



DNV GL - ENERGY

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Upstream and Residential Downstream Lighting Impact Evaluation Report

Lighting Sector – Program Year 2019
EM&V Group A

CALIFORNIA PUBLIC UTILITIES COMMISSION

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List of abbreviations

ANCOVA	Analysis of covariance
CF	Coincidence factor
CFL	Compact fluorescent lamp
CLASS	California Lighting and Appliance Saturation Survey
CREED	Consortium of Retail Energy Efficiency Data
DEER	Database for Energy-Efficient Resources
EISA	Energy Independence and Security Act (2007)
EM&V	Evaluation, Measurement, and Verification
ESPI	Energy Savings Performance Incentive
EUL	Effective useful life
GWh	Gigawatt hour
HOU	Hours of use
HVAC	Heating, ventilation, and air-conditioning
IE	Interactive effects
IESR	Impact Evaluation Standard Reporting
Inc	Incandescent
IOU	Investor-owned utility
kW	Kilowatt
kWh	Kilowatt hour
LCM	Lamp Choice Model
LED	Light-emitting diode
MR	Multifaceted reflector
MSB	Medium screw base
MW	Megawatt
MWh	Megawatt hour
NCP	National Consumer Panel
NTGR	Net-to-gross ratio
PA	Program administrator
PAR	Parabolic aluminized reflector
PL	Program lamp
POS	Point-of-sale
Q1	First quarter
Q2	Second quarter
Q3	Third quarter
Q4	Fourth quarter
UES	Unit energy savings
UPC	Universal Product Code
W	Watt
WO28	California Upstream and Residential Lighting Impact Evaluation Work Order 28



1 EXECUTIVE SUMMARY

This report presents the energy savings evaluation of the California 2019 upstream lighting programs offered by California program administrators (PAs) and funded by ratepayers. Upstream programs provide monetary incentives to manufacturers (and in some cases, large retail chains) to encourage deployment and stocking of energy efficient technologies. In this evaluation, we focus on lighting technologies mainly used in the residential sector. We should note there are also lighting rebate programs that provide incentives directly to utility customers (downstream programs) that are also part of this evaluation. DNV GL conducted this evaluation as part of the California Public Utilities Commission (CPUC) Energy Division (ED) Evaluation, Measurement, & Verification contract.

For all upstream residential technologies, we present the energy savings and peak demand reductions that these technologies achieved relative to technologies that they displaced (gross savings), as well as the energy savings and peak demand reduction these technologies achieved directly due to the program intervention (net savings).¹ The energy savings and peak demand reductions from upstream residential technologies account for the vast majority of savings from the upstream lighting program.

1.1 Study background

This energy savings evaluation studied all lighting technologies deployed using the upstream lighting program and lighting rebates within the residential programs offered by Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric Company (SDG&E). Table 1-1 shows the PA-reported net annual savings from the 2019 upstream lighting program and the percent of net

¹ Note that light-emitting diode (LED) bulbs emit less heat to the surrounding space than less-efficient incandescent or halogen bulbs. Therefore, in addition to electricity energy savings and peak demand reduction, we account for the small associated increase in winter gas use due to an increase in space heating. We also include a slight reduction in summer electricity consumption and peak demand due to reduced space cooling.

savings that upstream lighting accounts for in the total portfolio. Each PA's lighting program savings accounted for substantially different proportions of their respective overall portfolio savings in 2019. PG&E's upstream lighting programs accounted for 7% of its portfolio-wide net energy savings, SCE's accounted for 12%, and SDG&E's accounted for 20%.

Table 1-1. Summary of PA-reported net annual savings from upstream lighting, 2019

PA	PA-Reported Net Annual Savings*					
	Total Portfolio		Upstream Lighting		Upstream Lighting as Percent of Total Portfolio	
	Energy (GWh)	Peak Demand Reduction (MW)	Energy (GWh)	Peak Demand Reduction (MW)	Energy (GWh)	Peak Demand Reduction (MW)
PG&E	1,250	252	91	13	7%	5%
SCE	1,168	238	145	22	12%	9%
SDG&E	303	62	60	9	20%	15%
Statewide	2,720	552	296	43	11%	8%

* The total portfolio savings include savings from codes and standards.

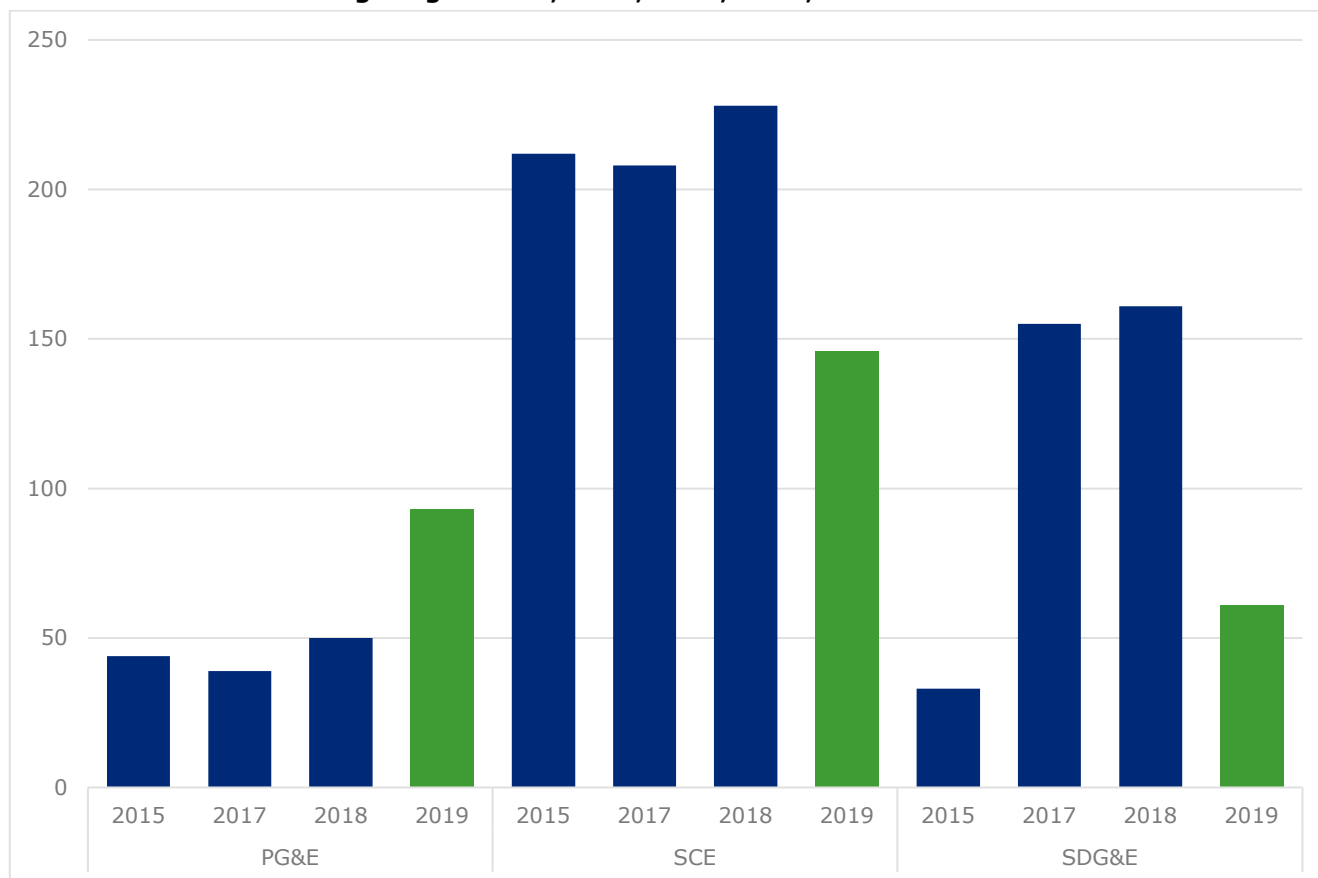
Figure 1-1 shows the 2019 net reported annual energy savings from upstream and residential downstream lighting programs for each PA along with net reported annual energy savings from the same programs in 2015, 2017, and 2018 for comparison.²

