pay for water heater - D1	Water Heating	D1
PWHNGTNK	198	Standard tank gas water heater - D2	Water Heating	D2
PWHNGWHT	199	Whole house tankless gas water heater - D2	Water Heating	D2
PWHNGHEC	200	High Efficiency Condensing gas water heater - D2	Water Heating	D2
PWHELTNK	201	Standard tank electric water heater - D2	Water Heating	D2
PWHELHP	202	Heat pump electric water heater - D2	Water Heating	D2
PWHELWHT	203	Whole house tankless electric water heater - D2	Water Heating	D2
PWHELPNT	204	Point of use tankless electric water heater - D2	Water Heating	D2
PWHLPTNK	205	Standard tank propane water heater - D2	Water Heating	D2
PWHLPWHT	206	Whole house tankless propane water heater - D2	Water Heating	D2
PWHSLRN	207	Solar water heater, no backup - D2	Water Heating	D2
PWHSLRG	208	Solar water heater, natural gas backup - D2	Water Heating	D2
PWHSLRP	209	Solar water heater, propane backup - D2	Water Heating	D2
PWHSLRE	210	Solar water heater, electric backup - D2	Water Heating	D2
PWHOTSYS	211	Water heater, other fuel - D2	Water Heating	D2
AWHNGTNK	212	Additional standard tank gas water heater - D2	Water Heating	D2
AWHNGWHT	213	Additional whole house tankless gas water heater - D2	Water Heating	D2
AWHNGHEC	214	Additional High Efficiency Condensing gas water heater - D2	Water Heating	D2
AWHELTNK	215	Additional standard tank electric water heater - D2	Water Heating	D2
AWHELHP	216	Additional heat pump electric water heater - D2	Water Heating	D2
AWHELWHT	217	Additional whole house tankless electric water heater - D2	Water Heating	D2
AWHELPNT	218	Additional point of use tankless electric water heater - D2	Water Heating	D2
AWHLPTNK	219	Additional standard tank propane water heater - D2	Water Heating	D2
AWHLPWHT	220	Additional whole house tankless propane water heater - D2	Water Heating	D2
AWHSLRN	221	Additional solar water heater, no backup - D2	Water Heating	D2
AWHSLRG	222	Additional solar water heater, natural gas backup - D2	Water Heating	D2
AWHSLRP	223	Additional solar water heater, propane backup - D2	Water Heating	D2

AWHSLRE	224	Additional solar water heater, electric backup - D2	Water Heating	D2
AWHOTSYS	225	Additional water heater, other fuel - D2	Water Heating	D2
WHTEMP	226	Water heater temperature - D3	Water Heating	D3
PRWHAGE	227	Water heater age - D4	Water Heating	D4
SHWRDAY	228	Number of showers - D5	Water Heating	D5
BATHSDAY	229	Number of baths - D5	Water Heating	D5
SHOWERHD	230	Low flow shower head - D6	Water Heating	D6
AERATORS	231	Faucet aerators - D7	Water Heating	D7
whng	232	Have a gas water heater	Water Heating	
whelec	233	Have an electric water heater	Water Heating	
whbg	234	Have a bottled gas water heater	Water Heating	
whsl	235	Have a solar water heater	Water Heating	
whoth	236	Have an other water heater	Water Heating	
whngtnk	237	Have a primary or secondary standard tank gas water heater	Water Heating	
whngwht	238	Have a primary or secondary whole house tankless gas water heater	Water Heating	
wheltnk	239	Have a primary or secondary standard tank electric water heater	Water Heating	
whelhp	240	Have a primary or secondary heat pump electric water heater	Water Heating	
whelwht	241	Have a primary or secondary whole house tankless electric water heater	Water Heating	
whelpnt	242	Have a primary or secondary point of use tankless electric water heater	Water Heating	
whlptnk	243	Have a primary or secondary standard tank propane water heater	Water Heating	
whlpwht	244	Have a primary or secondary whole house tankless propane water heater	Water Heating	
whslrn	245	Have a primary or secondary solar water heater, no backup	Water Heating	
whslrg	246	Have a primary or secondary solar water heater, gas backup	Water Heating	
whslrp	247	Have a primary or secondary solar water heater, propane backup	Water Heating	
whslre	248	Have a primary or secondary solar water heater, electric backup	Water Heating	
whotsys	249	Have a primary or secondary water heater, other fuel	Water Heating	
gdry	250	Have gas dryer	Laundry	
edry	251	Have electric dryer	Laundry	
numwash	252	Total number of clothes washes per week	Laundry	
LNDRYEQP	253	Laundry equipment in home - E1	Laundry	E1
CWTYP	254	Type of clothes washer - E2	Laundry	E2
CWAGE	255	Clothes washer age - E3	Laundry	E3
CWHWLD	256	Number of hot water washes per week - E4	Laundry	E4
CWWWLD	257	Number of warm water washes per week - E4	Laundry	E4
CWCWLD	258	Number of cold water washes per week - E4	Laundry	E4
CDTYP	259	Type of clothes dryer - E5	Laundry	E5
DRYLDS	260	Number of dryer loads per week - E6	Laundry	E6
CKRNTYP	261	Fuel for cooktop - F1	Food Prep	F1
CKRNA	262	Age of cooktop - F1	Food Prep	F1
CKOVTYP	263	Fuel for oven - F1	Food Prep	F1
CKOVA	264	Age of oven - F1	Food Prep	F1
CKBBTYP	265	Fuel for barbecue - F1	Food Prep	F1
CKBBQA	266	Age of barbecue - F1	Food Prep	F1
CKMW	267	Fuel for microwave - F1	Food Prep	F1
CKMWA	268	Age of microwave - F1	Food Prep	F1

WRNUSE	269	Weekly Use of cooktop, stovetop or range - F2	Food Prep	F2
WOVUSE	270	Weekly Use of oven - F2	Food Prep	F2
WMWUSE	271	Weekly Use of microwave - F2	Food Prep	F2
WOTHUSE	272	Weekly Use of other cooking appliance - F2	Food Prep	F2
DISHWASH	273	Have dishwasher - F3	Food Prep	F3
DWLOADS	274	Number of dishwasher loads per week - F4	Food Prep	F4
RFNUM	275	Number of refrigerators - G1	Refrigerators	G1
RF1STY	276	Door style of first refrigerator - G2	Refrigerators	G2
RF2STY	277	Door style of second refrigerator - G2	Refrigerators	G2
RF3STY	278	Door style of third refrigerator - G2	Refrigerators	G2
RF1SZ	279	Size of first refrigerator - G2	Refrigerators	G2
RF2SZ	280	Size of second refrigerator - G2	Refrigerators	G2
RF3SZ	281	Size of third refrigerator - G2	Refrigerators	G2
RF1DEF	282	Defrost type of first refrigerator - G2	Refrigerators	G2
RF2DEF	283	Defrost type of second refrigerator - G2	Refrigerators	G2
RF3DEF	284	Defrost type of third refrigerator - G2	Refrigerators	G2
RF1AGE	285	Age of first refrigerator - G2	Refrigerators	G2
RF2AGE	286	Age of second refrigerator - G2	Refrigerators	G2
RF3AGE	287	Age of third refrigerator - G2	Refrigerators	G2
RF1OTH	288	Door ice in first refrigerator - G2	Refrigerators	G2
RF2OTH	289	Door ice in second refrigerator - G2	Refrigerators	G2
RF3OTH	290	Door ice in third refrigerator - G2	Refrigerators	G2
rfdiscrd	291	Old refrigerator discarded in the last 12 months	Refrigerators	
FZNUM	292	Number of stand alone freezers - H1	Freezers	H1
FZ1STY	293	Style of first freezer - H2	Freezers	H2
FZ1SZ	294	Size of first freezer - H2	Freezers	H2
FZ1AGE	295	Age of first freezer - H2	Freezers	H2
FZ2STY	296	Style of second freezer - H2	Freezers	H2
FZ2SZ	297	Size of second freezer - H2	Freezers	H2
FZ2AGE	298	Age of second freezer - H2	Freezers	H2
fzdiscrd	299	Old freezer discarded in the last 12 months	Freezers	
SPTYP	300	Spa or hot tub - I1	Spas and Hot Tubs	I1
SPHTF	301	Spa fuel - I2	Spas and Hot Tubs	I2
SPSZ	302	Spa size - I3	Spas and Hot Tubs	I3
SPLOC	303	Spa location - I4	Spas and Hot Tubs	I4
SPCOV	304	Spa cover - I5	Spas and Hot Tubs	I5
SMRNFLTPMP	305	Frequency of spa filtration summer morning - I6	Spas and Hot Tubs	I6
SMDFLTPMP	306	Frequency of spa filtration summer mid-day - I6	Spas and Hot Tubs	I6
SNITFLTPMP	307	Frequency of spa filtration summer night - I6	Spas and Hot Tubs	I6
WMRNFLTPMP	308	Frequency of spa filtration winter morning - I6	Spas and Hot Tubs	I6
WMDFLTPMP	309	Frequency of spa filtration winter mid-day - I6	Spas and Hot Tubs	I6
WNITFLTPMP	310	Frequency of spa filtration winter night - I6	Spas and Hot Tubs	I6
SMRNHTSPA	311	Frequency of spa heat in summer morning - I7	Spas and Hot Tubs	I7
SMDHTSPA	312	Frequency of spa heat in summer mid-day - I7	Spas and Hot Tubs	I7
SNITHTSPA	313	Frequency of spa heat in summer night - I7	Spas and Hot Tubs	I7
WMRNHTSPA	314	Frequency of spa heat in winter morning - I7	Spas and Hot Tubs	I7
WMDHTSPA	315	Frequency of spa heat in winter mid-day - I7	Spas and Hot Tubs	I7
WNITHTSPA	316	Frequency of spa heat in winter night - I7	Spas and Hot Tubs	I7
PLTYP	317	Pool, pay for energy - J1	Pools	J1
PLSZ	318	Pool size - J2	Pools	J2
SMRNFLTHR	319	Hours per day filter pool summer morning - J3	Pools	J3
SMDFLTHR	320	Hours per day filter pool summer mid-day - J3	Pools	J3

SNITFLTHR	321	Hours per day filter pool summer night - J3	Pools	J3
WMRNFLTHR	322	Hours per day filter pool winter morning - J3	Pools	J3
WMDFLTHR	323	Hours per day filter pool winter mid-day - J3	Pools	J3
WNITFLTHR	324	Hours per day filter pool winter night - J3	Pools	J3
PLHTF	325	Fuel to heat pool - J4	Pools	J4
SMRNHTPL	326	Frequency heat pool summer morning - J5	Pools	J5
SMDHTPL	327	Frequency heat pool summer mid-day - J5	Pools	J5
SNITHTPL	328	Frequency heat pool summer night - J5	Pools	J5
WMRNHTPL	329	Frequency heat pool winter morning - J5	Pools	J5
WMDHTPL	330	Frequency heat pool winter mid-day - J5	Pools	J5
WNITHTPL	331	Frequency heat pool winter night - J5	Pools	J5
PLCOV	332	Pool cover - J6	Pools	J6
PLTIMR	333	Pool timer - J6	Pools	J6
PLSWEEP	334	Pool sweep - J6	Pools	J6
PLVAC	335	Pool vacuum - J6	Pools	J6
PLINDOOR	336	Pool is indoors - J6	Pools	J6
tvcnt	337	Number of TVs	Entertainment & Technology	
STDTV	338	Number of standard tvs - K1	Entertainment & Technology	K1
SMLLCDTV	339	Number of small LCD tvs less than 36 inches - K1	Entertainment & Technology	K1
LRGLCDTV	340	Number of large LCD tvs less than 36 inches - K1	Entertainment & Technology	K1
PLSMTV	341	Number of plasma tvs - K1	Entertainment & Technology	K1
DTA	342	Number of digital converter boxes for standard TVs - K1	Entertainment & Technology	K1
BOXNODVR	343	Number of cable or satellite boxes without DVR - K1	Entertainment & Technology	K1
BOXWDVR	344	Number of cable or satellite boxes with DVR - K1	Entertainment & Technology	K1
SADVR	345	Number of stand alone digital video recorders - K1	Entertainment & Technology	K1
DVDVCR	346	Number of DVD players and/or VCRs - K1	Entertainment & Technology	K1
GAMSYS	347	Number of gaming systems - K1	Entertainment & Technology	K1
AUDTOTV	348	Number of separate sound or stereo systems connected to TV - K1	Entertainment & Technology	K1
SAMUSIC	349	Number of stand alone stereo, I-pod or MP3 docking stations - K1	Entertainment & Technology	K1
SMLTVUSE	350	Hours per day Use of Small TVs - K2	Entertainment & Technology	K2
LRGTVUSE	351	Hours per day Use of Large TVs - K2	Entertainment & Technology	K2
NDSKPCS	352	Number of desktop PCs K3	Entertainment & Technology	K3
NLAPPCS	353	Number of laptop PCs - K3	Entertainment & Technology	K3
DSKPCHRS	354	Hours per day Use of desktop PC's - K4	Entertainment & Technology	K4
LAPPCHRS	355	Hours per day Use of laptop PC's - K4	Entertainment & Technology	K4
EMAIL	356	Frequency of email use - K5	Entertainment & Technology	K5
BRWSONLN	357	Frequency of browse internet - K5	Entertainment & Technology	K5

BUYONLN	358	Frequency of buy on internet - K5	Entertainment & Technology	K5
BILLONLN	359	Frequency of pay bill on internet - K5	Entertainment & Technology	K5
GAMPC	360	Frequency of gaming on computer - K5	Entertainment & Technology	K5
WORKHOME	361	Work from home - K6	Entertainment & Technology	K6
WKHRSHM	362	Hours per week work from home - K7	Entertainment & Technology	K7
ANSRMCHN	363	Number of answering machines - K8	Entertainment & Technology	K8
MULTMCHN	364	Number of multifunction machines - K8	Entertainment & Technology	K8
FAX	365	Number of FAX machines - K8	Entertainment & Technology	K8
PRNTJET	366	Number of inkjet printers - K8	Entertainment & Technology	K8
PRNTLSR	367	Number of laser printers - K8	Entertainment & Technology	K8
SCAN	368	Number of scanners - K8	Entertainment & Technology	K8
COPIER	369	Number of copier - K8	Entertainment & Technology	K8
PHINT	370	Number of phone internet access - K8	Entertainment & Technology	K8
HSMODINT	371	Number of high-speed modems - K8	Entertainment & Technology	K8
HMNET	372	Number of home networks - K8	Entertainment & Technology	K8
UNPWRSUP	373	Number of uninterrupted power supplies - K8	Entertainment & Technology	K8
CELL	374	Number of cell phones - K8	Entertainment & Technology	K8
QHHICFL	375	Total indoor CFL bulbs	Lighting	
QHHIINC	376	Total indoor incandescent light bulbs	Lighting	
QHHITB	377	Total of indoor CFL and incandescent light bulbs	Lighting	
SATCFL	378	Ratio of indoor CFL bulbs to total indoor CFL and incandescent bulbs	Lighting	
FMLRCFL	379	Number of family/living room CFLs - L1	Lighting	L1
KITCFL	380	Number of kitchen CFLs - L1	Lighting	L1
BTHCFL	381	Number of bathroom CFLs - L1	Lighting	L1
BDRCFL	382	Number of bedroom CFLs - L1	Lighting	L1
HLWCFL	383	Number of hallway/entry CFLs - L1	Lighting	L1
FMLRINCD	384	Number of family/living room incandescent bulbs - L1	Lighting	L1
KITINCD	385	Number of kitchen incandescent bulbs - L1	Lighting	L1
BTHINCD	386	Number of bathroom incandescent bulbs - L1	Lighting	L1
BDRINCD	387	Number of bedroom incandescent bulbs - L1	Lighting	L1
HLWINCD	388	Number of hallway/entry incandescent bulbs - L1	Lighting	L1
LMRNUSEN	389	Percent of lights on in home in morning - L2	Lighting	L2
LDAYUSEN	390	Percent of lights on in home in daytime - L2	Lighting	L2
LEVNUSEN	391	Percent of lights on in home in evening - L2	Lighting	L2
LNITEUSEN	392	Percent of lights on in home in night - L2	Lighting	L2
ICTLTIMR	393	Number of interior timers - L3	Lighting	L3
ICTLOCCS	394	Number of interior motion detectors - L3	Lighting	L3
ICTLDIM	395	Number of interior dimmers - L3	Lighting	L3
ICTLNITE	396	Number of nightlights - L3	Lighting	L3

EXINC	397	Number of exterior incandescent - L4	Lighting	L4
EXCFL	398	Number of exterior CFL - L4	Lighting	L4
EXLOWV	399	Number of exterior low volt landscape - L4	Lighting	L4
EXHID	400	Number of exterior metal halide - L4	Lighting	L4
ECTLTIMR	401	Number of exterior timers - L4	Lighting	L4
ECTLDSK	402	Number of exterior light sensors - L4	Lighting	L4
ECTLMOTN	403	Number of exterior motion detectors - L4	Lighting	L4
CFLTOINCD	404	Have removed a CFL and replaced it with an incandescent bulb - L5	Lighting	L5
CHRGRS	405	Number of charges left plugged all the time - M1	Misc Appliances	M1
FNPORT	406	Number of portable fans - M1	Misc Appliances	M1
FNCEIL	407	Number of ceiling fans - M1	Misc Appliances	M1
WNDATV	408	Number of wind turbine attic ventilators - M1	Misc Appliances	M1
FNATTIC	409	Number of electric attic fans - M1	Misc Appliances	M1
FNWHOLE	410	Number of whole house fans - M1	Misc Appliances	M1
AIRCLEAN	411	Number of household air cleaners - M1	Misc Appliances	M1
HUMDEH	412	Number of Humidifiers/Dehumidifiers - M1	Misc Appliances	M1
WINCLR	413	Number of wine or beverage coolers - M1	Misc Appliances	M1
WHPURIFY	414	Number of water purification systems - M1	Misc Appliances	M1
DHWRPMP	415	Number of Domestic Hot Water Recirculation Pumps - M1	Misc Appliances	M1
ELBLNKET	416	Number of electric blankets - M1	Misc Appliances	M1
AQUAR	417	Number of aquariums - M1	Misc Appliances	M1
TRSHCOMP	418	Number of trash compactors - M1	Misc Appliances	M1
SAUNA	419	Number of electric saunas - M1	Misc Appliances	M1
SCRTYSYS	420	Number of security systems - M1	Misc Appliances	M1
POND	421	Number of pond pumps - M1	Misc Appliances	M1
GRGDROPN	422	Number of electric garage door openers - M1	Misc Appliances	M1
LAWNMOWR	423	Number of electric lawn mowers - M1	Misc Appliances	M1
WLWTRPMP	424	Use of electric well water pump - M2	Misc Appliances	M2
WTRSRCES	425	Access to city water - M3	Misc Appliances	M3
WLWTUSE	426	How do you use well water - M4	Misc Appliances	M4
SUMPPMP	427	Use sump pump - M5	Misc Appliances	M5
SHOPTLS	428	Use shop tools - M5	Misc Appliances	M5
WELD	429	Use electric welding equipment - M5	Misc Appliances	M5
AIRCOMP	430	Use electric air compressor - M5	Misc Appliances	M5
BATCHRGE	431	Use large battery charger - M5	Misc Appliances	M5
KILN	432	Pottery kiln - M5	Misc Appliances	M5
MEDICAL	433	Use medical equipment - M5	Misc Appliances	M5
ELVEH	434	Electric vehicle, golf cart, wheelchair - M6	Misc Appliances	M6
CHRGVEH	435	Charge electric vehicle at home - M7	Misc Appliances	M7
OLRGAPP	436	Other large electric or gas appliances - M8	Misc Appliances	M8
CHADD	437	Added central heating - M9	Misc Appliances	M9
CHFUEL	438	Fuel for added central heating - M9	Misc Appliances	M9
CCADD	439	Added central cooling - M9	Misc Appliances	M9
CCFUEL	440	Fuel for added central cooling - M9	Misc Appliances	M9
WWADD	441	Added window or wall cooling - M9	Misc Appliances	M9
WWFUEL	442	Fuel for added window or wall cooling - M9	Misc Appliances	M9
EVCLADD	443	Added Evaporative Cooler - M9	Misc Appliances	M9
EVCLFUEL	444	Fuel for added Evaporative Cooler - M9	Misc Appliances	M9
WHADD	445	Added water heater - M9	Misc Appliances	M9
WHFUEL	446	Fuel for added water heater - M9	Misc Appliances	M9
RFADD	447	Added Refrigerator - M9	Misc Appliances	M9

RFFUEL	448	Fuel for added Refrigerator - M9	Misc Appliances	M9
FRZADD	449	Added Stand-alone Freezer - M9	Misc Appliances	M9
FRZFUEL	450	Fuel for added Stand-alone Freezer - M9	Misc Appliances	M9
STADD	451	Added stove top - M9	Misc Appliances	M9
STFUEL	452	Fuel for added stove top - M9	Misc Appliances	M9
OVADD	453	Added oven - M9	Misc Appliances	M9
OVFUEL	454	Fuel for added oven - M9	Misc Appliances	M9
MWADD	455	Added microwave - M9	Misc Appliances	M9
MWFUEL	456	Fuel for added microwave - M9	Misc Appliances	M9
DWADD	457	Added dishwasher - M9	Misc Appliances	M9
DWFUEL	458	Fuel for added dishwasher - M9	Misc Appliances	M9
CWADD	459	Added clothes washer - M9	Misc Appliances	M9
CWFUEL	460	Fuel for added clothes washer - M9	Misc Appliances	M9
CDADD	461	Added clothes dryer - M9	Misc Appliances	M9
CDFUEL	462	Fuel for added clothes dryer - M9	Misc Appliances	M9
PHADD	463	Added pool heater - M9	Misc Appliances	M9
PHFUEL	464	Fuel for added pool heater - M9	Misc Appliances	M9
PPADD	465	Added pool pump - M9	Misc Appliances	M9
PPFUEL	466	Fuel for added pool pump - M9	Misc Appliances	M9
TBADD	467	Added hot tub - M9	Misc Appliances	M9
TBFUEL	468	Fuel for added hot tub - M9	Misc Appliances	M9
NOADD	469	Have not added major appliance - M9	Misc Appliances	M9
DCHAGE	470	Age of discarded central heater - M10	Misc Appliances	M10
DCHFL	471	Fuel of discarded central heater - M10	Misc Appliances	M10
DCCAGE	472	Age of discarded central cooling - M10	Misc Appliances	M10
DCCFL	473	Fuel of discarded central cooling - M10	Misc Appliances	M10
DWWAGE	474	Age of discarded wall cooling - M10	Misc Appliances	M10
DWWFL	475	Fuel of discarded wall cooling - M10	Misc Appliances	M10
DEVCLAGE	476	Age of discarded Evaporative Cooler - M10	Misc Appliances	M10
DEVCLFL	477	Fuel of discarded Evaporative Cooler - M10	Misc Appliances	M10
DWHAGE	478	Age of discarded water heater - M10	Misc Appliances	M10
DWHFL	479	Fuel of discarded water heater - M10	Misc Appliances	M10
DRFAGE	480	Age of discarded Refrigerator - M10	Misc Appliances	M10
DRFFL	481	Fuel of discarded Refrigerator - M10	Misc Appliances	M10
DFZAGE	482	Age of discarded Stand-alone Freezer - M10	Misc Appliances	M10
DFRZFL	483	Fuel of discarded Stand-alone Freezer - M10	Misc Appliances	M10
DSTAGE	484	Age of discarded stove top - M10	Misc Appliances	M10
DSTFL	485	Fuel of discarded stove top - M10	Misc Appliances	M10
DOVAGE	486	Age of discarded oven - M10	Misc Appliances	M10
DOVFL	487	Fuel of discarded oven - M10	Misc Appliances	M10
DMWAGE	488	Age of discarded microwave - M10	Misc Appliances	M10
DMWFL	489	Fuel of discarded microwave - M10	Misc Appliances	M10
DDWAGE	490	Age of discarded dishwasher - M10	Misc Appliances	M10
DDWFL	491	Fuel of discarded dishwasher - M10	Misc Appliances	M10
DCWAGE	492	Age of discarded clothes washer - M10	Misc Appliances	M10
DCWFL	493	Fuel of discarded clothes washer - M10	Misc Appliances	M10
DCDAGE	494	Age of discarded clothes dryer - M10	Misc Appliances	M10
DCDFL	495	Fuel of discarded clothes dryer - M10	Misc Appliances	M10
DPHAGE	496	Age of discarded pool heater - M10	Misc Appliances	M10
DPHFL	497	Fuel of discarded pool heater - M10	Misc Appliances	M10
DPPAGE	498	Age of discarded pool pump - M10	Misc Appliances	M10
DPPFL	499	Fuel of discarded pool pump - M10	Misc Appliances	M10

DTBAGE	500	Age of discarded hot tub - M10	Misc Appliances	M10
DTBFL	501	Fuel of discarded hot tub - M10	Misc Appliances	M10
NODISCRD	502	Have not discarded above appliances - M10	Misc Appliances	M10
avginc	503	Average countinuous income - individually metered	Household Info	
samEth	504	Heads of household are same ethnicity	Household Info	
mixedeth	505	Heads of household are different ethnicity	Household Info	
PTHME	506	Other homes in California occupied by family - N1	Household Info	N1
PTHMELOC	507	Location of other home - N2	Household Info	N2
PTHMEUTL	508	Utility of other home - N2	Household Info	N2
EDUC	509	Education of head of household - N3	Household Info	N3
ETHNIC	510	Primary language - N4	Household Info	N4
DISABLED	511	Occupant is disabled - N5	Household Info	N5
HOHETH	512	Head of household ethnicity	Household Info	
HOHIND1	513	Head of household 1 is American Indian - N6	Household Info	N6
HOHIND2	514	Head of household 2 is American Indian - N6	Household Info	N6
HOHASN1	515	Head of household 1 is Asian/Pacific Islander - N6	Household Info	N6
HOHASN2	516	Head of household 2 is Asian/Pacific Islander - N6	Household Info	N6
HOHBLK1	517	Head of household 1 is African American - N6	Household Info	N6
HOHBLK2	518	Head of household 2 is African American - N6	Household Info	N6
HOHLAT1	519	Head of household 1 is Hispanic/Latino - N6	Household Info	N6
HOHLAT2	520	Head of household 2 is Hispanic/Latino - N6	Household Info	N6
HOHWHT1	521	Head of household 1 is Caucasian - N6	Household Info	N6
HOHWHT2	522	Head of household 2 is Caucasian - N6	Household Info	N6
HOHOTH1	523	Head of household 1 - Other - N6	Household Info	N6
HOHOTH2	524	Head of household 2 - Other - N6	Household Info	N6
INCOME	525	Household total income - N7	Household Info	N7
occtype	530	Presence of Seniors/Children	Household Info	

Table 3: 2003 RASS Survey Variables

2003 RASS Survey Variables				
03 VarName	**Var Num**	**03 Label**	**DataGroup**	**Question Num**
eutil	378	Electric utility	Administrative	
ngutil	46	Gas utility	Administrative	
cecfast	3	Forecast climate zone (CEC)	Administrative	
ceuscz	517	Weather station (from CEUS)	Administrative	
elemncda	476	Cleaned annualized electric bills - individually metered	Administrative	
thmmncda	469	Cleaned annualized gas bills - individually metered	Administrative	
Annkwh	449	Raw electric bills - 12*mean - individually metered	Administrative	
anntherm	451	Raw gas bills - 12*mean - individually metered	Administrative	
cecpge	447	Utility specific climate zone - PG&E	Administrative	
UTILSDGE	4	Utility specific climate zone - SDGE	Administrative	
scg	379	Have SCG account data	Administrative	
res	522	Cleaned building type - individually metered	Home & Lifestyle	
numi	456	Average continuous number in household	Home & Lifestyle	
homeage	455	Average home age	Home & Lifestyle	
SQFT_A	454	Average square footage	Home & Lifestyle	
rescnt	438	Total number of residents	Home & Lifestyle	
DWLTYPE	7	Type of building - A1	Home & Lifestyle	A1
STORIES	8	Number of stories if single family - A1	Home & Lifestyle	A1
OWNRENT	9	Own or rent home - A2	Home & Lifestyle	A2

2003 RASS Survey Variables				
03 VarName	Var Num	03 Label	DataGroup	Question Num
YRS_RES	10	Length of time at this address - A3	Home & Lifestyle	A3
SEASOCC	11	Seasonal occupancy - A4	Home & Lifestyle	A4
SEASJAN	12	Seasonal occupancy, occupied in Jan - A5	Home & Lifestyle	A5
SEASFEB	13	Seasonal occupancy, occupied in Feb - A5	Home & Lifestyle	A5
SEASMAR	14	Seasonal occupancy, occupied in Mar - A5	Home & Lifestyle	A5
SEASAPR	15	Seasonal occupancy, occupied in Apr - A5	Home & Lifestyle	A5
SEASMAY	16	Seasonal occupancy, occupied in May - A5	Home & Lifestyle	A5
SEASJUN	17	Seasonal occupancy, occupied in Jun - A5	Home & Lifestyle	A5
SEASJUL	18	Seasonal occupancy, occupied in Jul - A5	Home & Lifestyle	A5
SEASAUG	19	Seasonal occupancy, occupied in Aug - A5	Home & Lifestyle	A5
SEASSEP	20	Seasonal occupancy, occupied in Sep - A5	Home & Lifestyle	A5
SEASOCT	21	Seasonal occupancy, occupied in Oct - A5	Home & Lifestyle	A5
SEASNOV	22	Seasonal occupancy, occupied in Nov - A5	Home & Lifestyle	A5
SEASDEC	23	Seasonal occupancy, occupied in Dec - A5	Home & Lifestyle	A5
BUILTYR	24	Year home built - A6	Home & Lifestyle	A6
NUMROOM	25	Number of bedrooms - A7	Home & Lifestyle	A7
SQFT	26	Square feet of living space - A8	Home & Lifestyle	A8
EXTWLINS	27	Home has insulated exterior walls - A9	Home & Lifestyle	A9
ACEILINS	28	Home has insulated attic - A10	Home & Lifestyle	A10
CEILINCH	29	Inches of attic insulation - A11	Home & Lifestyle	A11
WINDTYPE	30	Window pane type - A12	Home & Lifestyle	A12
WINFRAME	31	Window frame type - A13	Home & Lifestyle	A13
REMOD	32	Home has been remodeled - A14	Home & Lifestyle	A14
RMDROOM	33	Remodel with room additon - A15	Home & Lifestyle	A15
RMDKTBTH	34	Remodel bath or kitchen - A15	Home & Lifestyle	A15
RMDREBLT	35	Rebuilt most of the home - A15	Home & Lifestyle	A15
RMDOTHR	36	Remodel other - A15	Home & Lifestyle	A15
kids	439	Number of residents 0-18	Home & Lifestyle	
adults	440	Number of residents 19-64	Home & Lifestyle	
seniors	441	Number of residents 65+	Home & Lifestyle	
NR0_5	37	Number under 5 years of age in home - A16	Home & Lifestyle	A16
NR6_18	38	Number 6-18 years of age in home - A16	Home & Lifestyle	A16
NR19_34	39	Number 19-34 years of age in home - A16	Home & Lifestyle	A16
NR35_54	40	Number 35-54 years of age in home - A16	Home & Lifestyle	A16
NR55_64	41	Number 55-64 years of age in home - A16	Home & Lifestyle	A16
NR65_99	42	Number 65-99 years of age in home - A16	Home & Lifestyle	A16
ONPKUSE	43	Peak time use of electrical appliances - A17	Home & Lifestyle	A17
NGSERV	44	Natural gas service available in area - A18	Home & Lifestyle	A18
NGLINE	45	Natural gas service available in home - A19	Home & Lifestyle	A19
NGUTIL	46	Natural gas utility - A20	Home & Lifestyle	A20
payheat2	458	Cleaned pays for space heating	Space Heating	
phtfuel3	526	Cleaned primary heating fuel	Space Heating	
phtfuel2	457	Cleaned primary heating fuel - individually metered	Space Heating	
PAYHEAT	47	Pays for heating - B1	Space Heating	B1
PHTNGCNT	48	Primary central forced air gas furnace - B2	Space Heating	B2
PHTNGFWL	49	Primary floor or wall gas furnace - B2	Space Heating	B2
PHTNGRAD	50	Primary hot water gas radiator - B2	Space Heating	B2
PHTNGOTH	51	Primary other gas heater - B2	Space Heating	B2
PHTELBSB	52	Primary resistance electric heater - B2	Space Heating	B2

2003 RASS Survey Variables				
03 VarName	Var Num	03 Label	DataGroup	Question Num
PHTELCRH	53	Primary central forced air electric furnace - B2	Space Heating	B2
PHTELCHP	54	Primary central electric heat pump - B2	Space Heating	B2
PHTELWHP	55	Primary through-the-wall electric heat pump - B2	Space Heating	B2
PHTELPOR	56	Primary portable electric heater - B2	Space Heating	B2
PHTELOTH	57	Primary other electric heater - B2	Space Heating	B2
PHTBGCNT	58	Primary central forced air bottled gas furnace - B2	Space Heating	B2
PHTBGFWL	59	Primary floor or wall bottled gas heater - B2	Space Heating	B2
PHTBGRAD	60	Primary hot water bottled gas radiator - B2	Space Heating	B2
PHTBGOTH	61	Primary bottled gas heater other - B2	Space Heating	B2
PHTWDWS	62	Primary woodstove/fireplace insert - B2	Space Heating	B2
PHTWDFP	63	Primary wood fireplace - B2	Space Heating	B2
PHTSLRN	64	Primary solar heat, no backup - B2	Space Heating	B2
PHTSLRG	65	Primary solar heat, natural gas backup - B2	Space Heating	B2
PHTSLRP	66	Primary solar heat, propane backup - B2	Space Heating	B2
PHTSLRE	67	Primary solar heat, electric backup - B2	Space Heating	B2
PHTOTSYS	68	Primary 'other' heat - B2	Space Heating	B2
AHTNGCNT	69	Secondary central forced air gas furnace - B2	Space Heating	B2
AHTNGFWL	70	Secondary floor or wall gas furnace - B2	Space Heating	B2
AHTNGRAD	71	Secondary hot water gas radiator - B2	Space Heating	B2
AHTNGOTH	72	Secondary other gas heater - B2	Space Heating	B2
AHTELBSB	73	Secondary resistance electric heater - B2	Space Heating	B2
AHTELCRH	74	Secondary central forced air electric furnace - B2	Space Heating	B2
AHTELCHP	75	Secondary central electric heat pump - B2	Space Heating	B2
AHTELWHP	76	Secondary through-the-wall electric heat pump - B2	Space Heating	B2
AHTELPOR	77	Secondary portable electric heater - B2	Space Heating	B2
AHTELOTH	78	Secondary other electric heater - B2	Space Heating	B2
AHTBGCNT	79	Secondary central forced air bottled gas furnace - B2	Space Heating	B2
AHTBGFWL	80	Secondary floor or wall bottled gas heater - B2	Space Heating	B2
AHTBGRAD	81	Secondary hot water bottled gas radiator - B2	Space Heating	B2
AHTBGOTH	82	Secondary bottled gas heater other - B2	Space Heating	B2
AHTWDWS	83	Secondary woodstove/fireplace insert - B2	Space Heating	B2
AHTWDFP	84	Secondary wood fireplace - B2	Space Heating	B2
AHTSLRN	85	Secondary solar heat, no backup - B2	Space Heating	B2
AHTSLRG	86	Secondary solar heat, natural gas backup - B2	Space Heating	B2
AHTSLRP	87	Secondary solar heat, propane backup - B2	Space Heating	B2
AHTSLRE	88	Secondary solar heat, electric backup - B2	Space Heating	B2
AHTOTSYS	89	Secondary 'other' heat - B2	Space Heating	B2
MAINPILT	90	Main heater has gas pilot light - B3	Space Heating	B3
SECPILT	91	Secondary heater has gas pilot light - B3	Space Heating	B3
HTSYSAGE	92	Age of main heating system - B4	Space Heating	B4
HTCTLTYP	93	Thermostat type for main heating system - B5	Space Heating	B5
HMRNSET	94	Heater thermostat setting in morning - B6	Space Heating	B6
HDAYSET	95	Heater thermostat setting in day - B6	Space Heating	B6
HEVNSET	96	Heater thermostat setting in evening - B6	Space Heating	B6
HNITESET	97	Heater thermostat setting in night - B6	Space Heating	B6
HTMAINTN	98	Maintenance preformed on heating system - B7	Space Heating	B7
NPORHTRS	99	Number of portable heaters - B8	Space Heating	B8
USEADDHT	100	Use of additional heating systems - B9	Space Heating	B9
phtcnt	384	Have a primary heater	Space Heating	

03 VarName	Var Num	03 Label	DataGroup	Question Num
		2003 RASS Survey Variables		
havesec	411	Have a secondary heater	Space Heating	
ahtcnt	385	Number of secondary heaters	Space Heating	
htng	393	Have a primary or secondary gas heater	Space Heating	
phtng	394	Have a primary gas heater	Space Heating	
ahtng	395	Have a secondary gas heater	Space Heating	
htelec	396	Have a primary or secondary electric heater	Space Heating	
phtelec	397	Have a primary electric heater	Space Heating	
ahtelec	398	Have a secondary electric heater	Space Heating	
htbg	399	Have a primary or secondary bottled gas heater	Space Heating	
phtbg	400	Have a primary bottled gas heater	Space Heating	
ahtbg	401	Have a secondary bottled gas heater	Space Heating	
htwdfp2	402	Have a primary or secondary wood heater	Space Heating	
phtwdfp2	403	Have a primary wood heater	Space Heating	
ahtwdfp2	404	Have a secondary wood heater	Space Heating	
htsolar	405	Have a primary or secondary solar heater	Space Heating	
phtsolar	406	Have a primary solar heater	Space Heating	
ahtsolar	407	Have a secondary solar heater	Space Heating	
htother	408	Have a primary or secondary 'other' heater	Space Heating	
phtother	409	Have a primary 'other' heater	Space Heating	
ahtother	410	Have a secondary 'other' heater	Space Heating	
htelwhp	382	Have a primary or secondary electric through-the-wall heat pump	Space Heating	
paycool2	460	Pays for central air conditioning	Space Cooling	
cooling	448	Cleaned cooling type	Space Cooling	
caccnt	413	Total number of central air conditioners	Space Cooling	
RACCNT	415	Total number of room air conditioners	Space Cooling	
PAYCOOL	101	Pays for central air conditioning - C1	Space Cooling	C1
CTLACAGE	102	Number of central air conditioners - C2	Space Cooling	C2
CTEVPAGE	103	Number of central evaporative coolers - C2	Space Cooling	C2
HPAGE	104	Number of heat pumps - C2	Space Cooling	C2
CLCNTAGE	105	Age of main central air conditioner - C3	Space Cooling	C3
CLCTLTYP	106	Thermostat type for main central air - C4	Space Cooling	C4
CMRNSET	107	AC thermostat setting in morning - C5	Space Cooling	C5
CDAYSET	108	AC thermostat setting in day - C5	Space Cooling	C5
CEVNSET	109	AC thermostat setting in evening - C5	Space Cooling	C5
CNITESET	110	AC thermostat setting in night - C5	Space Cooling	C5
CLMAINTN	111	Maintenance preformed on ac system - C6	Space Cooling	C6
NOROOMAC	112	No room air conditioner - C7	Space Cooling	C7
ACTYP1	113	Type room air conditioner 1 - C7	Space Cooling	C7
ACTYP2	114	Type room air conditioner 2 - C7	Space Cooling	C7
ACTYP3	115	Type room air conditioner 3 - C7	Space Cooling	C7
ACAGE1	116	Age of room air conditioner 1 - C7	Space Cooling	C7
ACAGE2	117	Age of room air conditioner 2 - C7	Space Cooling	C7
ACAGE3	118	Age of room air conditioner 3 - C7	Space Cooling	C7
CMRNUSE	119	Use of room air conditioner in morning - C8	Space Cooling	C8
CDAYUSE	120	Use of room air conditioner in day - C8	Space Cooling	C8
CEVNUSE	121	Use of room air conditioner in evening - C8	Space Cooling	C8
CNITEUSE	122	Use of room air conditioner at night - C8	Space Cooling	C8
CHOTUSE	123	Use of room air conditioner on a hot weekday - C8	Space Cooling	C8

2003 RASS Survey Variables				
03 VarName	**Var Num**	**03 Label**	**DataGroup**	**Question Num**
paywh2	459	Cleaned pays for water heating	Water Heating	
pwhfuel3	525	Cleaned primary water heater fuel	Water Heating	
PWHFUEL2	467	Cleaned primary water heater fuel - individually metered	Water Heating	
PAYWH	124	Pay for water heater - D1	Water Heating	D1
PWHNGTNK	125	Standard tank gas water heater - D2	Water Heating	D2
PWHNGWHT	126	Whole house tankless gas water heater - D2	Water Heating	D2
PWHELTNK	127	Standard tank electric water heater - D2	Water Heating	D2
PWHELHP	128	Heat pump electric water heater - D2	Water Heating	D2
PWHELWHT	129	Whole house tankless electric water heater - D2	Water Heating	D2
PWHELPNT	130	Point of use tankless electric water heater - D2	Water Heating	D2
PWHLPTNK	131	Standard tank propane water heater - D2	Water Heating	D2
PWHLPWHT	132	Whole house tankless propane water heater - D2	Water Heating	D2
PWHSLRN	133	Solar water heater, no backup - D2	Water Heating	D2
PWHSLRG	134	Solar water heater, natural gas backup - D2	Water Heating	D2
PWHSLRP	135	Solar water heater, propane backup - D2	Water Heating	D2
PWHSLRE	136	Solar water heater, electric backup - D2	Water Heating	D2
PWHOTSYS	137	Water heater, other fuel - D2	Water Heating	D2
AWHNGTNK	138	Additional standard tank gas water heater - D2	Water Heating	D2
AWHNGWHT	139	Additional whole house tankless gas water heater - D2	Water Heating	D2
AWHELTNK	140	Additional standard tank electric water heater - D2	Water Heating	D2
AWHELHP	141	Additional heat pump electric water heater - D2	Water Heating	D2
AWHELWHT	142	Additional whole house tankless electric water heater - D2	Water Heating	D2
AWHELPNT	143	Additional point of use tankless electric water heater - D2	Water Heating	D2
AWHLPTNK	144	Additional standard tank propane water heater - D2	Water Heating	D2
AWHLPWHT	145	Additional whole house tankless propane water heater - D2	Water Heating	D2
AWHSLRN	146	Additional solar water heater, no backup - D2	Water Heating	D2
AWHSLRG	147	Additional solar water heater, natural gas backup - D2	Water Heating	D2
AWHSLRP	148	Additional solar water heater, propane backup - D2	Water Heating	D2
AWHSLRE	149	Additional solar water heater, electric backup - D2	Water Heating	D2
AWHOTSYS	150	Additional water heater, other fuel - D2	Water Heating	D2
WHTEMP	151	Water heater temperature - D3	Water Heating	D3
PRWHAGE	152	Water heater age - D4	Water Heating	D4
TANKINS	153	Water heater insulation blanket - D5	Water Heating	D5
SHWRDAY	154	Number of showers - D6	Water Heating	D6
BATHSDAY	155	Number of baths - D6	Water Heating	D6
SHOWERHD	156	Low flow shower head - D7	Water Heating	D7
AERATORS	157	Faucet airators - D8	Water Heating	D8
whng	430	Have a gas water heater	Water Heating	
whelec	431	Have an electric water heater	Water Heating	
whbg	432	Have a bottled gas water heater	Water Heating	
whsl	433	Have a solar water heater	Water Heating	
whoth	434	Have an other water heater	Water Heating	
whngtnk	416	Have a primary or secondary standard tank gas water heater	Water Heating	
whngwht	417	Have a primary or secondary whole house tankless water heater	Water Heating	
wheltnk	418	Have a primary or secondary standard tank electric water heater	Water Heating	
whelhp	419	Have a primary or secondary heat pump electric water heater	Water Heating	
whelwht	420	Have a primary or secondary whole house tankless electric water heater	Water Heating	

2003 RASS Survey Variables				
03 VarName	Var Num	03 Label	DataGroup	Question Num
whelpnt	421	Have a primary or secondary point of use tankless electric water heater	Water Heating	
whlptnk	422	Have a primary or secondary standard tank propane water heater	Water Heating	
whlpwht	423	Have a primary or secondary whole house tankless propane water heater	Water Heating	
whslrn	424	Have a primary or secondary solar water heater, no backup	Water Heating	
whslrg	425	Have a primary or secondary solar water heater, gas backup	Water Heating	
whslrp	426	Have a primary or secondary solar water heater, propane backup	Water Heating	
whslre	427	Have a primary or secondary solar water heater, electric backup	Water Heating	
whotsys	428	Have a primary or secondary water heater, other fuel	Water Heating	
gdry	462	Have gas dryer	Laundry	
edry	461	Have electric dryer	Laundry	
numwash	436	Total number of clothes washes per week	Laundry	
LNDRYEQP	158	Laundry equipment in home - E1	Laundry	E1
CWTYP	159	Type of clothes washer - E2	Laundry	E2
CWAGE	160	Clothes washer age - E3	Laundry	E3
CWHWLD	161	Number of hot water washes per week - E4	Laundry	E4
CWWWLD	162	Number of warm water washes per week - E4	Laundry	E4
CWCWLD	163	Number of cold water washes per week - E4	Laundry	E4
CDTYP	164	Type of clothes dryer - E5	Laundry	E5
DRYLDS	165	Number of dryer loads per week - E6	Laundry	E6
CKRNTYP	166	Fuel for cooktop - F1	Food Prep	F1
CKRNA	167	Age of cooktop - F1	Food Prep	F1
CKOVTYP	168	Fuel for oven - F1	Food Prep	F1
CKOVA	169	Age of oven - F1	Food Prep	F1
CKBBTYP	170	Fuel for barbecue - F1	Food Prep	F1
CKBBQA	171	Age of barbecue - F1	Food Prep	F1
BRNOVUSE	172	How often use range/oven for breakfast - F2	Food Prep	F2
LRNOVUSE	173	How often use range/oven for lunch - F2	Food Prep	F2
DRNOVUSE	174	How often use range/oven for dinner - F2	Food Prep	F2
ORNOVUSE	175	How often use range/oven for other - F2	Food Prep	F2
MWUSE	176	Have microwave oven - F3	Food Prep	F3
DISHWASH	177	Have dishwasher - F4	Food Prep	F4
DWLOADS	178	Number of dishwasher loads per week - F5	Food Prep	F5
RFNUM	179	Number of refrigerators - G1	Refrigerators	G1
RF1STY	180	Door style of first refrigerator - G2	Refrigerators	G2
RF2STY	181	Door style of second refrigerator - G2	Refrigerators	G2
RF3STY	182	Door style of third refrigerator - G2	Refrigerators	G2
RFDSCSTY	183	Door style of discarded refrigerator - G2	Refrigerators	G2
RF1SZ	184	Size of first refrigerator - G2	Refrigerators	G2
RF2SZ	185	Size of second refrigerator - G2	Refrigerators	G2
RF3SZ	186	Size of third refrigerator - G2	Refrigerators	G2
RFDSCSZ	187	Size of discarded refrigerator - G2	Refrigerators	G2
RF1DEF	188	Defrost type of first refrigerator - G2	Refrigerators	G2
RF2DEF	189	Defrost type of second refrigerator - G2	Refrigerators	G2
RF3DEF	190	Defrost type of third refrigerator - G2	Refrigerators	G2

2003 RASS Survey Variables				
03 VarName	**Var Num**	**03 Label**	**DataGroup**	**Question Num**
RFDSCDEF	191	Defrost type of discarded refrigerator - G2	Refrigerators	G2
RF1AGE	192	Age of first refrigerator - G2	Refrigerators	G2
RF2AGE	193	Age of second refrigerator - G2	Refrigerators	G2
RF3AGE	194	Age of third refrigerator - G2	Refrigerators	G2
RFDSCAGE	195	Age of discarded refrigerator - G2	Refrigerators	G2
RF1OTH	196	Door ice in first refrigerator - G2	Refrigerators	G2
RF2OTH	197	Door ice in second refrigerator - G2	Refrigerators	G2
RF3OTH	198	Door ice in third refrigerator - G2	Refrigerators	G2
RFDSCOTH	199	Door ice in discarded refrigerator - G2	Refrigerators	G2
rfdiscrd	520	Old refrigerator discarded in the last 12 months	Refrigerators	
FZNUM	200	Number of stand alone freezers - H1	Freezers	H1
FZ1STY	201	Style of first freezer - H2	Freezers	H2
FZ2STY	202	Style of second freezer - H2	Freezers	H2
FZDSCSTY	203	Style of discarded freezer - H2	Freezers	H2
FZ1SZ	204	Size of first freezer - H2	Freezers	H2
FZ2SZ	205	Size of second freezer - H2	Freezers	H2
FZDSCSZ	206	Size of discarded freezer - H2	Freezers	H2
FZ1AGE	207	Age of first freezer - H2	Freezers	H2
FZ2AGE	208	Age of second freezer - H2	Freezers	H2
FZDSCAGE	209	Age of discarded freezer - H2	Freezers	H2
fzdiscrd	521	Old freezer discarded in the last 12 months	Freezers	
SPTYP	210	Spa or hot tub - I1	Spas and Hot Tubs	I1
SPHTF	211	Spa fuel - I2	Spas and Hot Tubs	I2
SPSZ	212	Spa size - I3	Spas and Hot Tubs	I3
SPLOC	213	Spa location - I4	Spas and Hot Tubs	I4
SPCOV	214	Spa cover - I5	Spas and Hot Tubs	I5
SMFLTPMP	215	Frequency of spa filtration summer - I6	Spas and Hot Tubs	I6
WNFLTPMP	216	Frequency of spa filtration winter - I6	Spas and Hot Tubs	I6
SMHTSPA	217	Frequency of spa heat in summer - I7	Spas and Hot Tubs	I7
WNHTSPA	218	Frequency of spa heat in winter - I7	Spas and Hot Tubs	I7
PLTYP	219	Pool, pay for energy - J1	Pools	J1
PLSZ	220	Pool size - J2	Pools	J2
SMFLTHR	221	Hours per day filter pool summer - J3	Pools	J3
WNFLTHR	222	Hours per day filter pool winter - J3	Pools	J3
PLHTF	223	Fuel to heat pool - J4	Pools	J4
SMHTPL	224	Frequency heat pool summer - J5	Pools	J5
WNHTPL	225	Frequency heat pool winter - J5	Pools	J5
PLCOV	226	Pool cover - J6	Pools	J6
PLTIMR	227	Pool timer - J6	Pools	J6
PLSWEEP	228	Pool sweep - J6	Pools	J6
PLINDOOR	229	Pool is indoors - J6	Pools	J6
THEATER	230	Number of home theaters - K1	Entertainment & Technology	K1
tvcnt	437	Number of TVs	Entertainment & Technology	
BSTV	231	Number of big screen TV - K1	Entertainment & Technology	K1
CLTV	232	Number of standard TV - K1	Entertainment & Technology	K1
CABLE	233	Number of analog cable boxes - K1	Entertainment & Technology	K1

2003 RASS Survey Variables				
03 VarName	**Var Num**	**03 Label**	**DataGroup**	**Question Num**
DIGCABLE	234	Number of digital cable boxes - K1	Entertainment & Technology	K1
DSS	235	Number of digital satelite - K1	Entertainment & Technology	K1
DVD	236	Number of DVD - K1	Entertainment & Technology	K1
VCR	237	Number of VCR - K1	Entertainment & Technology	K1
TIVO	238	Number of TiVo - K1	Entertainment & Technology	K1
MUSIC	239	Number of stereos - K1	Entertainment & Technology	K1
TVUSE	240	Hours of TV usage per day - K2	Entertainment & Technology	K2
NPCS	241	Number of personal computers - K3	Entertainment & Technology	K3
PCHRS	242	Hours of computer usage per day - K4	Entertainment & Technology	K4
EMAIL	243	Frequency of email use - K5	Entertainment & Technology	K5
BRWSONLN	244	Frequency of browse internet - K5	Entertainment & Technology	K5
BUYONLN	245	Frequency of buy on internet - K5	Entertainment & Technology	K5
BILLONLN	246	Frequency of pay bill on internet - K5	Entertainment & Technology	K5
WORKHOME	247	Work from home - K6	Entertainment & Technology	K6
WKHRSHM	248	Hours per week work from home - K7	Entertainment & Technology	K7
ANSRMCHN	249	Number of answering machines - K8	Entertainment & Technology	K8
MULTMCHN	250	Number of multifunction machines - K8	Entertainment & Technology	K8
FAX	251	Number of FAX machines - K8	Entertainment & Technology	K8
PRTLAS	252	Number of printers - K8	Entertainment & Technology	K8
SCAN	253	Number of scanners - K8	Entertainment & Technology	K8
COPIER	254	Number of copier - K8	Entertainment & Technology	K8
PHINT	255	Number of phone internet access - K8	Entertainment & Technology	K8
DSLINT	256	Number of DSL modem - K8	Entertainment & Technology	K8
CBLINT	257	Number of cable modem - K8	Entertainment & Technology	K8
SATCMINT	258	Number satelite communication for internet - K8	Entertainment & Technology	K8
NETWK	259	Number of home networks - K8	Entertainment & Technology	K8
CELL	260	Number of cell phones - K8	Entertainment & Technology	K8
ICFL	261	Number of interior CFL - L1	Lighting	L1
ICTLTIMR	262	Number of interior timers - L1	Lighting	L1
ICTLOCCS	263	Number of interior motion detectors - L1	Lighting	L1
ICTLDIM	264	Number of interior dimmers - L1	Lighting	L1

2003 RASS Survey Variables				
03 VarName	**Var Num**	**03 Label**	**DataGroup**	**Question Num**
EXINC	265	Number of exterior incandescent - L2	Lighting	L2
EXCFL	266	Number of exterior CFL - L2	Lighting	L2
EXLOWV	267	Number of exterior low volt landscape - L2	Lighting	L2
EXHID	268	Number of exterior metal halide - L2	Lighting	L2
ECTLTIMR	269	Number of exterior timers - L2	Lighting	L2
ECTLDSK	270	Number of exterior light sensors - L2	Lighting	L2
ECTLMOTN	271	Number of exterior motion detectors - L2	Lighting	L2
FNPORT	272	Number of portable fans - M1	Misc Appliances	M1
FNCEIL	273	Number of ceiling fans - M1	Misc Appliances	M1
WNDATV	274	Number of wind turbine attice ventilators - M1	Misc Appliances	M1
FNATTIC	275	Number of electric attic fans - M1	Misc Appliances	M1
FNWHOLE	276	Number of whole house fans - M1	Misc Appliances	M1
AIRCLEAN	277	Number of household air cleaners - M1	Misc Appliances	M1
HUM	278	Number of humidifiers - M1	Misc Appliances	M1
DEH	279	Number of dehumidifiers - M1	Misc Appliances	M1
WHPURIFY	280	Number of water purification systems - M1	Misc Appliances	M1
WBED	281	Number of heated waterbeds - M1	Misc Appliances	M1
ELBLNKET	282	Number of electric blankets - M1	Misc Appliances	M1
AQUAR	283	Number of aquariums - M1	Misc Appliances	M1
TRSHCOMP	284	Number of trash compactors - M1	Misc Appliances	M1
SAUNA	285	Number of electric saunas - M1	Misc Appliances	M1
SCRTYSYS	286	Number of security systems - M1	Misc Appliances	M1
POND	287	Number of pond pumps - M1	Misc Appliances	M1
GRGDROPN	288	Number of electric garage door openers - M1	Misc Appliances	M1
LAWNMOWR	289	Number of electric lawn mowers - M1	Misc Appliances	M1
WLWTRPMP	290	Use of electric well water pump - M2	Misc Appliances	M2
WTRSRCES	291	Access to city water - M3	Misc Appliances	M3
WLWTUSE	292	How do you use well water - M4	Misc Appliances	M4
SUMPPMP	293	Use sump pump - M5	Misc Appliances	M5
SHOPTLS	294	Use shop tools - M5	Misc Appliances	M5
WELD	295	Use electric welding equipment - M5	Misc Appliances	M5
AIRCOMP	296	Use electric air compressor - M5	Misc Appliances	M5
BATCHRGE	297	Use large battery charger - M5	Misc Appliances	M5
KILN	298	Pottery kiln - M5	Misc Appliances	M5
MEDICAL	299	Use medical equipment - M5	Misc Appliances	M5
ELVEH	300	Electric vehicle, golf cart, wheelchair - M6	Misc Appliances	M6
CHRGVEH	301	Charge electric vehicle at home - M7	Misc Appliances	M7
OLRGAPP	302	Other large electric or gas appliances - M8	Misc Appliances	M8
CHADD	303	Added central heating - M9	Misc Appliances	M9
CHFUEL	304	Fuel for added central heating - M9	Misc Appliances	M9
CCADD	305	Added central cooling - M9	Misc Appliances	M9
CCFUEL	306	Fuel for added central cooling - M9	Misc Appliances	M9
WWADD	307	Added window or wall cooling - M9	Misc Appliances	M9
WWFUEL	308	Fuel for added window or wall cooling - M9	Misc Appliances	M9
WHADD	309	Added water heater - M9	Misc Appliances	M9
WHFUEL	310	Fuel for added water heater - M9	Misc Appliances	M9
STADD	311	Added stove top - M9	Misc Appliances	M9
STFUEL	312	Fuel for added stove top - M9	Misc Appliances	M9
OVADD	313	Added oven - M9	Misc Appliances	M9

2003 RASS Survey Variables				
03 VarName	**Var Num**	**03 Label**	**DataGroup**	**Question Num**
OVFUEL	314	Fuel for added oven - M9	Misc Appliances	M9
MWADD	315	Added microwave - M9	Misc Appliances	M9
MWFUEL	316	Fuel for added microwave - M9	Misc Appliances	M9
DWADD	317	Added dishwasher - M9	Misc Appliances	M9
DWFUEL	318	Fuel for added dishwasher - M9	Misc Appliances	M9
CWADD	319	Added clothes washer - M9	Misc Appliances	M9
CWFUEL	320	Fuel for added clothes washer - M9	Misc Appliances	M9
CDADD	321	Added clothes dryer - M9	Misc Appliances	M9
CDFUEL	322	Fuel for added clothes dryer - M9	Misc Appliances	M9
PHADD	323	Added pool heater - M9	Misc Appliances	M9
PHFUEL	324	Fuel for added pool heater - M9	Misc Appliances	M9
PPADD	325	Added pool pump - M9	Misc Appliances	M9
PPFUEL	326	Fuel for added pool pump - M9	Misc Appliances	M9
TBADD	327	Added hot tub - M9	Misc Appliances	M9
TBFUEL	328	Fuel for added hot tub - M9	Misc Appliances	M9
NOADD	329	Have not added major appliance - M9	Misc Appliances	M9
DCHAGE	330	Age of discarded central heater - M10	Misc Appliances	M10
DCHFL	331	Fuel of discarded central heater - M10	Misc Appliances	M10
DCCAGE	332	Age of discarded central cooling - M10	Misc Appliances	M10
DCCFL	333	Fuel of discarded central cooling - M10	Misc Appliances	M10
DWWAGE	334	Age of discarded wall cooling - M10	Misc Appliances	M10
DWWFL	335	Fuel of discarded wall cooling - M10	Misc Appliances	M10
DWHAGE	336	Age of discarded water heater - M10	Misc Appliances	M10
DWHFL	337	Fuel of discarded water heater - M10	Misc Appliances	M10
DSTAGE	338	Age of discarded stove top - M10	Misc Appliances	M10
DSTFL	339	Fuel of discarded stove top - M10	Misc Appliances	M10
DOVAGE	340	Age of discarded oven - M10	Misc Appliances	M10
DOVFL	341	Fuel of discarded oven - M10	Misc Appliances	M10
DMWAGE	342	Age of discarded microwave - M10	Misc Appliances	M10
DMWFL	343	Fuel of discarded microwave - M10	Misc Appliances	M10
DDWAGE	344	Age of discarded dishwasher - M10	Misc Appliances	M10
DDWFL	345	Fuel of discarded dishwasher - M10	Misc Appliances	M10
DCWAGE	346	Age of discarded clothes washer - M10	Misc Appliances	M10
DCWFL	347	Fuel of discarded clothes washer - M10	Misc Appliances	M10
DCDAGE	348	Age of discarded clothes dryer - M10	Misc Appliances	M10
DCDFL	349	Fuel of discarded clothes dryer - M10	Misc Appliances	M10
DPHAGE	350	Age of discarded pool heater - M10	Misc Appliances	M10
DPHFL	351	Fuel of discarded pool heater - M10	Misc Appliances	M10
DPPAGE	352	Age of discarded pool pump - M10	Misc Appliances	M10
DPPFL	353	Fuel of discarded pool pump - M10	Misc Appliances	M10
DTBAGE	354	Age of discarded hot tub - M10	Misc Appliances	M10
DTBFL	355	Fuel of discarded hot tub - M10	Misc Appliances	M10
NODISCRD	356	Have not discarded above appliances - M10	Misc Appliances	M10
avginc	453	Average countinuous income - individually metered	Household Info	
samEth	442	Heads of household are same ethnicity	Household Info	
mixedeth	443	Heads of household are different ethnicity	Household Info	
PTHME	357	Other homes in California occupied by family - N1	Household Info	N1
PTHMELOC	358	Location of other home - N2	Household Info	N2
PTHMEUTL	359	Utility of other home - N2	Household Info	N2

2003 RASS Survey Variables				
03 VarName	Var Num	03 Label	DataGroup	Question Num
EDUC	360	Education of head of household - N3	Household Info	N3
ETHNIC	361	Primary language - N4	Household Info	N4
DISABLED	362	Occupant is disabled - N5	Household Info	N5
HOHIND1	363	Head of household 1 is American Indian - N6	Household Info	N6
HOHIND2	364	Head of household 2 is American Indian - N6	Household Info	N6
HOHASN1	365	Head of household 1 is Asian/Pacific Islander - N6	Household Info	N6
HOHASN2	366	Head of household 2 is Asian/Pacific Islander - N6	Household Info	N6
HOHBLK1	367	Head of household 1 is African American - N6	Household Info	N6
HOHBLK2	368	Head of household 2 is African American - N6	Household Info	N6
HOHLAT1	369	Head of household 1 is Hispanic/Latino - N6	Household Info	N6
HOHLAT2	370	Head of household 2 is Hispanic/Latino - N6	Household Info	N6
HOHWHT1	371	Head of household 1 is Caucasian - N6	Household Info	N6
HOHWHT2	372	Head of household 2 is Caucasian - N6	Household Info	N6
HOHOTH1	373	Head of household 1 - Other - N6	Household Info	N6
HOHOTH2	374	Head of household 2 - Other - N6	Household Info	N6
INCOME	375	Household total income - N7	Household Info	N7

APPENDIX C:
2019 RASS Materials Pretest Results

Memo to:
Glen Sharp and Le-Huy Nguyen, CA Energy Commission

Results of Pretest of RASS Study Materials

DNV GL pretested the RASS study materials on July 15th and 16th in DNV GL's Oakland and San Diego offices. Two sessions were held in the Oakland office, and one in San Diego, with a total of ten participants from a variety of demographics. DNV GL recruited participants through the "Nextdoor" neighborhood online community and through snowball recruiting of friends of friends of staff. The sessions lasted two hours for review and discussion of materials. Participants received food and a $25 VISA card as an honorarium.

After a brief outline of the agenda of the session, participants received RASS study materials for each phase of the campaign, in the sequence the materials will be used in the full implementation of the study. For each set of materials to be reviewed, participants individually read through materials and noted where they found content confusing or had recommendations for improvement, then shared their impressions in a guided group discussion of the collateral and specific content of the materials.

The materials reviewed during the pretest sessions included:

- Initial email for households with email address on record with their utility
- Advance letter for households without email on record
- Survey packet:
  - Outer envelope with a variety of tag lines
  - Cover letter
  - Survey booklet

Overall, participants had a positive response to the survey materials and all participants engaged in the group discussions. The following sections present the findings and recommendations for each set of materials reviewed.

Initial email for households with email addresses on record

Participants expressed an interest in clicking on the link and doing the survey after reading the email. Specific comments are summarized in Table 1.

Table 1 Initial Email Review Results

Participant Comments	Suggested Modification
Positive response to the Subject line, thought that CA Energy Commission adds legitimacy to email	No change
Overall reaction was email is too long, too wordy, and too much to read.	Shortened email to contain critical information.
Text describing what survey asks about seems to target single-family homes, and residents of multi-family dwellings expressed concern that the survey was not for them.	Reordered text to be applicable to all home types, and less focused on SF homes (solar, EV, etc.)
Requested an opening sentence to express why someone should participate.	As proposed and approved by participants, the introductory sentence of email is now "California needs your help to manage energy resources to meet our future energy needs."
Requested addition of a timeframe for responding	Added sentence requesting response in the next week
Requested information on how participants will benefit from participating	Added information of benefits near end of email.
Felt utility logos were appropriate on email	No change
Requested to have customer name in greeting	Will personalize by adding city, state and zip of service address to email

Advance letter for households without email on record

Participants had a positive reaction to the content of the Advance Letter that will be sent to households without an email address on file with their utility. The letter is intended to push recipients to the web to complete the online version of the RASS survey. Participants had several suggestions for adjustments that we recommend being implemented:

- Adjust what text appears in bold
- Make minor text changes, aligned with comments about making text applicable to all home types
- Addition of timeframe for the requested response
- Maintain utility logos on letter, but consider using CA Energy Commission logo on envelope

Survey packet:

Participants were provided with a set of mock-ups of outer envelopes, each with their utility logo and a different tag line. DNV GL asked participants to designate two favorites and one worst tag line. One

tag line will be used for the outer envelope of the first survey packet mailed, and a different tag line for the second survey packet mailed. Table 2 lists the tag lines reviewed and presents the top two favorites and the one worst.

Table 2 Outer Envelope Tagline Review Results

Potential Tagline	Favorite	Worst
Your participation can make a difference in future energy costs in California.		
Help us find ways to reduce future energy costs in communities like yours.	1st	
Your answers matter. Help us plan for California's future energy needs.	2nd, with comments	
Your answers can make a difference in reducing future energy costs in California.		
Your response will help us to plan for California's future energy needs.		
Participate today to help us better plan for California's future.		X
Your answers can make a difference in reducing energy costs in communities like yours.		
California's future energy costs are in your hands!		

Participants converged when choosing the top favorite tag line, and slightly less than half agreed on the second favorite. Participants provided some general guidance on the tag lines:

- Liked references to "your" and "yours"; felt it made it more personally-relevant

- Expressed concern with using phrase "Your answers matter."; thought it may be too polarizing but liked the structure of the tag line.

Participants also shared thoughts about overarching messaging of the envelopes. They were skeptical of having reference to reducing costs with their respective utility logos. They voiced a strong preference that their utility's logo be replaced with the Commission's logo on the outer envelope.

DNV GL recommends using the Commission's logo on the outer envelope and the following two tag lines:

- Help us find ways to reduce future energy costs in communities like yours.

- Your answers make a difference. Help us plan for California's energy needs.

Participants reviewed the cover letter that will be included in the survey packet and offered a few suggestions for changes in formatting what is in bold and the addition of a reference for recipients who may have already completed the survey online. These minor changes were made to the letter.

Participants were asked to complete the survey and to make notes in the margin to indicate questions that caused confusion. The group discussed questions that participants had difficulty with. Table 3 summarizes the areas of the survey that participants raised concerns and provides suggested revisions to the survey.

Table 3: Survey Review Results

Survey Section	Issue or Question	Suggested Modification
Instruction page	Minor formatting changes to have text in bold for emphasis	Adjusted formatting
	Strong reaction to having survey returned to processing center in North Carolina	Update address to a CA address
	Requested time frame for response	Added reference to receiving response in the next week
A9 & A10, Insulation questions	Some participants did not know about insulation, and would like to provide a response	Added "Unknown" as a response to these questions
D5 Number of showers	Requested bold for emphasis on "total" and "in your home"	Adjusted formatting
D6 Showerheads	Need to update low-flow showerheads to current code	Updated to 1.8 gallons per minute
N7 Income	Requested a "prefer not to answer"	Will add if space allows
Frequently Asked Questions	Several participants expressed concern with some of the vocabulary and requested simpler language be used for the description of study legitimacy and accessing help to complete the survey.	Adjusted language for study verification and assistance questions.
	Participants were concerned about their personal identity being revealed.	Added "will not reveal individual identities" to the description of how their information will be kept confidential.

APPENDIX D:
2019 RASS Direct Mail Materials

This appendix contains materials used in the direct mail effort:

- Advance Letter
- Outer envelope – Design A
- Outer envelope – Design B
- Cover Letter
- Business Reply Envelope

ADVANCE LETTER, ENGLISH

Access Code (*código de acceso*): <Access Code>
For Service At: <Service Address'Nkpg'3>
"""""""""""""""">Ugtxkeg'Cfftguu'Nkpg'4@
""""""""""""""">Ugtxkeg'Ekv{@'>Ugtxkeg'Uvcvg@'>Ugtxkeg'\kr@'
"""""""""""""
"

<First Name> <Middle Name> <Last Name>
<Mailing Address Line 1>
<Mailing Address Line 2 >
<Mailing City>, <Mailing State> <Mailing Zip>

Dear California Energy Customer,

The California Energy Commission has randomly selected your household to complete the California Home Energy Survey. The Commission sponsors this survey to get an up-to-date picture of how people in California use energy in their homes. The last state-wide survey of this type was completed over ten years ago and thus requires updating. The survey asks how we use energy, what types of appliances we have in and around our homes and how often we use them, whether we have electric vehicles or solar panels, and more.

Your response will help ensure that you and other households like yours are fully represented in our study and help us plan for future energy needs. The Commission will use the information that you provide to make sure that energy resources and programs meet the needs of all communities across California. To learn more about the survey, please visit: **https://www.energy.ca.gov/appliances/rass/**

The fastest and easiest way to help is to fill out the survey online by following these steps:
1. Type this website into the address bar or location bar at the top left of your internet browser: **https://calhes.com**
2. Click on the button "Begin the Survey"
3. Select "English" or "Spanish"
4. Enter the Access Code unique to your address from the top of this letter.
5. Answer the questions and submit once fully completed.

Please complete the survey online in the next week. If we don't receive enough responses from the online survey, we will mail your household a paper questionnaire in a few weeks.

How did I get selected? The Commission chose your address, not you personally, as part of a randomly selected sample of California households. This survey will collect information on you and your home, but your individual information will not be revealed in any way. The survey results will be prepared and reported in summary form only.

Need help or have a question? DNV GL Energy Insights has been hired by the California Energy Commission to conduct this survey. You can send them an email at: **support@calhes.dnvgl.com** or you can call their Survey Support Team at **1 (866) 363-7448**, Monday through Friday, 8:30 a.m. to 5:00 p.m. Pacific time.

Thank you for your time and participation!

Sincerely,

Aleecia Gutierrez
Assistant Deputy Director, Energy Assessments Division
California Energy Commission
1516 Ninth St.
Sacramento, CA 95814

ADVANCE LETTER, SPANISH

Estimado usuario de energía de California,

La Comisión de Energía de California seleccionó al azar su hogar para completar la Encuesta de Energía del Hogar de California. La Comisión patrocina esta encuesta para obtener una imagen actualizada de cómo las personas en California usan la energía en sus hogares. La última encuesta estatal de este tipo se completó hace más de diez años y, por lo tanto, requiere actualización. La encuesta pregunta cómo usamos la energía, qué tipos de electrodomésticos tenemos en nuestros hogares y con qué frecuencia los usamos, si tenemos vehículos eléctricos o paneles solares, y más.