SDG&E implemented the most dramatic change over the 2015-2019 timeframe, increasing its upstream and residential lighting rebate portfolio by nearly five-fold in 2018 compared to 2015, then cutting it by more than half in 2019. SDG&E's programs reported 61 GWh net savings in 2019 compared to an estimated 161 GWh net savings in 2018. SCE increased the quantity of light bulbs it discounted between 2015 and 2018, then slightly decreased the quantity in 2019, which resulted in an increase in net savings to a high of 228 GWh in 2018 and reduction to 146 GWh in 2019. Of the three program administrators, PG&E was the only one to increase the quantity of discounted lightbulbs in 2019. With its comparatively smaller lighting programs, PG&E increased its net annual savings from 50 GWh in 2018 to 93 GWh in 2019.

Details on the quantity of light bulbs each of the PAs discounted in 2015, 2017, 2018, and 2019 are provided in Section 1.3.1.

² There was no evaluation of the 2016 upstream and residential downstream lighting programs as the CPUC did not have an evaluator in contract at that time.

Figure 1-1. Summary of PA-reported net annual energy savings (GWh) from upstream and residential downstream lighting rebates, 2015, 2017, 2018, and 2019



1.2 Technologies evaluated

This evaluation focuses on three lighting technologies that account for 99% of the PAs' reported net savings from the upstream lighting programs. The 2019 evaluation addresses these three types of light-emitting diode (LED) light bulbs:

LED reflector light bulbs – These are the type of light bulbs found in a recessed can in a kitchen ceiling.

LED candelabra light bulbs – These are the type of light bulbs found in a chandelier lamp at home.

LED globe light bulbs – These are the type of light bulbs found in a bathroom vanity at home.

The combined total light bulbs shipped from manufacturers to retail stores across the three PAs was nearly 26 million (Table 1-2). Overall, LED reflector bulbs comprised the majority of light bulbs across the PAs (53%) and the largest type within each PA. The quantities of LED candelabra bulbs and LED globe bulbs shipped were considerably lower when compared to LED reflectors, particularly in PG&E's and SDG&E's programs.

Table 1-2. Quantity of light bulbs in evaluated upstream by light bulb type and PA, 2019

Evaluated Light Bulb Type	Quantity (Number of Light Bulbs)			Overall Quantity (Across PAs)	
	PG&E	SCE	SDG&E	Total	% of Total
LED reflector	4,987,214	6,129,955	2,628,716	13,745,885	53%
LED candelabra	1,525,330	3,771,984	813,958	6,111,272	24%
LED globe	490,703	4,229,192	1,246,808	5,966,703	23%
Overall	7,003,247	14,131,131	4,689,482	25,823,860	100%

1.3 Approach

The evaluation team used methodologies developed for previous program year evaluations. We used a streamlined method for net savings estimation in 2019 (and 2018) compared to 2017 and 2015. We used the same gross savings methodology as the prior two evaluations, with a market-based baseline. In any energy savings evaluation, establishment of the baseline—that is, what the energy use would have been in absence of the program—directly effects the savings determination. We used the average wattage of displaced purchases as the baseline. We then used results from an online consumer survey and other data sources to estimate the proportion of LEDs that would have been sold with and without the upstream lighting program³ and used this “net-to-gross ratio”⁴ to calculate the amount of program-discounted light bulbs that would not have been bought without the program.

1.3.1 Shipment versus sales quantity adjustment

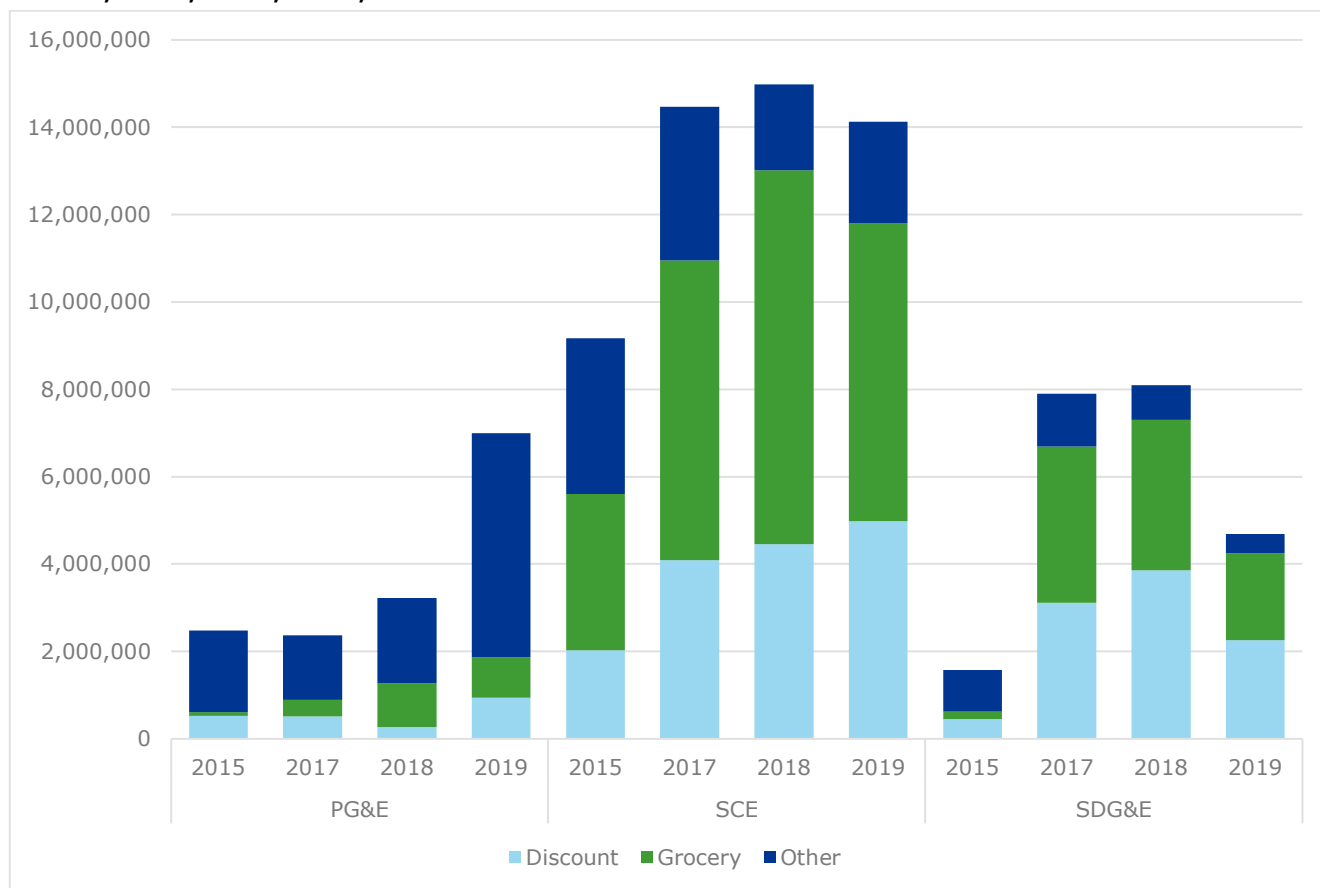
We reviewed the PA-submitted annual 2019 program data and, as was the case in the evaluation of 2017 and 2018 programs, found unrealistically large volumes of light bulbs shipped to discount and grocery stores, particularly in SCE and SDG&E territories. The reported number of light bulbs shipped to discount and grocery stores was significantly higher than the number of total California light bulb sales in these stores, as determined from other data sources.