Su respuesta ayudará a garantizar que usted y otros hogares como el suyo estén representados en nuestro estudio y nos ayudarán a planear para el futuro abasto de energía. La Comisión utilizará la información que usted proporcione para asegurarse de que los recursos y programas de energía satisfagan las necesidades de todas las comunidades en California. Para obtener más información sobre la encuesta, por favor visite:
https://www.energy.ca.gov/appliances/rass/

La forma más rápida y fácil de ayudar es completar la encuesta en línea siguiendo estos pasos:
    1. Copie este sitio web en la barra de direcciones de su buscador de internet: **https://calhes.com**
    2. Haga clic en el botón "Comenzar la encuesta"
    3. Seleccione español o inglés
    4. Ingrese el código de acceso exclusivo de su dirección en la parte superior del otro lado de esta carta.
    5. Responda las preguntas y envíe electrónicamente cuando haya completado la encuesta en su totalidad**.**

Por favor complete la encuesta en línea la próxima semana. Si no recibimos suficientes respuestas a la encuesta en línea, le enviaremos a su hogar un cuestionario impreso en unas pocas semanas.

¿Cómo me seleccionaron? La Comisión eligió su dirección, no a usted personalmente, como parte de una muestra de hogares de California seleccionada al azar. Esta encuesta recopilará información sobre usted y su hogar, pero su información individual nunca se reportará de ninguna manera. Los resultados de la encuesta se reportarán sólo a nivel de informes generales.

¿Necesita ayuda o tienes una pregunta? DNV GL Energy Insights ha sido contratado por la Comisión de Energía de California para realizar esta encuesta. Puede enviarles un correo electrónico en español a: **support@calhes.dnvgl.com** o puede llamar a su equipo de asistencia para encuestas al **1 (866) 363-7448,** de lunes a viernes, de 8:30 a.m. a 5:00 p.m. hora del Pacífico.

¡Gracias por su tiempo y participación!

Sinceramente,

Aleecia Gutierrez
Assistant Deputy Director, Energy Assessments Division
California Energy Commission
1516 Ninth St.
Sacramento, CA 95814

Help us find ways to reduce future energy costs in communities like yours.

Ayúdenos a encontrar formas de reducir los costos futuros de energía en comunidades como la suya.

Customer Name
456 Mailing Address
City, CA 9xxxx-xxxx

California Home Energy Survey
c/o DNV GL
155 Grand Ave., Suite 600
Oakland, CA 94612

PRSRT STD
U.S. POSTAGE
PAID
SANTA ANA, CA
PERMIT NO. 949

Your answers make a difference. Help us plan for California's energy needs.

Sus respuestas hacen la diferencia. Ayúdenos a planificar las necesidades de energía de California.

Customer Name
456 Mailing Address
City, CA 9xxxx-xxxx

COVER LETTER

Dear California Energy Customer,

The California Energy Commission recently sent an invitation for you to complete a Home Energy Survey online. We have not yet received your response and are sending you a paper survey as promised. If you have already taken the survey, please accept our thanks and disregard this packet.

Your response will help ensure that you and other households like yours are fully represented in our study to help us plan for future energy needs. The Commission will use your responses to make sure that energy resources and programs meet the needs of all communities across California. Please be sure to complete the survey for your residence or unit only.

The fastest and easiest way to help is to fill out the survey online.
1. Type this website into the address bar or location bar at the top left of your internet browser: **https://calhes.com**
2. Click on the button "Begin the Survey" ("Comienza la Encuesta")
3. Select "English" or "Spanish"
4. Enter the access code (código de acceso) printed above the service address on your survey booklet.
5. Answer the questions and submit once fully completed.

If you prefer, you can fill-out the enclosed paper survey and return it in the postage-paid envelope.

Where can I learn more about this study? For more information on the survey, please visit: **https://www.energy.ca.gov/appliances/rass/**

Need help or have a question? DNV GL Energy Insights has been hired by the Energy Commission to conduct this survey. Contact the DNV GL survey support team by emailing them at: **support@calhes.dnvgl.com** or calling them on the toll-free line at **1 (866) 363-7448**. DNV GL representatives are available to answer questions about this survey Monday through Friday, 8:30 a.m. to 5:00 p.m. Pacific Time.

Thank you very much for your time and participation!

Sincerely,

Aleecia Gutierrez
Assistant Deputy Director, Energy Assessments Division
California Energy Commission
1516 Ninth St.
Sacramento, CA 95814

¿Está disponible una versión en Español? Esta encuesta esta disponible en el internet en Español. Por favor visite: **https://calhes.com** e ingrese el código de acceso impreso arriba de la dirección de servicio en su folleto de encuesta. Introduzca el código de acceso impreso arriba y comienza la encuesta. También puedes llame al **1 (866) 363-7448** para completar tu encuesta en Español.

BUSINESS REPLY ENVELOPE

BUSINESS REPLY MAIL
FIRST-CLASS MAIL   PERMIT NO. 38516   CERRITOS, CA

POSTAGE WILL BE PAID BY ADDRESSEE

CALIFORNIA HOME ENERGY PROCESSING CENTER
2672 DOW AVE
TUSTIN CA 92780-9807

D-Ï

APPENDIX E:
2019 RASS Online Survey, English

Need help? Email support@calhes.dnvgl.com or call (866) 363-7448

California Home Energy Survey

Please select your language preference:
○ English
○ Spanish

Save   Next >

Completed: [   ]

Need help? Email support@calhes.dnvgl.com or call (866) 363-7448

California Home Energy Survey

Survey Instructions

In this survey you'll be asked questions about a home where you receive electric service. **Do your best to answer all of the questions. If you do not know the answer to a question, just go to the next question. Your answers should include everyone in your household, not just yourself.**

Use the arrows "Next" and "Back" at the bottom of the page to move to the page. If you need to return to the survey later, open the link you were originally provided in email, and you will be able to start where you previously stopped. Your individual responses are kept confidential.

If you want to learn more about this study please visit the following website: https://www.energy.ca.gov/appliances/rass/

Your Home & Lifestyle

Our records show you have electric service at: _____, _____. Do you currently have service at _____, _____?
○ Yes
○ No

Need help? Email support@calhes.dnvgl.com or call (866) 363-7448

California Home Energy Survey

On behalf of the Energy Commission and California utilities we thank you for your participation in the Home Energy Survey.

Close

California Home Energy Survey

What type of building exists at this address: _____?

- ○ Single-family detached house
- ○ Townhouse, duplex, or row house (shares walls with neighboring unit, but not roof or floor)
- ○ Apartment or condominium (2 – 4 units)
- ○ Apartment or condominium (5 or more units)
- ○ Mobile home
- ○ Other

How many stories is the residence?

- ○ 1
- ○ 2
- ○ 3 or more

Do you own or rent this residence?

- ○ Own/buying
- ○ Rent/lease☐☐

Please describe the 'other' building type:

Other building type: [   ]

How long have you lived at this address?

- ○ 1 year or less
- ○ 2 years
- ○ 3 years
- ○ 4 years
- ○ 5 years
- ○ 6 years
- ○ 7 years
- ○ 8 years
- ○ 9 years
- ○ 10 years
- ○ 11 years
- ○ 12 years
- ○ 13 years
- ○ 14 years
- ○ 15 years
- ○ 16-20 years
- ○ 21-30 years
- ○ More than 30 years

E-3

Which of the following best describes this residence?

- ○ This is my permanent year-round residence
- ○ This is my partial-year or seasonal residence
- ○ This is my vacation home and is generally used only by my family
- ○ This is a vacation rental home

If this is a partial-year or vacation home, please indicate the months this home is typically occupied.

(Select all months that apply.)

- ☐ January
- ☐ February
- ☐ March
- ☐ April
- ☐ May
- ☐ June
- ☐ July
- ☐ August
- ☐ September
- ☐ October
- ☐ November
- ☐ December

Approximately what year was this residence built?

- ○ Before 1940
- ○ 1940-1949
- ○ 1950-1959
- ○ 1960-1969
- ○ 1970-1974
- ○ 1975-1978
- ○ 1979-1983
- ○ 1984-1991
- ○ 1992-1999
- ○ 2000-2005
- ○ 2006-2012
- ○ 2013-2019

How many bedrooms are in your home?

- ○ No bedrooms (studio apartment)
- ○ 1 bedroom
- ○ 2 bedrooms
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9
- ○ 10
- ○ More than 10

How many square feet of living space is there in your home, including bathrooms, foyers and hallways?
(Exclude garages, basements or unheated porches.)

- ○ Less than 250
- ○ 250 – 500
- ○ 501 – 750
- ○ 751 –1,000
- ○ 1,001 – 1,250
- ○ 1,251 – 1,500
- ○ 1,501 – 2,000
- ○ 2,001 – 2,500
- ○ 2,501 – 3,000
- ○ 3,001 – 4,000
- ○ 4,001 – 5,000
- ○ More than 5,000

Are your home's exterior (outside) walls insulated?

- ○ Yes, all walls ▢▢
- ○ Yes, some walls ▢▢
- ○ No
- ○ Unknown

Is your home's attic/ceiling insulated?

- ○ Yes
- ○ No
- ○ Unknown

Estimate the number of inches of attic/ceiling insulation.

- ○ 0 – 3 inches (R-value is less than R-10)
- ○ 4 – 6 inches (R-11 to R-19)
- ○ 7 – 10 inches (R-20 to R-30)
- ○ More than 10 inches (R-31 or higher)

Choose the statement that best describe your windows:
(Pane type is the number of layers of glass.)

Pane type:

- ○ All or most are single pane
- ○ All or most are double pane
- ○ All or most are triple pane
- ○ Mixture of single, double and/or triple pane

Choose the statement that best describe your window frame:

Frame type:

- ○ All or most have vinyl frames
- ○ All or most have wood frames
- ○ All or most have metal frames

Has your home been remodeled in the past 12 months?

- ○ Yes
- ○ No

What type of remodel did you do?

Select all that apply.

- ☐ Room addition, added square footage to home
- ☐ Kitchen or bath remodel
- ☐ Rebuilt most of the home
- ☐ Other

For each of the following age groups, how many people, including yourself, usually live in this home? Please select one response for each age category.

Age category	None	1	2	3	4	5	6	More than 7
5 and under	○	○	○	○	○	○	○	○
6 – 18	○	○	○	○	○	○	○	○
19 – 34	○	○	○	○	○	○	○	○
35 – 54	○	○	○	○	○	○	○	○
55 – 64	○	○	○	○	○	○	○	○
65 and over	○	○	○	○	○	○	○	○

Generally speaking, how often does a member of this household use any major electrical appliances or equipment (e.g., clothes washer, electric range, dishwasher, air conditioner, etc.) on weekdays from 4 p.m. to 9 p.m.?

- ○ Frequently (3 – 5 weekdays per week)
- ○ Occasionally (1 – 2 weekdays per week)
- ○ Rarely or never (Less than 1 weekday per week)

Is natural gas service from underground pipes from the gas utility available in your neighborhood?

- ○ Yes
- ○ No

Do you have a natural gas line or hook-up to any part of your home?

- ○ Yes
- ○ No

What utility do you pay for natural gas service to your home?

- ○ Pacific Gas & Electric (PG&E)
- ○ San Diego Gas & Electric (SDG&E)
- ○ SoCalGas ("The Gas Company")
- ○ Southwest Gas Corporation
- ○ City of Coalinga
- ○ City of Long Beach Gas Department
- ○ Not sure

Electric Vehicles

Does anyone in your household currently own or lease a plug-in battery electric vehicle or plug-in hybrid electric vehicle?
⚪ Yes
⚪ No

How many electric vehicles of each type does your household own or lease?

	0	1	2	3 or more
Battery electric vehicles plug-in powered by battery *(e.g. Telsa, Nissan Leaf, Chevy Bolt, BWM i3)*	⚪	⚪	⚪	⚪
Hybrid electric vehicles powered by both plug-in battery and gasoline, *(e.g., Chevy Volt, Ford Fusion)*	⚪	⚪	⚪	⚪

On an average day, how many total miles do you drive your electric vehicle(s)?

(Select one answer for the total miles for all electric vehicles for the average weekday, and for the average weekend day.)

	Less than 20 miles	21-40 miles	41-60 miles	61-100 miles	More than 101 miles
Monday-Friday	⚪	⚪	⚪	⚪	⚪
Saturday-Sunday	⚪	⚪	⚪	⚪	⚪

How often do you charge your electric vehicle(s) at home, work or somewhere else?

(Select one answer for each location that you charge the vehicles.)

	Daily	5-6 times per week	3-4 times per week	1-2 times per week	Less than once a week
Home	⚪	⚪	⚪	⚪	⚪
Work	⚪	⚪	⚪	⚪	⚪
Somewhere else	⚪	⚪	⚪	⚪	⚪

Is your primary charger used at home a Level 1 (120V) or Level 2 (240V)?
⚪ Level 1 (120V) standard wall outlet - slower charge
⚪ Level 2 (240V) outlet like a dryer uses - faster charge
⚪ Don't know
⚪ Do not charge at home

When is/are the electric vehicle(s) normally charged at home using this primary charger?

(Select all that apply.)

☐ Morning (6 a.m. - 9 a.m.)
☐ Day (9 a.m. - 5 p.m.)
☐ Evening (5 p.m. - 9 p.m.)
☐ Night (9 p.m. - 6 a.m.)

Space Heating

Do you pay to heat your home?
⚪ Yes
⚪ No, it is part of my rent/condo fee
⚪ No, do not have a heating system

What type of heating system do you use as your <u>main</u> heat source at this home?

NATURAL GAS (from a gas utility)

- ○ Gas central forced-air furnace (fan circulates hot air through air ducts)
- ○ Gas floor or wall heater/furnace
- ○ Gas hot water radiator (steam, hot water, fin tubes)
- ○ Gas fireplace
- ○ Other gas system type

ELECTRIC

- ○ Resistance (baseboard/ceiling/floor/wall)
- ○ Electric central forced-air furnace (fan circulates hot air through air ducts)
- ○ Central heat pump (heats and cools)
- ○ Through-the-wall heat pump (looks like a window/wall air conditioner, but also provides heat)
- ○ Electric portable heaters
- ○ Other electric system type

BOTTLED GAS (propane, liquid petroleum)

- ○ Bottled-gas central forced-air furnace (fan circulates hot air through air ducts)
- ○ Bottled-gas floor or wall heater/furnace
- ○ Bottled-gas hot water radiator (steam, hot water, fin tubes)
- ○ Other bottled gas system type

WOOD

- ○ Woodstove/pellet stove/fireplace insert
- ○ Wood-burning fireplace

SOLAR

- ○ Solar-no backup
- ○ Solar-natural gas backup
- ○ Solar-propane backup
- ○ Solar-electric backup

- ○ **Other fuel type**

If your heating system(s) uses natural gas for fuel, indicate whether it has a pilot light:

Pilot Light

Main gas heating   [▼]

What 'other' type of heating system do you use?

Other main heating type: [   ]

How old is your main heating system?

- ○ Less than one year
- ○ 1 – 3 years
- ○ 4 – 8 years
- ○ 9 – 13 years
- ○ 14 – 30 years
- ○ Over 30 years

E-9

What additional type of heating system do you use, if any, to heat this home?

(If none then skip this question.)

NATURAL GAS (from a gas utility)

- [ ] Gas central forced-air furnace (fan circulates hot air through air ducts)
- [ ] Gas floor or wall heater/furnace
- [ ] Gas hot water radiator (steam, hot water, fin tubes)
- [ ] Gas fireplace
- [ ] Other gas system type

ELECTRIC

- [ ] Resistance (baseboard/ceiling/floor/wall)
- [ ] Electric central forced-air furnace (fan circulates hot air through air ducts)
- [ ] Central heat pump (heats and cools)
- [ ] Through-the-wall heat pump (looks like a window/wall air conditioner, but also provides heat)
- [ ] Electric portable heaters
- [ ] Other electric system type

BOTTLED GAS (propane, liquid petroleum)

- [ ] Bottled-gas central forced-air furnace (fan circulates hot air through air ducts)
- [ ] Bottled-gas floor or wall heater/furnace
- [ ] Bottled-gas hot water radiator (steam, hot water, fin tubes)
- [ ] Other bottled gas system type

WOOD

- [ ] Woodstove/pellet stove/fireplace insert
- [ ] Wood-burning fireplace

SOLAR

- [ ] Solar-no backup
- [ ] Solar-natural gas backup
- [ ] Solar-propane backup
- [ ] Solar-electric backup
- [ ] **OTHER FUEL**

What 'other' additional heating system type do you use?

Other fuel type: _____

If your secondary heating system(s) uses natural gas for fuel, indicate whether it has a pilot light:

Pilot Light

Secondary gas heating   [▼]

Smart Thermostat   Programmable Thermostat   Non-programmable thermostat

What type of thermostat does your main heating system(s) use?

- ( ) Smart thermostat (can be used with home automation systems and may sense when you are home, e.g., Nest, Lyric, Sensi or Ecobee)
- ( ) Programmable thermostat (can set heater to different temperatures for different times)
- ( ) Non-programmable thermostat (can turn heater on/off and set temperature by hand)
- ( ) No thermostat (simple on/off control or steam valve)

E-10

If your main heating system is controlled by a thermostat, what is the average thermostat temperature usually set for each time period during the heating season?

(Select one for each time period. Provide the average setting if it varies.)

	Off	Below 55F	55F–60F	61F–65F	66F–70F	71F–75F	Over 75F
Morning (6 a.m. - 9 a.m.)	○	○	○	○	○	○	○
Day (9 a.m. - 5 p.m.)	○	○	○	○	○	○	○
Evening (5 p.m. - 9 p.m.)	○	○	○	○	○	○	○
Night (9 p.m. - 6 a.m.)	○	○	○	○	○	○	○

Has maintenance been performed on your main heating system in the past 12 months?

○ Yes

○ No

How many electric (plug-in) portable heaters do you use?

○ I don't use portable heaters

○ 1 portable heater

○ 2 portable heaters

○ 3 or more portable heaters

How often do you use any additional heating system(s), including portable heaters, during the heating season?

○ No additional heating

○ Rarely (once per month)

○ Sometimes (once per week)

○ Often (2 to 4 days per week)

○ Always (5 to 7 days per week)

Space Cooling

CENTRAL AIR CONDITIONING/COOLING

Do you pay for central air conditioning/cooling for your home?

○ Yes

○ No, it is part of my rent/condo fee

○ No, do not have central air conditioning

What type and how many central air conditioning/cooling system(s) do you have in your home?

(Zoned thermostats control different zones (spaces) within the home.)

	Number of Central Cooling Systems	Check box if the main system is controlled using a zoned thermostat
Central air conditioner	▾	☐
Central evaporative (swamp) cooler	▾	☐
Heat pump (heats and cools)	▾	☐
Mini-split or "ductless"	▾	☐

How old is your main central air conditioning/cooling unit?

○ Less than one year

○ 1 – 3 years

○ 4 – 8 years

○ 9 – 13 years

○ 14 – 30 years

○ Over 30 years

Smart Thermostat   Programmable Thermostat   Non-programmable thermostat

What type of thermostat does your main air conditioning/cooling system(s) use?

○ Smart thermostat (can be used with home automation systems and may sense when you are home, e.g., Nest, Lyric, Sensi or Ecobee)

○ Programmable thermostat (can set air conditioner (AC) to different temperatures for different times)

○ Non-programmable thermostat (can turn the AC on/off and set temperature by hand)

○ No thermostat (simple on/off control)

What is the typical thermostat temperature setting of your main central cooling system for each time period during the summer cooling season?

(Select one answer for each time period.)

	Off	Below 68F	68 – 69F	70 – 73F	74 – 76F	77 – 80F	Over 80F
Morning (6 a.m. - 9 a.m.)	○	○	○	○	○	○	○
Day (9 a.m. - 5 p.m.)	○	○	○	○	○	○	○
Evening (5 p.m. - 9 p.m.)	○	○	○	○	○	○	○
Night (9 p.m. - 6 a.m.)	○	○	○	○	○	○	○

Has maintenance been performed on your central air conditioning system in the past 12 months?

○ Yes

○ No

E-12

Room Air Conditioning (Window/Wall Units)

Do you have any room air conditioning units in your home?

- ⚪ Yes
- ⚪ No

Please indicate the type of room air conditioning unit you have for up to three units:

	Type of room air conditioner
Room AC unit 1	[▼]
Room AC unit 2	[▼]
Room AC unit 3	[▼]

Please indicate the age of up to three room air conditioner(s)/cooling units?

	Age of Room AC/Cooling Unit
Room AC unit 1	[▼]
Room AC unit 2	[▼]
Room AC unit 3	[▼]

Please indicate how often your room air conditioning/cooling unit(s) is/are turned on during the cooling season:

(Select one answer for each time period.)

	Never	Rarely (1-2 days per week)	Sometimes (3-4 days per week)	Often (5-6 days per week)	Always (7 days per week)
Morning (6 a.m. - 9 a.m.)	⚪	⚪	⚪	⚪	⚪
Day (9 a.m. - 5 p.m.)	⚪	⚪	⚪	⚪	⚪
Evening (5 p.m. - 9 p.m.)	⚪	⚪	⚪	⚪	⚪
Night (9 p.m. - 6 a.m.)	⚪	⚪	⚪	⚪	⚪
Hot weekday afternoon (noon - 6 p.m.)	⚪	⚪	⚪	⚪	⚪

Water Heating

Do you pay for heating water at your residence?

- ⚪ Yes
- ⚪ No, it is part of my rent/condo fee
- ⚪ No hot water heater

What is the main water heating system type used in your home?

NATURAL GAS
- ⚪ Gas standard tank
- ⚪ Gas whole house tankless system
- ⚪ Gas high-efficiency condensing (with plastic vent pipe)

ELECTRIC
- ⚪ Electric standard tank
- ⚪ Heat pump
- ⚪ Electric whole house tankless system
- ⚪ Point-of-use tankless system

PROPANE
- ⚪ Propane standard tank
- ⚪ Propane whole house tankless system

SOLAR
- ⚪ Solar with no backup system
- ⚪ Solar with natural gas backup
- ⚪ Solar with propane backup
- ⚪ Solar with electric backup
- ⚪ **Other fuel type**

E-13

What 'other' water heating system type does your home use?

Other heating type:

What type(s) of water heating systems do you use in your home, as additional water heater(s)?

(Select all that apply. If none skip this question.)

NATURAL GAS

- [ ] Gas standard tank
- [ ] Gas whole house tankless system
- [ ] Gas high-efficiency condensing (with plastic vent pipe)

ELECTRIC

- [ ] Electric standard tank
- [ ] Heat pump
- [ ] Electric whole house tankless system
- [ ] Point-of use tankless system

PROPANE

- [ ] Propane standard tank
- [ ] Propane whole house tankless system

SOLAR

- [ ] Solar with no backup system
- [ ] Solar with natural gas backup
- [ ] Solar with propane backup
- [ ] Solar with electric backup
- [ ] **Other fuel type**

What 'other' additional water heating system type do you use?

Additional water heating system type:

What is the typical hot water heater temperature setting?
(Medium is the standard factory setting.)

- ( ) Low (below 130°F)
- ( ) Medium (130°F – 150°F)
- ( ) High (over 150°F)

How old is your primary water heating system?

- ( ) Less than one year
- ( ) 1-3 years
- ( ) 4-8 years
- ( ) 9-13 years
- ( ) 14-30 years
- ( ) Over 30 years

E-14

How many total showers and baths are taken in your home on a typical day?

	0	1	2	3	4	5	6	7	8	9	10 or more
Showers per day	○	○	○	○	○	○	○	○	○	○	○
Baths per day	○	○	○	○	○	○	○	○	○	○	○

Do you have low-flow showerheads installed in the shower(s)?

(Low-flow showerheads use 1.8 gallons per minute or less and have been standard since 1993.)

○ Yes, all showers

○ Yes, some showers

○ No

Do the faucets in your home have water-saving aerators?

(Aerators are add-on devices that reduce the water usage by mixing air into the water stream.)

○ Yes, all faucets

○ Yes, some faucets

○ No

Laundry

Do you have the use of laundry equipment in your home?

○ Yes ☐☐

○ No, laundry facilities are located in a common area of the building

○ I do not use laundry facilities in my building

What type of clothes washer do you have?

(Do not include machines in common areas.)

○ Top loading washer

○ Front loading washer

How old is your clothes washer?

○ Less than one year

○ 1 – 5 years

○ 6 – 8 years

○ 9 – 15 years

○ 16 – 30 years

○ Over 30 years

For each wash temperature below, how many loads of clothes do you wash in your home during a typical week?

Number of Clothes Washer Loads per Week	0	1	2	3	4	5	6	7	8	9	10 or more
Hot water	○	○	○	○	○	○	○	○	○	○	○
Warm water	○	○	○	○	○	○	○	○	○	○	○
Cold water	○	○	○	○	○	○	○	○	○	○	○

What type of clothes dryer do you have?

(Do not include machines in common areas.)

○ I do not have a clothes dryer

○ Natural gas dryer

○ Electric dryer

○ Bottled gas dryer: Propane, Butane, Liquefied Petroleum

How old is your clothes dryer?

○ Less than one year

○ 1 – 5 years

○ 6 – 8 years

○ 9 – 15 years

○ 16 – 30 years

○ Over 30 years

For each dry temperature below, how many loads of clothes do you dry in your home during a typical week?

Number of Clothes Dryer Loads per Week	0	1	2	3	4	5	6	7	8	9	10 or more
High heat	○	○	○	○	○	○	○	○	○	○	○
Medium heat	○	○	○	○	○	○	○	○	○	○	○
Low heat	○	○	○	○	○	○	○	○	○	○	○

Food Preparation

Which of the following cooking appliances are used in your home?

(Select all that apply.)

Cooking appliance	Type of Fuel	Age in Years
Cooktop, stovetop or range	▼	▼
Oven(s)	▼	▼
Outdoor oven	▼	▼
Outdoor grill/BBQ	▼	▼
Microwave oven	▼	▼

During a typical week, how often do you use the following cooking appliances?

	Never	Rarely (less than once per week)	Occasionally (1-2 times per week)	Sometimes (3-4 times per week)	Often (5-7 times per week)
Cooktop, stovetop or range	○	○	○	○	○
Oven(s)	○	○	○	○	○
Microwave oven	○	○	○	○	○
Other	○	○	○	○	○

Do you have a dishwasher?

- ○ Yes
- ○ No

How old is your dishwasher?

- ○ Less than one year
- ○ 1 – 5 years 󠀀󠀀
- ○ 6 – 8 years
- ○ 9 – 15 years
- ○ 16 – 30 years
- ○ Over 30 years

How many dishwasher loads are run in a typical week?

- ○ None
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9 or more

Refrigerators

How many refrigerators do you have plugged in?

- ○ None
- ○ 1
- ○ 2
- ○ 3 or more

Please tell us the characteristics of your primary refrigerator:

Door Style	Size, in Cubic Feet	Age of your Refrigerator	Through the Door Ice/Water Dispenser
▼	▼	▼	▼

Please tell us the characteristics of your second refrigerator:

Door Style	Size, in Cubic Feet	Age of your Refrigerator	Through the Door Ice/Water Dispenser
▼	▼	▼	▼

Please tell us the characteristics of your third refrigerator:

Door Style	Size, in Cubic Feet	Age of your Refrigerator	Through the Door Ice/Water Dispenser
▼	▼	▼	▼

Freezers

How many stand-alone freezers do you have plugged in?

(Do not include freezers that are part of your refrigerator.)

- ○ None
- ○ One
- ○ Two or more

Please tell us the characteristics for your stand-alone freezer:

Style	Size, in Cubic Feet	Age of your Freezer
▼	▼	▼

Please tell us the characteristics for your second stand-alone freezer:

Style	Size, in Cubic Feet	Age of your Freezer
▼	▼	▼

Spas and Hot Tubs

Do you have the use of a spa or hot tub at your home?

(Do not include whirlpool tubs in your bathroom.)

- ○ Yes, and **I pay for its energy use**
- ○ Yes, but it is in a **common area** and **I do not pay for its energy use**
- ○ No spa or hot tub

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What fuel do you use to heat the spa or hot tub?

- ○ Electricity
- ○ Natural gas
- ○ Solar and electricity
- ○ Solar and natural gas
- ○ Bottled gas (propane, butane, liquified petroleum)
- ○ Other fuel type

How large is the spa or hot tub?

- ○ Small (3 people or fewer)
- ○ Medium (4 – 6 people)
- ○ Large (7 or more people)

Where is the spa located?

- ○ Outside, in the ground
- ○ Outside, above ground
- ○ Indoor spa

Do you have an insulated cover on your spa or hot tub?

- ○ Yes
- ○ No

How often do you run the filter pump on your spa or hot tub?

Filter Pump Usage

Summer: May – October

Summer morning (6 a.m. - 10 a.m.)	▼
Summer mid-day (10 a.m. - 6 p.m.)	▼
Summer night (6 p.m. - 6 a.m.)	▼

Winter: November – April

Winter morning (6 a.m. - 10 a.m.)	▼
Winter mid-day (10 a.m. - 6 p.m.)	▼
Winter night (6 p.m. - 6 a.m.)	▼

Please indicate how often you heat your spa or hot tub in the winter and summer.

Heating Your Pool

Summer: May – October

Summer morning (6 a.m. - 10 a.m.)	▼
Summer mid-day (10 a.m.- 6 p.m.)	▼
Summer night (6 p.m. - 6 a.m.)	▼

Winter: November – April

Winter morning (6 a.m. - 10 a.m.)	▼
Winter mid-day (10 a.m. - 6 p.m.)	▼
Winter night (6 p.m. - 6 a.m.)	▼

Pools

Do you have the use of a swimming pool at your home?

- ⚪ Yes, and **I pay for its energy use**
- ⚪ Yes, but it is in a **common area** and **I do not pay for its energy use**
- ⚪ No pool

How large is your pool?

(An average-size pool is about 5 feet deep by 40 feet long by 20 feet wide and holds 30,000 gallons of water.)

- ⚪ Less than 20,000 gallons
- ⚪ 20,000 – 40,000 gallons
- ⚪ More than 40,000 gallons

How many hours per day do you operate your swimming pool filter?

	Hours Pool Filter Runs
Summer: May – October	
Summer morning (6 a.m. - 10 a.m.)	▼
Summer mid-day (10 a.m. - 6 p.m.)	▼
Summer night (6 p.m. - 6 a.m.)	▼
Winter: November – April	
Winter morning (6 a.m. - 10 a.m.)	▼
Winter mid-day (10 a.m. - 6 p.m.)	▼
Winter night (6 p.m. - 6 a.m.)	▼

Which fuel type do you use to heat your pool?

- ⚪ Pool is not heated
- ⚪ Natural gas only
- ⚪ Electricity only
- ⚪ Electric heat pump only
- ⚪ Solar heater (using solar collectors)
- ⚪ Bottled gas only (propane, butane, liquid petroleum)
- ⚪ Other, specify:
  [   ]

Please indicate how often you heat your pool in the winter and summer.

	Heating Your Pool
Summer: May – October	
Summer morning (6 a.m. - 10 a.m.)	▼
Summer mid-day (10 a.m. - 6 p.m.)	▼
Summer night (6 p.m. - 6 a.m.)	▼
Winter: November – April	
Winter morning (6 a.m. - 10 a.m.)	▼
Winter mid-day (10 a.m. - 6 p.m.)	▼
Winter night (6 p.m. - 6 a.m.)	▼

What type of filtration pump does your pool have?

- ◯ Single speed ☐☐
- ◯ Two speed ☐☐
- ◯ Variable speed ☐☐
- ◯ No filtration pump

Which of the following attributes does your pool have?

(Select all that apply.)

- ☐ Cover
- ☐ Pool timer
- ☐ Pool sweep
- ☐ Pool vacuum
- ☐ Pool is indoors

Entertainment and Technology

How many televisions do you use in this home?

	None	1	2	3
OLED (organic light-emitting diode) or LED TV(s):				
an OLED smaller than 36 inches	◯	◯	◯	◯
an OLED between 36 inches and 59 inches	◯	◯	◯	◯
an OLED 60 inches or larger	◯	◯	◯	◯
LCD (liquid crystal display) TV(s):				
an LCD smaller than 36 inches	◯	◯	◯	◯
an LCD between 36 inches and 59 inches	◯	◯	◯	◯
an LCD 60 inches or larger	◯	◯	◯	◯
Other technology TVs:				
Plasma display panel TV(s)	◯	◯	◯	◯
Cathode ray tube TV(s) (CRT, tube style)	◯	◯	◯	◯
DLP or rear-projection TV(s)	◯	◯	◯	◯

How many of the following electronic accessories you use in this home?

Accessories

	None	1	2	3
Cable or satellite TV set-top boxes or receivers, DVR	○	○	○	○
Stand-alone movie players (Blu-Ray/DVD/VCR)	○	○	○	○
Gaming systems (Nintendo, PlayStation, Xbox, Wii)	○	○	○	○
Streaming media players (Amazon Fire Stick, AppleTV, Chromecast, Roku)	○	○	○	○
Home theater system connected to TV	○	○	○	○
Soundbar connected to TV	○	○	○	○
Separate sound or stereo system connected to TV	○	○	○	○
Stand-alone stereo, iPod or MP3 docking station	○	○	○	○

How many combined total hours are your televisions on each day?

(Add up the time for all TVs, for example: 13 hours a day for one + 16 for another equals 29 total hours.)

	1 hour or less	1-8 hours	9-16 hours	17-24 hours	25-30 hours	Over 30 hours
TVs smaller than 36 inches	○	○	○	○	○	○
TVs 36 inches to 59 inches	○	○	○	○	○	○
TVs 60 inches or larger	○	○	○	○	○	○

How many personal computer(s) (PC, Apple, etc.) do you use in this home?

	None	1	2	3 or More
Desktop(s)	○	○	○	○
Laptop(s)	○	○	○	○

If you have one or more computer(s) in this home, how many combined total hours are they turned on each day?

(Add up time for all computers, including stand-by.)

	1 hour or less	1-8 hours	9-16 hours	17-24 hours	25-30 hours	Over 30 hours
Desktop(s)	○	○	○	○	○	○
Laptop(s)	○	○	○	○	○	○

Do you or someone else in your home operate a business and/or work from your home?

○ Yes

○ No

How many hours a week is someone working out of your home?

○ 0 – 10 hours per week

○ 11 – 30 hours per week

○ More than 30 hours per week

How many of the following products do you use in this home?

	None	1	2	3 or more
Printer, scanner, copier or multifunction machine	○	○	○	○
Tablet computer or e-reader (iPad or Kindle)	○	○	○	○
Hubs, controllers, smart speaker (Amazon Echo, Google Home, Apple HomePod)	○	○	○	○
Smart home devices (other than lighting)	○	○	○	○
Smart cell phone (Android or iPhone)	○	○	○	○
Other cell phone (flip phone, candy bar phone)	○	○	○	○
High-speed modem for internet (DSL/cable/satellite)	○	○	○	○
Home network (wired or wireless)	○	○	○	○
Uninterrupted power supply (UPS, power backup)	○	○	○	○

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Lighting

- Classic glass bulb above the metal screw base — **Incandescent**
- "Twisty" tube can be covered
- Short plastic base — **CFL**
- Spherical glass cover
- Large plastic base — **LED**

What portion of light bulbs installed in the ceiling fixtures and lamps inside your home are the following types?
(Select one answer for each type.)

Lamp or Bulb Type	None	Some	About half	Most	All
Incandescent (traditional light bulbs that have been around for 100 years)	○	○	○	○	○
CFLs, compact fluorescent (sometimes have a "twisty", spiral shape, but the "twisty" can be covered in opaque glass)	○	○	○	○	○
LED, light emitting diodes (newest bulbs on the market, often with a large plastic base sometimes with ridges)	○	○	○	○	○

How many lights inside your home are turned on during the following times of day?
(Select one answer for each time period.)

Time Period	None	Few lights (about 25%)	Some lights (about 50%)	Many lights (about 75%)	All lights (100%)
Morning (6 a.m. - 9 a.m.)	○	○	○	○	○
Day (9 a.m. - 5 p.m.)	○	○	○	○	○
Evening (5 p.m. - 9 p.m.)	○	○	○	○	○
Night (9 p.m. - 6 a.m.)	○	○	○	○	○

How many of the following lighting products do you use <u>inside</u> your home?

Interior Lighting Products	None	1-2	3-5	6-10	11 or more
Fixtures on timers	○	○	○	○	○
Fixtures on motion detectors or occupancy sensors	○	○	○	○	○
Fixtures on a dimming switch	○	○	○	○	○
"Smart" (connected) light bulbs	○	○	○	○	○
Night lights	○	○	○	○	○

How many of the following lighting products do you use outside your home?
(Include items in your garage. Only include exterior lights that are paid for on your electricity bill.)

	None	1-2	3-5	6 or more
Exterior Fixtures				
Exterior incandescent fixtures	○	○	○	○
Exterior compact fluorescent fixtures	○	○	○	○
Exterior light-emitting diode (LED) fixtures	○	○	○	○
Low-voltage landscape light system	○	○	○	○
HID (sodium vapor, metal halide) fixtures	○	○	○	○
Exterior Lighting Controls				
Fixtures on timers	○	○	○	○
Fixtures on dusk-to-dawn sensors	○	○	○	○
Fixtures on motion detectors	○	○	○	○

How many of each of the following appliances or equipment do you use in your home?

(Select all that apply.)

	None	1	2	3 or more
Chargers left plugged in all the time (phone/tablet/tools)	○	○	○	○
Rechargeable vacuum (Roomba, RoboVac, Botvac)	○	○	○	○
Small cooking (air fryer, Instant Pot, slow cooker)	○	○	○	○
Portable fan	○	○	○	○
Ceiling fan	○	○	○	○
Wind turbine attic ventilator (non-electric)	○	○	○	○
Electric attic fan	○	○	○	○
Whole-house fan	○	○	○	○
Electronic household air cleaner	○	○	○	○
Portable (room) air purifier	○	○	○	○
Humidifier or dehumidifier	○	○	○	○
Wine or beverage cooler	○	○	○	○
Water purification system	○	○	○	○
Domestic hot water recirculation pump	○	○	○	○
Sauna – electric	○	○	○	○
Pond or water garden pump or fountain	○	○	○	○
Outdoor fire table/fire pit	○	○	○	○

Do you use an electric well-water pump to provide water for your home?

○ Yes

○ No

Does your home also have access to city/county water sources?

○ Yes

○ No

How do you use your well water?

○ Only for gardening and landscaping

○ Only for household use

○ Both household and gardening/landscape use

Which of the following equipment is used three or more hours per week?

(If none, skip this question.)

☐ Sump pump

☐ Shop tools

☐ Electric welding equipment

☐ Electric air compressor

☐ Charger for large battery

☐ Kiln for ceramics and pottery

☐ Medical equipment (e.g., respirator)

Select the fuel type for any equipment that is used three or more hours per week.

(If none, skip this question.)

	Electric	Natural Gas	Bottled Gas
Kiln for ceramics and pottery	○	○	○
Medical equipment (e.g., respirator)	○	○	○

Do you have an electric wheelchair, golf cart, electric bicycle or electric skateboard at home?

☐ Yes, electric wheelchair/golf cart

☐ Yes, electric bicycle/skateboard

☐ No

Do you charge your electric wheelchair, golf cart, bicycle or skateboard at home?

○ Yes

○ No

Do you use any other equipment or large appliance that consumes a significant amount of electricity or natural gas in your home?

○ Yes

○ No

What 'other' equipment or large appliance consumes a significant amount of energy at your home?

Specify: [_____]

Please indicate if you have added or replaced any of the following appliances in the past 12 months:

☐ Central heating	☐ Oven
☐ Central cooling	☐ Microwave oven
☐ Wall or window air conditioner	☐ Dishwasher
☐ Evaporative (swamp) cooler	☐ Clothes washer
☐ Water heater	☐ Clothes dryer
☐ Refrigerator	☐ Pool heater
☐ Stand-alone freezer	☐ Pool pump
☐ Stove top	☐ Hot tub/spa heater
	☐ **Have not added or replaced any of the above**

What type of fuel does the new central heating system use?

- ○ Electric
- ○ Natural Gas
- ○ Other

What type of fuel does the new water heating system use?

- ○ Electric
- ○ Natural Gas
- ○ Other

What type of fuel does the new stove top use?

- ○ Electric
- ○ Natural Gas
- ○ Other

What type of fuel does the new oven use?

- ○ Electric
- ○ Natural Gas
- ○ Other

What type of fuel does the new clothes dryer use?

- ○ Electric
- ○ Natural Gas
- ○ Other

What type of fuel does the new pool heater use?

- ○ Electric
- ○ Natural Gas
- ○ Other

What type of fuel does the new hot tub/spa use?

- ○ Electric
- ○ Natural Gas
- ○ Other

Have you discarded any of the following appliances in the past 12 months?

(Include both items that were replaced and those that were discarded without being replaced.)

- ☐ Central heating
- ☐ Central cooling
- ☐ Wall or window air conditioner
- ☐ Evaporative (swamp) cooler
- ☐ Water heater
- ☐ Refrigerator
- ☐ Stand-alone freezer
- ☐ Stove top
- ☐ Oven
- ☐ Microwave oven
- ☐ Dishwasher
- ☐ Clothes washer
- ☐ Clothes dryer

- ☐ Pool heater
- ☐ Pool pump
- ☐ Hot tub/spa heater
- ☐ **I have not discarded any of the above items**

Please indicate the age of the unit(s) that were discarded.

Include both items that were replaced and those that were discarded without being replaced:

Age of Discarded Appliances	Age of Discarded Unit
Central heating	▾
Central cooling	▾
Wall or window air conditioner	▾
Evaporative (swamp) cooler	▾
Water heater	▾
Refrigerator	▾
Stand-alone freezer	▾
Stove top	▾
Oven	▾
Microwave oven	▾
Dishwasher	▾
Clothes washer	▾
Clothes dryer	▾
Pool heater	▾
Pool pump	▾
Hot tub/spa heater	▾

E-27

What type of fuel did the discarded central heating system use?

- ○ Electricity
- ○ Natural Gas
- ○ Other

What type of fuel did the discarded water heating system use?

- ○ Electricity
- ○ Natural Gas
- ○ Other

What type of fuel did the discarded stove top use?

- ○ Electricity
- ○ Natural Gas
- ○ Other

What type of fuel did the discarded oven use?

- ○ Electricity
- ○ Natural Gas
- ○ Other

What type of fuel did the discarded clothes dryer use?

- ○ Electricity
- ○ Natural Gas
- ○ Other

What type of fuel did the discarded pool heater use?

- ○ Electricity
- ○ Natural Gas
- ○ Other

What type of fuel did the discarded hot tub/spa use?

- ○ Electricity
- ○ Natural Gas
- ○ Other

Renewable Energy Technologies

| **Which of the following renewable energy technologies are currently used at this residence?** |
| *(Select all that apply.)* |

☐ No renewable energy technologies

☐ Solar electricity/photovoltaic (PV) cells

☐ Solar water heating (in-home water heated)

☐ Battery storage connected to solar

☐ Wind generator

☐ Fuel cells

| **In the next two years, do you plan to install any of the following renewable technologies?** |
| *(Select all that apply.)* |

☐ No plans

☐ Solar electricity/photovoltaic (PV) cells

☐ Solar domestic water heating (in-home water heated)

☐ Solar pool water heating (pool water heated)

☐ Battery storage connected to solar

☐ Wind generator

☐ Fuel cell

☐ Other

| **What 'other' renewable technologies do you plan to install?** |

Other renewable technologies [   ]

Household Information

Please provide answers to the following questions. Your responses will be confidential and no data will be used on an individual basis. The information is used to allow us to compare energy usage between various groups.

| **In addition to the home described in this survey, do you own any other home in California that is occupied on a part-time basis by your family or as a vacation rental?** |
| *(Please do not answer yes for any full-time rental property or time-share units.)* |

○ Yes

○ No

Please provide the following information for your seasonal or vacation home that you own in California?

(Please do not provide information in this survey for the any full-time rental property or any timeshare unit.)

	Location	Electricity is provided to this vacation home by?	Natural gas is provided to this vacation home by?
Vacation home	[▼]	[▼]	[▼]

What was the highest level of education completed by any head of household in the home?

◯ Elementary (grades 1 – 8)

◯ Some high school (grades 9 – 12)

◯ High school graduate

◯ Some college/trade/vocational school

◯ College graduate

◯ Postgraduate degree

What is the primary language spoken in this home?

◯ English

◯ Spanish

◯ Asian/Pacific Island

◯ Other

What is the primary language spoken in this home?

Specify: [_____]

Are any of the occupants of your home permanently disabled?

◯ No

◯ Yes, 1 permanently disabled

◯ Yes, 2 or more permanently disabled

Which of the following ethnic groups are represented by your 1st head of household?

(Select all that apply.)

Head of Household #1

☐ American Indian, Alaska Native

☐ Asian or Pacific Islander

☐ Black, African American

☐ Hispanic / Latino

☐ White, Caucasian

☐ Other

E-30

What 'other' ethnic groups are represented by your 1st head of household?

Specify: [_____]

Which of the following ethnic groups are represented by your 2nd head of household?

(Select all that apply. Skip this question if there is no second head of household.)

Head of Household #2

☐ American Indian, Alaska Native

☐ Asian or Pacific Islander

☐ Black, African American

☐ Hispanic / Latino

☐ White, Caucasian

☐ Other

What 'other' ethnic groups are represented by your 2nd head of household?

Specify: [_____]

Please check the range that best describes your household's total annual income.

○ Less than $10,000

○ $10,000 – $19,999

○ $20,000 – $24,999

○ $25,000 – $49,999

○ $50,000 – $74,999

○ $75,000 – $99,999

○ $100,000 – $149,999

○ $150,000 – $174,999

○ $175,000 – $199,999

○ $200,000 – $249,999

○ $250,000 or more

○ Prefer not to answer

< Back   Save   Submit

APPENDIX F:
2019 RASS Online Survey, Spanish

Need help? Email support@calhes.dnvgl.com or call (866) 363-7448

California Home Energy Survey

Please select your language preference:
○ English
○ Spanish

Save   Next >

Completed: [   ]

Need help? Email support@calhes.dnvgl.com or call (866) 363-7448

Encuesta de energía del hogar de California

Instrucciones de encuesta

En esta encuesta, se le harán preguntas sobre una casa donde recibe servicio eléctrico. Haga su mejor esfuerzo para responder a todas las preguntas.Si no sabe la respuesta a una pregunta, simplemente pase a la siguiente pregunta. Sus respuestas deben incluir a todos en su hogar, no solo a usted.

Use las flechas "Siguiente" y "Atrás" en la parte inferior de la página para moverse a la página. Si necesita volver a la encuesta más tarde, abra el enlace que se le proporcionó originalmente en el correo electrónico y podrá comenzar donde se detuvo anteriormente. Sus respuestas individuales se mantienen confidenciales.

Si desea obtener más información sobre este estudio, visite el siguiente sitio web: https://www.energy.ca.gov/appliances/rass/

Su Casa

Nuestros registros muestran que tiene servicio eléctrico en: _____, _____. ¿Actualmente tiene servicio en _____, _____?
○ Si
○ No

<Volver   Guardar   Siguiente>

Need help? Email support@calhes.dnvgl.com or call (866) 363-7448

Encuesta de energía del hogar de California

En nombre de la Comisión de Energía y las empresas de servicios públicos de California, le agradecemos su participación en la Encuesta de Energía en el Hogar.

Cerrar

Encuesta de energía del hogar de California

¿Qué tipo de edificio existe en esta dirección: [P3]?

○ Casa individual

○ Casa adosada, dúplex o casa adosada (comparte & nbsp; paredes con unidad vecina, pero no techo o piso)

○ Apartamento o condominio (2 - 4 unidades)

○ Apartamento o condominio (5 o más unidades)

○ Casa rodante

○ Otro

Número de pisos

○ 1

○ 2

○ 3 o más

Por favor describa el 'otro' tipo de edificio

Otro tipo de edificio: [_____]

¿Es propietario de esta vivienda o la renta?

○ Propietario / comprandola

○ Renta / alquila

¿Cuánto tiempo ha vivido Ud. en esta dirección?

○ 1 año o menos

○ 2 años

○ 3 años

○ 4 años

○ 5 años

○ 6 años

○ 7 años

○ 8 años

○ 9 años

○ 10 años

○ 11 años

○ 12 años

○ 13 años

F-2

- ◯ 14 años
- ◯ 15 años
- ◯ 16 – 20 años
- ◯ 21 – 30 años
- ◯ Más de 30 años

¿Cuál es la mejor descripción de esta residencia?

- ◯ Esta es mi residencia permanente.
- ◯ Esta es mi residencia por parte del año o en temporada.
- ◯ Esta es mi casa de vacaciones y generalmente la usa solo mi familia.
- ◯ Esta es una casa vacaciones que se renta.

Si esta es una casa parte del año o de vacaciones, por favor marque los meses en que normalmente está ocupada. (Marque los meses correspondientes.)

- ☐ Enero
- ☐ Febrero
- ☐ Marzo
- ☐ Abril
- ☐ Mayo
- ☐ Junio
- ☐ Julio
- ☐ Agosto
- ☐ Septiembre
- ☐ Octubre
- ☐ Noviembre
- ☐ Diciembre

F-3

Aproximadamente, en qué año fué construída esta vivienda?

○ Antes de 1940

○ 1940-1949

○ 1950-1959

○ 1960-1969

○ 1970-1974

○ 1975-1978

○ 1979-1983

○ 1984-1991

○ 1992-1999

○ 2000-2005

○ 2006-2012

○ 2013-2019

¿Cuantas recamaras hay en esta casa?

○ No tiene (es un estudio)

○ 1 dormitorio

○ 2 dormitorios

○ 3

○ 4

○ 5

○ 6

○ 7

○ 8

○ 9

○ 10

○ Más de 10

F-4

¿Cuántos pies cuadrados de espacio habitable hay en su hogar, incluidos baños, vestíbulos y pasillos?

(Excluya garajes, sótanos o porches sin calefacción.)

- ○ Menos de 250
- ○ 250 – 500
- ○ 501 – 750
- ○ 751 –1,000
- ○ 1,001 – 1,250
- ○ 1,251 – 1,500
- ○ 1,501 – 2,000
- ○ 2,001 – 2,500
- ○ 2,501 – 3,000
- ○ 3,001 – 4,000
- ○ 4,001 – 5,000
- ○ Más de 5,000

¿Tienen aislamiento las paredes exteriores de su casa?

- ○ Si, todas
- ○ Si, algunas
- ○ No
- ○ No se

¿Tiene aislamiento el ático/techo de su casa?

- ○ Si
- ○ No
- ○ No se

Si es si, estime las pulgadas de aislamiento del ático/techo.

- ○ 0 – 3 pulgadas (Valor R menos de R-10)
- ○ 4 – 6 pulgadas (R-11 a R-19)
- ○ 7 – 10 pulgadas (R-20 a R-30)
- ○ Más de 10 pulgadas (R-31 o mayor)

F-5

Elija la opción que mejor describa sus ventanas. :

Tipo de Vidrio (numero de capas de vidrio)

Tipo de panel: número de paneles de vidrio por ventana

- ○ Todas o la mayoría tienen un solo vidrio
- ○ Todas o la mayoría tienen vidrio doble
- ○ Todas o la mayoría tienen vidrio triple
- ○ Mi casa tiene una mezcla de ventanas con vidrio doble y/o vidrio triple

Elija la opción que mejor describa el marco de su ventana:

Tipo de marco:

- ○ Todas o la mayoría tienen marcos de vinil
- ○ Todas o la mayoría tienen marcos de madera
- ○ Todas o la mayoría tienen marcos de metal

¿Ha sido remodelada su casa en los últimos 12 meses?

- ○ Si
- ○ No

¿Qué tipo de remodelación hiciste?

Seleccione todas las que correspondan.

- ☐ Además de la habitación, se agregaron pies cuadrados a la casa
- ☐ Remodelación de cocina o baño
- ☐ Reconstruido la mayor parte de la casa
- ☐ Otro

Para cada uno de los siguientes grupos de edad, ¿cuántas personas, incluido usted, viven habitualmente en este hogar? Seleccione una respuesta para cada categoría de edad.

Categoría de edad	Nadie	1	2	3	4	5	6	Más de 7
5 y menores	○	○	○	○	○	○	○	○
6 – 18	○	○	○	○	○	○	○	○
19 – 34	○	○	○	○	○	○	○	○
35 – 54	○	○	○	○	○	○	○	○
55 – 64	○	○	○	○	○	○	○	○
65 y mayores	○	○	○	○	○	○	○	○

En términos generales, con qué frecuencia un miembro de este hogar usa electrodomésticos o equipos eléctricos importantes (por ejemplo, lavadora, cocina eléctrica, lavaplatos, aire acondicionado, etc.) de lunes a viernes a partir de las 4 p.m. a las 9 p.m.

○ Frecuentemente(3-5 dias a la semana)

○ Ocasionalmente (1 – 2 días a la semana)

○ Nunca o casi nunca (Menos de 1 día a la semana)

¿Hay en su vecindario servicio de gas natural a través de tubería?

○ Si

○ No

¿Tiene una línea de gas natural o conección en alguna parte de su casa?

○ Si

○ No

¿A qué compañía paga Usted por el servicio de gas natural en su casa?

○ Pacific Gas & Electric (PG&E)

○ San Diego Gas & Electric (SDG&E)

○ SoCalGas ("The Gas Company")

○ Southwest Gas Corporation

○ City of Coalinga

○ City of Long Beach Gas Department

○ No estoy seguro

Vehiculos Electricos

Alguien en su casa actualmente es propietario o renta un vehiculo de batería eléctrica o un vehiculo eléctrico de conexión hibrida?

○ Si

○ No

F-7

Cuantos vehiculos electricos usan en su casa?

	0	1	2	3 o más
Bateria electrica vehculos de conexión de bateria *(e.g. Telsa, Nissan Leaf, Chevy Bolt, BWM i3)*	○	○	○	○
Hibrido Electrico vehicles motorizado por ambas conexión de bateria y gasolina, *(e.g., Chevy Volt, Ford Fusion)*	○	○	○	○

En un dia normal, cuantas millas en total maneja sus vehículos electricos?

(Escoja una respuesta para las millas en total por todos los vehiculos electricos de un día normal entre la semana, y una respuesta de un dia normal en el fin de semana.)

	Menos de 20 millas	21-40 millas	41-60 millas	61-100 millas	Mas de 101 millas
Lunes - Viernes	○	○	○	○	○
Sabado - Domingo	○	○	○	○	○

Con que frecuencia carga su(s) vehiculo(s) electricos en su hogar, trabajo o algún otro lado?

(Escoja una respuesta para cada lugar donde carga su(s) vehiculos.)

	Diario	5-6 veces a la semana	3-4 veces a la semana	1-2 veces a la semana	Menos de una vez a la semana
Casa	○	○	○	○	○
Trabajo	○	○	○	○	○
Otro Lugar	○	○	○	○	○

Es su cargador principal que usa en casa de Nivel 1 (120V) o Nivel 2 (240V)?

○ Nivel 1 (120V) enchufe de pared - carga lenta

○ Nivel 2 (240V) cargador como la secadora usa - carga rapida

○ No se

○ No cargo en casa

Cuando es/son el/los VE(s) normalmente cargado(s) usando el cargador principal?

(Seleccione todas las que correspondan.)

☐ Manaña (6 a.m. - 9 a.m.)

☐ Dia (9 a.m. - 5 p.m.)

☐ Tarde (5 p.m. - 9 p.m.)

☐ Noche (9 p.m. - 6 a.m.)

Calefacción de espacios

¿Paga usted por la calefacción de su casa?

○ Si

○ No, es parte de la renta/cuota de condominio

○ No, no tiene sistema de calefacción

¿Qué tipo de sistema de calefacción utiliza como fuente de calor <u>main</u> en esta casa?

GAS NATURAL (del servicio de gas)

- ○ Calefacción central de gas por aire forzado (el ventilador circula aire caliente a través de los conductos de aire)
- ○ Calentador / horno a gas para pisos o paredes
- ○ Radiador de agua caliente a gas (vapor, agua caliente, tubos de aletas)
- ○ Chimenea de gas
- ○ Otro tipo de sistema de gas

ELÉCTRICA

- ○ Resistencia (zócalo / techo / piso / pared)
- ○ Central eléctrica horno de aire forzado (ventilador circula aire caliente a través de los conductos de aire)
- ○ Bomba de calor central (calienta y enfría)
- ○ Bomba de calor a través de la pared (parece un aire acondicionado de ventana / pared, pero también proporciona calor)
- ○ Calentadores portátiles eléctricos
- ○ Otro tipo de sistema eléctrico

GAS EMBOTELLADO (propano, petróleo líquido)

- ○ Horno central de aire forzado de gas envasado (el ventilador circula aire caliente a través de los conductos de aire)
- ○ Gas en botella & nbsp; calentador / horno de piso o pared
- ○ Radiador de agua embotellada; (vapor, agua caliente, tubos de aletas)
- ○ Otro tipo de sistema de gas envasado

MADERA

- ○ Estufa de leña / estufa de pellets / chimenea
- ○ Chimenea de leña

SOLAR

- ○ Solar sin respaldo
- ○ Respaldo solar-gas natural
- ○ Respaldo de propano solar
- ○ Respaldo solar-eléctrico
- ○ **Otro tipo de combustible**

Si su (s) sistema (s) de calefacción utiliza gas natural como combustible, indique si tiene una flama piloto.

Flama Piloto

Calefacción principal   [▼]

¿Qué 'otro' tipo de sistema de calefacción utiliza?

Otro tipo de calefacción principal: [   ]

¿Cuántos años tiene su sistema de calefacción principal?

- ○ Menos de un año
- ○ 1-3 años
- ○ 4 –8 años
- ○ 9-13 años
- ○ 14-30 años
- ○ Más de 30 años

¿Qué tipo adicional de sistema de calefacción utiliza, si lo tiene, para calentar esta casa?

(Si no hay ninguno, omita esta pregunta)

GAS NATURAL (de la compañía de gas)

- [ ] Central de gas horno de aire forzado (el ventilador circula aire caliente a través de los conductos de aire)
- [ ] Calentador / horno a gas para pisos o paredes
- [ ] Radiador de agua caliente a gas (vapor, agua caliente, tubos de aletas)
- [ ] Chimenea de gas
- [ ] Otro tipo de sistema de gas

ELÉCTRICA

- [ ] Resistencia (zócalo / techo / piso / pared)
- [ ] Central eléctrica horno de aire forzado (el ventilador circula aire caliente a través de los conductos de aire)
- [ ] Bomba de calor central (calienta y enfría)
- [ ] Bomba de calor a través de la pared (parece un aire acondicionado de ventana / pared, pero también proporciona calor)
- [ ] Calentadores portátiles eléctricos
- [ ] Otro tipo de sistema eléctrico

GAS EMBOTELLADO (propano, petróleo líquido)

- [ ] Horno central de aire forzado de gas envasado (el ventilador circula aire caliente a través de los conductos de aire)
- [ ] Gas en botella calentador / horno de piso o pared
- [ ] Radiador de agua caliente a gas en botella (vapor, agua caliente, tubos de aletas)
- [ ] Otro tipo de sistema de gas envasado

MADERA

- [ ] Estufa de leña / estufa de pellets / chimenea
- [ ] Chimenea de leña

SOLAR

- [ ] Solar sin respaldo
- [ ] Respaldo solar-gas natural
- [ ] Respaldo de propano solar
- [ ] Respaldo solar-eléctrico
- [ ] **OTRO COMBUSTIBLE**

¿Qué 'otro' tipo de sistema de calefacción adicional utiliza?

Otro tipo de calefacción [_____]

Si su (s) sistema (s) de calefacción utiliza gas natural como combustible, indique si tiene una flama piloto.

Flama Piloto

Calefacción principal [_____ ▼]

Smart Thermostat

Programmable Thermostat

Non-programmable thermostat
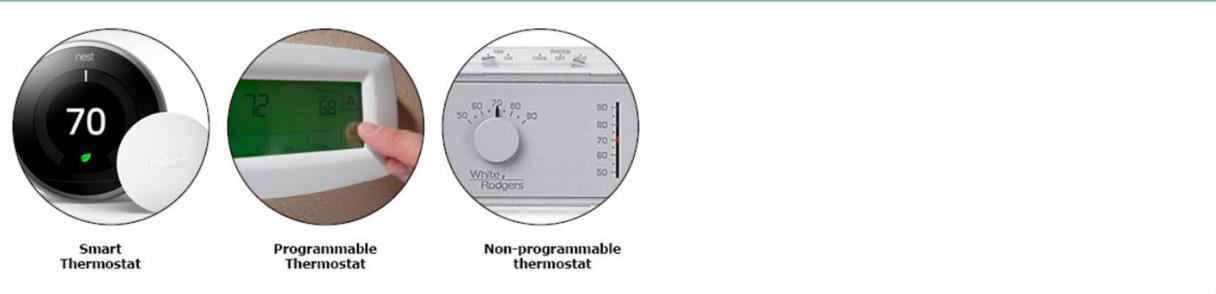
¿Qué tipo de termostato usa su (s) sistema (s) de calefacción principal?

- ( ) Termostato inteligente (se puede usar con sistemas de automatización del hogar y puede detectar cuándo está en su hogar, por ejemplo, Nest, Lyric, Sensi o Ecobee)
- ( ) Termostato programable (puede configurar el calentador a diferentes temperaturas para diferentes tiempos)
- ( ) Termostato no programable (puede encender / apagar el calentador y ajustar la temperatura a mano)
- ( ) Sin termostato (control simple de encendido / apagado o válvula de vapor)

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Si su sistema de calefacción principal está controlado por un termostato, ¿cuál es la temperatura promedio del termostato generalmente establecida para cada período de tiempo durante la temporada de calefacción?

(Seleccione uno para cada período de tiempo. Proporcione la configuración promedio si varía)

	Apagada	Por debajo de 55F	55F–60F	61F–65F	66F–70F	71F–75F	Más de 75F
Mañana (6 a.m. a 9 a.m.)	○	○	○	○	○	○	○
Día (9 a.m. a 5 p.m.)	○	○	○	○	○	○	○
Tarde (5 p.m. - 9 p.m.)	○	○	○	○	○	○	○
Noche (9 p.m. - 6 a.m.)	○	○	○	○	○	○	○

¿Se ha realizado mantenimiento en su sistema de calefacción principal en los últimos 12 meses?

○ Si

○ No

¿Cuantos calentadores (enchufados) eléctricos portátiles utiliza?

○ No uso calentadores portátiles

○ 1 calentador portátil

○ 2 calentadores portátiles

○ 3 o más calentadores portátiles

¿Con qué frecuencia utiliza algún sistema de calefacción adicional, incluidos los calentadores portátiles, durante la temporada de calefacción?

○ Sin calefacción adicional

○ Raramente (una vez al mes)

○ A veces (una vez por semana)

○ A menudo (2 a 4 días por semana)

○ Siempre (5 a 7 días por semana)

Aire acondicionado

¿Paga Ud. por el aire acondicionado central/enfriamiento de su casa?

○ Si

○ No, es parte de la renta/cuota de condominio

○ No, no tiene aire acondicionado central

¿Qué tipo y cuántos sistemas centrales de aire acondicionado / enfriamiento tiene en su hogar?

(Los termostatos zonales controlan diferentes zonas (espacios) dentro del hogar).

	Número de sistemas centrales de enfriamiento	Marque la casilla si el sistema principal se controla mediante un termostato de zona
Aire acondicionado central	[▼]	☐
Evaporador central (pantano)	[▼]	☐
Bomba de calor (calienta y enfría)	[▼]	☐
Mini-split o "sin ductos"	[▼]	☐

¿Cuántos años tiene su unidad de aire acondicionado central principal?

○ Menos de un año

○ 1-3 años

○ 4-8 años

○ 9-13 años

○ 14-30 años

○ Más de 30 años

Smart Thermostat   Programmable Thermostat   Non-programmable thermostat
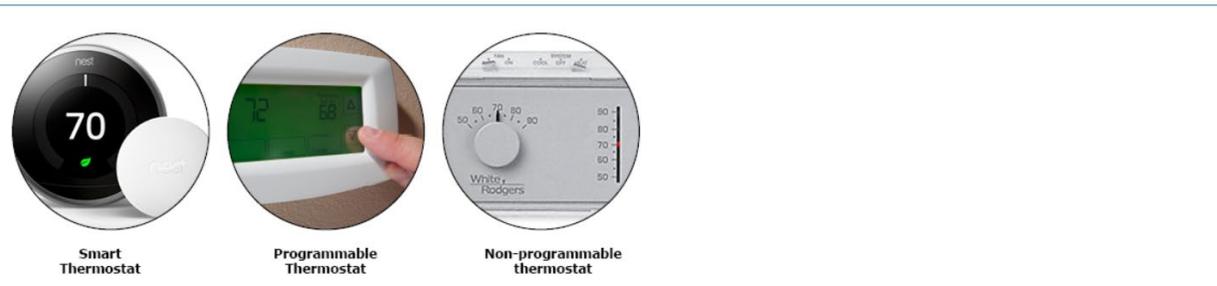
¿Qué tipo de termostato usa su (s) sistema (s) principal (es) de aire acondicionado / enfriamiento?

○ Termostato inteligente (se puede usar con sistemas de automatización del hogar y puede detectar cuándo está en su hogar, por ejemplo, Nest, Lyric, Sensi o Ecobee)

○ Termostato programable (puede configurar el aire acondicionado (AC) a diferentes temperaturas para diferentes tiempos)

○ Termostato no programable (puede encender / apagar la CA y ajustar la temperatura a mano)

○ Sin termostato (control simple de encendido / apagado)

¿Cuál es la configuración típica de temperatura del termostato de su sistema de enfriamiento central principal para cada período de tiempo durante la temporada de enfriamiento de verano?

(Seleccione una respuesta para cada período de tiempo).

	Apagada	Por debajo de 68F	68 – 69F	70 – 73F	74 – 76F	77 – 80F	Más de 80F
Mañana (6 a.m. - 9 a.m.)	○	○	○	○	○	○	○
Día (9 a.m. a 5 p.m.)	○	○	○	○	○	○	○
Tarde (5 p.m. - 9 p.m.)	○	○	○	○	○	○	○
Noche (9 p.m. - 6 a.m.)	○	○	○	○	○	○	○

¿Se le ha hecho un servicio de mantenimiento a su sistema de aire acondicionado central en los últimos 12 meses?

○ Si

○ No

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Aire acondicionado de la habitación (unidades de ventana / pared)

¿Tiene alguna unidad de aire acondicionado en su casa?

○ Si

○ No

Indique el tipo de unidad de aire acondicionado de la habitación que tiene para hasta tres unidades.

	Tipo de aire acondicionado
Habitación AC unidad 1	[▼]
Habitación AC unidad 2	[▼]
Habitación AC unidad 3	[▼]

¿Indique la edad de hasta tres unidades de aire acondicionado / unidades de refrigeración de la habitación?

	Antigüedad de la habitación Unidad de aire acondicionado / refrigeración
Habitación AC unidad 1	[▼]
Habitación AC unidad 2	[▼]
Habitación AC unidad 3	[▼]

Indique con qué frecuencia las unidades de aire acondicionado / enfriamiento de su habitación se encienden durante la temporada de enfriamiento.

(Seleccione una respuesta para cada período de tiempo).

	Nunca	Raramente (1-2 días por semana)	A veces (3-4 días por semana)	A menudo (5-6 días por semana)	Siempre (7 días por semana)
Mañana (6 a.m. - 9 a.m.)	○	○	○	○	○
Día (9 a.m. - 5 p.m.)	○	○	○	○	○
Tarde (5 p.m. - 9 p.m.)	○	○	○	○	○
Noche (9 p.m. - 6 a.m.)	○	○	○	○	○
Tarde calurosa entre semana (mediodía - 6pm)	○	○	○	○	○

Calentamiento de agua

¿Paga por calentar agua en su residencia?

○ Si

○ No, es parte de la renta/cuota de condominio

○ No hay calentador de agua

¿Cuál es el main tipo de sistema de calentamiento de agua utilizado en su hogar?

GAS NATURAL

○ Tanque de gas estándar

○ Sistema sin tanque de gas para toda la casa

○ Condensación de gas de alta eficiencia (con tubo de ventilación de plástico)

ELÉCTRICO

○ Tanque eléctrico estándar

○ Bomba de calor

○ Sistema eléctrico sin tanque para toda la casa

○ Sistema sin tanque de punto de uso

PROPANO

○ Tanque estándar de propano

○ Propano toda la casa & sistema sin tanque

SOLAR

○ Solar sin sistema de respaldo

○ Solar con respaldo de gas natural

○ Solar con respaldo de propano

○ Solar con respaldo eléctrico

Otro tipo de combustible

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¿Qué 'otro' tipo de sistema de calentamiento de agua usa su hogar?

Otro tipo de calefacción: [   ]

¿Qué tipo (s) de sistemas de calentamiento de agua utiliza en su hogar, como calentadores de agua adicionales?

(Seleccione todos los que correspondan. Si ninguno omita esta pregunta)

GAS NATURAL

- ☐ Tanque de gas estándar
- ☐ Sistema sin tanque de gas para toda la casa
- ☐ Condensación de gas de alta eficiencia (con tubo de ventilación de plástico)

ELÉCTRICO

- ☐ Tanque eléctrico estándar
- ☐ Bomba de calor
- ☐ Sistema eléctrico sin tanque para toda la casa
- ☐ Sistema sin tanque de punto de uso

PROPANO

- ☐ Tanque de propano & nbsp; tanque
- ☐ Propano toda la casa & nbsp; sistema sin tanque

SOLAR

- ☐ Solar sin sistema de respaldo
- ☐ Solar con respaldo de gas natural
- ☐ Solar con respaldo de propano
- ☐ Solar con respaldo eléctrico
- ☐ **Otro tipo de combustible**

¿Qué tipo de sistema de calentamiento de agua adicional utiliza?

Tipo de sistema de calentamiento de agua adicional: [   ]

¿Cuál es el ajuste típico de temperatura del calentador de agua caliente?
(Medio es la configuración estándar de fábrica.)

- ○ Bajo (por debajo de 130 ° F)
- ○ Medio (130 ° F - 150 ° F)
- ○ Alto (más de 150 ° F)

¿Qué edad tiene su sistema primario de calentamiento de agua?

- ○ Menos de un año
- ○ 1-3 años
- ○ 4-8 años
- ○ 9-13 años
- ○ 14-30 años
- ○ Más de 30 años

En un día típico, cuántas duchas y baños se toman en su casa?

	0	1	2	3	4	5	6	7	8	9	10 or mas
Duchas por dia	○	○	○	○	○	○	○	○	○	○	○
Baños por dia	○	○	○	○	○	○	○	○	○	○	○

¿Tiene regadera(s) de bajo flujo instalada(s) en su(s) ducha(s)? (Las regaderas de bajo flujo usan 2.5 galones por minuto o menos y son estandar desde 1993)

○ Si, todas las duchas

○ Si algunas duchas

○ No

¿Los grifos de su casa tienen aereadores para ahorrar agua?

(Aereadores son agregados para reducir el uso de agua mezclando aire con el flujo de agua)

○ Si, todos los grifos

○ Si, algunos grifos

○ No

Lavado y secado de ropa

¿Tiene lavadora o secadora de ropa en su casa?

○ Si

○ No, el cuarto de lavado está en el área común del edificio

○ Yo no uso el cuarto de lavado en mi edificio

¿Que tipo de lavarropas tiene?

(No incluya los lavarropas que funcionan con monedas o están en áreas comúnes.)

○ Lavarropas con abertura arriba

○ Lavarropas con abertura al frente

¿Cuantos años tiene su lavarropas?

○ Menos de 1 año

○ 1 – 5 años

○ 6 – 8 años

○ 6 – 8 años

○ 16 – 30 años

○ Más de 30 años

¿Cuantas veces usa la lavadora de ropa en una semana promedio? Por favor indique de acuerdo a la temperatura del agua de lavado.

Número de cargas de lavadora de ropa por semana	0	1	2	3	4	5	6	7	8	9	10 or mas
En caliente	○	○	○	○	○	○	○	○	○	○	○
En tibio	○	○	○	○	○	○	○	○	○	○	○
En frío	○	○	○	○	○	○	○	○	○	○	○

¿Qué tipo de secadora tienes?
(No incluya máquinas en áreas comunes.)