Figure 1-2 shows the quantity of light bulbs shipped by sales channel (grocery store, discount store, and all other sales channels) and PA in 2015, 2017, 2018, and 2019. As observed in 2017 and 2018, the vast majority of upstream lighting program light bulbs were shipped to discount and grocery channels in 2019. Nearly 70% of the 2019 program shipments went to discount and grocery channels across all PAs, and over 85% of SCE’s and SDG&E’s 2019 program shipments went to these two channels. PG&E increased its program shipments in 2019, with nearly three-quarters of their shipments going to big box stores, while the other PAs decreased their shipments.

³ The online consumer survey presented a set of light bulb purchasing scenarios to simulate consumer choices with and without program intervention. These scenarios included choices between an LED light bulb and an inefficient light bulb. See Section 3.8 and Appendix F for further details on this analysis.

⁴ The net-to-gross ratio is the ratio of energy savings that occurred due to the program and the energy savings that would have occurred without the program. It is indicative of the customers who would have purchased that same efficient technology even without the program rebate; these customers are known as free-riders. Net-to-gross ratios range from 0 to 1. The higher the net-to-gross ratio, the more the program influenced consumer choice.

Figure 1-2. Quantity of light bulbs in evaluated upstream lighting technologies by sales channel*^ and PA, 2015, 2017, 2018, and 2019



*Other sales channels include drug, hardware, home improvement, lighting and electronics, mass merchandise, and membership club stores.

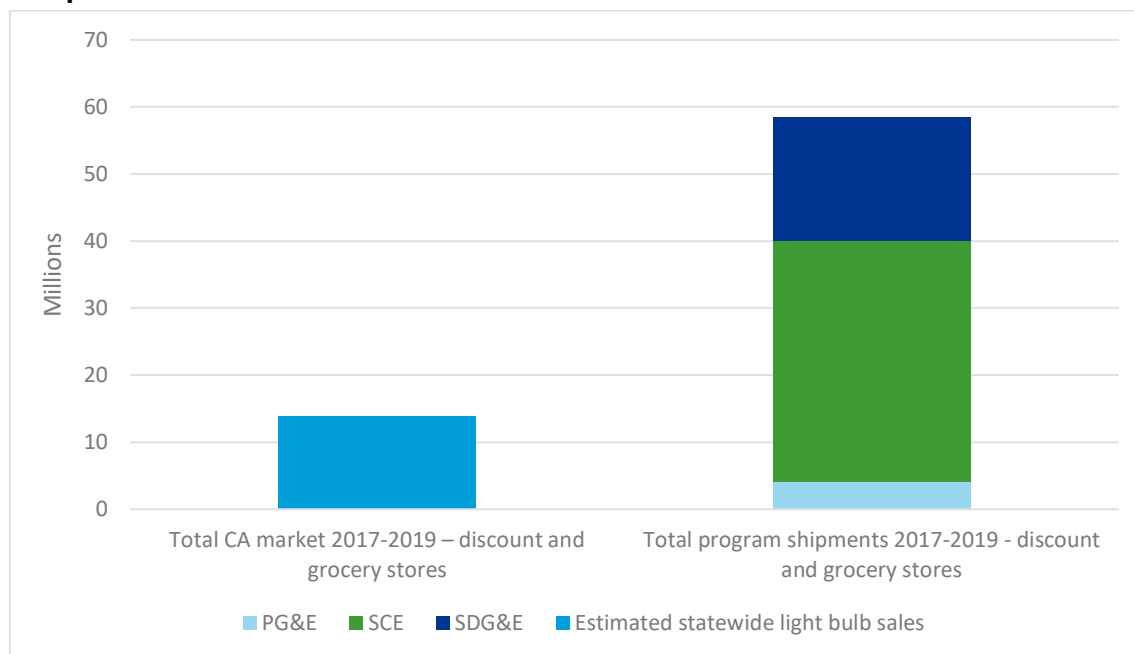
^The "other" category for PG&E is primarily comprised of big box stores (membership club and home improvement stores); big box stores accounted for 94%, 91%, and 97% of PG&E's "other" stores in 2017, 2018, and 2019, respectively.

Across the three PAs, more than 60% of the discount and grocery stores that participated in the 2019 program received shipments that exceeded 10,000 light bulbs. For context, a store would need to sell almost 200 light bulbs a week to sell 10,000 bulbs in a year, which is a volume far greater than many of these stores reported that they sold. We compiled multiple data sources that give reliable estimates of statewide sales, and these data reveal that the market could not have supported the volume of sales that the 2019 program data reported as shipped.

Figure 1-3 shows that over the course of the last three program years, the PAs have reported shipping more than four times as many discounted light bulbs to discount and grocery stores than the entire California market for light bulbs in these sales channels.⁵ SCE's program accounted for more than 60% of the program shipments to these channels, and SDG&E accounted for more than 30% of the shipments during this three year period. Program year 2019 was a continuation of the trend found in program years 2017 and 2018.