○ No tengo una secadora

○ Secador de gas natural ▢

○ Secadora electrica

○ Secador de gas envasado: propano, butano, petróleo licuado

Cuantos años tiene su secadora de ropa?

○ Menos de un año

○ 1 – 5 años

○ 6 – 8 años

○ 9 – 15 años

○ 16 – 30 años

○ Más de 30 años

Para cada temperatura de secado a continuación, ¿Cuántas cargas de ropa seca en su hogar durante una semana típica?

Número de cargas de secadora de ropa por semana	0	1	2	3	4	5	6	7	8	9	10 or mas
Calor alto	○	○	○	○	○	○	○	○	○	○	○
Calor mediano	○	○	○	○	○	○	○	○	○	○	○
Calor bajo	○	○	○	○	○	○	○	○	○	○	○

Preparación de comida

¿Cuál de las siguientes aparatos para cocinar se utilizan en su casa?
(Seleccione todos los que correspondan.)

Aparato de cocina	Tipo de combustible	Edad en años
Estufa, completa o solo hornillas	▾	▾
Horno(s)	▾	▾
Horno al aire libre	▾	▾
Parrilla al aire libre / barbacoa	▾	▾
Horno microondas	▾	▾

Durante una semana promedio, cuantas vecez utiliza los siguientes aparatos de cocina?

	Nunca	Raramente (menos de una vez por semana)	Ocasionalmente (1-2 veces por semana)	A veces (3-4 veces por semana)	A menudo (5-7 veces por semana)
Estufa, estufa o estufa	○	○	○	○	○
Horno(s)	○	○	○	○	○
Horno microondas	○	○	○	○	○
Otro	○	○	○	○	○

¿Tiene lavaplatos?

- ○ Si
- ○ No

Cuantos años tiene su lavaplatos?

- ○ Menos de un año
- ○ 1 – 5 años
- ○ 6 – 8 años
- ○ 9 – 15 años
- ○ 16 – 30 años
- ○ Más de 30 años

¿Cuántas veces utiliza el lavaplatos en una semana promedio?

- ○ Ninguna
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ 6
- ○ 7
- ○ 8
- ○ 9 o más

Refrigeradores

¿Cuántos refrigeradores tiene conectados?

- ○ Ninguna
- ○ 1
- ○ 2
- ○ 3 o más

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Díganos las características de su refrigerador primario:

Estilo de la puerta	Tamaño, en pies cúbicos	Edad de su Refrigerador	A través de la puerta dispensador de hielo / agua
▼	▼	▼	▼

Por favor díganos las características de su segundo refrigerador:

Estilo de la puerta	Tamaño, en pies cúbicos	Edad de su Refrigerador	A través de la puerta dispensador de hielo / agua
▼	▼	▼	▼

Díganos las características de su tercer refrigerador:

Estilo de la puerta	Tamaño, en pies cúbicos	Edad de su Refrigerador	A través de la puerta dispensador de hielo / agua
▼	▼	▼	▼

Congeladores

¿Cuántos congeladores individuales tiene funcionando?
(No incluya los congeladores que son parte del refrigerador).

○ Ninguna

○ Uno

○ Dos o más

Díganos las características de su congelador independiente:

Estilo	Tamaño en pies cúbicos	Edad de su Congelador
▼	▼	▼

Díganos las características de su segundo congelador independiente:

Estilo	Tamaño en pies cúbicos	Edad de su Congelador
▼	▼	▼

Spas y Jacuzzis

¿Tiene el uso de un spa o jacuzzi en su casa?
(No incluya bañeras de hidromasaje en su baño).

○ Si, y pago por la energía que consume

○ Si, pero está en un área común y no pago por su consumo de energía

○ No tengo spa o jacuzzi

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¿Qué energía usa para calentar el spa o jacuzzi?

- ⚪ Electricidad
- ⚪ Gas natural
- ⚪ Solar y eléctrica
- ⚪ Solar y gas natural
- ⚪ Gas en botella (propano, butano, petróleo licuado)
- ⚪ Otro tipo de combustible:

De qué tamaño es su spa o jacuzzi?

- ⚪ Pequeño (3 personas o menos) ☐☐
- ⚪ Medio (4 - 6 personas) ☐☐
- ⚪ Grande (7 o más personas)

¿Dónde está el spa o jacuzzi?

- ⚪ Afuera, a nivel del piso
- ⚪ Afuera, elevado
- ⚪ Spa adentro

¿Utiliza una cobertura aislante para su spa o jacuzzi?

- ⚪ Si
- ⚪ No

¿Con qué frecuencia ejecuta la bomba de filtro en su spa o jacuzzi?

	Uso de la bomba de filtro
Verano: mayo - octubre	
Mañana de verano (6 a.m. - 10 a.m.)	▾
Mediodía de verano (10 a.m. -6 p.m.)	▾
Noche de verano (6 p.m. - 6 a.m.)	▾
Invierno: noviembre - abril	
Mañana de invierno (6 a.m. a 10 a.m.)	▾
Mediodía de invierno (10 a.m. - 6 p.m.)	▾
Noche de invierno (6 p.m. - 6 a.m.)	▾

Indique con qué frecuencia calienta su spa o jacuzzi en el invierno y el verano:

	Calentando su piscina
Verano: mayo - octubre	
Mañana de verano (6 a.m. a 10 a.m.)	▾
Mediodía de verano (10 a.m.- 6 p.m.)	▾
Noche de verano (6 p.m. - 6 a.m.)	▾
Invierno: noviembre - abril	
Mañana de invierno (6 a.m. a 10 a.m.)	▾
Mediodía de invierno (10 a.m. a 6 p.m.)	▾
Noche de invierno (6 p.m. - 6 a.m.)	▾

¿Tiene el uso de una piscina en su casa?

○ Sí, y **pago por su uso de energía**

○ Sí, pero está en un **área común** y **no pago por su uso de energía**

○ No tengo piscina

¿Qué tamaño tiene su piscina?

(Una piscina de tamaño promedio mide aproximadamente 5 pies de profundidad por 40 pies de largo por 20 pies de ancho y tiene 30,000 galones de agua.)

○ Menos de 20,000 galones

○ 20,000 - 40,000 galones

○ Más de 40,000 galones

¿Cuántas horas al día opera el filtro de su piscina?

Horas de funcionamiento del filtro de piscina

Verano: mayo - octubre

Mañana de verano (6 a.m. a 10 a.m.)	▼
Mediodía de verano (10 a.m. a 6 p.m.)	▼
Noche de verano (6 p.m. - 6 a.m.)	▼

Invierno: noviembre - abril

Mañana de invierno (6 a.m. a 10 a.m.)	▼
Mediodía de invierno # (10 a.m. a 6 p.m.)	▼
Noche de invierno (6 p.m. - 6 a.m.)	▼

¿Qué tipo de combustible utiliza para calentar su piscina?

○ La piscina no está climatizada

○ Solo gas natural

○ Solo electricidad

○ Solo bomba de calor eléctrica

○ Calentador solar (usando colectores solares)

○ Solo gas en botella (propano, butano, petróleo líquido)

○ Otra especificar:

[_____]

Por favor, indique con qué frecuencia calienta Ud. la piscina en verano e invierno.

Calentando su piscina

Verano: mayo - octubre

Mañana de verano (6 a.m. a 10 a.m.)	▼
Mediodía de verano (10 a.m. a 6 p.m.)	▼
Noche de verano (6 p.m. - 6 a.m.)	▼

Invierno: noviembre - abril

Mañana de invierno (6 a.m. a 10 a.m.)	▼
Mediodía de invierno (10 a.m. a 6 p.m.)	▼
Noche de invierno (6 p.m. - 6 a.m.)	▼

¿Qué tipo de bomba de filtración tiene su piscina?

- ◯ Velocidad única
- ◯ Dos velocidades
- ◯ Velocidad variable
- ◯ Sin bomba de filtración

¿Cuál de los siguientes atributos tiene su grupo?
(Seleccione todas las opciones que correspondan)

- ☐ Cobertura
- ☐ Reloj automatico
- ☐ Barredora
- ☐ Aspiradora
- ☐ Piscina en el interior de la casa

Entretenimiento y Tecnología

¿Cuántos televisores usa en esta casa?

	Ninguna	1	2	3
OLED (diodo emisor de luz orgánico) o LED TV (s):				
un OLED de menos de 36 pulgadas	◯	◯	◯	◯
un OLED entre 36 pulgadas y 59 pulgadas	◯	◯	◯	◯
un OLED de 60 pulgadas o más grande	◯	◯	◯	◯
Televisores LCD (pantalla de cristal líquido):				
una pantalla LCD de menos de 36 pulgadas	◯	◯	◯	◯
una pantalla LCD de entre 36 y 59 pulgadas	◯	◯	◯	◯
una pantalla LCD de 60 pulgadas o más grande	◯	◯	◯	◯
Televisores de otras tecnologías:				
Pantalla de plasma TV TV (s)	◯	◯	◯	◯
Televisor (s) de tubo de rayos catódicos (CRT, estilo de tubo)	◯	◯	◯	◯
DLP o TV (s) de retroproyección	◯	◯	◯	◯

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¿Cuántos de los siguientes accesorios electrónicos usa en esta casa?

Accesorios

	Ninguna	1	2	3
Decodificadores o receptores de TV por cable o satelital, DVR	○	○	○	○
Reproductores de películas independientes (Blu-Ray / DVD / VCR)	○	○	○	○
Sistemas de juego (Nintendo, PlayStation, Xbox, Wii)	○	○	○	○
Reproductores multimedia de transmisión (Amazon Fire Stick, AppleTV, Chromecast, Roku)	○	○	○	○
Sistema de cine en casa conectado a la televisión	○	○	○	○
Barra de sonido conectada a la TV	○	○	○	○
Sonido separado o sistema estéreo conectado a la TV	○	○	○	○
Estéreo independiente, estación de conexión para iPod o MP3	○	○	○	○

¿Cuántas horas totales combinadas tienen sus televisores por día?

(Sume el tiempo para todos los televisores, por ejemplo: 13 horas al día para uno + 16 para otro equivale a 29 horas totales.)

	1 hora o menos	1-8 horas	9-16 horas	17-24 horas	25-30 horas	Más de 30 horas
Televisores de menos de 36 pulgadas	○	○	○	○	○	○
Televisores de 36 pulgadas a 59 pulgadas	○	○	○	○	○	○
Televisores de 60 pulgadas o más	○	○	○	○	○	○

¿Cuántas computadoras personales (PC, Apple, etc.) utiliza en esta casa?

	Ninguno	1	2	3 o más
Escritorio(s)	○	○	○	○
Laptop (s)	○	○	○	○

Si tiene una o más computadoras en esta casa, ¿cuántas horas totales combinadas se encienden cada día?

(Agregue tiempo para todas las computadoras, incluso en espera).

	1 hora o menos	1-8 horas	9-16 horas	17-24 horas	25-30 horas	Más de 30 horas
Escritorio(s)	○	○	○	○	○	○
Laptop (s)	○	○	○	○	○	○

¿Usted o alguien más en su hogar opera un negocio y / o trabaja desde su casa?

○ Si

○ No

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¿Cuántas horas a la semana trabaja alguien fuera de su casa?

- ○ 0-10 horas por semana
- ○ 11-30 horas por semana
- ○ Más de 30 horas por semana

¿Cuántos de los siguientes productos usa en esta casa?

	Ninguno	1	2	3 o más
Impresora, escáner, copiadora y máquina multifunción	○	○	○	○
Tableta o lector electrónico (iPad o Kindle)	○	○	○	○
Hubs, dispositivos, altavoces inteligentes (Amazon Echo, Google Home, Apple HomePod)	○	○	○	○
Dispositivos domésticos inteligentes (que no sean iluminación)	○	○	○	○
Teléfono celular inteligente (Android o iPhone)	○	○	○	○
Other cell phone (flip phone, candy bar phone)	○	○	○	○
Módem de alta velocidad para internet (DSL / cable / satélite)	○	○	○	○
Red doméstica (cableada o inalámbrica)	○	○	○	○
Fuente de alimentación ininterrumpida (UPS, respaldo de energía)	○	○	○	○

Iluminación

- Incandescent: • Classic glass bulb above the metal screw base
- CFL: • "Twisty" tube can be covered • Short plastic base
- LED: • Spherical glass cover • Large plastic base

¿Qué porción de bombillas instaladas en los accesorios de techo y lámparas dentro de su hogar son los siguientes tipos?

(Seleccione una respuesta para cada tipo.)

Tipo de lámpara o bombilla	Ninguno	Algunos	Casi la mitad	Más	Todas
Incandescente (bombillas tradicionales que han existido durante 100 años)	○	○	○	○	○
CFL, fluorescentes compactos (a veces tienen una forma espiral "retorcida", pero la "retorcida" puede cubrirse con vidrio opaco)	○	○	○	○	○
LED, diodos emisores de luz (bombillas más nuevas del mercado, a menudo con una gran base de plástico a veces con crestas)	○	○	○	○	○

¿Cuántas luces dentro de su casa están encendidas durante los siguientes momentos del día?

(Seleccione una respuesta para cada período de tiempo).

Periodo de tiempo	Ninguno	Pocas luces (alrededor del 25%)	Algunas luces (aproximadamente 50%)	Muchas luces (alrededor del 75%)	Todas las luces (100%)
Mañana (6 a.m. - 9 a.m.)	○	○	○	○	○
Día (9 a.m.- 5 p.m.)	○	○	○	○	○
Tarde (5 p.m. - 9.p.m.)	○	○	○	○	○
Noche (9 p.m. - 6 a.m.)	○	○	○	○	○

¿Cuántos de los siguientes productos de iluminación utiliza inside en su hogar?

Productos de iluminación interior	Ninguno	1 a 2	3 a 5	6 a 10	11 o más
Accesorios en temporizadores	○	○	○	○	○
Accesorios en detectores de movimiento o sensores de ocupación	○	○	○	○	○
Accesorios en un interruptor de atenuación	○	○	○	○	○
Bombillas "inteligentes" (conectadas)	○	○	○	○	○
Luces nocturnas	○	○	○	○	○

¿Cuántos de los siguientes productos de iluminación usa fuera de su hogar?

(Incluya artículos en su garaje. Solo incluya luces exteriores que se pagan en su factura de electricidad).

	Ninguno	1 a 2	3 a 5	6 o más
Accesorios exteriores				
Luminarias incandescentes exteriores	○	○	○	○
Luminarias fluorescentes compactas exteriores	○	○	○	○
Luminarias exteriores de diodos emisores de luz (LED)	○	○	○	○
Sistema de luz de paisaje de bajo voltaje	○	○	○	○
Accesorios HID (vapor de sodio, haluro metálico)	○	○	○	○
Controles de iluminación exterior				
Accesorios en temporizadores	○	○	○	○
Accesorios en sensores de anochecer a amanecer	○	○	○	○
Accesorios en detectores de movimiento	○	○	○	○

Electrodomésticos Diversos

¿Cuántos de cada uno de los siguientes electrodomésticos o equipos utiliza en su hogar?

(Seleccione todas las opciones que correspondan)

	Ninguno	1	2	3 o más
Los cargadores se dejan enchufados todo el tiempo (teléfono / tableta / herramientas)	○	○	○	○
"Aspiradora recargable (Roomba, RoboVac, Botvac)	○	○	○	○
Cocina pequeña (freidora, olla instantánea, olla de cocción lenta)	○	○	○	○
Abanico portátil	○	○	○	○
Ventilador de techo	○	○	○	○
Ventilador de ático de turbina eólica (no eléctrico)	○	○	○	○
Abanico electrico	○	○	○	○
Ventilador de toda la casa	○	○	○	○
Filtro de aire electrónico para el hogar	○	○	○	○
Purificador de aire portátil (ambiente)	○	○	○	○
Humidificador o deshumidificador	○	○	○	○
Enfriador de vino o bebidas	○	○	○	○
Sistema de purificación de agua	○	○	○	○
Bomba de recirculación de agua caliente sanitaria	○	○	○	○
Sauna - eléctrica	○	○	○	○
Estanque o bomba de agua para jardín o fuente	○	○	○	○
Mesa de fuego al aire libre / pozo de fuego	○	○	○	○

¿Utiliza una bomba eléctrica de agua de pozo para suministrar agua a su hogar

○ Si

○ No

¿Su hogar también tiene acceso a fuentes de agua de la ciudad / condado?

○ Si

○ No

¿Cómo usas el agua de tu pozo?

○ Solo para jardinería y paisajismo

○ Solo para uso doméstico

○ Uso doméstico y de jardinería / paisajismo

¿Cuál de los siguientes equipos se usa tres o más horas por semana?

(Si no hay ninguno, omita esta pregunta)

- ☐ Bomba de sumidero
- ☐ Comprar herramientas
- ☐ Equipo de soldadura eléctrica
- ☐ Compresor de aire electrico
- ☐ Cargador para batería grande
- ☐ Horno para cerámica y cerámica
- ☐ Equipo médico (por ejemplo, respirador)

Seleccione el tipo de combustible para cualquier equipo que se use tres o más horas por semana.

(Si no hay ninguno, omita esta pregunta)

	Eléctrico	Gas natural	Gas en botella
Horno para cerámica y cerámica	○	○	○
Equipo médico (por ejemplo, respirador)	○	○	○

¿Tiene una silla de ruedas eléctrica, carrito de golf, bicicleta eléctrica o patineta eléctrica en casa?

- ☐ Sí, silla de ruedas eléctrica / carrito de golf
- ☐ Sí, bicicleta eléctrica / patineta
- ☐ No

¿Carga su silla de ruedas eléctrica, carrito de golf, bicicleta o patineta en casa?

- ○ Si
- ○ No

¿Utiliza algún otro equipo o aparato grande que consuma una cantidad significativa de electricidad o gas natural en su hogar?

- ○ Si
- ○ No

¿Qué 'otro' equipo o electrodoméstico grande consume una cantidad significativa de energía en su hogar?

Especificar: _____

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Indique si ha agregado o reemplazado alguno de los siguientes electrodomésticos en los últimos 12 meses.

- [ ] Calefacción central
- [ ] Enfriamiento central
- [ ] Aire acondicionado de pared o ventana
- [ ] Enfriador evaporativo (pantano)
- [ ] Calentador de agua
- [ ] Refrigerador
- [ ] Congelador independiente
- [ ] Estufa superior

- [ ] Horno
- [ ] Horno microondas
- [ ] Lavavajillas
- [ ] Lavadora de ropa
- [ ] Secadora de ropa
- [ ] Calentador de piscina
- [ ] Bomba de piscina
- [ ] Bañera de hidromasaje / calentador de spa
- [ ] **No ha agregado ni reemplazado & nbsp; ninguno de los anteriores**

¿Qué tipo de combustible utiliza el nuevo sistema de calefacción central?

- ( ) Eléctrico
- ( ) Gas natural
- ( ) Otro

¿Qué tipo de combustible utiliza el nuevo sistema de calentamiento de agua?

- ( ) Eléctrico
- ( ) Gas natural
- ( ) Otro

¿Qué tipo de combustible usa la nueva estufa?

- ( ) Eléctrico
- ( ) Gas natural
- ( ) Otro

¿Qué tipo de combustible usa el nuevo horno?

- ⭘ Eléctrico
- ⭘ Gas natural
- ⭘ Otro

¿Qué tipo de combustible usa la nueva secadora?

- ⭘ Eléctrico
- ⭘ Gas natural
- ⭘ Otro

¿Qué tipo de combustible usa el nuevo calentador de piscina?

- ⭘ Eléctrico
- ⭘ Gas natural
- ⭘ Otro

¿Qué tipo de combustible utiliza la nueva bañera de hidromasaje / spa?

- ⭘ Eléctrico
- ⭘ Gas natural
- ⭘ Otro

¿Ha descartado alguno de los siguientes electrodomésticos en los últimos 12 meses?

(Incluya tanto los elementos que fueron reemplazados como los que fueron descartados sin ser reemplazados)

- ☐ Calefacción central
- ☐ Enfriamiento central
- ☐ Aire acondicionado de pared o ventana
- ☐ Enfriador evaporativo (pantano)
- ☐ Calentador de agua
- ☐ Refrigerador
- ☐ Congelador independiente
- ☐ Estufa superior
- ☐ Horno
- ☐ Horno microondas
- ☐ Lavavajillas
- ☐ Lavadora de ropa

| ☐ Secadora de ropa |
| ☐ Calentador de piscina |
| ☐ Bomba de piscina |
| ☐ Bañera de hidromasaje / calentador de spa |
| ☐ **No he descartado ninguno de los elementos anteriores** |

Indique la edad de la (s) unidad (es) que se descartaron.

Incluya tanto los elementos que fueron reemplazados como los que fueron descartados sin ser reemplazados.

Edad de la unidad desechada

Edad de los aparatos desechados

Calefacción central	[▼]
Enfriamiento central	[▼]
Aire acondicionado de pared o ventana	[▼]
Enfriador evaporativo (pantano)	[▼]
Calentador de agua	[▼]
Refrigerador	[▼]
Congelador independiente	[▼]
Estufa superior	[▼]
Horno	[▼]
Horno microondas	[▼]
Lavavajillas	[▼]
Lavadora de ropa	[▼]
Secadora de ropa	[▼]
Calentador de piscina	[▼]
Bomba de piscina	[▼]
Bañera de hidromasaje / calentador de spa	[▼]

¿Qué tipo de combustible utilizó el sistema de calefacción central desechado?

○ Eléctrico

○ Gas natural

○ Otro

¿Qué tipo de combustible utilizó el sistema de calentamiento de agua desechado?

○ Eléctrico

○ Gas natural

○ Otro

¿Qué tipo de combustible usó la estufa desechada?

○ Eléctrico

○ Gas natural

○ Otro

¿Qué tipo de combustible usó el horno desechado?

- ○ Eléctrico
- ○ Gas natural
- ○ Otro

¿Qué tipo de combustible usó la secadora de ropa desechada?

- ○ Eléctrico
- ○ Gas natural
- ○ Otro

¿Qué tipo de combustible usó el calentador de piscina desechado?

- ○ Eléctrico
- ○ Gas natural
- ○ Otro

¿Qué tipo de combustible usó el jacuzzi / spa desechado?

- ○ Eléctrico
- ○ Gas natural
- ○ Otro

Tecnologías de Energías Renovables

¿Cuál de las siguientes tecnologías de energía renovable se utilizan actualmente en esta residencia?

(Seleccione todas las opciones que correspondan)

- ☐ Sin tecnologías de energías renovables
- ☐ Electricidad solar / células fotovoltaicas (PV)
- ☐ Calentamiento solar de agua (agua caliente en el hogar)
- ☐ Almacenamiento de batería conectado a solar
- ☐ Generador de viento
- ☐ Celdas de combustible

En los proximos dos años, tiene previsto instalar alguna de las siguientes tecnologías renovables? (Seleccione todos los que correspondan.)

- [ ] No hay planes
- [ ] Pilas solares de electricidad/fotovoltaicas (PV)
- [ ] Calentamiento solar de agua doméstica (agua caliente en el hogar)
- [ ] Calentamiento solar de agua de la piscina (agua de la piscina calentada)
- [ ] Almacenamiento de batería conectado a solar
- [ ] Generador de viento
- [ ] Pila de combustible
- [ ] Otro

¿Qué 'otras' tecnologías renovables planeas instalar?

Otras tecnologías renovables: [_____]

Información del hogar

Proporcione respuestas a las siguientes preguntas. Sus respuestas serán confidenciales y no sé utilizarán datos de forma individual. La información se utiliza para permitirnos comparar el uso de energía entre varios grupos.

Además de la casa descrita en esta encuesta, ¿es dueño de alguna otra casa en California que esté ocupada a tiempo parcial por su familia o como un alquiler de vacaciones?

(no conteste sí para cualquier propiedad de alquiler a tiempo completo o unidades de tiempo compartido).

- ( ) Si
- ( ) No

Proporcione la siguiente información para su casa de temporada o de vacaciones que posee en California.

(no proporcione información en esta encuesta para cualquier propiedad de alquiler a tiempo completo o unidad de tiempo compartido).

	Ubicación	¿Se proporciona electricidad a esta casa de vacaciones por?	El gas natural se proporciona a esta casa de vacaciones por?
Casa de vacaciones	[▾]	[▾]	[▾]

¿Cuál es el nivel más alto de educación que ha completado cualquier miembro de la familia en su casa?

- ( ) Primaria (grados 1-8)
- ( ) Algunas escuelas secundarias (grados 9-12)
- ( ) Graduado de preparatoria
- ( ) Alguna universidad / comercio / escuela vocacional
- ( ) Graduado de la Universidad
- ( ) Posgrado

¿Cuál es el lenguaje principal en la casa?

- ⚪ Inglés
- ⚪ Español
- ⚪ Asia / Isla del Pacífico
- ⚪ Otro

¿Cuál es el lenguaje principal en la casa?

Especificar: [   ]

¿Alguno de los ocupantes de su hogar está discapacitado permanentemente?

- ⚪ No
- ⚪ Sí, 1 discapacitado permanentemente
- ⚪ Si, 2 o más descapacitados

¿Cuál de los siguientes grupos étnicos está representado por su primer jefe de familia?
(Seleccione todas las opciones que correspondan)

Jefe de hogar # 1

- ☐ Indio Americano, Nativo de Alaska
- ☐ Isleño asiático o del Pacífico
- ☐ Negro, afroamericano
- ☐ Hispano / latino
- ☐ Blanco, caucásico
- ☐ Otro

¿Qué 'otros' grupos étnicos están representados por su primer jefe de familia?

Especificar: [   ]

¿Cuál de los siguientes grupos étnicos está representado por su 2nd jefe de familia?
(Seleccione todas las opciones que correspondan. Omita esta pregunta si no hay un segundo jefe de familia).

Jefe de hogar # 2

- ☐ Indio Americano, Nativo de Alaska
- ☐ Isleño asiático o del Pacífico
- ☐ Negro, afroamericano
- ☐ Hispano / latino
- ☐ Blanco, caucásico
- ☐ Otro

¿Qué 'otros' grupos étnicos están representados por su segundo jefe de familia?

Especificar: [   ]

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Por favor, indique el rango del ingreso total anual de su hogar.

○ Menos de $10,000

○ $10,000 – $19,999

○ $20,000 – $24,999

○ $25,000 – $49,999

○ $50,000 – $74,999

○ $75,000 – $99,999

○ $100,000 – $149,999

○ $150,000 – $174,999

○ $175,000 – $199,999

○ $200,000 – $249,999

○ $250,000 o mas

○ Prefiero no responder

<Volver **Guardar** **Enviar**

Need help? Email support@calhes.dnvgl.com or call (866) 363-7448

Encuesta de energía del hogar de California

En nombre de la Comisión de Energía y las empresas de servicios públicos de California, le agradecemos su participación en la Encuesta de Energía en el Hogar.

Cerrar

APPENDIX G:
2019 RASS Data Collection Protocols

Memo to:
Glen Sharp and Le-Huy Nguyen, CA Energy Commission

Final Data Collection Protocols

DNV GL developed data collection protocols to document each step in the data collection process for the study. The procedures ensure that all the activities are executed consistently and to plan. DNV GL and APPRISE leveraged the data collection strategy and protocols used for the 2009 RASS as appropriate.

DNV GL developed protocols for the following processes:
- Procedures for processing surveys
    - Processing online surveys
    - Processing paper surveys

The protocols for each of these processes are outlined in the subsequent sections.

1.1 Procedures for Processing Surveys

This section describes the procedures to manage the initial data processing steps for the paper surveys and the online surveys. Potential survey respondents will receive an invitation by email or in an advance letter that directs them to the online survey. If a household does not return a survey from the online version, they will be eligible for the subsample that will receive a paper survey packet. The following processes outline the procedures to be followed once the household initiates a response.

1.1.1 Processing online surveys

Survey respondents will access the survey landing page. The landing page will contain the CEC logo and participating utility logos. Respondents will select the option to take the survey in either English or Spanish. Participants will work through the questions on the survey and submit responses.

The online survey software will capture survey responses in a data file. The data analysis team will monitor the data file for quality assurance. The data file will be processed so it can be merged with the survey data from the paper surveys into a master survey data file. The master data file will continue through the set of data processing and analysis steps.

1.1.2 Processing Paper Surveys

Survey respondents will return completed surveys in postage-paid envelopes to the survey processing center. The survey processing center will process the surveys received:
1. The envelopes will be opened and the barcodes on the surveys scanned to log the survey as having been received.
2. The binding will be cut off the booklet form.
3. The surveys will be scanned into two types of files:

   a. A data file that records the individual responses on the surveys
   b. A pdf of the completed survey
4. The data file will be examined for quality control. If issues are found, staff will refer to the pdf to investigate how the respondent marked the survey.
5. The survey processing center will deliver the data file and the pdf files to the analysis team for data processing.

APPENDIX H:
Non-Response Priority Mail Materials

This appendix contains materials used in the non-response priority mail effort:

- Cover Letter
- Reminder Postcard

Figure 1: Priority Mail Packet

Figure 2: Contents of Priority Mail Packet
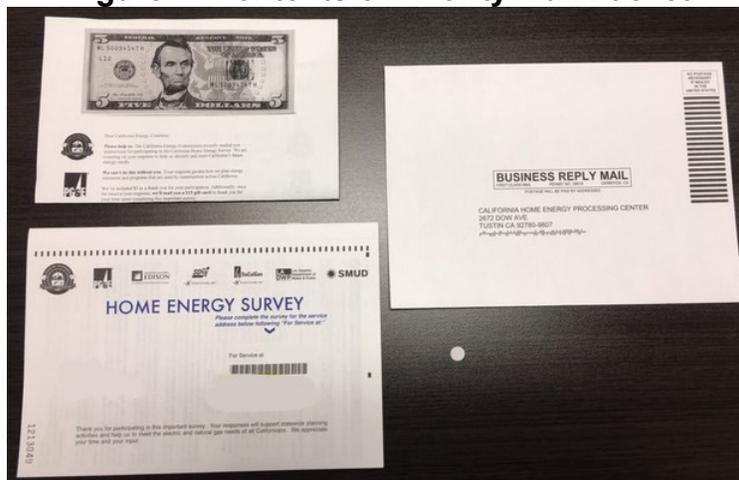
NON-RESPONSE COVER LETTER
FOR PRIORITY MAIL- ENGLISH

Dear California Energy Customer,

Please help us. The California Energy Commission recently mailed you instructions for participating in the California Home Energy Survey. We are counting on your response to help us identify and meet California's future energy needs.

We can't do this without you. Your response guides how we plan energy resources and programs that are used by communities across California.

We've included $5 as a thank-you for your participation. Additionally, once we receive your response, **we'll mail you a $15 gift card** to thank you for your time spent completing this important survey.

You can complete the survey using ONE of two options.

> **Option 1** Complete the survey online at: **https://calhes.com** Use your **access code** (código de acceso) printed above the service address on your enclosed survey booklet.

> **Option 2** Fill out and mail back the enclosed survey booklet.

Your answers are confidential and the results of this survey will only be reported in summary form. Your participation in this survey is voluntary.

If you need help completing the survey, please call us toll-free at 1 (888) 434-8008. You may also visit our website for more information and answers to Frequently Asked Questions: https://www.energy.ca.gov/appliances/rass/

On behalf of all of our sponsors, thank you very much for your participation in this survey.

Sincerely,

Aleecia Gutierrez
Assistant Deputy Director, Energy Assessments Division
California Energy Commission
1516 Ninth St.
Sacramento, CA 95814

NON-RESPONSE COVER LETTER
FOR PRIORITY MAIL- SPANISH

Estimado cliente de energía de California:

Por favor ayúdenos. La Comisión de Energía de California le envió recientemente instrucciones para participar en la Encuesta de Energía del Hogar de California. Estamos contando con sus respuestas para ayudarnos a identificar y satisfacer las futuras necesidades de energía de California.

No podemos lograrlo sin usted. Sus respuestas guiarán como planeamos los recursos energéticos y programas que son usados por comunidades en todo California.

Hemos incluido $5 para agradecerle su participación. Adicionalmente, una vez que recibamos sus respuestas, **le enviaremos una tarjeta de regalo de $15** como agradecimiento por el tiempo empleado en completar esta importante encuesta.

Usted pude escoger UNA de dos opciones para completar la encuesta.

Opción 1	Completar la encuesta en línea: **https://calhes.com** Utilice el **código de acceso** (access code) que se encuentra impreso arriba del domicilio de servicio en el cuaderno adjunto.
Opción 2	Complete y envíe de regreso el cuaderno adjunto.

Sus respuestas son confidenciales y los resultados de esta encuesta solo serán reportados de forma agregada. Su participación en esta encuesta es voluntaria.

Si necesita ayuda para completar la encuesta, por favor llámenos sin costo al 1 (888) 434-8008. También puede visitar nuestra página web para obtener más información y respuestas a las Preguntas Más Frecuentes: https://www.energy.ca.gov/appliances/rass/

De parte de nuestros patrocinadores, muchas gracias por participar en esta encuesta.

Sinceramente,

Aleecia Gutierrez
Assistant Deputy Director, Energy Assessments Division
California Energy Commission
1516 Ninth St.
Sacramento, CA 95814

POSTCARD

CA Home Energy Survey
c/o DNV GL
155 Grand Ave., Suite 600
Oakland, CA 94612

To complete the survey:
Go to: https://calhes.com

Your access code is:
<Access Code>

For service at:
<Service Address>

Questions?
For more information and answers to
Frequently Asked Questions, visit:
https://www.energy.ca.gov/appliances/rass/.

Preguntas?
Para obtener más información sobre
esta encuesta, visite:
https://www.energy.ca.gov/appliances/rass/.

<Customer Name>
<Mailing Street Address>
<City, State ZIP>

Dear California Energy Customer,

The California Energy Commission recently sent you a Priority Mail package that included the California Home Energy Survey booklet and $5 as a thank-you for your participation.

We depend on your input to better conduct planning activities that ensure energy resources and programs meet the needs of your community. If you have already responded, thank you. If you have not, please complete the survey and send it now, or complete the survey online by visiting **https://calhes.com** and entering your **access code** shown on the other side of this card.

Once we receive your response, **we'll mail you a $15 reward card** to thank you for participating. If you would like to complete the survey by telephone or need assistance, please call our toll-free number at 1-888-434-8008.

Thank you for your cooperation,

Aleecia Gutierrez
Assistant Deputy Director, Energy Assessments Division, CA Energy Commission
---
Esta encuesta esta disponible en el internet en Español. Por favor visite: **https://calhes.com**.
Introduzca el código de acceso impreso en el otro lado de esta tarjeta y comienza la encuesta.