⁵ The estimate of light bulb sales in California grocery and discount stores includes all light bulb technologies and shapes sold in those stores, including LED, incandescent, halogen, and compact fluorescent light bulbs.

Figure 1-3. Quantity of 2017-2019 program lamps shipped to grocery and discount stores compared to the estimated market size of the sales channels



1.4 Results

1.4.1 Shipment versus sales quantity adjustment

We utilized multiple data sources to analyze the California light bulb market, including a telephone survey of retail store representatives, and calculated an adjustment to the quantity of light bulbs shipped to estimate the quantity of light bulbs sold.⁶ Table 1-3 shows the sales quantity adjustments that we applied. This resulted in the PAs receiving credit for only 41% of the light bulbs that were reported to be shipped. In other words, over 15 million light bulbs did not receive credit for savings in 2019 as determined by the evaluation.

Table 1-3. Light bulb quantity adjustments by PA, 2019

PA and Channel	Light Bulbs Shipped	Sales Quantity Adjustment	Light Bulbs Credited	Light Bulbs Not Credited
PGE	7,003,247	79%	5,559,113	1,444,134
Big Box	4,980,923	100%	4,980,923	0
Discount	944,952	34%	321,284	623,668
Grocery	921,872	11%	101,406	820,466
Remaining Channels	155,500	100%	155,500	0
SCE	14,131,131	30%	4,290,768	9,840,363
Big Box	1,564,996	100%	1,564,996	0

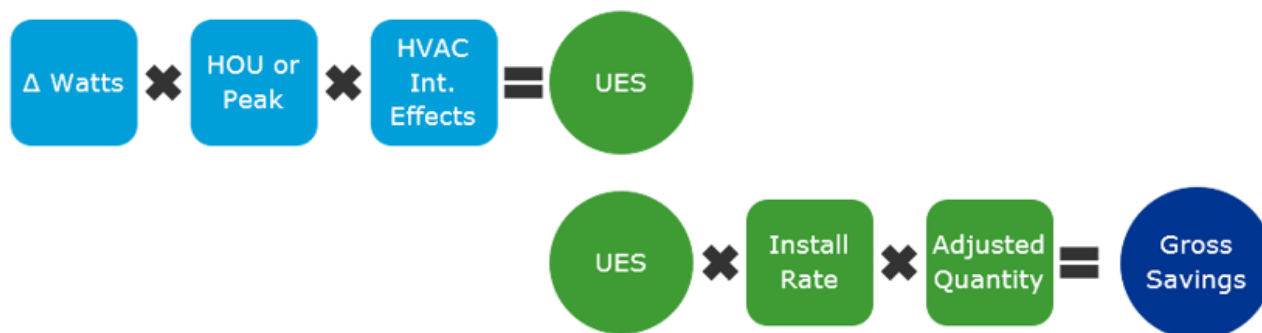
⁶ For more details on how sales quantity adjustments were calculated, please see Section 4 of the main report.

PA and Channel	Light Bulbs Shipped	Sales Quantity Adjustment	Light Bulbs Credited	Light Bulbs Not Credited
Discount	4,993,196	22%	1,098,503	3,894,693
Grocery	6,834,104	13%	888,434	5,945,670
Remaining Channels	738,835	100%	738,835	0
SDG&E	4,689,482	16%	766,014	3,923,468
Big Box	288,829	100%	288,829	0
Discount	2,262,768	3%	67,883	2,194,885
Grocery	1,986,877	13%	258,294	1,728,583
Remaining Channels	151,008	100%	151,008	0
Statewide total	25,823,860	41%	10,615,895	15,207,965

1.4.2 Gross savings results

The evaluation team calculated gross savings for upstream technologies using the formula shown in Figure 1-4. We calculate the unit energy savings and then adjust quantities to calculate the gross savings.

Figure 1-4. Gross savings overview



Where:

Delta Watts = The difference in wattage between the energy efficient light bulb and the light bulb being replaced

HOU= Hours of use

HVAC Int. Effects = HVAC interactive effects.⁷

UES= Unit energy savings

Table 1-4 shows the gross realization rates for the evaluated technologies in the upstream lighting program.⁸ A gross realization rate of 100% means the evaluated results were able to verify all the reported gross savings occurred. A realization rate greater than 100% indicates evaluated gross savings are higher

⁷ LEDs produce less heat than incandescent light bulbs, so their installation causes a minor increase in heating loads, which is an interactive effect.

⁸ The gross realization rate is a comparison between predicted and actual gross energy savings.

than the reported gross savings, while a rate lower than 100% indicates evaluated gross savings are lower than the reported gross savings.

The gross realization rates reflect a blend of two separate evaluation results. The evaluated energy savings of each of the evaluated light bulb types were up to four times greater than the reported savings in the program tracking data, which helped increase gross savings. On the other hand, the evaluation reduced the estimated total quantities of light bulbs sold in the market by as much as 97% for some sales channels, which contributed to reductions in the gross savings. These competing calculations are why the gross realization rates for different light bulb types can vary above and below 100%.

Table 1-4. Gross kWh realization rates by evaluated upstream lighting technologies, 2019

Evaluated Light Bulb Type	PG&E	SCE	SDG&E	Overall
LED Reflector	141%	78%	20%	88%
LED Candelabra	202%	133%	49%	140%
LED Globe	225%	75%	33%	78%

1.4.3 Net savings results

Net savings are the gross savings minus energy savings attributed to customers who would have purchased LEDs without the program rebates. The “net-to-gross ratio” is the ratio of net to gross savings. A ratio equal to 100%, or 1.0, means the upstream lighting program completely influenced the installation of the energy efficient equipment sold with program discounts.

The evaluation determined a net-to-gross ratio for each evaluated technology in the upstream lighting program. The results strongly indicate that the lighting market has shifted to a point where LEDs dominate the market within each light bulb type and most customers would purchase LEDs even without program rebates.

For instance, the PAs’ LED reflectors received a net-to-gross ratio of 7%, meaning 93% of the savings would have occurred without the program and only 7% can be attributed to the program activity. Table 1-5 shows the net-to-gross ratios by evaluated technology and PA for light bulbs that were sold to residential customers.

Table 1-5. Net-to-gross ratios for all evaluated residential upstream lighting technologies by PA, 2019

Evaluated Light Bulb Type	PA		
	PG&E	SCE	SDG&E
LED Reflector	7%	7%	7%
LED Candelabra	12%	12%	12%
LED Globe	25%	25%	25%

We applied these net-to-gross ratios to calculate the savings that occurred as a direct result of the program (net savings). Table 1-6 shows the net realization rates. Statewide, LED reflector light bulbs had a 19% net realization rate, which means 81% of the claimed savings for LED reflectors could not be verified or attributed to the upstream lighting program. Table 1-6 and Table 1-7 include savings for all evaluated upstream technologies and include the non-residential savings.

Table 1-6. Net kWh realization rates by evaluated upstream lighting technologies, 2019

Evaluated Light Bulb Type	PG&E	SCE	SDG&E	Overall
LED Reflector	32%	14%	6%	19%
LED Candelabra	49%	29%	13%	32%
LED Globe	80%	26%	12%	27%

Table 1-7 shows the total reported and evaluated net savings by PA for GWh, MW, and therms.

Table 1-7. Net savings for evaluated upstream lighting technologies by PA, 2019

PA	Reported			Evaluated		
	GWh	MW	Million Therms	GWh	MW	Million Therms
PG&E	91	13	(1.7)	32	6	(0.5)
SCE	145	22	(2.2)	27	5	(0.4)
SDG&E	60	9	(0.8)	4	1	(0.0)
Total	296	43	(4.7)	64	12	(1.0)

1.5 Conclusions and recommendations

We summarize key conclusions and their corresponding recommendations below.

Programs continued to significantly over ship light bulbs to stores

The 2019 upstream lighting programs continued to ship significantly more light bulbs to individual stores, particularly to the discount and grocery channels, than stores could reasonably stock and sell. Evaluation results suggest that there was inadequate monitoring and verification of program light bulb shipments and that many participating retail stores were not required to purchase program discounted light bulbs from manufacturers.

Recommendations

- PAs should have a clear understanding of the estimated size of the market and segmentation of the market by sales channel to make an informed decision on the appropriate level of program shipments.
- Program monitoring should always include verification of shipment and delivery documentation from manufacturers and an adequate number of in-store verifications to confirm stocking and sufficient sell-through rates of program discounted measures. Verification results should be shared and monitored regularly among program staff and PA management.

The lighting market has largely been transformed

Evaluation results suggest that the California lighting market has shifted, and LEDs are the dominant technology and the preferred choice by most consumers for the evaluated light bulb types. LEDs account for more than 75% of the market across all three evaluated light bulb types and more than 90% of the reflector market. LED prices have fallen to a point where they are competitive with inefficient technologies, even without program incentives. Upstream lighting program incentives no longer influence customer purchases as much as they did when inefficient light bulbs dominated the lighting market.

Recommendations

- The PAs discontinued the statewide upstream lighting program in 2020 and should not revive the program in 2021 or future years.
- Increases in standards are expected to remove the remaining pockets of halogen bulbs in the market, and halogens that remain in sockets have such short lifespans that they will soon be replaced by LEDs. To the extent that pockets of inefficient bulbs remain and/or these changes happen inequitably, residential lighting programs should be tailored to reach the appropriate segments of customers, but these programs should be designed thoughtfully to maximize impact.

LEDs were a cost-effective upstream technology but not anymore

The upstream lighting program was a cost-effective vehicle for accelerating the adoption of efficient light bulbs for more than a decade, but the lighting market transformed to the point where LEDs comprised an ever increasing majority of the market during the 2017, 2018, and 2019 program years. With LEDs becoming so common and accepted by consumers, the upstream lighting program's influence on consumer behavior diminished considerably.

Recommendation

- PAs offering upstream programs should closely monitor market trends, particularly trends in overall market size and market share of efficient technologies and less efficient alternatives.

2 INTRODUCTION

In this section, we provide an overview of the California lighting programs, detail the research objectives of the impact evaluation, provide an overview of the evaluation, and outline the organization of the report.

2.1 Program overview

Each California program administrator (PA)—including Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), and San Diego Gas and Electric Company (SDG&E)—implemented lighting programs designed to promote energy-efficient lighting across all market sectors during the 2019 program year (PY 2019). The scope of this evaluation focuses on residential lighting measures.

The largest lighting program for each PA intended for the residential sector was the Primary Lighting Program. This program administered upstream incentives, meaning they provided discounts to manufacturers with the expectation that manufacturers and retail stores will pass those discounts on to customers in the form of reduced-price lamps (commonly referred to as light bulbs). While Primary Lighting is designed as a residential program, previous DNV GL evaluations found that around 6% to 7% of program lamps end up in non-residential sockets.⁹ We therefore include those non-residential measures as part of this evaluation.

In addition to the Primary Lighting Program, there are an assortment of residential downstream programs. In these programs, residential customers directly received a rebate or the lamp itself. Downstream lighting programs make up a relatively small percentage of the program-portfolio measure quantities and savings. Table 2-1 displays the residential and non-residential quantity of lamps that each program discounted.

Table 2-1. Quantity of lamps discounted by program for all PAs, 2019

Program Type	Residential/Non-Residential	Measure Groups Offered in Program – Quantity				
		LED Reflector Lamps	LED Candelabra Lamps	LED Globe Lamps	LED A-Lamps	Other*
Upstream	Residential	12,941,758	5,747,878	5,608,753	0	34,382
	Non-Residential	804,127	363,394	357,950	0	2,195
Downstream	Residential	81,310	50,217	28	1,097	492,893

*Other measure groups include indoor LED wired downlights, indoor LED fixtures, outdoor LED fixtures, and other outdoor LED lamps.

The upstream delivery mechanism has been a core part of the California PAs' compact fluorescent lamp (CFL) program activities for many years, but during the 2013-14 program period, PAs began a shift away from CFLs and toward light-emitting diode (LED) lamps. Starting in January 2014, the California Public Utilities Commission Energy Division (CPUC ED) required that the PAs demonstrate that the LED lamps that they incentivize meet the performance requirements outlined in the California Quality LED Specification developed by the California Energy Commission (CEC).¹⁰ The requirements in the specification go beyond ENERGY STAR® for lamp attributes such as color, dimmability, light distribution, and warranty, with the intent of meeting or exceeding customer expectations regarding lamp performance and light quality. The PAs began