APPENDIX I:
Non-Response Field Materials

This appendix contains materials used in the field visit effort:

- Field Researcher Badge
- Field Visit Leave-Behind Letter
- Reward Card Acknowledgement
- Letter of Appreciation

Figure 3: Materials for In-Person Field Visits
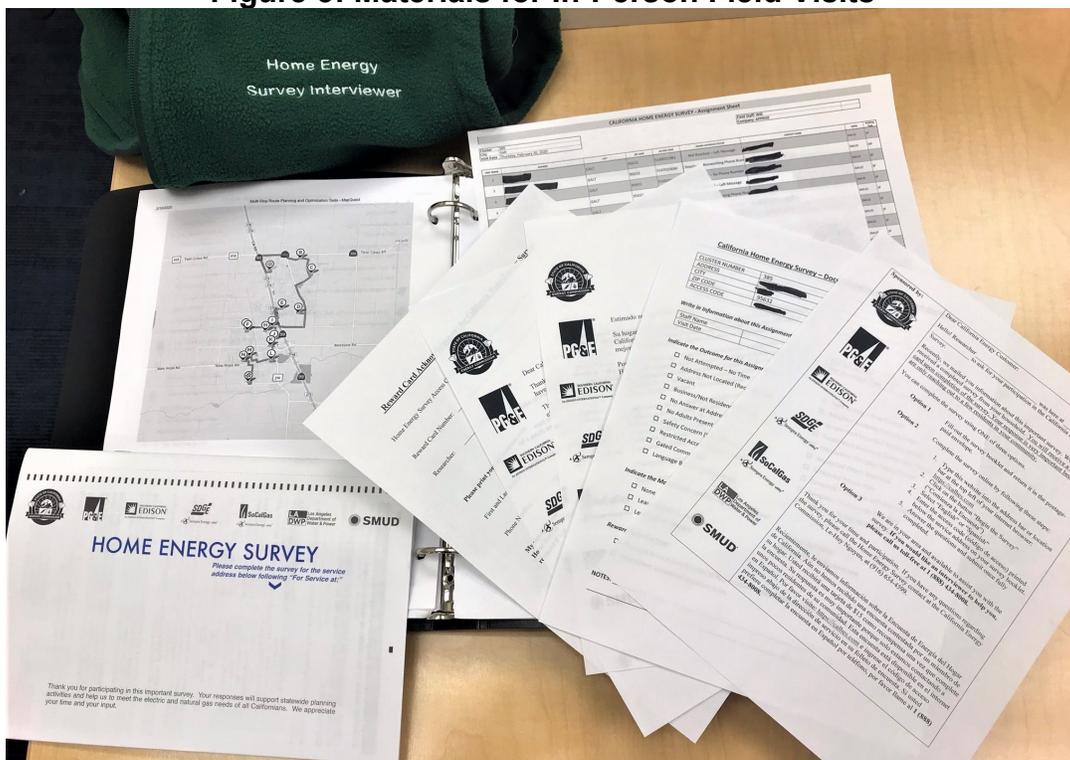
Figure 4: Bag with Survey Hanging on Door

Figure 5: Field Researcher Badge

	FIELD VISIT LEAVE-BEHIND LETTER
Sponsored by:	Dear California Energy Customer: Hello! Researcher _____ was here at _____:_____ on _____ to ask for your participation in the California Home Energy Survey. Recently, we mailed you information about this important survey. We have not received a completed survey from your household. <u>You will receive a $15 reward card upon completion of the survey. Your response is very important because we are only reaching out to a few residents in your community.</u> You can complete the survey using ONE of three options. **Option 1** — Fill-out the survey booklet and return it in the postage-paid envelope. **Option 2** — Complete the survey online by following these steps: 1. Type this website into the address bar or location bar at the top left of your internet browser: https://calhes.com 2. Click on the button "Begin the Survey" ("Comienza la Encuesta") 3. Select "English" or "Spanish" 4. Enter the access code (código de acceso) printed above the service address on your survey booklet. 5. Answer the questions and submit once fully completed. **Option 3** — We are in your area and available to assist you with the survey. **If you would like an interviewer to help you, please call us toll-free at 1 (888) 434-8008.** Thank you for your time and participation. If you have any questions regarding the survey, please call the Home Energy Survey contact at the California Energy Commission, Le-Huy Nguyen, at (916) 654-4599. Recientemente, le enviamos información sobre la Encuesta de Energía del Hogar de California. Aún no hemos recibido una encuesta contestada por un miembro de su hogar. Usted recibirá una tarjeta de $15 como recompensa una vez que complete la encuesta. Su respuesta es muy importante porque solo estamos contactando a unos pocos residentes de su comunidad. Esta encuesta está disponible en el internet en Español. Por favor visite: https://calhes.com e ingrese el código de acceso impreso arriba de la dirección de servicio en su folleto de encuesta. Si usted prefiere completar la encuesta en Español por teléfono, por favor llame al **1 (888) 434-8008.**

Reward Card Acknowledgement for California Home Energy Survey

Home Energy Survey Access Code: _____

Reward Card Number: _____

Researcher: _____

:

Please print your information here:

First and Last Name: _____

Phone Number: _____

My signature below indicates receipt of the $15 VISA reward card for completing the California Home Energy Survey. I acknowledge that the reward card is a cash equivalent that will not be replaced if lost, stolen, or damaged.

Mi firma abajo indica recibo de la tarjeta de recompensa VISA de $ 15 por completar la Encuesta de Energía del Hogar de California. Reconozco que la tarjeta de recompensa es un equivalente en efectivo que no se reemplazará en caso de pérdida, robo o daño. .

Signature: _____ Date: _____

Dear California Energy Customer:

Thank you for completing your Home Energy Survey. As a token of our appreciation, we have enclosed a $15 reward card.

The information that you provided will help to identify opportunities for increased energy efficiency and assist in planning for future energy needs in California.

We encourage you to contact your local utility about programs and incentives to help manage your energy use.

Please enjoy this reward card and thank you again.

Sincerely,

Aleecia Gutierrez
Assistant Deputy Director, Energy Assessments Division
California Energy Commission
1516 Ninth St.
Sacramento, CA 95814

Estimado cliente de California Energy:

Gracias por completar la Encuesta de Energía del Hogar. Como muestra de nuestro agradecimiento, hemos incluido una tarjeta con valor de $15.

La información que usted proveyó nos ayudará a identificar oportunidades para incrementar el uso eficiente de energía y a contribuirá en nuestra planeación frente a las necesidades futuras de energía en California.

Lo invitamos a contactar a su empresa de servicios públicos sobre programas e incentivos para ayudarle a manejar su consumo de energía.

Por favor disfrute esta tarjeta de $15 y reciba nuevamente nuestro agradecimiento.

Sinceramente,

Aleecia Gutierrez
Assistant Deputy Director, Energy Assessments Division
California Energy Commission
1516 Ninth St.
Sacramento, CA 95814
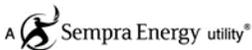
APPENDIX J:
Non-Response Field Protocols

Memo to:

Glen Sharp and Le-Huy Nguyen, CA Energy Commission

Final Data Collection Protocols for the Non-Response Follow-Up Effort

DNV GL and APPRISE developed data collection protocols to document each step in the data collection process for the study. The procedures ensure that all the activities are executed consistently and to plan. DNV GL and APPRISE leveraged the data collection strategy and protocols used for the 2009 RASS as appropriate.

DNV GL and APPRISE developed draft protocols for the following processes:
- Procedures for non-response follow-up
    - Telephone outreach
    - Field outreach
- Contact scripts for non-response follow-up
    - Telephone outreach scripts
    - In-person visit script
- Field visit protocols

The protocols for each of these processes are outlined in the subsequent sections.

1.1 Procedures for Non-Response Follow-up

The non-response follow-up will be managed by APPRISE and conducted by field interviewers from APPRISE and GC Green. A second paper survey packet will be sent to a sample of households who have not responded to previous recruitment efforts. The survey packet will be sent USPS Priority Mail. APPRISE will make phone calls to all households selected for the non-response follow-up to encourage participation. APPRISE and GC Green will conduct in-person visits to a subsample of the households in the non-response follow-up sample.

1.1.1 Telephone Outreach Procedures for Non-Response Sample Not Selected for In-person Visit

The following steps will take place when telephone calls are made to the selected urban in-person visit sample.
1. Verify that the call is reaching an adult at the sampled address
2. Ask if the survey has already been completed
    a. If yes, verify how the survey was completed
        i. By mail
        ii. Online
    b. If no, continue to Step 3

3. Ask if respondent remembers receiving the Priority Mail package
    a. If yes

  i. Ask if respondent plans to complete the survey soon or would like to hear other options to complete the survey
   1. If yes, record method:
    a. By mail
    b. Online
   2. If interested in other options
    a. Offer option to complete the survey over the phone
     i. Survey can be completed immediately over the phone
     ii. Survey can be completed over the phone at a later, scheduled time/date
    b. Offer option to complete the survey online
     i. Survey link can be emailed to respondent
     ii. Survey web address/tracking number can be recorded by respondent
    c. Offer to send field interviewer for home visit
     i. Interviewers can walk through survey with respondents at their computer
     ii. Interviewers can walk through survey with respondents using a paper copy

b. If no
 i. Offer option to complete the survey over the phone
  1. Survey can be completed immediately over the phone
  2. Survey can be completed over the phone at a later, scheduled time/date
 ii. Offer option to complete the survey online
  1. Survey link can be emailed to respondent
  2. Survey web address/tracking number can be recorded by respondent
 iii. Offer to send field interviewer for home visit
  1. Interviewers can walk through survey with respondents at their computer
  2. Interviewers can walk through survey with respondents using a paper copy
  3. Interviewers can drop off the paper survey with a post-paid envelope to mail in the completed survey.

1.1.2 Telephone Outreach Procedures for Selected Non-Response In-Person Visit Sample

The following steps will take place when telephone calls are made to the selected urban in-person visit sample.

1. Verify that the call is reaching an adult at the sampled address

2. Ask if the survey has already been completed
  a. If yes, verify how the survey was completed
   i. By mail
   ii. Online
  b. If no, continue to Step 3

3. Ask if respondent remembers receiving the Priority Mail package
  a. If yes
   i. Ask if respondent plans to complete the survey soon or would like to hear other options to complete the survey
    1. If yes, record method:
     a. By mail

b. Online
            2. If interested in other options
                    a. Offer option to complete the survey over the phone
                            i. Survey can be completed immediately over the phone
                            ii. Survey can be completed over the phone at a later,
                                 scheduled time/date
                    b. Offer option to complete the survey online
                            i. Survey link can be emailed to respondent
                            ii. Survey web address/tracking number can be recorded by
                                 respondent
                    c. Offer to send field interviewer for home visit
                            i. Interviewers can walk through survey with respondents at
                                their computer
                            ii. Interviewers can walk through survey with respondents
                                 using a paper copy
    b. If no
            i. Offer option to complete the survey over the phone
                    1. Survey can be completed immediately over the phone
                    2. Survey can be completed over the phone at a later, scheduled time/date
            ii. Offer option to complete the survey online
                    1. Survey link can be emailed to respondent
                    2. Survey web address/tracking number can be recorded by respondent
            iii. Offer to send field interviewer for home visit
                    1. Interviewers can walk through survey with respondents at their computer
                    2. Interviewers can walk through survey with respondents using a paper
                        copy
                    3. Interviewers can drop off the paper survey with a post-paid envelope to
                        mail in the completed survey.

1.1.3   Field Visit Procedures for Selected Non-Response In-Person Visit Sample

For the Urban Sample, in-person field visits will be conducted. These visits consist of the following
steps to increase participation in the survey:

1. Interviewers verify that they are speaking to an adult living at the sampled address

2. Ask if respondent remembers receiving the Priority Mail package

3. Present the respondent with options to participate:

    a. Offer option to complete the survey immediately
            i. Interviewers can walk through survey with respondents using a paper copy or at
                their computer
            ii.   [If Schedule Allows] Interviewers can leave paper copy with respondents and
                 pick it up later that day

    b. Offer options to complete the survey at another time
            i. Survey can be completed online using your access code.
            ii. Survey can be completed using the paper booklet and mailed in.
            iii. Survey can be completed over the phone.
                    1. Survey can be completed online using instructions found in the leave-
                        behind letter.
                    2. Survey can be completed using the paper copy and mailed in

1.2 Contact Scripts for Non-Response Follow-up

The contact scripts for telephone outreach and in-person field visits are presented in this section.

1.2.1 Telephone Outreach Script for Non-Response Sample Not Selected for In-person Visit

<u>VERIFICATION</u>

Hello, my name is _____ and I'm calling from APPRISE on behalf of the California Energy Commission regarding the California Home Energy Survey. I'm trying to reach <name of contact>, is this s/he?

IF YES: Are you still located at <sampled address>?
     If yes: Great. <continue to Introduction below>
     If no: Ok, thank you for your time.

If no: Am I speaking with an adult who lives at <sampled address>?
     If yes: Great. <continue to Introduction below>
     If no: Ok, thank you for your time.

<u>INTRODUCTION</u>

I'm calling to encourage you to complete the California Home Energy Survey that was mailed to your address <Insert reference … e.g., last week>. The survey came in a flat white Priority Mail envelope addressed to <Insert Name> and included a $5 reward card as a thank-you for participating.

Have you been able to mail the completed survey back or complete the survey online yet?

If yes: Thank you very much for your participation. I'll make sure that we are looking for your response so that you get the $15 thank-you reward card. Did you mail the survey back or did you complete it online?

     RECORD RESPONSE: 1 = By Mail   2 = On the Internet

     Thank you for your assistance. Have a great day/night.

If no: We'd really appreciate your participation in this survey. Do you remember getting that package in the mail?

If NO (DOES NOT REMEMBER PACKAGE):

I'm sorry that you did not receive that package. This is an important study being conducted for the California Energy Commission to help with planning for our long-term energy needs in California. The Commission has authorized us to give you a $15 reward card as a thank-you for completing the survey. Here are some ways that you could complete the survey.

- One option is to complete the survey with me right now on the telephone. The survey will take about 40 minutes to complete. Would that be good for you? [If YES, START SURVEY]
  - If now is not a good time, I can give you a call back later today or at a date/time that is more convenient for you. Would this work best for you? [GO TO PHONE SCHEDULE MODULE]

- Another option is to complete the survey online. This tends to be the quickest option. It is available in English and Spanish. If you have an email address, I can send you a link to the survey. Or, if you have something to write on, I can give you the web address and your Access Code, which you'll need to enter into the survey online. [IF RESPONDENT EXPRESSES CONCERN ABOUT PRIVACY, SAY … "Our systems are verified for being secure and that it will protect your privacy as required by our contract with the Commission."] [If YES, GO TO THE ONLINE MODULE]

NOTE: IF AT ANY TIME, THE RESPONDENT SAYS … "SORRY I AM JUST NOT INTERESTED" … OR SOMETHING ELSE TO THAT EFFECT… THANK HIM/HER FOR HIS/HER TIME AND SAY GOODBYE.

If YES (DOES REMEMBER PACKAGE):

I want to remind you that the letter in the package promised you a $15 reward card when you completed the survey. Are you planning to complete the survey soon? Or would you like me tell you about some ways to complete the survey that might be convenient for you?

If PLAN TO COMPLETE: That's great. Please tell me whether you plan to complete the paper survey and send it by mail or complete the survey over the Internet. That way we can be looking for it and make sure you get the $15 thank you reward card.

RECORD RESPONSE: 1 = By Mail   2 = On the Internet

Thank you for your assistance.

If WANT TO HEAR OPTIONS:

- One option is to complete the survey with me right now on the telephone. The survey will take about 40 minutes to complete. Would that be good for you? [If YES, START SURVEY]

    o If now is not a good time, I can give you a call back later today or at a date/time that is more convenient for you. Would this work best for you? [GO TO PHONE SCHEDULE MODULE]

- Another option is to complete the survey online. This tends to be the quickest option. It is available in English and Spanish. If you have an email address, I can send you a link to the survey. Or, if you have something to write on, I can give you the web address and your Access Code, which you'll need to enter into the survey online. [IF RESPONDENT EXPRESSES CONCERN ABOUT PRIVACY, SAY … "Our systems are verified for being secure and that it will protect your privacy as required by our contract with the Commission."] [If YES, GO TO THE ONLINE MODULE]

NOTE: IF AT ANY TIME, THE RESPONDENT SAYS … "SORRY I AM JUST NOT INTERESTED" … OR SOMETHING ELSE TO THAT EFFEECT… THANK HIM/HER FOR HIS/HER TIME AND SAY GOODBYE.

PHONE SCHEDULE MODULE

Thank you for agreeing to complete the survey. Would you prefer that I give you a call back later today or a different day?

- If TODAY … [INTERVIEWER WILL BE PRESENTED WITH OPTIONS TO OFFER THE RESPONDENT.]

- If DIFFERENT DAY … What days typically work best for you? [RECORD DAYS]. Would you prefer that I call back in the morning or afternoon? [RECORD ANSWER] [BASED ON THESE

RESPONSES, THE INTERVIEWER WILL BE PRESENTED WITH OPTIONS TO OFFER THE RESPONDENT.]

Thank you for your time. Just to verify, I'll give you a call back at this number at <Insert Time> on <Insert Day> <Insert Date>.

My name is _____ and my phone number is _____. You can call me if you need to change your appointment. Thank you and have a great day/night.

ONLINE MODULE

Would you prefer that I send you an email with the link for the survey, or would you like to write down the web address and your Access Code?

- If EMAIL …

  - First, I would like to verify that I have the correct address for you so that we can send you the thank-you reward card. <Insert Name, Phone Number, and Address. Update if needed.>

    - Name: _____
    - Phone Number: _____
    - Address: _____
    - City: _____
    - ZIP: _____

  - Now, please give me the email address to which you want the invitation sent. RECORD EMAIL. GO TO "THANKS."

- If WEB ADDRESS …

  - First, I would like to verify that I have the correct address for you so that we can send you the thank-you reward card. <Insert Name, Phone Number, and Address. Update if needed.>
    - Name: _____
    - Phone Number: _____
    - Address: _____
    - City: _____
    - ZIP: _____

  - Now, please get something to write on and I will give you the web address and your Access Code. RECORD "GAVE EMAIL ADDRESS AND ACCESS CODE." GO TO "THANKS."

ONLINE THANKS

My name is _____ and my phone number is _____. You can call me if you have any problem completing the survey or getting the thank you reward card.

Do you have any other questions for me? Thanks for your time. Have a good day/night.

ANSWERING MACHINE SCRIPT

Hello, my name is _____ and I'm calling from APPRISE on behalf of the California Energy Commission to encourage you to complete the California Home Energy survey that we sent to you

by Priority Mail <Insert reference … e.g., last week>. Your response is very important because we are only reaching out to a few residents in your community. Once we receive your completed survey, we will send you a $15 reward card as a thank-you. If you want to hear about other options for completing the survey, please call me <Insert Name> at XXX-YYY-ZZZZ.

1.2.2 Telephone Outreach Script for Selected Non-Response In-Person Visit Sample

<u>VERIFICATION</u>

Hello, my name is _____ and I'm calling from APPRISE on behalf of the California Energy Commission regarding the California Home Energy Survey. I'm trying to reach <name of contact on bill>, is this s/he?

If yes: Are you still located at <sampled address>?

     If yes: Great. <continue to Introduction below>

     If no: Ok, thank you for your time.

If no: Am I speaking to an adult who lives at <sampled address>?

     If yes: Great. <continue to Introduction below>

     If no: Ok, thank you for your time.

<u>INTRODUCTION</u>

I'm calling to encourage you to complete the California Home Energy Survey that was mailed to your address <Insert reference … e.g., last week>. The survey came in a flat white Priority Mail envelope addressed to <Insert Name> and included a $5 reward card as a thank-you for participating.

Have you been able to mail the completed survey back or complete the survey online yet?

If yes: Thank you very much for your participation. I'll make sure that we are looking for your response so that you get the $15 thank-you reward card. Did you mail the survey back or did you complete it online?

     RECORD RESPONSE: 1 = By Mail   2 = On the Internet

     Thank you for your assistance. Have a great day/night.

If no: We'd really appreciate your participation in this survey. Do you remember getting that package in the mail?

<u>If NO (DOES NOT REMEMBER PACKAGE)</u>:

I'm sorry that you did not receive that package. This is an important study being conducted for the California Energy Commission to help with planning for our long-term energy needs in California. The Commission has authorized us to give you a $15 reward card as a thank-you for completing the survey. Here are some ways that you could complete the survey.

- One option is to complete the survey with me right now on the telephone. The survey will take about 40 minutes to complete. Would that be good for you? [If YES, START SURVEY]

- If now is not a good time, I can give you a call back later today or at a date/time that is more convenient for you. Would this work best for you? [GO TO PHONE SCHEDULE MODULE]

- Another option is to complete the survey online. This tends to be the quickest option. It is available in English and Spanish. If you have an email address, I can send you a link to the survey. Or, if you have something to write on, I can give you the web address and your Access Code, which you'll need to enter into the survey online. [IF RESPONDENT EXPRESSES CONCERN ABOUT PRIVACY, SAY ... "Our systems are verified for being secure and that it will protect your privacy as required by our contract with the Commission."] [If YES, GO TO THE ONLINE MODULE]

- Another option would be for me to send one of our field interviewers to your home when they will be in your neighborhood. The interviewer could drop off the paper survey with an envelope for you to mail it back, or the interviewer could help you complete the survey either online at your computer or by walking through a paper copy. Does that sound like it would work best for you? [If YES, GO TO VISIT MODULE] [If asked, the visit would be about 30 minutes.]

NOTE: IF AT ANY TIME, THE RESPONDENT SAYS ... "SORRY I AM JUST NOT INTERESTED" ... OR SOMETHING ELSE TO THAT EFFECT... THANK HIM/HER FOR HIS/HER TIME AND SAY GOODBYE.

If YES (DOES REMEMBER PACKAGE):

I want to remind you that the letter in the package promised you a $15 reward card when you completed the survey. Are you planning to complete the survey soon? Or would you like me tell you about some ways to complete the survey that might be convenient for you?

If PLAN TO COMPLETE: That's great. Please tell me whether you plan to complete the paper survey and send it by mail or complete the survey over the Internet. That way we can be looking for it and make sure you get the $15 thank you reward card.

RECORD RESPONSE: 1 = By Mail   2 = On the Internet

Thank you for your assistance.

If WANT TO HEAR OPTIONS:

- One option is to complete the survey with me right now on the telephone. The survey will take about 40 minutes to complete. Would that be good for you? [If YES, START SURVEY]

  - If now is not a good time, I can give you a call back later today or at a date/time that is more convenient for you. Would this work best for you? [GO TO PHONE SCHEDULE MODULE]

- Another option is to complete the survey online. This tends to be the quickest option. It is available in English and Spanish. If you have an email address, I can send you a link to the survey. Or, if you have something to write on, I can give you the web address and your Access Code, which you'll need to enter into the survey online. [IF RESPONDENT EXPRESSES CONCERN ABOUT PRIVACY, SAY ... "Our systems are verified for being secure and that it will protect your privacy as required by our contract with the Commission."] [If YES, GO TO THE ONLINE MODULE]

- Another option would be for me to send one of our field interviewers to your home when they will be in your neighborhood. The interviewer could help you complete the survey either online at your computer or by walking through a paper copy. Does that sound like it would work best for you?

NOTE: IF AT ANY TIME, THE RESPONDENT SAYS … "SORRY I AM JUST NOT INTERESTED" … OR SOMETHING ELSE TO THAT EFFEECT… THANK HIM/HER FOR HIS/HER TIME AND SAY GOODBYE.

PHONE SCHEDULE MODULE

Thank you for agreeing to complete the survey. Would you prefer that I give you a call back later today or a different day?

- If TODAY … [INTERVIEWER WILL BE PRESENTED WITH OPTIONS TO OFFER THE RESPONDENT.]

- If DIFFERENT DAY … What days typically work best for you? [RECORD DAYS]. Would you prefer that I call back in the morning or afternoon? [RECORD ANSWER] [BASED ON THESE RESPONSES, THE INTERVIEWER WILL BE PRESENTED WITH OPTIONS TO OFFER THE RESPONDENT.]

Thank you for your time. Just to verify, I'll give you a call back at this number at <Insert Time> on <Insert Day> <Insert Date>.

My name is _____ and my phone number is _____. You can call me if you need to change your appointment. Thank you and have a great day/night.

VISIT MODULE

Thank you for agreeing to complete the survey. We expect to have an interviewer in your area [DATE] and will have them stop at your home.

Can I please verify your contact information? <Insert Name, Phone Number, and Address. Update if needed.>

      Name: _____
      Phone Number: _____
      Address: _____
      City: _____
      ZIP: _____

My name is _____ and my phone number is _____. You can call me if you would like to complete the survey sooner over the phone.

Do you have any other questions for me? Thanks for your time. We look forward to meeting you shortly. Have a good day/night.

ONLINE MODULE

Would you prefer that I send you an email with the link for the survey, or would you like to write down the web address and your Access Code?

- If EMAIL …

  - First, I would like to verify that I have the correct address for you so that we can send you the thank-you reward card. <Insert Name, Phone Number, and Address. Update if needed.>
    - Name: _____

- - Phone Number: _____
  - Address: _____
  - City: _____
  - ZIP: _____

  - o Now, please give me the email address to which you want the invitation sent. RECORD EMAIL. GO TO "THANKS."

- If WEB ADDRESS …

  - o First, I would like to verify that I have the correct address for you so that we can send you the thank-you reward card. <Insert Name, Phone Number, and Address. Update if needed.>
    - Name: _____
    - Phone Number: _____
    - Address: _____
    - City: _____
    - ZIP: _____

  - o Now, please get something to write on and I will give you the web address and your Access Code. RECORD "GAVE EMAIL ADDRESS AND ACCESS CODE." GO TO "THANKS."

ONLINE THANKS

My name is _____ and my phone number is _____. You can call me if you have any problem completing the survey or getting the thank you reward card.

Do you have any other questions for me? Thanks for your time. Have a good day/night.

ANSWERING MACHINE SCRIPT

Hello, my name is _____ and I'm calling from APPRISE on behalf of the California Energy Commission to encourage you to complete the California Home Energy survey that we sent to you by Priority Mail <Insert reference … e.g., last week>. Your response is very important because we are only reaching out to a few residents in your community. Once we receive your completed survey, we will send you a $15 reward card as a thank-you. If you want to hear about other options for completing the survey, please call me <Insert Name> at XXX-YYY-ZZZZ.

1.2.3   Non-Response In-person Visit Script

MAIN SCRIPT

Hello, my name is _____ and I'm here from <Company Name> on behalf of the California Energy Commission to encourage you to complete the California Home Energy Survey that was sent to you in the mail in the middle of January. The survey came in a flat white Priority Mail envelope, was addressed to <Insert Name>, and included a $5 bill to thank you for participation.

Do you remember getting that package in the mail?

If NO (DOES NOT REMEMBER PACKAGE): I'm sorry that you don't recall receiving that package. This is an important study being conducted for the California Energy Commission to help with planning for our long-term energy needs in California. The Commission has authorized us to give you a $15 reward card if you are willing to complete the survey today.

If YES (DOES REMEMBER PACKAGE): Our records show that we have not yet received your survey, so we have not been able to send out your $15 reward card. I can give you the $15 reward card if you are willing to complete the survey today.

To complete the survey, the quickest way is for us to sit together and I can record your responses. It will take about 30 minutes to complete. Can we sit down and start that now? Remember that as soon as we are done, I can give you the $15 reward card. **[If YES, START SURVEY]**

If you would rather, I can give you this paper copy of the survey that you can complete. If you can start on that right now, I could sit here with you to answer questions. **[IF SCHEDULE ALLOWS]** I could also leave and come back later today to pick up the survey. The survey should only take you about 30 minutes, but I know you might get interrupted while completing it. Would that be better? **[If YES, HAND THE SURVEY AND A PEN/PENCIL. PROVIDE ESTIMATED PICK UP TIME AND RETURN TO PICK UP.]**

If you don't have time now, I have some other options for you to complete the survey soon.

- A: First, the survey can be completed online. This tends to be the quickest option, and the survey is available online in both English and Spanish.

- B: You can also fill-out a paper survey booklet and then mail it back to us in a pre-posted envelope.

- C: Finally, you can also take the survey over the telephone.

- Which of these choices work best for you?

  - **IF A, HAND MATERIALS. SAY…** "It is really important that we get this information soon, so please follow the instructions in this letter to access the survey and complete it online. You will need to enter your Access Code printed on the survey booklet to start the survey. Please call us at the phone number shown in the letter if you need any help completing the survey. POINT OUT THE ACCESS CODE TO THE RESPONDENT. GO TO THANK YOU.

  - **If B, HAND MATERIALS. SAY…** "It is really important that we get this information soon. Here is the paper survey to complete, the envelope to mail it back in, and a letter with the phone number you can call if you want help completing the survey or you decide you want to take it online. POINT OUT PHONE NUMBER. GO TO THANK YOU.

  - **If C, HAND MATERIALS. SAY**… "It is really important that we get this information soon. Please call this phone number as soon as you are ready to take the survey over the phone. GO TO THANK YOU.

NOTE: IF AT ANY TIME THE RESPONDENT SAYS … "SORRY I AM JUST NOT INTERESTED" … THANK HIM/HER FOR HIS/HER TIME AND SAY GOODBYE. IF AT ANY TIME THE RESPONDENT INDICATES THEY COMPLETED THE SURVEY, CONFIRM IF THEY MAILED IT OR COMPLETED ONLINE AND RECORD THIS.

SURVEY COMPLETION THANKS

Here is the reward card. **[HAND CORRECT CARD TO RESPONDENT.]** To verify that you received the reward card, I need you to please fill out and sign this form [PROVIDE REWARD CARD SIGNATURE FORM].

Thank you for your time and participation! Have a good day/night.

OPTION A/B/C THANKS

Thank you for your time and agreeing to complete the survey. Have a good day/night.

1.3   Field Visit Protocols for Non-Response Follow-up

The field visit protocols are outlined in this section.

All field staff will be provided with cluster assignments, completing all of the addresses in a cluster one cluster at a time to maximize efficiency. Field staff will be provided with 2-in-1 organizers to protect, divide, and manage the field visit materials. The organizers will include the following:

1. Binder – The binder will store cluster assignment information. This includes an assignment sheet with the cluster addresses, a perspective map that shows where the cluster is regionally, a detailed route map with directions based on the optimized path to visit addresses, recording sheets to document the outcome of each attempted visit, and copies of the field visit contact protocols and script.

2. File Folder – The file folder includes seven compartments to store and organize the field visit materials.

All field interviews will follow the following protocols:

1. Review Cluster Assignment and Prepare Materials – All interview staff with review materials for a cluster area they are assigned. Staff will confirm their assignment, locate the materials, review the materials, and update their organizer to include the cluster materials.

2. Conduct Field Visits

    a. Navigate to Targeted Address – Staff with navigate to the cluster addresses using the assignment sheet and maps provided by APPRISE.

    b. Confirm materials for targeted address – Staff will confirm the materials they need for the addresses they are visiting. For example, staff walking in dense areas will need to carry materials in their organizer.

    c. Assess Safety and Access – Staff with access safety at the location and whether the home is accessible to approach the door or main entrance. Any staff who believe there is a safety concern or risk will skip that address and document the concern.

    d. Attempt Contact – Staff with attempt contact at each located address where there is access to a building or main entrance.

    e. Provide Information / Leave Materials – Staff will leave materials via doorhanger bags if no one is home or available. If staff speak to an adult resident, they will present information about the survey and how to participate.   Staff will adhere the barcode label to the survey packet if leaving it with a resident or in a doorhanger bag.

f. Document Results on Recording Sheets – Staff will record the outcome for each address in the cluster.

3. Report Results to APPRISE – Staff will contact APPRISE by telephone to report cluster results from the prior day so that these results can be recorded in a database.

4. Return / Destroy Documents with Confidential Information – All documents with confidential or personal information, such as addresses, names, or phone numbers, must be shredded once the cluster is complete and the results have been reported to APPRISE. Other materials that are not used and have the CEC or utility logos must be shredded at the conclusion of the survey fielding period. APPRISE and GC Green staff will return all unused materials requested by DNV-GL, such as survey booklets and business reply envelopes.