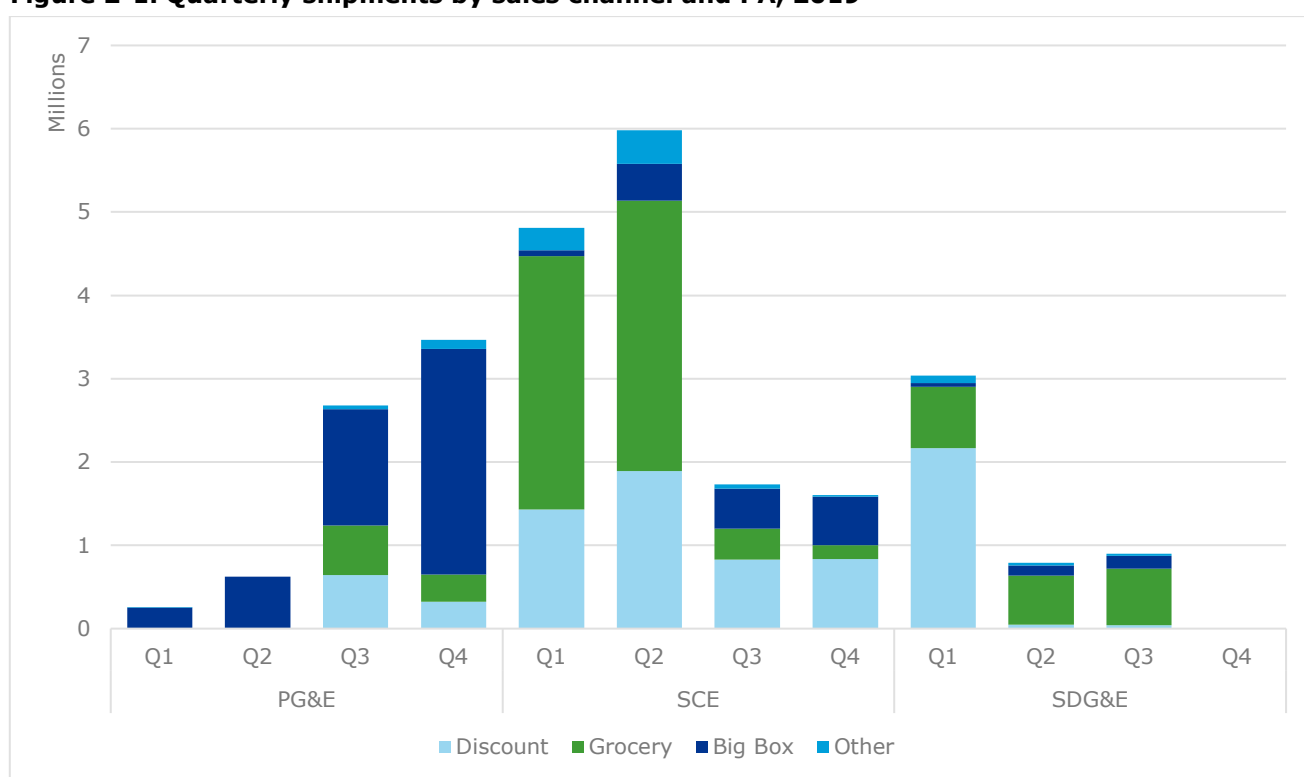
⁹ DNV GL 2014c.

¹⁰ CEC 2017.

introducing LED lamps into the upstream program in relatively small quantities during 2013 and in ever increasing quantities from 2014 to 2018. In PY 2019, the PAs discounted about 1 million fewer LED lamps compared to PY 2018.

PY 2019 represents the last year of the Primary Lighting program, which was discontinued beginning in 2020. Figure 2-1 shows quarterly shipments by sales channel for the Primary Lighting program in 2019. SCE and SDG&E both continued shipments of discounted lamps at 2018 levels in the first quarter of 2019, and then drastically cut shipments between the second and fourth quarters of 2019. SDG&E had no program shipments in the fourth quarter of 2019. PG&E, on the other hand, had low levels of shipments in the first and second quarters of 2019, and then significantly increased program shipments in the third and fourth quarters, mostly through big box retail channels.

Figure 2-1. Quarterly shipments by sales channel and PA, 2019



The upstream and residential downstream lighting programs changed considerably since the 2015 program, and it is important to highlight how the 2017, 2018, and 2019 programs total quantity of lamps and associated savings have changed over the years (Table 2-2). SDG&E implemented the most dramatic changes, increasing their upstream and residential lighting rebate portfolio by nearly five-fold in 2018 before cutting that total in half in 2019 and reducing net savings to approximately 61 GWh. SCE increased the quantity of lamps it discounted by nearly 50% beginning in 2017 and discounted a similar number of lamps in 2018 before reducing the quantity of lamps it discounted to 14.2 million lamps in 2019. SCE's reported net energy savings reached its highest level in 2018 at 228 GWh and then declined by more than one-third in 2019 to 146 GWh. The quantity of lamps PG&E discounted remained relatively stable between 2015 and 2018, but PG&E nearly doubled the number of lamps it discounted in 2019 compared to 2018. Because of this expansion in discounted lamps, PG&E's reported net savings jumped from 50 GWh in 2018 to 93 GWh in 2019.

Table 2-2. Summary of PA-reported ex ante net annual energy savings and quantity of discounted lamps from upstream and residential downstream lighting measures, 2015, 2017, 2018 and 2019

Program Year	PA-Reported Net Energy Savings (GWh)				Quantity of Lamps			
	PG&E	SCE	SDG&E	Total	PG&E	SCE	SDG&E	Total
2015	44	212	33	288	3,440,260	10,258,827	2,019,998	15,719,085
2017	39	208	155	401	3,951,597	15,153,891	8,700,049	27,805,537
2018	50	228	161	439	3,820,911	15,346,110	8,235,848	27,402,869
2019	93	146	61	301	7,505,691	14,193,344	4,763,633	26,462,668

As the LED market continues to mature, efficient lamps have become more cost effective and more popular, and it has become more difficult for upstream lighting programs to achieve the same overall magnitudes of savings. Our evaluation investigates the impacts of these changes at the retail channel level.

2.2 Analysis of measure uncertainty

The Energy Savings Performance Incentive (ESPI) uncertain measure list¹¹ estimates the areas of greatest savings uncertainty within California’s Energy Efficiency portfolio. This list serves as guidance for evaluators to consider when they develop their evaluation work plans. It is important for regulators, program staff, and evaluators to understand why measures are on the uncertain measure list and what keeps measures on the uncertain measures list. Measure-level uncertainty contributes to overall portfolio uncertainty, so it is important for evaluations to reduce that uncertainty moving forward.

As the vast majority 2019 residential lighting claims were administered through the Primary Lighting Program, we considered measures on the uncertain measure list as upstream measures and passed-through all savings associated with downstream measures. The 2019 uncertain measure list included all of the three measure groups that we researched in this evaluation—indoor LED reflector, candelabra, and globe lamps. Although the uncertain measure list also included indoor LED A-lamps, indoor LED fixtures, and outdoor LED fixtures, we did not evaluate these measure groups due to their small contribution to the overall portfolio.

We designed the primary research questions and methodologies of this evaluation to reduce the uncertainty of gross energy consumption baselines¹² and net-to-gross ratios, both of which the uncertain measure list classified as uncertain. The current ex ante assumptions for gross baselines and net-to-gross ratios were assigned within the ex ante lighting disposition and not necessarily from an evaluation. Therefore, they may not have the same quantitative methodological rigor as the results in this evaluation. The impact evaluation results will be applied to future ex ante planning assumptions to reduce future uncertainty around these parameters. Table 2-3, below, lists the measures included in the 2017, 2018, and 2019 uncertain measure lists as well as the measures included in the PY 2017, 2018, and 2019 upstream lighting impact evaluations.

¹¹ CPUC 2016, CPUC 2017, CPUC 2018.