APPENDIX K:
2019 Raw Survey Variables in Database

Table 4: Raw Survey Contents

NAME	VARNUM	LABEL
SURV_TYPE	1	
SUBMITDATE	2	
LANG_PREF	3	
IOU	4	
WAVE	5	
STRATAID	6	
ADD_YN	7	
DWLTYPE	8	
DWLOTH	9	
STORIES	10	
OWNRENT	11	
YRS_RES	12	
SEASOCC	13	
SEASJAN	14	
SEASFEB	15	
SEASMAR	16	
SEASAPR	17	
SEASMAY	18	
SEASJUN	19	
SEASJUL	20	
SEASAUG	21	
SEASSEP	22	
SEASOCT	23	
SEASNOV	24	
SEASDEC	25	
BUILTYR	26	
NUMROOM	27	
SQFT	28	
EXTWLINS	29	
ACEILINS	30	
CEILINCH	31	
WINDTYPE	32	
WINFRAME	33	
REMOD	34	
RMDROOM	35	
RMDKTBTH	36	

Raw Survey Contents		
NAME	**VARNUM**	**LABEL**
RMDREBLT	37	
RMDOTHR	38	
NR0_5	39	
NR6_18	40	
NR19_34	41	
NR35_54	42	
NR55_64	43	
NR65_99	44	
ONPKUSE	45	
NGSERV	46	
NGLINE	47	
NGUTIL	48	
EVYN	49	
EVMDMF	50	
EVMDSS	51	
EVTMCHH	52	
EVTMCHW	53	
EVTMCHO	54	
EVCHTYPE	55	
EVCHH6_9	56	
EVCHH9_5	57	
EVCHH5_9	58	
EVCHH9_6	59	
PAYHEAT	60	
PHTOTXT	61	
HTSYSAGE	62	
AHTNGCNT	63	
AHTNGFWL	64	
AHTNGRAD	65	
AHTNGFP	66	
AHTNGOTH	67	
AHTELBSB	68	
AHTELCRH	69	
AHTELCHP	70	
AHTELWHP	71	
AHTELPOR	72	
AHTELOTH	73	
AHTBGCNT	74	
AHTBGFWL	75	
AHTBGRAD	76	
AHTBGOTH	77	
AHTWDWS	78	

Raw Survey Contents		
NAME	**VARNUM**	**LABEL**
AHTWDFP	79	
AHTSLRN	80	
AHTSLRG	81	
AHTSLRP	82	
AHTSLRE	83	
AHTOTSYS	84	
HTCTLTYP	85	
HMRNSET	86	
HDAYSET	87	
HEVNSET	88	
HNITESET	89	
HTMAINTN	90	
NPORHTRS	91	
USEADDHT	92	
PAYCOOL	93	
CTEVZON	94	
CTLACZON	95	
HPZON	96	
MSDZON	97	
CLCNTAGE	98	
CLCTLTYP	99	
CMRNSET	100	
CDAYSET	101	
CEVNSET	102	
CNITESET	103	
CLMAINTN	104	
NOROOMAC	105	
CMRNUSE	106	
CDAYUSE	107	
CEVNUSE	108	
CNITEUSE	109	
CHOTUSE	110	
PAYWH	111	
PWHOTXT	112	
AWHNGTNK	113	
AWHNGWHT	114	
AWHNGHEC	115	
AWHELTNK	116	
AWHELHP	117	
AWHELWHT	118	
AWHELPNT	119	
AWHLPTNK	120	

Raw Survey Contents		
NAME	**VARNUM**	**LABEL**
AWHLPWHT	121	
AWHSLRN	122	
AWHSLRG	123	
AWHSLRP	124	
AWHSLRE	125	
AWHOTSYS	126	
AWHOTTXT	127	
WHTEMP	128	
PRWHAGE	129	
SHWRDAY	130	
BATHSDAY	131	
SHOWERHD	132	
AERATORS	133	
LNDRYEQP	134	
CWTYP	135	
CWAGE	136	
CWHWLD	137	
CWWWLD	138	
CWCWLD	139	
CDTYP	140	
CDAGE	141	
DRYLDSH	142	
DRYLDSM	143	
DRYLDSL	144	
WRNUSE	145	
WOVUSE	146	
WMWUSE	147	
WOTHUSE	148	
DISHWASH	149	
DWAGE	150	
DWLOADS	151	
RFNUM	152	
FZNUM	153	
SPTYP	154	
SPHTF	155	
SPSZ	156	
SPLOC	157	
SPCOV	158	
PLTYP	159	
PLSZ	160	
PLHTF	161	
PLHTFTXT	162	

NAME	VARNUM	LABEL
		Raw Survey Contents
PMPTYP	163	
PLCOV	164	
PLTIMR	165	
PLSWEEP	166	
PLVAC	167	
PLINDOOR	168	
SMLLEDTV	169	
MEDLEDTV	170	
LRGLEDTV	171	
SMLLCDTV	172	
MEDLCDTV	173	
BIGLCDTV	174	
PLSMTV	175	
STDTV	176	
DLPTV	177	
DVRBOX	178	
MOVPLA	179	
GAMSYS	180	
STREAM	181	
HTSYS	182	
SNDBAR	183	
AUDTOTV	184	
SAMUSIC	185	
SMLTVUSE	186	
MEDTVUSE	187	
BIGTVUSE	188	
NDSKPCS	189	
NLAPPCS	190	
DSKPCHRS	191	
LAPPCHRS	192	
WORKHOME	193	
WKHRSHM	194	
PRNTSCAN	195	
TABLET	196	
HUBS	197	
SMRTDEV	198	
SMACELL	199	
OTHCELL	200	
HSMODINT	201	
HMNET	202	
UNPWRSUP	203	
INCPORT	204	

Raw Survey Contents		
NAME	VARNUM	LABEL
CFLPORT	205	
LEDPORT	206	
LMRNUSEN	207	
LDAYUSEN	208	
LEVNUSEN	209	
LNITEUSEN	210	
ICTLTIMR	211	
ICTLOCCS	212	
ICTLDIM	213	
ICTLCONN	214	
ICTLNITE	215	
EXINC	216	
EXCFL	217	
EXLED	218	
EXLOWV	219	
EXHID	220	
ECTLTIMR	221	
ECTLDSK	222	
ECTLMOTN	223	
CHRGRS	224	
RECHVAC	225	
SMACOOK	226	
FNPORT	227	
FNCEIL	228	
WNDATV	229	
FNATTIC	230	
FNWHOLE	231	
AIRCLEAN	232	
PORTPUR	233	
HUMDEH	234	
WINCLR	235	
WHPURIFY	236	
DHWRPMP	237	
SAUNA	238	
POND	239	
FIREPIT	240	
WLWTRPMP	241	
WTRSRCES	242	
WLWTUSE	243	
SUMPPMP	244	
SHOPTLS	245	
WELD	246	

Raw Survey Contents		
NAME	**VARNUM**	**LABEL**
AIRCOMP	247	
BATCHRGE	248	
KILNYN	249	
MEDICALYN	250	
KILN	251	
MEDICAL	252	
CHRGELSC	253	
OLRGAPP	254	
OLRGTXT	255	
CHADD	256	
CCADD	257	
WWADD	258	
EVCLADD	259	
WHADD	260	
RFADD	261	
FRZADD	262	
STADD	263	
OVADD	264	
MWADD	265	
DWADD	266	
CWADD	267	
CDADD	268	
PHADD	269	
PPADD	270	
TBADD	271	
NOADD	272	
CHFUEL	273	
WHFUEL	274	
STFUEL	275	
OVFUEL	276	
CDFUEL	277	
PHFUEL	278	
TBFUEL	279	
DISCCH	280	
DISCCC	281	
DISCWW	282	
DISCEC	283	
DISCWH	284	
DISCRF	285	
DISCFRZ	286	
DISCST	287	
DISCOV	288	

Raw Survey Contents		
NAME	**VARNUM**	**LABEL**
DISCMW	289	
DISCDW	290	
DISCCW	291	
DISCCD	292	
DISCPH	293	
DISCPP	294	
DISCTB	295	
NODISCRD	296	
DCHFL	297	
DWHFL	298	
DSTFL	299	
DOVFL	300	
DCDFL	301	
DPHFL	302	
DTBFL	303	
NORENEW	304	
PVRENEW	305	
SORENEW	306	
BTRENEW	307	
WGRENEW	308	
FCRENEW	309	
NOPLAN	310	
PVPLAN	311	
SOWHPLAN	312	
SOPHPLAN	313	
BTPLAN	314	
WGPLAN	315	
FCPLAN	316	
OTHPLAN	317	
OPLTXT	318	
PTHME	319	
EDUC	320	
ETHNIC	321	
ETHOTH	322	
DISABLED	323	
HOHIND1	324	
HOHASN1	325	
HOHBLK1	326	
HOHLAT1	327	
HOHWHT1	328	
HOHOTH1	329	
HOHOTXT1	330	

Raw Survey Contents		
NAME	**VARNUM**	**LABEL**
HOHIND2	331	
HOHASN2	332	
HOHBLK2	333	
HOHLAT2	334	
HOHWHT2	335	
HOHOTH2	336	
HOHOTXT2	337	
INCOME19	338	
PHTNGCNT	339	
PHTNGFWL	340	
PHTNGRAD	341	
PHTNGFP	342	
PHTNGOTH	343	
PHTELBSB	344	
PHTELCRH	345	
PHTELCHP	346	
PHTELWHP	347	
PHTELPOR	348	
PHTELOTH	349	
PHTBGCNT	350	
PHTBGFWL	351	
PHTBGRAD	352	
PHTBGOTH	353	
PHTWDWS	354	
PHTWDFP	355	
PHTSLRN	356	
PHTSLRG	357	
PHTSLRP	358	
PHTSLRE	359	
PHTOTSYS	360	
MAINPILT	361	
SECPILT	362	
CTLACAGE	363	
CTEVPAGE	364	
HPAGE	365	
MSDNUM	366	
ACTYP1	367	
ACTYP2	368	
ACTYP3	369	
ACAGE1	370	
ACAGE2	371	
ACAGE3	372	

Raw Survey Contents		
NAME	VARNUM	LABEL
PWHNGTNK	373	
PWHNGWHT	374	
PWHNGHEC	375	
PWHELTNK	376	
PWHELHP	377	
PWHELWHT	378	
PWHELPNT	379	
PWHLPTNK	380	
PWHLPWHT	381	
PWHSLRN	382	
PWHSLRG	383	
PWHSLRP	384	
PWHSLRE	385	
PWHOTSYS	386	
CKRNTYP	387	
CKRNA	388	
CKOVTYP	389	
CKOVA	390	
CKOOVTYP	391	
CKOOVA	392	
CKBBTYP	393	
CKBBQA	394	
CKMW	395	
CKMWA	396	
RF1STY	397	
RF1SZ	398	
RF1AGE	399	
RF1OTH	400	
RF2STY	401	
RF2SZ	402	
RF2AGE	403	
RF2OTH	404	
RF3STY	405	
RF3SZ	406	
RF3AGE	407	
RF3OTH	408	
FZ1STY	409	
FZ1SZ	410	
FZ1AGE	411	
FZ2STY	412	
FZ2SZ	413	
FZ2AGE	414	

Raw Survey Contents		
NAME	VARNUM	LABEL
SPMPSM	415	
SPMPSD	416	
SPMPSN	417	
SPMPWM	418	
SPMPWD	419	
SPMPWN	420	
SHTSM	421	
SHTSD	422	
SHTSN	423	
SHTWM	424	
SHTWD	425	
SHTWN	426	
SPFMRN	427	
SPFDAY	428	
SPFNITE	429	
WPFMRN	430	
WPFDAY	431	
WPFNITE	432	
SMRNHTPL	433	
SMDHTPL	434	
SNITHTPL	435	
WMRNHTPL	436	
WMDHTPL	437	
WNITHTPL	438	
EWHLS2	439	
EWHLS3	440	
EWHLS1	441	
DCHAGE	442	
DCCAGE	443	
DWWAGE	444	
DEVCLAGE	445	
DWHAGE	446	
DRFAGE	447	
DFZAGE	448	
DSTAGE	449	
DOVAGE	450	
DMWAGE	451	
DDWAGE	452	
DCWAGE	453	
DCDAGE	454	
DPHAGE	455	
DPPAGE	456	

Raw Survey Contents		
NAME	**VARNUM**	**LABEL**
DTBAGE	457	
PTHMELOC	458	
PTHMEUTL	459	
PTHMGUTL	460	
NUMBEV	461	
NUMHEV	462	
ETHNIC_1	463	
SURVID	464	Identifier for Paper Survey
KEY	465	
DNVGL_ID	466	Unique identifier of respondent

APPENDIX L:
2019 Cleaned Survey Variables in Database

Table 5: Cleaned Survey Contents

NAME	VARNUM	LABEL
		Cleaned Survey Contents
eutil	1	Electric utility
NGUTIL	2	Natural gas utility - A19
cec_forcasting_zone	3	Forecast climate zone (CEC)
CZT24	4	Title 24 Climate Zones
NAC_KWH	5	Normalized Annual Consumption - kWh - Individually Metered
NAC_Therms	6	Normalized Annual Consumption - Therms - Individually Metered
scg	7	Have SCG account data
elecMM	8	Master Metered Electric Account
res	9	Cleaned building type
numi	10	count of number of residents
homeage	11	age of home
SQFT_A	12	dwelling square footage in feet
rescnt	13	count of the number of residents
DWLTYPE	14	Type of building - A1
STORIES	15	Number of stories if single family - A1
OWNRENT	16	Own or rent home - A2
YRS_RES	17	Length of time at this address - A3
SEASOCC	18	Seasonal occupancy - A4
SEASJAN	19	Seasonal occupancy, occupied in Jan - A5
SEASFEB	20	Seasonal occupancy, occupied in Feb - A5
SEASMAR	21	Seasonal occupancy, occupied in Mar - A5
SEASAPR	22	Seasonal occupancy, occupied in Apr - A5
SEASMAY	23	Seasonal occupancy, occupied in May - A5
SEASJUN	24	Seasonal occupancy, occupied in Jun - A5
SEASJUL	25	Seasonal occupancy, occupied in Jul - A5
SEASAUG	26	Seasonal occupancy, occupied in Aug - A5
SEASSEP	27	Seasonal occupancy, occupied in Sep - A5
SEASOCT	28	Seasonal occupancy, occupied in Oct - A5
SEASNOV	29	Seasonal occupancy, occupied in Nov - A5
SEASDEC	30	Seasonal occupancy, occupied in Dec - A5
BUILTYR	31	Year home built - A6
NUMROOM	32	Number of bedrooms - A7
SQFT	33	Square feet of living space - A8
EXTWLINS	34	Home has insulated exterior walls - A9
ACEILINS	35	Home has insulated attic - A10
CEILINCH	36	Inches of attic insulation - A11

NAME	VARNUM	LABEL
		Cleaned Survey Contents
WINDTYPE	37	Window pane type - A12
WINFRAME	38	Window frame type - A12
WINFPTYP	39	Window frame & pane
REMOD	40	Home has been remodeled - A13
RMDROOM	41	Remodel with room additon - A14
RMDKTBTH	42	Remodel bath or kitchen - A14
RMDREBLT	43	Rebuilt most of the home - A14
RMDOTHR	44	Remodel other - A14
kids	45	Number of residents 0-18
adults	46	Number of residents 19-64
seniors	47	Number of residents 65+
NR0_5	48	Number under 5 years of age in home - A15
NR6_18	49	Number 6-18 years of age in home - A15
NR19_34	50	Number 19-34 years of age in home - A15
NR35_54	51	Number 35-54 years of age in home - A15
NR55_64	52	Number 55-64 years of age in home - A15
NR65_99	53	Number 65-99 years of age in home - A15
ONPKUSE	54	Peak time use of electrical appliances - A16
NGSERV	55	Natural gas service available in area - A17
NGLINE	56	Natural gas service available in home - A18
EVYN	57	Own or lease electric vehicle - A20
EVYN2	58	Cleaned own or lease electric vehicle
NUMBEV	59	Number of battery electric vehicles - A21
NUMHEV	60	Number of hybrid electric vehicles - A21
EVMDMF	61	Number of miles electric vehicle driven - Mon-Fri- A22
EVMDSS	62	Number of miles electric vehicle driven - Sat-Sun- A22
EVTMCHH	63	Number of times electric vehicle charged - Home - A23
EVTMCHW	64	Number of times electric vehicle charged - Work - A23
EVTMCHO	65	Number of times electric vehicle charged - Somewhere else - A23
EVCHTYPE	66	Primary home charger type - A24
EVCHH6_9	67	Time of day electric vehicle charged at home - 6am to 9am - A25
EVCHH9_5	68	Time of day electric vehicle charged at home - 9am to 5pm - A25
EVCHH5_9	69	Time of day electric vehicle charged at home - 5pm to 9pm - A25
EVCHH9_6	70	Time of day electric vehicle charged at home - 9pm to 6am - A25
EVCountChgh	71	Charged at home continuous variable
EVCountChgo	72	Charged at other continuous variable
EVCountChgw	73	Charged at work continuous variable
EVMiles	74	Estimated Number of miles electric vehicle driven per year
EVMilesmf	75	Mon-Fri miles driven continuous variable
EVMilesss	76	Sat-Sun miles driven continuous variable
PropChgHome	77	Proportion of charging done at home
phtfuel3	78	Cleaned primary heating fuel

		Cleaned Survey Contents
NAME	**VARNUM**	**LABEL**
phtfuel2	79	Cleaned primary heating fuel - individually metered
PAYHEAT	80	Pays for heating - B1
PHTNGCNT	81	Primary central forced air gas furnace - B2
PHTNGFWL	82	Primary floor or wall gas furnace - B2
PHTNGRAD	83	Primary hot water gas radiator - B2
PHTNGFP	84	Primary Gas Fireplace - B2
PHTNGOTH	85	Primary other gas heater - B2
PHTELBSB	86	Primary resistance electric heater - B2
PHTELCRH	87	Primary central forced air electric furnace - B2
PHTELCHP	88	Primary central electric heat pump - B2
PHTELWHP	89	Primary through-the-wall electric heat pump - B2
PHTELPOR	90	Primary portable electric heater - B2
PHTELOTH	91	Primary other electric heater - B2
PHTBGCNT	92	Primary central forced air bottled gas furnace - B2
PHTBGFWL	93	Primary floor or wall bottled gas heater - B2
PHTBGRAD	94	Primary hot water bottled gas radiator - B2
PHTBGOTH	95	Primary bottled gas heater other - B2
PHTWDWS	96	Primary woodstove/fireplace insert - B2
PHTWDFP	97	Primary wood fireplace - B2
PHTSLRN	98	Primary solar heat, no backup - B2
PHTSLRG	99	Primary solar heat, natural gas backup - B2
PHTSLRP	100	Primary solar heat, propane backup - B2
PHTSLRE	101	Primary solar heat, electric backup - B2
PHTOTSYS	102	Primary 'other' heat - B2
AHTNGCNT	103	Secondary central forced air gas furnace - B2
AHTNGFWL	104	Secondary floor or wall gas furnace - B2
AHTNGRAD	105	Secondary hot water gas radiator - B2
AHTNGOTH	106	Secondary other gas heater - B2
AHTELBSB	107	Secondary resistance electric heater - B2
AHTELCRH	108	Secondary central forced air electric furnace - B2
AHTELCHP	109	Secondary central electric heat pump - B2
AHTELWHP	110	Secondary through-the-wall electric heat pump - B2
AHTELPOR	111	Secondary portable electric heater - B2
AHTELOTH	112	Secondary other electric heater - B2
AHTBGCNT	113	Secondary central forced air bottled gas furnace - B2
AHTBGFWL	114	Secondary floor or wall bottled gas heater - B2
AHTBGRAD	115	Secondary hot water bottled gas radiator - B2
AHTNGFP	116	Secondary gas fireplace - B2
AHTBGOTH	117	Secondary bottled gas heater other - B2
AHTWDWS	118	Secondary woodstove/fireplace insert - B2
AHTWDFP	119	Secondary wood fireplace - B2
AHTSLRN	120	Secondary solar heat, no backup - B2

Cleaned Survey Contents		
NAME	**VARNUM**	**LABEL**
AHTSLRG	121	Secondary solar heat, natural gas backup - B2
AHTSLRP	122	Secondary solar heat, propane backup - B2
AHTSLRE	123	Secondary solar heat, electric backup - B2
AHTOTSYS	124	Secondary 'other' heat - B2
MAINPILT	125	Main heater has gas pilot light - B3
SECPILT	126	Secondary heater has gas pilot light - B3
HTSYSAGE	127	Age of main heating system - B4
HTCTLTYP	128	Thermostat type for main heating system - B5
HMRNSET	129	Heater thermostat setting in morning - B6
HDAYSET	130	Heater thermostat setting in day - B6
HEVNSET	131	Heater thermostat setting in evening - B6
HNITESET	132	Heater thermostat setting in night - B6
HTMAINTN	133	Maintenance preformed on heating system - B7
NPORHTRS	134	Number of portable heaters - B8
USEADDHT	135	Use of additional heating systems - B9
phtcnt	136	count of primary heaters
havesec	137	have a secondary heater
ahtcnt	138	count of additional heaters
htng	139	primary or secondary ht ng
phtng	140	have a primary ng heater
ahtng	141	have an additional ng heater
htelec	142	have a primary or secondar ele ht
phtelec	143	have a primary elec heater
ahtelec	144	have an additional elec heaters
htbg	145	primary or secondary bg heater
phtbg	146	have a primary bg heater
ahtbg	147	have an additional bg heaters
htwdfp2	148	primary or secondary heat wood
phtwdfp2	149	have a primary wood heater
ahtwdfp2	150	have an additional wood fireplace
htsolar	151	primary or secondary heat solar
phtsolar	152	have a primary solar heater
ahtsolar	153	have an additional solar heater
htother	154	primary or secondary ht other
phtother	155	have a primary other heater
ahtother	156	have an additional heater with other fuel
htelwhp	157	primary or secondary elwhp
payCOOL2	158	Cleaned Pays for central air conditioning
paycool3	159	Pays for central air conditioning
Cooling	160	Cleaned cooling type
caccnt	161	Number of types of central air conditioners
RACCNT	162	count of room ac

		Cleaned Survey Contents
NAME	**VARNUM**	**LABEL**
PAYCOOL	163	Pays for central air conditioning - C1
CTLACAGE	164	Number of central air conditioners - C2
CTEVZON	165	Primary Central Air Conditioning System is controlled by a Zoned Thermostat - C2
CTEVPAGE	166	Number of central evaporative coolers - C2
CTLACZON	167	Primary Central Evaporative Cooling System is controlled by a Zoned Themostat - C2
HPAGE	168	Number of heat pumps - C2
HPZON	169	Primary Heat Pump System is controlled by a Zoned Thermostat - C2
CLCNTAGE	170	Age of main central air conditioner - C3
CLCTLTYP	171	Thermostat type for main central air - C4
CMRNSET	172	AC thermostat setting in morning - C5
CDAYSET	173	AC thermostat setting in day - C5
CEVNSET	174	AC thermostat setting in evening - C5
CNITESET	175	AC thermostat setting in night - C5
CLMAINTN	176	Maintenance preformed on ac system - C6
NOROOMAC	177	No room air conditioner - C7
ACTYP1	178	Type room air conditioner 1 - C7
ACTYP2	179	Type room air conditioner 2 - C7
ACTYP3	180	Type room air conditioner 3 - C7
ACAGE1	181	Age of room air conditioner 1 - C7
ACAGE2	182	Age of room air conditioner 2 - C7
ACAGE3	183	Age of room air conditioner 3 - C7
CMRNUSE	184	Use of room air conditioner in morning - C8
CDAYUSE	185	Use of room air conditioner in day - C8
CEVNUSE	186	Use of room air conditioner in evening - C8
CNITEUSE	187	Use of room air conditioner at night - C8
CHOTUSE	188	Use of room air conditioner on a hot weekday - C8
MSDNUM	189	Mini-split or ductless - Number of Central Cooling Systems - C2
MSDZON	190	Mini-split or ductless is controlled using a zoned thermostat - C2
pwhfuel3	191	Cleaned primary water heater fuel
pwhfuel2	192	Cleaned primary water heater fuel - individually metered
PAYWH	193	Pay for water heater - D1
PWHNGTNK	194	Standard tank gas water heater - D2
PWHNGWHT	195	Whole house tankless gas water heater - D2
PWHNGHEC	196	High Efficiency Condensing gas water heater - D2
PWHELTNK	197	Standard tank electric water heater - D2
PWHELHP	198	Heat pump electric water heater - D2
PWHELWHT	199	Whole house tankless electric water heater - D2
PWHELPNT	200	Point of use tankless electric water heater - D2
PWHLPTNK	201	Standard tank propane water heater - D2
PWHLPWHT	202	Whole house tankless propane water heater - D2
PWHSLRN	203	Solar water heater, no backup - D2
PWHSLRG	204	Solar water heater, natural gas backup - D2

		Cleaned Survey Contents
NAME	**VARNUM**	**LABEL**
PWHSLRP	205	Solar water heater, propane backup - D2
PWHSLRE	206	Solar water heater, electric backup - D2
PWHOTSYS	207	Water heater, other fuel - D2
AWHNGTNK	208	Additional standard tank gas water heater - D2
AWHNGWHT	209	Additional whole house tankless gas water heater - D2
AWHNGHEC	210	Additional High Efficiency Condensing gas water heater - D2
AWHELTNK	211	Additional standard tank electric water heater - D2
AWHELHP	212	Additional heat pump electric water heater - D2
AWHELWHT	213	Additional whole house tankless electric water heater - D2
AWHELPNT	214	Additional point of use tankless electric water heater - D2
AWHLPTNK	215	Additional standard tank propane water heater - D2
AWHLPWHT	216	Additional whole house tankless propane water heater - D2
AWHSLRN	217	Additional solar water heater, no backup - D2
AWHSLRG	218	Additional solar water heater, natural gas backup - D2
AWHSLRP	219	Additional solar water heater, propane backup - D2
AWHSLRE	220	Additional solar water heater, electric backup - D2
AWHOTSYS	221	Additional water heater, other fuel - D2
WHTEMP	222	Water heater temperature - D3
PRWHAGE	223	Water heater age - D4
SHWRDAY	224	Number of showers - D5
BATHSDAY	225	Number of baths - D5
SHOWERHD	226	Low flow shower head - D6
AERATORS	227	Faucet aerators - D7
whng	228	have a ng water heater
whelec	229	have a elec water heater
whbg	230	have a bg water heater
whsl	231	have a solar water heater
whoth	232	have an other water heater
whngtnk	233	have a primary or secondary whngtnk
whngwht	234	have a primary or secondary whngwht
wheltnk	235	have a primary or secondary wheltnk
whelhp	236	have a primary or secondar whelhp
whelwht	237	have a primary or secondary whelwht
whelpnt	238	have a primary or secondary whelpnt
whlptnk	239	have a primary or secondary whlptnk
whlpwht	240	have a primary or secondary whlpwht
whslrn	241	have a primary or secondary whslrn
whslrg	242	have a primary or secondary whslrg
whslrp	243	have a primary or secondary whslrp
whslre	244	have a primary or secondary whslre
whotsys	245	have a primary or secondary whotsys
gdry	246	indicator of gas dryer

Cleaned Survey Contents		
NAME	**VARNUM**	**LABEL**
edry	247	indicator of electric dryer
numwash	248	total number of clothes washes per week
LNDRYEQP	249	Laundry equipment in home - E1
CWTYP	250	Type of clothes washer - E2
CWAGE	251	Clothes washer age - E3
CWHWLD	252	Number of hot water washes per week - E4
CWWWLD	253	Number of warm water washes per week - E4
CWCWLD	254	Number of cold water washes per week - E4
CDTYP	255	Type of clothes dryer - E5
CDAGE	256	Age of clothes dryer- E6
DRYLDS	257	Number of dryer loads per week
DRYLDSH	258	Number of dryer loads per week - high heat - E7
DRYLDSM	259	Number of dryer loads per week - medium heat - E7
DRYLDSL	260	Number of dryer loads per week - low heat - E7
CKRNTYP	261	Fuel for cooktop - F1
CKRNA	262	Age of cooktop - F1
CKOVTYP	263	Fuel for oven - F1
CKOVA	264	Age of oven - F1
CKOOVTYP	265	Fuel for outdoor oven - F1
CKOOVA	266	Age of outdoor oven - F1
CKBBTYP	267	Fuel for barbecue - F1
CKBBQA	268	Age of barbecue - F1
CKMW	269	Fuel for microwave - F1
CKMWA	270	Age of microwave - F1
WRNUSE	271	Weekly Use of cooktop, stovetop or range - F2
WOVUSE	272	Weekly Use of oven - F2
WMWUSE	273	Weekly Use of microwave - F2
WOTHUSE	274	Weekly Use of other cooking appliance - F2
DISHWASH	275	Have dishwasher - F3
DWAGE	276	Age of dishwasher - F4
DWLOADS	277	Number of dishwasher loads per week - F5
RFNUM	278	Number of refrigerators - G1
RF1STY	279	Door style of first refrigerator - G2
RF2STY	280	Door style of second refrigerator - G2
RF3STY	281	Door style of third refrigerator - G2
RF1SZ	282	Size of first refrigerator - G2
RF2SZ	283	Size of second refrigerator - G2
RF3SZ	284	Size of third refrigerator - G2
RF1AGE	285	Age of first refrigerator - G2
RF2AGE	286	Age of second refrigerator - G2
RF3AGE	287	Age of third refrigerator - G2
RF1OTH	288	Door ice in first refrigerator - G2

		Cleaned Survey Contents
NAME	**VARNUM**	**LABEL**
RF2OTH	289	Door ice in second refrigerator - G2
RF3OTH	290	Door ice in third refrigerator - G2
RFDISCRD	291	Old refrigerator discarded in the last 12 months
FZNUM	292	Number of stand alone freezers - H1
FZ1STY	293	Style of first freezer - H2
FZ1SZ	294	Size of first freezer - H2
FZ1AGE	295	Age of first freezer - H2
FZ2STY	296	Style of second freezer - H2
FZ2SZ	297	Size of second freezer - H2
FZ2AGE	298	Age of second freezer - H2
FZDISCRD	299	Old freezer discarded in the last 12 months
SPTYP	300	Spa or hot tub - I1
SPHTF	301	Spa fuel - I2
SPSZ	302	Spa size - I3
SPLOC	303	Spa location - I4
SPCOV	304	Spa cover - I5
SMRNFLTPMP	305	Frequency of spa filtration summer morning - I6
SMDFLTPMP	306	Frequency of spa filtration summer mid-day - I6
SNITFLTPMP	307	Frequency of spa filtration summer night - I6
WMRNFLTPMP	308	Frequency of spa filtration winter morning - I6
WMDFLTPMP	309	Frequency of spa filtration winter mid-day - I6
WNITFLTPMP	310	Frequency of spa filtration winter night - I6
SMRNHTSPA	311	Frequency of spa heat in summer morning - I7
SMDHTSPA	312	Frequency of spa heat in summer mid-day - I7
SNITHTSPA	313	Frequency of spa heat in summer night - I7
WMRNHTSPA	314	Frequency of spa heat in winter morning - I7
WMDHTSPA	315	Frequency of spa heat in winter mid-day - I7
WNITHTSPA	316	Frequency of spa heat in winter night - I7
PLTYP	317	Pool, pay for energy - J1
PLSZ	318	Pool size - J2
SMRNFLTHR	319	Hours per day filter pool summer morning - J3
SMDFLTHR	320	Hours per day filter pool summer mid-day - J3
SNITFLTHR	321	Hours per day filter pool summer night - J3
WMRNFLTHR	322	Hours per day filter pool winter morning - J3
WMDFLTHR	323	Hours per day filter pool winter mid-day - J3
WNITFLTHR	324	Hours per day filter pool winter night - J3
PLHTF	325	Fuel to heat pool - J4
SMRNHTPL	326	Frequency heat pool summer morning - J5
SMDHTPL	327	Frequency heat pool summer mid-day - J5
SNITHTPL	328	Frequency heat pool summer night - J5
WMRNHTPL	329	Frequency heat pool winter morning - J5
WMDHTPL	330	Frequency heat pool winter mid-day - J5

NAME	VARNUM	LABEL
		Cleaned Survey Contents
WNITHTPL	331	Frequency heat pool winter night - J5
PMPTYP	332	Pool filtration pump type - J6
PLCOV	333	Pool cover - J7
PLTIMR	334	Pool timer - J7
PLSWEEP	335	Pool sweep - J7
PLVAC	336	Pool vacuum - J7
PLINDOOR	337	Pool is indoors - J7
tvcnt	338	Number of TVs
SMLLEDTV	339	Number of OLED or LED TVs <36 inches - K1
MEDLEDTV	340	Number of OLED or LED TVs 36-59 inches - K1
LRGLEDTV	341	Number of OLED or LED TVs >59 inches - K1
SMLLCDTV	342	Number of small LCD tvs less than 36 inches - K1
MEDLCDTV	343	Number of LCD Tvs 36-59 inches - K1
BIGLCDTV	344	Number of large LCD tvs greater than 59 inches - K1
PLSMTV	345	Number of plasma tvs - K1
STDTV	346	Number of cathode ray tube tvs - K1
DLPTV	347	Number of DLP or rear projection TVs - K1
DVRBOX	348	Number of Cable or satellite TV set-top boxes or receivers, DVR - K1
MOVPLA	349	Stand-alone movie players- K1
GAMSYS	350	Number of gaming systems - K1
STREAM	351	Number of streaming media players - K1
HTSYS	352	Number of Home theater system connected to TV- K1
SNDBAR	353	Number of Soundbar connected to TV - K1
AUDTOTV	354	Number of separate sound or stereo systems connected to TV - K1
SAMUSIC	355	Number of stand alone stereo, I-pod or MP3 docking stations - K1
SMLTVUSE	356	Hours per day Use of Small TVs - K2
MEDTVUSE	357	Hours per day Use of Medium TVs - K2
BIGTVUSE	358	Hours per day Use of Large TVs - K2
lrgtvuse	359	Hours per day Use of Medium and Large TVs
NDSKPCS	360	Number of desktop PCs K3
NLAPPCS	361	Number of laptop PCs - K3
DSKPCHRS	362	Hours per day Use of desktop PC's - K4
LAPPCHRS	363	Hours per day Use of laptop PC's - K4
WORKHOME	364	Work from home - K5
WKHRSHM	365	Hours per week work from home - K6
PRNTSCAN	366	Number of printer, scanner, multifunction machine - K7
TABLET	367	Number of tablet, computer or e-reader - K7
HUBS	368	Number of hubs, controllers, smart speaker - K7
SMRTDEV	369	Number of smart home devices (other than lighting) - K7
SMACELL	370	Number of smart cell phones - K7
OTHCELL	371	Number of other cell phone - K7
HSMODINT	372	Number of high-speed modems - K7

NAME	VARNUM	LABEL
		Cleaned Survey Contents
HMNET	373	Number of home networks - K7
UNPWRSUP	374	Number of uninterrupted power supplies - K7
CELL	375	Number of cell phones
INCPORT	376	Portion of incadescent lightbulb types - L1
CFLPORT	377	Portion of CFL lightbulb types - L1
LEDPORT	378	Portion ofLED lightbulb types - L1
LMRNUSEN	379	Percent of lights on in home in morning - L2
LDAYUSEN	380	Percent of lights on in home in daytime - L2
LEVNUSEN	381	Percent of lights on in home in evening - L2
LNITEUSEN	382	Percent of lights on in home in night - L2
ICTLTIMR	383	Number of interior timers - L3
ICTLOCCS	384	Number of interior motion detectors - L3
ICTLDIM	385	Number of interior dimmers - L3
ICTLCONN	386	Number of smart (connected) - L3
ICTLNITE	387	Number of nightlights - L3
EXINC	388	Number of exterior incandescent fixtures - L4
EXCFL	389	Number of exterior CFL fixtures - L4
EXLED	390	Number of exterior LED fixtures - L4
EXLOWV	391	Number of exterior low volt landscape - L4
EXHID	392	Number of exterior metal halide - L4
ECTLTIMR	393	Number of exterior timers - L4
ECTLDSK	394	Number of exterior light sensors - L4
ECTLMOTN	395	Number of exterior motion detectors - L4
CHRGRS	396	Number of charges left plugged all the time - M1
RECHVAC	397	Number of rechargeable vacuum - M1
SMACOOK	398	Number of small cooking - M1
FNPORT	399	Number of portable fans - M1
FNCEIL	400	count of number of ceiling fans
WNDATV	401	Number of wind turbine attic ventilators - M1
FNATTIC	402	Number of electric attic fans - M1
FNWHOLE	403	Number of whole house fans - M1
AIRCLEAN	404	Number of household air cleaners - M1
PORTPUR	405	Number of portable air purifier - M1
HUMDEH	406	Number of Humidifiers/Dehumidifiers - M1
WINCLR	407	Number of wine or beverage coolers - M1
WHPURIFY	408	Number of water purification systems - M1
DHWRPMP	409	Number of Domestic Hot Water Recirculation Pumps - M1
SAUNA	410	Number of electric saunas - M1
POND	411	Number of pond or water gardern pumps or fountain - M1
FIREPIT	412	Outdoor fire table - M1
WLWTRPMP	413	Use of electric well water pump - M2
WTRSRCES	414	Access to city water - M3

	Cleaned Survey Contents	
NAME	**VARNUM**	**LABEL**
WLWTUSE	415	How do you use well water - M4
SUMPPMP	416	Use sump pump - M5
SHOPTLS	417	Use shop tools - M5
WELD	418	Use electric welding equipment - M5
AIRCOMP	419	Use electric air compressor - M5
BATCHRGE	420	Use large battery charger - M5
KILN	421	Fuel for kiln used 3+ hours per week - M5
MEDICAL	422	Fuel for medical equipment used 3+ hours per week - M5
EWHLS1	423	No electric wheelchair, golfcart, bicycle, skate board - M6
EWHLS2	424	Have electric wheelchair/golfcart - M6
EWHLS3	425	Have electric bicycle/skateboard - M6
CHRGELSC	426	Charge electric wheelchair, golfcart, bicycle, skate board at home - M7
OLRGAPP	427	Other large electric or gas appliances - M8
CHADD	428	Added central heating - M9
CHFUEL	429	Fuel for added central heating - M9
CCADD	430	Added central cooling - M9
ccfuel	431	Fuel for added central cooling - M9
WWADD	432	Added window or wall cooling - M9
wwfuel	433	Fuel for added window or wall cooling - M9
EVCLADD	434	Added Evaporative Cooler - M9
evclfuel	435	Fuel for added Evaporative Cooler - M9
WHADD	436	Added water heater - M9
WHFUEL	437	Fuel for added water heater - M9
RFADD	438	Added Refrigerator - M9
RFfuel	439	Fuel for added Refrigerator - M9
FRZADD	440	Added Stand-alone Freezer - M9
FRZfuel	441	Fuel for added Stand-alone Freezer - M9
STADD	442	Added stove top - M9
STFUEL	443	Fuel for added stove top - M9
OVADD	444	Added oven - M9
OVFUEL	445	Fuel for added oven - M9
MWADD	446	Added microwave - M9
mwfuel	447	Fuel for added microwave - M9
DWADD	448	Added dishwasher - M9
dwfuel	449	Fuel for added dishwasher - M9
CWADD	450	Added clothes washer - M9
cwfuel	451	Fuel for added clothes washer - M9
CDADD	452	Added clothes dryer - M9
CDFUEL	453	Fuel for added clothes dryer - M9
PHADD	454	Added pool heater - M9
PHFUEL	455	Fuel for added pool heater - M9
PPADD	456	Added pool pump - M9

NAME	VARNUM	LABEL
Cleaned Survey Contents		
ppfuel	457	Fuel for added pool pump - M9
TBADD	458	Added hot tub/spa heater - M9
TBFUEL	459	Fuel for added hot tub - M9
NOADD	460	Have not added or replaced major appliance - M9
DCHAGE	461	Age of discarded central heater - M10
DCHFL	462	Fuel of discarded central heater - M10
DCCAGE	463	Age of discarded central cooling - M10
dccfl	464	Fuel of discarded central cooling - M10
DWWAGE	465	Age of discarded wall cooling - M10
dwwfl	466	Fuel of discarded wall cooling - M10
DEVCLAGE	467	Age of discarded Evaporative Cooler - M10
DEVCLFL	468	Fuel of discarded Evaporative Cooler - M10
DWHAGE	469	Age of discarded water heater - M10
DWHFL	470	Fuel of discarded water heater - M10
DRFAGE	471	Age of discarded Refrigerator - M10
DRFFL	472	Fuel of discarded Refrigerator - M10
DFZAGE	473	Age of discarded Stand-alone Freezer - M10
DFRZFL	474	Fuel of discarded Stand-alone Freezer - M10
DSTAGE	475	Age of discarded stove top - M10
DSTFL	476	Fuel of discarded stove top - M10
DOVAGE	477	Age of discarded oven - M10
DOVFL	478	Fuel of discarded oven - M10
DMWAGE	479	Age of discarded microwave - M10
dmwfl	480	Fuel of discarded microwave - M10
DDWAGE	481	Age of discarded dishwasher - M10
ddwfl	482	Fuel of discarded dishwasher - M10
DCWAGE	483	Age of discarded clothes washer - M10
dcwfl	484	Fuel of discarded clothes washer - M10
DCDAGE	485	Age of discarded clothes dryer - M10
DCDFL	486	Fuel of discarded clothes dryer - M10
DPHAGE	487	Age of discarded pool heater - M10
DPHFL	488	Fuel of discarded pool heater - M10
DPPAGE	489	Age of discarded pool pump - M10
dppfl	490	Fuel of discarded pool pump - M10
DTBAGE	491	Age of discarded hot tub - M10
DTBFL	492	Fuel of discarded hot tub - M10
NODISCRD	493	Have not discarded above appliances - M10
NORENEW	494	No renewable energy tech - M11
PVRENEW	495	Have solar electricity/PV cells - M11
SORENEW	496	Have solar water heat (In-home) - M11
BTRENEW	497	Have battery stor to solar - M11
WGRENEW	498	Have wind generator - M11

Cleaned Survey Contents		
NAME	**VARNUM**	**LABEL**
FCRENEW	499	Have fuel cells - M11
NOPLAN	500	No plans - M12
PVPLAN	501	Plans solar elec/PV cells - M12
SOWHPLAN	502	Plans solar water heat (In-home) - M12
SOPHPLAN	503	Plans solar pool water heat - M12
BTPLAN	504	Plans battery stor to solar - M12
WGPLAN	505	Plans wind generator - M12
FCPLAN	506	Plans fuel cells - M12
OTHPLAN	507	Other plans - M12
samEth	508	Heads of household are same ethnicity
mixedeth	509	Heads of household are different ethnicity
PTHME	510	Other homes in California occupied by family - N1
PTHMELOC	511	Location of other home - N2
PTHMEUTL	512	Electric Utility of other home - N2
PTHMGUTL	513	Gas Utility of other home - N2
EDUC	514	Education of head of household - N3
ETHNIC	515	Primary language - N4
DISABLED	516	Occupant is disabled - N5
HOHETH	517	Head of household ethnicity
HOHIND1	518	Head of household 1 is American Indian - N6
HOHIND2	519	Head of household 2 is American Indian - N6
HOHASN1	520	Head of household 1 is Asian/Pacific Islander - N6
HOHASN2	521	Head of household 2 is Asian/Pacific Islander - N6
HOHBLK1	522	Head of household 1 is African American - N6
HOHBLK2	523	Head of household 2 is African American - N6
HOHLAT1	524	Head of household 1 is Hispanic/Latino - N6
HOHLAT2	525	Head of household 2 is Hispanic/Latino - N6
HOHWHT1	526	Head of household 1 is Caucasian - N6
HOHWHT2	527	Head of household 2 is Caucasian - N6
HOHOTH1	528	Head of household 1 - Other - N6
HOHOTH2	529	Head of household 2 - Other - N6
INCOME19	530	Household total income - N7
avginc	531	Income continuous variable
gasmm	532	Utility Flagged As Master-Metered Gas
IDENT	533	Survey Identification
STRATA	534	Sampling Strata
wt	535	Sample Weight
wt_CDA_E	536	Weight to be applied for electric NAC estimates
wt_CDA_NG	537	Weight to be applied for natural gas NAC estimates
wt_LP_E	538	Weight to be applied to aggregate for Electric Load Profile
wt_LP_NG	539	Weight to be applied to aggregate for Gas Daily Use
wt_unadjusted	540	Unadjusted weight before raking

Cleaned Survey Contents		
NAME	**VARNUM**	**LABEL**
occtype	541	Presence of Seniors/Children
netmetered	542	Net metered household
Non_Response	543	Non-response participant
prov	544	Gas Service Provider
servzip	545	Service zip
payheat2	546	Cleaned pays for space heating
paywh2	547	Cleaned pays for water heating
Gas_Unique_ID	548	Gas service identification
new_ght_uec	549	Primary Heat Gas UEC
new_gauxht_uec	550	Auxiliary Heat Gas UEC
new_gwh_uec	551	Conv. Gas Water Heat UEC
new_gswh_uec	552	Solar Water Heat w/Gas Backup UEC
new_grng_uec	553	Range/Oven Gas UEC
new_gdry_uec	554	Dryer Gas UEC
new_gpht_uec	555	Pool Heat Gas UEC
new_gspa_uec	556	Spa Heat Gas UEC
new_gmiss_uec	557	Miscellaneous Gas UEC
new_gall_uec	558	All Household Gas UEC
new_eht_uec	559	Conv. Heat Electric UEC
new_ehp_uec	560	Heat Pump Electric UEC
new_auxht_uec	561	Aux. Heat Electric UEC
new_cac_uec	562	Central Air Conditioning Electric UEC
new_rac_uec	563	Room AC Electric UEC
new_swp_uec	564	Evap Cooler Electric UEC
new_ev_uec	565	Electric Vehicle UEC
new_wht_uec	566	Water Heat Electric UEC
new_whts_uec	567	Solar Water Heat Electric UEC
new_rng_uec	568	Range/Oven Electric UEC
new_mwv_uec	569	Microwave Electric UEC
new_dwh_uec	570	Dish Washer Electric UEC
new_sph_uec	571	Spa Electric Heat Electric UEC
new_spa_uec	572	Spa Electric UEC
new_cws_uec	573	Clothes Washer Electric UEC
new_edy_uec	574	Dryer Electric UEC
new_olt_uec	575	Outdoor Lighting Electric UEC
new_ctv_uec	576	TV Electric UEC
new_off_uec	577	Home Office Electric UEC
new_pcs_uec	578	PC Electric UEC
new_pmp_uec	579	Pool Pump Electric UEC
new_wpm_uec	580	Well Pump Electric UEC
new_vnt1_uec	581	Furnace Fan Electric UEC
new_vnt2_uec	582	Attic Ceiling Fan Electric UEC

Cleaned Survey Contents		
NAME	**VARNUM**	**LABEL**
new_msc_uec	583	Miscellaneous Electric UEC
new_ref1_uec	584	First Refrigerator Electric UEC
new_ref2_uec	585	Second Refrigerator Electric UEC
new_fz_uec	586	Freezer Electric UEC
new_all_uec	587	All Household Electric UEC

APPENDIX M:
2019 Billing and Interval Variables in Databases

Table 6: Electric Raw Monthly Billing Contents

19RASS Final Electric Raw Monthly Billing Contents		
NAME	**VARNUM**	**LABEL**
DNVGL_ID	1	Unique Customer ID Number
r1	2	Read Date for Billing Period 1
d1	3	# Days in Bill Period 1
u1	4	Usage for Bill Period 1
r2	5	Read Date for Billing Period 2
d2	6	# Days in Bill Period 2
u2	7	Usage for Bill Period 2
r3	8	Read Date for Billing Period 3
d3	9	# Days in Bill Period 3
u3	10	Usage for Bill Period 3
r4	11	Read Date for Billing Period 4
d4	12	# Days in Bill Period 4
u4	13	Usage for Bill Period 4
r5	14	Read Date for Billing Period 5
d5	15	# Days in Bill Period 5
u5	16	Usage for Bill Period 5
r6	17	Read Date for Billing Period 6
d6	18	# Days in Bill Period 6
u6	19	Usage for Bill Period 6
r7	20	Read Date for Billing Period 7
d7	21	# Days in Bill Period 7
u7	22	Usage for Bill Period 7
r8	23	Read Date for Billing Period 8
d8	24	# Days in Bill Period 8
u8	25	Usage for Bill Period 8
r9	26	Read Date for Billing Period 9
d9	27	# Days in Bill Period 9
u9	28	Usage for Bill Period 9
r10	29	Read Date for Billing Period 10
d10	30	# Days in Bill Period 10
u10	31	Usage for Bill Period 10
r11	32	Read Date for Billing Period 11
d11	33	# Days in Bill Period 11
u11	34	Usage for Bill Period 11
r12	35	Read Date for Billing Period 12
d12	36	# Days in Bill Period 12

		19RASS Final Electric Raw Monthly Billing Contents
NAME	**VARNUM**	**LABEL**
u12	37	Usage for Bill Period 12
r13	38	Read Date for Billing Period 13
d13	39	# Days in Bill Period 13
u13	40	Usage for Bill Period 13
r14	41	Read Date for Billing Period 14
d14	42	# Days in Bill Period 14
u14	43	Usage for Bill Period 14
r15	44	Read Date for Billing Period 15
d15	45	# Days in Bill Period 15
u15	46	Usage for Bill Period 15
r16	47	Read Date for Billing Period 16
d16	48	# Days in Bill Period 16
u16	49	Usage for Bill Period 16
r17	50	Read Date for Billing Period 17
d17	51	# Days in Bill Period 17
u17	52	Usage for Bill Period 17
r18	53	Read Date for Billing Period 18
d18	54	# Days in Bill Period 18
u18	55	Usage for Bill Period 18
r19	56	Read Date for Billing Period 19
d19	57	# Days in Bill Period 19
u19	58	Usage for Bill Period 19
r20	59	Read Date for Billing Period 20
d20	60	# Days in Bill Period 20
u20	61	Usage for Bill Period 20
r21	62	Read Date for Billing Period 21
d21	63	# Days in Bill Period 21
u21	64	Usage for Bill Period 21
r22	65	Read Date for Billing Period 22
d22	66	# Days in Bill Period 22
u22	67	Usage for Bill Period 22
r23	68	Read Date for Billing Period 23
d23	69	# Days in Bill Period 23
u23	70	Usage for Bill Period 23
r24	71	Read Date for Billing Period 24
d24	72	# Days in Bill Period 24
u24	73	Usage for Bill Period 24
r25	74	Read Date for Billing Period 25
d25	75	# Days in Bill Period 25
u25	76	Usage for Bill Period 25
r26	77	Read Date for Billing Period 26
d26	78	# Days in Bill Period 26

19RASS Final Electric Raw Monthly Billing Contents		
NAME	VARNUM	LABEL
u26	79	Usage for Bill Period 26
r27	80	Read Date for Billing Period 27
d27	81	# Days in Bill Period 27
u27	82	Usage for Bill Period 27
r28	83	Read Date for Billing Period 28
d28	84	# Days in Bill Period 28
u28	85	Usage for Bill Period 28
r29	86	Read Date for Billing Period 29
d29	87	# Days in Bill Period 29
u29	88	Usage for Bill Period 29
r30	89	Read Date for Billing Period 30
d30	90	# Days in Bill Period 30
u30	91	Usage for Bill Period 30
r31	92	Read Date for Billing Period 31
d31	93	# Days in Bill Period 31
u31	94	Usage for Bill Period 31

Table 7: Gas Raw Monthly Billing Contents

19RASS Final Gas Raw Monthly Billing Contents		
NAME	**VARNUM**	**LABEL**
DNVGL_ID	1	Unique Customer ID Number
r1	2	Read Date for Billing Period 1
d1	3	# Days in Bill Period 1
u1	4	Usage for Bill Period 1
r2	5	Read Date for Billing Period 2
d2	6	# Days in Bill Period 2
u2	7	Usage for Bill Period 2
r3	8	Read Date for Billing Period 3
d3	9	# Days in Bill Period 3
u3	10	Usage for Bill Period 3
r4	11	Read Date for Billing Period 4
d4	12	# Days in Bill Period 4
u4	13	Usage for Bill Period 4
r5	14	Read Date for Billing Period 5
d5	15	# Days in Bill Period 5
u5	16	Usage for Bill Period 5
r6	17	Read Date for Billing Period 6
d6	18	# Days in Bill Period 6
u6	19	Usage for Bill Period 6
r7	20	Read Date for Billing Period 7
d7	21	# Days in Bill Period 7
u7	22	Usage for Bill Period 7
r8	23	Read Date for Billing Period 8
d8	24	# Days in Bill Period 8
u8	25	Usage for Bill Period 8
r9	26	Read Date for Billing Period 9
d9	27	# Days in Bill Period 9
u9	28	Usage for Bill Period 9
r10	29	Read Date for Billing Period 10
d10	30	# Days in Bill Period 10
u10	31	Usage for Bill Period 10
r11	32	Read Date for Billing Period 11
d11	33	# Days in Bill Period 11
u11	34	Usage for Bill Period 11
r12	35	Read Date for Billing Period 12
d12	36	# Days in Bill Period 12
u12	37	Usage for Bill Period 12
r13	38	Read Date for Billing Period 13
d13	39	# Days in Bill Period 13
u13	40	Usage for Bill Period 13
r14	41	Read Date for Billing Period 14

	19RASS Final Gas Raw Monthly Billing Contents	
NAME	**VARNUM**	**LABEL**
d14	42	# Days in Bill Period 14
u14	43	Usage for Bill Period 14
r15	44	Read Date for Billing Period 15
d15	45	# Days in Bill Period 15
u15	46	Usage for Bill Period 15
r16	47	Read Date for Billing Period 16
d16	48	# Days in Bill Period 16
u16	49	Usage for Bill Period 16
r17	50	Read Date for Billing Period 17
d17	51	# Days in Bill Period 17
u17	52	Usage for Bill Period 17
r18	53	Read Date for Billing Period 18
d18	54	# Days in Bill Period 18
u18	55	Usage for Bill Period 18
r19	56	Read Date for Billing Period 19
d19	57	# Days in Bill Period 19
u19	58	Usage for Bill Period 19
r20	59	Read Date for Billing Period 20
d20	60	# Days in Bill Period 20
u20	61	Usage for Bill Period 20
r21	62	Read Date for Billing Period 21
d21	63	# Days in Bill Period 21
u21	64	Usage for Bill Period 21
r22	65	Read Date for Billing Period 22
d22	66	# Days in Bill Period 22
u22	67	Usage for Bill Period 22
r23	68	Read Date for Billing Period 23
d23	69	# Days in Bill Period 23
u23	70	Usage for Bill Period 23
r24	71	Read Date for Billing Period 24
d24	72	# Days in Bill Period 24
u24	73	Usage for Bill Period 24

APPENDIX N:
2019 Interval and DDN Variables in Database

Table 8: Electric Raw Hourly Interval Contents

19RASS Final Electric Raw Hourly Interval Contents		
NAME	**VARNUM**	**LABEL**
DNVGL_ID	1	Unique Customer ID Number
date	2	Date
hour	3	Hour
kwh	4	kWh
Energy_Direction_Code	5	Energy_Direction_Code

Table 9: Electric Normalization Actual Daily Contents

19RASS Final Electric Normalization Actual Daily Contents		
NAME	**VARNUM**	**LABEL**
DNVGL_ID	1	DNVGL_ID
date	2	date
Actual_Daily_Use	3	Actual Interval Use
Actual_Daily_Heating_Deg_Days	4	Actual Heating degree days
Actual_Daily_Cooling_Deg_Days	5	Actual Cooling Degree Days
Heating_Deg_Day_Set_Point	6	Heating Degree Day set Point
Cooling_Deg_Day_Set_Point	7	Cooling Degree Day Set Point
strata_id	8	strata id
cec_forcasting_zone	9	Forecast Zone
t24cz	10	T24 Climate Zone

Table 10: Electric Normalization Normal Daily Contents

19RASS Final Electric Normalization Normal Daily Contents		
NAME	**VARNUM**	**LABEL**
DNVGL_ID	1	DNVGL_ID
date	2	Date
Normal_Daily_Use	3	Normal Use
Normal_Daily_Heating_Deg_Days	4	Normal Heating degree days
Normal_Daily_Cooling_Deg_Days	5	Normal Cooling Degree Days
Heating_Deg_Day_Set_Point	6	Heating Degree Day set Point
Cooling_Deg_Day_Set_Point		Cooling Degree Day Set Point
strata_id		strata id
cec_forcasting_zone		Forecast Zone
t24cz		T24 Climate Zone

Table 11: Electric Normalization Normal Annual Contents

19RASS Final Electric Normalization Normal Annual Contents		
NAME	**VARNUM**	**LABEL**
DNVGL_ID	1	DNVGL_ID
Actual_Annual_Use	2	Annualized Interval Consumption
Actual_Annual_Heating_Deg_Days	3	Annual Actual Heating degree days
Actual_Annual_Cooling_Deg_Days	4	Annual Actual Cooling Degree Days
Normal_Annual_Use	5	Normalized Annual Consumption
Normal_Annual_Heatiing_Deg_Days	6	Annual Normal Heating degree days
Normal_Annual_Cooling_Deg_Days	7	Annual Normal Cooling Degree Days
Heating_Deg_Day_Set_Point	8	Heating Degree Day set Point
Cooling_Deg_Day_Set_Point	9	Cooling Degree Day Set Point
strata_id	10	strata id
cec_forcasting_zone	11	Forecast Zone
t24cz	12	T24 Climate Zone

Table 12: Gas Raw Daily Interval Contents

19RASS Final Gas Raw Daily Interval Contents		
NAME	**VARNUM**	**LABEL**
DNVGL_ID	1	Unique Customer ID Number
date	2	Date
therms	3	Therms

Table 13: Gas Normalization Actual Daily Contents

19RASS Final Gas Normalization Actual Daily Contents		
NAME	**VARNUM**	**LABEL**
DNVGL_ID	1	Unique Customer ID Number
Heating_Deg_Day_Set_Point	2	Heating Degree Day set Point
Cooling_Deg_Day_Set_Point	3	Cooling Degree Day set Point
date	4	DATE
Actual_Daily_Use	5	Actual Daily Use
Actual_Daily_Heating_Deg_Days	6	Actual Heating Degree Days
Actual_Daily_Cooling_Deg_Days	7	Actual Cooling Degree Days
cec_forcasting_zone	8	Forecast Zone
t24cz	9	T24 Climate Zone
flag_ma	10	Gas Account Matches Multiple Electric or Multiple Surveys
flag_mm	11	Utility Flagged As Master-Metered Gas
strata_id	12	strata id

Table 14: Gas Normalization Normal Daily Contents

NAME	VARNUM	LABEL
19RASS Final Gas Normalization Normal Daily Contents		
DNVGL_ID	1	Unique Customer ID Number
Heating_Deg_Day_Set_Point	2	Heating Degree Day set Point
Cooling_Deg_Day_Set_Point	3	Cooling Degree Day set Point
date	4	DATE
Normal_Daily_Use	5	Normal Daily Use
Normal_Daily_Heating_Deg_Days	6	Normal Daily Heating Deg Days
Normal_Daily_Cooling_Deg_Days	7	Normal Daily Cooling Deg Days
cec_forcasting_zone	8	Forecast Zone
t24cz	9	T24 Climate Zone
flag_ma	10	Gas Account Matches Multiple Electric or Multiple Surveys
flag_mm	11	Utility Flagged As Master-Metered Gas
strata_id	12	strata id

Table 15: Gas Normalization Normal Annual Contents

NAME	VARNUM	LABEL
19RASS Final Gas Normalization Normal Annual Contents		
DNVGL_ID	1	Unique Customer ID Number
Actual_Annual_Use	2	Actual Annual Consumption
Actual_Annual_Heating_Deg_Days	3	Annual Actual Heating degree days
Normal_Annual_Use	4	Normalized Annual Consumption
Normal_Annual_Heatiing_Deg_Days	5	Annual Normal Heating degree days
Heating_Deg_Day_Set_Point	6	Heating Degree Day set Point
gas_unique_id	7	Gas Customer ID Number
cec_forcasting_zone	8	Forecast Zone
t24cz	9	T24 Climate Zone
flag_ma	10	Gas Account Matches Multiple Electric or Multiple Surveys
flag_mm	11	Utility Flagged As Master-Metered Gas
strata_id	12	Strata id

APPENDIX O:
2019 Electric Load Profile and Gas Daily Use Variables in Database

Table 16: Electric Load Shapes Contents

NAME	VARNUM	LABEL
Electric Load Shapes Contents		
utility	1	
strata_id	2	
date	3	
SumWgt	4	number of customers represented by the sample
N	5	number of customers in the sample for this date
MEAN_kWh1	6	mean kWh for hr ending 1
MEAN_kWh2	7	mean kWh for hr ending 2
MEAN_kWh3	8	mean kWh for hr ending 3
MEAN_kWh4	9	mean kWh for hr ending 4
MEAN_kWh5	10	mean kWh for hr ending 5
MEAN_kWh6	11	mean kWh for hr ending 6
MEAN_kWh7	12	mean kWh for hr ending 7
MEAN_kWh8	13	mean kWh for hr ending 8
MEAN_kWh9	14	mean kWh for hr ending 9
MEAN_kWh10	15	mean kWh for hr ending 10
MEAN_kWh11	16	mean kWh for hr ending 11
MEAN_kWh12	17	mean kWh for hr ending 12
MEAN_kWh13	18	mean kWh for hr ending 13
MEAN_kWh14	19	mean kWh for hr ending 14
MEAN_kWh15	20	mean kWh for hr ending 15
MEAN_kWh16	21	mean kWh for hr ending 16
MEAN_kWh17	22	mean kWh for hr ending 17
MEAN_kWh18	23	mean kWh for hr ending 18
MEAN_kWh19	24	mean kWh for hr ending 19
MEAN_kWh20	25	mean kWh for hr ending 20
MEAN_kWh21	26	mean kWh for hr ending 21
MEAN_kWh22	27	mean kWh for hr ending 22
MEAN_kWh23	28	mean kWh for hr ending 23
MEAN_kWh24	29	mean kWh for hr ending 24
LCLM_kWh1	30	90% lower confidence limit of the mean for hr ending 1
LCLM_kWh2	31	90% lower confidence limit of the mean for hr ending 2
LCLM_kWh3	32	90% lower confidence limit of the mean for hr ending 3
LCLM_kWh4	33	90% lower confidence limit of the mean for hr ending 4
LCLM_kWh5	34	90% lower confidence limit of the mean for hr ending 5
LCLM_kWh6	35	90% lower confidence limit of the mean for hr ending 6

Electric Load Shapes Contents		
NAME	VARNUM	LABEL
LCLM_kWh7	36	90% lower confidence limit of the mean for hr ending 7
LCLM_kWh8	37	90% lower confidence limit of the mean for hr ending 8
LCLM_kWh9	38	90% lower confidence limit of the mean for hr ending 9
LCLM_kWh10	39	90% lower confidence limit of the mean for hr ending 10
LCLM_kWh11	40	90% lower confidence limit of the mean for hr ending 11
LCLM_kWh12	41	90% lower confidence limit of the mean for hr ending 12
LCLM_kWh13	42	90% lower confidence limit of the mean for hr ending 13
LCLM_kWh14	43	90% lower confidence limit of the mean for hr ending 14
LCLM_kWh15	44	90% lower confidence limit of the mean for hr ending 15
LCLM_kWh16	45	90% lower confidence limit of the mean for hr ending 16
LCLM_kWh17	46	90% lower confidence limit of the mean for hr ending 17
LCLM_kWh18	47	90% lower confidence limit of the mean for hr ending 18
LCLM_kWh19	48	90% lower confidence limit of the mean for hr ending 19
LCLM_kWh20	49	90% lower confidence limit of the mean for hr ending 20
LCLM_kWh21	50	90% lower confidence limit of the mean for hr ending 21
LCLM_kWh22	51	90% lower confidence limit of the mean for hr ending 22
LCLM_kWh23	52	90% lower confidence limit of the mean for hr ending 23
LCLM_kWh24	53	90% lower confidence limit of the mean for hr ending 24
UCLM_kWh1	54	90% upper confidence limit of the mean for hr ending 1
UCLM_kWh2	55	90% upper confidence limit of the mean for hr ending 2
UCLM_kWh3	56	90% upper confidence limit of the mean for hr ending 3
UCLM_kWh4	57	90% upper confidence limit of the mean for hr ending 4
UCLM_kWh5	58	90% upper confidence limit of the mean for hr ending 5
UCLM_kWh6	59	90% upper confidence limit of the mean for hr ending 6
UCLM_kWh7	60	90% upper confidence limit of the mean for hr ending 7
UCLM_kWh8	61	90% upper confidence limit of the mean for hr ending 8
UCLM_kWh9	62	90% upper confidence limit of the mean for hr ending 9
UCLM_kWh10	63	90% upper confidence limit of the mean for hr ending 10
UCLM_kWh11	64	90% upper confidence limit of the mean for hr ending 11
UCLM_kWh12	65	90% upper confidence limit of the mean for hr ending 12
UCLM_kWh13	66	90% upper confidence limit of the mean for hr ending 13
UCLM_kWh14	67	90% upper confidence limit of the mean for hr ending 14
UCLM_kWh15	68	90% upper confidence limit of the mean for hr ending 15
UCLM_kWh16	69	90% upper confidence limit of the mean for hr ending 16
UCLM_kWh17	70	90% upper confidence limit of the mean for hr ending 17
UCLM_kWh18	71	90% upper confidence limit of the mean for hr ending 18
UCLM_kWh19	72	90% upper confidence limit of the mean for hr ending 19
UCLM_kWh20	73	90% upper confidence limit of the mean for hr ending 20
UCLM_kWh21	74	90% upper confidence limit of the mean for hr ending 21
UCLM_kWh22	75	90% upper confidence limit of the mean for hr ending 22
UCLM_kWh23	76	90% upper confidence limit of the mean for hr ending 23
UCLM_kWh24	77	90% upper confidence limit of the mean for hr ending 24

Electric Load Shapes Contents		
NAME	VARNUM	LABEL
StdErr_kWh1	78	std err for hr ending 1
StdErr_kWh2	79	std err for hr ending 2
StdErr_kWh3	80	std err for hr ending 3
StdErr_kWh4	81	std err for hr ending 4
StdErr_kWh5	82	std err for hr ending 5
StdErr_kWh6	83	std err for hr ending 6
StdErr_kWh7	84	std err for hr ending 7
StdErr_kWh8	85	std err for hr ending 8
StdErr_kWh9	86	std err for hr ending 9
StdErr_kWh10	87	std err for hr ending 10
StdErr_kWh11	88	std err for hr ending 11
StdErr_kWh12	89	std err for hr ending 12
StdErr_kWh13	90	std err for hr ending 13
StdErr_kWh14	91	std err for hr ending 14
StdErr_kWh15	92	std err for hr ending 15
StdErr_kWh16	93	std err for hr ending 16
StdErr_kWh17	94	std err for hr ending 17
StdErr_kWh18	95	std err for hr ending 18
StdErr_kWh19	96	std err for hr ending 19
StdErr_kWh20	97	std err for hr ending 20
StdErr_kWh21	98	std err for hr ending 21
StdErr_kWh22	99	std err for hr ending 22
StdErr_kWh23	100	std err for hr ending 23
StdErr_kWh24	101	std err for hr ending 24

Table 17: Gas Daily Use Contents

Gas Daily Use Contents		
NAME	VARNUM	LABEL
utility	1	
date	2	
Mean	3	mean daily therms
LowerCLMean	4	
SumWgt	5	number of customers represented by the sample
N	6	number of customers in the sample for this date
StdErr	7	std err of mean daily therms
UpperCLMean	8	
strata_id	9	

APPENDIX P:
Description of SAS Files and Code

This appendix provides a description of the SAS code used to clean, plug, calendarize, and fill the Home Energy Survey data and the Billing data provided by the five utilities.

Table 18: List of SAS Code and Descriptions

2019 Home Energy Survey Cleaning Code	
This subsection lists the code used to clean the Home Energy Survey for individual and master-meter customers. The code is listed sequentially.	
1_Create Paper Infile Code	This code creates a text file of code that is used in **2_Read in Survey Data**
2_Read in Paper Survey Data	This program reads in the scanned survey files.
3 Paper TooManyResponses	This program read in the expanded data sets created by **2_Read in Survey Data**. The programs count the number of questions for which the individual provided multiple responses.
4_Min_Max	These programs read in the expanded data sets created by **2_Read in Survey Data** and uses an algorithm to choose the most likely response, if more than one response was provided for the question.
1. Import Web Survey Data	This program reads in csv files from the web based survey.
2. Postcode and Rename Raw Web Data	This program formats and renames variables in the web based survey data for the purpose of combining paper based survey data and web based survey data.
3. Stack Paper and Web Data	This program uses outputs from **4_Min_Max** and **2. Postcode and Rename Raw Web Data** to create a complete raw survey data set.
5_MISSING_DWLTYPE_IM and **5. MISSING_DWLTYPE_MM.**	These programs read in data from **3. Stack Paper and Web Data**, carefully examining the survey response to the variable *DWLTYPE*. Using information on the street address (for the individual-metered customers) and the algorithm discussed in the Cleaning and Processing Section, the code reassigns dwelling types and creates a new variable, RESIDENCE.
6_Clean Duplicates	This program creates a dataset that has one row per participant using the algorithm discussed in the Cleaning and Processing Section.
7_CLEANSAMPLE and 7. **MM_CleanSample**	These programs are the primary cleaning codes for the Home Energy Survey.
8. MakeVars and **8. MakeVars_MM**	These program makes the saturation variables used during the CDA analysis and in reporting.
Step 1 Plug_income, **MM_Step 1 Plug_income**, **Step 2 Plug_SQFT**, **MM_Step 2 Plug_SQFT**, **Step 3 Plug_Numi**, **MM_Step 3 Plug_Numi**, **Step 4 Plug_Builtage**, and **MM_Step 4 Plug_Builtage**	These programs estimate means to plug missing values for income, square footage, number of residents in the household, and the home's age.
2019 Billing and Interval Data Prep	
1_[util]_Billing_Standardization_2018_2019	These programs intakes and standardizes the electric billing data for all premises included in the sample
1_[util]_Gas_Billing_Standardization_2018_2019	These programs intakes and standardizes the gas billing data for all premises included in the sample

[util]_Interval_Standardization_2018_2019	These programs intakes and standardizes the electric interval data for premises that responded to the survey
[util]_Gas_Interval_Standardization_2018_2019	These programs intakes and standardizes the gas interval data for premises that responded to the survey

2019 Billing and Interval Normalization	
For the normalization of daily electric usage	
\Daily\Electric\Step A-Temperature Files	
step 1.3-Set Up Temperature file For Analysis.sas	Reads in source actual temperature data and creates actual daily temperature file for the normalization analysis
step 2.2-Set Up Normal Temperature file for results.sas	Reads in source normal temperature data and creates daily normal temperature file for the normalization results
step 3.2-Set Up Actual Year Temperature for results.sas	Reads in actual temperature data and creates daily actual test year daily temperature file for the normalization results
\Daily\Electric\Step B-Set up and VEE	
Step B.2.1.2 Source Data VEE.sas	Reads in the source interval data, performs VEE, and sets up the initial daily analysis data set
Step B.2.2.3 Match Billing to Weather data.sas	Performs more VEE on the initial data set and sets up the temperature/site map
Step B.2.3.1 -Electric Usage Parts.sas	Perform final VEE, adds variables and sets up the daily analysis data set
\Daily\Electric\Step C-Normalization	
step C.2.1.1-full data set parts.sas	Performs the regression analysis on the daily analysis data set to determine the optimal normalization models
step C.2.2.1-trim outliers.sas	Performs the regression analysis on the sites with poor models (less than r2 of 0.8), trimming outliers
step C.2.3.1-limit to last 365.sas	Performs the regression analysis on the sites with poor models (less than r2 of 0.8), limiting the data to the last 365 days
step C.2.4.1-optimal models.sas	Chooses optimal models from the first 3 normalization steps
step C.2.5.1-checks predictions.sas	Checks the predictions against the actual interval data
step C.2.6.3-FINAL RESULTs Daily NACS and Daily Hat.sas	Calculates the NAC and daily hats for the test year
Step C.2.7.1 Append RM Flag.sas	Adds a net meter or reverse meter flag to the results
step C2.8.1 Append 65F Degree Days.sas	Appends degree days based on 65 to the results
For the normalization of daily Nat Gas usage	
\Daily\Gas\Step A-Temperature Files	
step 1.4G-Set Up Temperature file For Analysis.sas	Reads in source actual temperature data and creates actual daily temperature file for the normalization analysis
step 2.3G-Set Up Normal Temperature file for results.sas	Reads in source normal temperature data and creates daily normal temperature file for the normalization results
step 3.2G-Set Up Actual Year Temperature for results.sas	Reads in actual temperature data and creates daily actual test year daily temperature file for the normalization results
\Daily\Gas\Step B-Set up and VEE	
Step B.2.1.2G Source Data VEE.sas	Reads in the source interval data, performs VEE, and sets up the initial daily analysis data set
Step B.2.2.3G Match Billing to Weather data.sas	Performs more VEE on the initial data set and sets up the temperature/site map
Step B.2.3.1G -Nat Gas Usage Parts.sas	Perform final VEE, adds variables and sets up the daily analysis data set
\Daily\Gas\Step C-Normalization	
step C.2.1.3G-full data set parts.sas	Performs the regression analysis on the daily analysis data set to determine the optimal normalization models

step C.2.2.3G-trim outliers.sas	Performs the regression analysis on the sites with poor models (less than r2 of 0.8), trimming outliers
step C.2.3.3G-limit to last 365.sas	Performs the regression analysis on the sites with poor models (less than r2 of 0.8), limiting the data to the last 365 days
step C.2.4.1G-optimal models.sas	Chooses optimal models from the first 3 normalization steps
step C.2.5.2G-checks predictions.sas	Checks the predictions against the actual interval data
step C.2.6.3G-FINAL RESULTs Daily NACS and Daily Hat.sas	Calculates the NAC and daily hats for the test year
step C2.8.1 Append 65F Degree Days.sas	Appends degree days based on 65 to the results
For the normalization of Monthly electric usage	
\Monthly\Electric\Step A-Temperature Files	
step 1.3M-Set Up Temperature file For Monthly Analysis.sas	Reads in source actual temperature data and creates actual Monthly temperature file for the normalization analysis
step 2.2M-Set Up Normal Temperature file for results.sas	Reads in source normal temperature data and creates Monthly normal temperature file for the normalization results
step 3.2M-Set Up Actual Year Temperature for results.sas	Reads in actual temperature data and creates Monthly actual test year Monthly temperature file for the normalization results
\Monthly\Electric\Step B-Set up and VEE	
Step B.2.1.1M Source Data VEE.sas	Reads in the source interval data, performs VEE, and sets up the initial Monthly analysis data set
Step B.2.2.3M Match Billing to Weather data.sas	Performs more VEE on the initial data set and sets up the temperature/site map
Step B.2.3.1M -Electric Usage Parts.sas	Perform final VEE, adds variables and sets up the Monthly analysis data set
\Monthly\Electric\Step C-Normalization	
step C.1.1M-full data set parts.sas	Performs the regression analysis on the Monthly analysis data set to determine the optimal normalization models
step C.1.2M-trim outliers.sas	Performs the regression analysis on the sites with poor models (less than r2 of 0.8), trimming outliers
step C.1.3M-limit to last 365.sas	Performs the regression analysis on the sites with poor models (less than r2 of 0.8), limiting the data to the last 365 days
step C.1.4M-optimal models.sas	Chooses optimal models from the first 3 normalization steps
step C.1.5M-checks predictions.sas	Checks the predictions against the actual interval data
step C.1.6.2M-FINAL RESULTS Daily NACS and Daily Hat.sas	Calculates the NAC and Monthly hats for the test year
step C.1.7.1M-Limits results to survey Particpants.sas	Eliminates all non survey respondents from results
step C2.8.1 Append 65F Degree Days.sas	Appends degree days based on 65 to the results
2019 Conditional Demand Preparations	
The process of preparing for the CDA includes identifying cases for fuel switching, construction of the saturation variables, filling missing data, estimating the CDA models and calculating UEC. Programs were also developed to create datasets with household level end-use UECs. The following subsection list the program used during this process.	
Survey_fill_mean	This program fills missing values for CDA variables with mean values by RESTYPE
Create_indicators	The program makes the indicator variables used during the CDA analysis.
Xproduct	These programs create the variables used during the CDA program.
ENG_Estimates_Gas and **ENG_Estimates_Electric**	These programs calcualte the engineering esimtates for electric and gas appliances used in the SAE model.
SAE_Gas and **SAE_Electric**	These programs esimate the electric and gas SAE models.

	CDA Electric Calibration and **CDA Gas Calibration**	This program applies the SAE prameters to calculate UEC esitmates, and calibrates the UEC's.

2019 Electric Load Profiles and Gas Daily Use Preparation

The following subsection lists the programs used to aggregate the interval data to electric load profiles and to summarize gas daily use.

	loadshapes_elec.sas	This program produces the electric load shapes used in the reports and included in the load shapes dataset
	load_daily_gas	This program produces the daily gas use estimates used in the reports and included in the daily gas use dataset