¹² Energy savings are the difference between energy consumption with an energy efficient measure in place and the consumption that otherwise would have occurred during the same period. The energy consumption that otherwise would have occurred is called the baseline.

Table 2-3. 2019 uncertain measure list measures included in impact evaluation

Measures	Uncertain Measure List			Evaluation			Factors Driving Uncertainty in 2018
	2017	2018	2019	2017	2018	2019	
LED Reflector	X	X	X	X	X	X	Large portion of portfolio savings; baseline mix assumptions, installation rates, and sell-through rates
LED Candelabra		X	X		X	X	Large portion of portfolio savings; baseline mix assumptions, installation rates, and sell-through rates
LED Globe		X	X		X	X	Large portion of portfolio savings; baseline mix assumptions, installation rates, and sell-through rates
LED Lamp (A-Lamp)	X	X	X	X			Did not contribute to portfolio savings in 2019; included in PY 2017 evaluation
LED Fixture (Indoor)	X	X	X				Small portion of portfolio savings in 2019; small portion of savings in 2017 and 2018
High Wattage CFL				X			Did not contribute to portfolio savings in 2019; included in PY 2017 evaluation

The number of uncertain measures and parameters that the uncertain measure list has identified has continued to decrease since the inception of the rolling portfolio. Selecting measures to include in the uncertain measure list depends on the uncertainties among the parameters within savings calculations as well as the quantities of each measure group that the program discounted. For example, as PAs have moved away from incentivizing CFLs and towards LEDs, the uncertain measure list has removed CFLs. This is in part because measure-level uncertainty has been reduced, and also because their portion of portfolio-level savings was reduced as programs moved towards LEDs. Additionally, prior upstream lighting evaluations have invested research efforts to reduce the uncertainty of hours-of-use (HOU), installation rates, and baseline estimates. The evaluation results of this report will reduce the uncertainty of 2019 gross and net savings relative to their ex ante estimates.

2.3 Research objectives

The primary objective of this impact evaluation is to verify and validate the PAs' reported energy savings and peak demand reduction estimates. Our approach has three goals:

1. Develop measure quantity adjustments and an assessment of the percentage of discounted products purchased by residential versus non-residential customers. As part of the 2019 evaluation, we include a sales-to-shipment ratio to adjust the quantity of program lamps so that they reflect the estimated quantity of lamps that participating retail stores actually sold. The evaluation team also calculated sales-to-shipment ratios for the 2017 and 2018 evaluations.
2. Develop gross savings inputs, which include an assessment of the percentage of discounted measures installed as well as estimates of the average daily HOU, the average percent of measures operating at peak coincidence factor (CF), the difference between the program lamp wattage and the wattage displaced by PA-discounted measures (delta watts), unit energy savings (UES) in kWh/year and peak kW, and installation rate. As part of the 2019 evaluation, we updated the gross savings baseline wattage in the delta watts calculation to reflect the wattage of non-program technologies that would be sold

naturally in the market absent a program (as opposed to using the wattage installed in homes as the baseline wattage). The evaluation team used the same approach in the 2018 evaluation.

3. Develop net savings inputs, which include estimates of the net-to-gross ratio (NTGR) for each evaluated measure.

To accomplish the goals mentioned above, this evaluation addresses six specific research questions:

1. **What is the average wattage of lamps displaced by upstream program lamps?** We answer this question by using a market-based approach to estimate technology sales shares both with and without program discounts in place and quantify the difference in energy consumption between the two scenarios. The baseline is a key component for calculating delta watts. We discuss this methodology and present calculated LED baselines in Section 5 (Gross Savings Analysis).
2. **What is the appropriate baseline for residential upstream LEDs?** We answer this question to quantify the average wattage that program LEDs displace in the market. The baseline is a key component for calculating delta watts. We discuss this methodology and present calculated LED baselines in Section 5.
3. **What are the ex post savings results for evaluated measures?** This question is the thrust of this evaluation. We present our ex post savings research methodologies in in Section 5 and Section 6 (Net Savings Analysis), and present lighting program savings estimates in Section 7 (Study Results).
4. **What is the free-ridership level for residential upstream LED reflector lamps, LED candelabra lamps, and LED globe lamps?**
5. **What are the annual sales of lamps in different retail channels?** We added this research question as part of the 2017 impact evaluation after we began observing unexpectedly large quantities of LED lamps shipped to discount and grocery stores. A review of 2019 program tracking data revealed that large quantities of LED lamps continued to be shipped to discount and grocery stores. We looked at multiple sources of data to estimate low and high bounds of annual lamp sales in grocery and discount stores. We present this methodology and related findings in Section 4.1 (Sales-to-Shipment Ratio)
6. **After verifying program lamp shipment quantities in different retail channels and estimating annual lamp sales in these channels, what are the lamp sales-to-shipment ratios for each retail channel?** Once we estimated the lighting market potential sales volumes in discount, grocery, big box, and other retail channels, we determined it was necessary to reduce the number of program lamps that programs shipped to quantities that were actually sold in the discount channel for some of the PAs and grocery channels for all of the PAs. We developed the sales-to-shipment ratio to answer this research question and present this methodology and related findings in Section 4.1.

2.4 Evaluation overview

We designed this impact evaluation to address all lighting measures associated with the upstream delivery mechanism as well as all downstream lighting measures targeted at the residential sector by PG&E, SCE, and SDG&E. Upstream and residential downstream lighting measures accounted for 7% to 20% of each PA's ex ante net annual electric savings and 5% to 14% of each PA's net peak demand reductions (see Table 2-4).

Table 2-4. Summary of PA-reported ex ante net annual savings from upstream and residential downstream lighting measures, 2019

PA	PA-Reported Net Annual Savings					
	Total Portfolio		Upstream/Residential Downstream Lighting		Upstream/Residential Downstream Lighting as Percent of Total Portfolio	
	Energy (GWh)	Peak Demand Reduction (MW)	Energy (GWh)	Peak Demand Reduction (MW)	Energy (GWh)	Peak Demand Reduction (MW)
PG&E	1,250	252	93	13	7%	5%
SCE	1,168	238	146	22	13%	9%
SDG&E	303	62	61	9	20%	14%
Statewide	2,720	552	301	44	11%	8%

Upstream lighting measures comprised the vast majority of the combined total upstream and residential downstream lighting measures during the 2019 program period (Table 2-5). As such, the remainder of this report focuses on upstream lighting measures, and in particular, the measures identified as part of the ESPI uncertain measure list¹³ that account for the majority of ex ante savings within the upstream program. For residential downstream measures and for all upstream measures not included in the three evaluated upstream lighting measure groups described below, we are passing through the ex ante estimates for energy savings (kWh), demand reductions (kW), and gas impacts (therms).¹⁴

Table 2-5. Summary of PA-reported ex ante upstream and residential downstream lighting measure savings for evaluated and passed-through measure groups, 2019

PA/Lighting Measure Category	Ex Ante Upstream and Residential Downstream Lighting Gross Savings					
	Energy		Demand		Gas Impacts	
	GWh	% of GWh	MW	% of MW	Million Terms	% of Therms
PG&E						
Upstream – evaluated	94.98	98%	13.55	98%	-1.82	98%
Upstream – passed through	0.00	0%	0.00	0%	0.00	0%
Downstream – passed through	2.16	2%	0.25	2%	-0.04	2%
Subtotal – PG&E	97.13	100%	13.80	100%	-1.86	100%
SCE						
Upstream – evaluated	150.82	99%	22.65	100%	-2.30	99%
Upstream – passed through	0.00	0%	0.00	0%	0.00	0%
Downstream – passed through	1.65	1%	0.02	0%	-0.02	1%
Subtotal – SCE	152.47	100%	22.67	100%	-2.32	100%
SDG&E						
Upstream – evaluated	62.88	97%	9.00	99%	-0.82	97%
Upstream – passed through	0.31	0%	0.04	0%	0.00	0%

¹³ CPUC 2018.

¹⁴ For these “pass through” measures, all ex ante assumptions and inputs are passed through as ex post.

PA/Lighting Measure Category	Ex Ante Upstream and Residential Downstream Lighting Gross Savings					
	Energy		Demand		Gas Impacts	
	GWh	% of GWh	MW	% of MW	Million Terms	% of Therms
Downstream – passed through	1.71	3%	0.02	0%	-0.02	3%
Subtotal – SDG&E	64.90	100%	9.07	100%	-0.85	100%
All PAs						
Upstream – evaluated	308.68	98%	45.20	99%	-4.94	98%
Upstream - passed through	0.31	0%	0.04	0%	0.00	0%
Downstream - passed through	5.52	2%	0.29	1%	-0.08	2%
Grand Total – All PAs	314.51	100%	45.54	100%	-5.03	100%

Upstream lighting measures fall into six groups, each of which consists of similar measures. For example, the LED reflector measure group includes all LED reflector lamp wattages and styles, such as parabolic aluminized reflector (PAR) and multifaceted reflector (MR) lamps. While savings claims included within the PA tracking data are based on assumptions tied to specific measure characteristics, the evaluation applies updates to savings at the measure group level. The four measure groups are:

- LED reflector lamps of all wattages
- LED candelabra lamps of all wattages
- LED globe lamps of all wattages
- LED downlights of all wattages

This evaluation focuses on three of the four upstream lighting measure groups. Taken together, these measures account for 99% of the PAs' ex ante net savings for upstream lighting. Table 2-6 shows the quantity of lamps shipped in 2019 by evaluated lighting measure group and PA.

Table 2-6. Quantity of lamps by evaluated upstream lighting measure group and PA, 2019

Evaluated Upstream Lighting Measure Group	Quantity (Number of Lamps)			Overall Quantity (Across PAs)	
	PG&E	SCE	SDG&E	Total	% of Total
LED reflector	4,987,214	6,129,955	2,628,716	13,745,885	53%
LED candelabra	1,525,330	3,771,984	813,958	6,111,272	24%
LED globe	490,703	4,229,192	1,246,808	5,966,703	23%
Overall	7,003,247	14,131,131	4,689,482	25,823,860	100%

Table 2-7 lists the PA-reported portfolio-level net annual energy savings by evaluated upstream lighting measure for residential and non-residential programs

Table 2-7. Reported portfolio-level ex ante net annual energy savings by upstream lighting measure group for residential and non-residential measures, 2019

Evaluated Upstream Lighting Measure Group	Ex Ante Net Annual Energy Savings (kWh)			
	PG&E	SCE	SDG&E	Overall
LED reflector, all wattages	77,017,214	91,639,072	45,916,463	214,572,749
LED candelabra, wall wattages	11,224,661	25,223,364	5,752,074	42,200,100
LED globe, all wattages	2,934,680	27,923,587	8,251,037	39,109,303
Pass-through lighting measures	0	0	294,085	294,085
Overall	91,176,555	144,786,023	60,213,659	296,176,237

Table 2-8 lists the PA-reported portfolio-level peak demand reductions by evaluated upstream lighting measure for residential and non-residential programs.

Table 2-8. Reported portfolio-level ex ante net annual peak demand reductions by upstream lighting measure group for residential and non-residential measures, 2019

Evaluated Upstream Lighting Measure Group	Ex Ante Net Peak Demand Reductions (kW)			
	PG&E	SCE	SDG&E	Overall
LED reflector, all wattages	10,977	13,760	6,539	31,277
LED candelabra, wall wattages	1,609	3,788	826	6,223
LED globe, all wattages	423	4,198	1,210	5,831
Pass-through lighting measures	0	0	42	42
Overall	13,009	21,746	8,617	43,373

2.5 Report overview

We have organized the remainder of this report as follows:

Section 3 describes the study's data sources.

Section 4 describes our approach to measure quantity adjustment.

Section 5 gives an overview of the gross savings methodology and results with examples.

Section 6 gives an overview of net savings methodology and results with examples as well as the net-to-gross ratios.

Section 7 provides evaluated gross savings results and net savings results by PA.

Section 8 includes the evaluation's conclusions and recommendations.

Section 9 includes a list of references.

Appendix A provides the ex ante and ex post first year and lifecycle savings tables per the CPUC ED Impact Evaluation Standard Reporting (IESR) Guidelines.¹⁵

Appendix B provides the ex post first year, annual, and lifecycle savings and effective useful life (EUL) per the CPUC ED IESR Guidelines.

Appendix C provides standardized recommendations per the CPUC ED IESR Guidelines.

Appendix D provides waterfall graphics that demonstrate the energy savings changes relative to each parameter.

¹⁵ CPUC ED 2015a.



Appendix E includes the data collection instruments used to support the evaluation.

Appendix F describes the net-to-gross methodology used for this study.

Appendix G describes the approach for compiling CREED lamp sales data and provides additional sales data tables.

Appendix H provides tables on results of the lighting shelf stocking surveys.

Appendix I provides tables on the results of the lighting retail store telephone survey.

Appendix J provides banner tables of results from the consumer surveys.



3 DATA SOURCES

In this section, we provide an overview of the data sources used for the evaluation and a summary description of the method used to calculate net-to-gross ratios.

The 2019 impact evaluation relied upon several data sources. Table 3-1 below shows the research activity and data sources aligned with the primary and supporting research questions. We provide more details on these sources in the remainder of this section.

Table 3-1. Research questions and associated research activity/data sources, 2019

Research Question	Research Activity/Data Source						
	Topic	Program Tracking Data	Consumer Lamp Price Elasticity Model	Consumer surveys	Retail Store Surveys	Retail Lamp Shelf Stocking Surveys	CREED Light-Tracker Sales Data
1a. What are the ex post gross savings for evaluated measures?	Evaluated Savings	X	X	X	X	X	
1b. What is the appropriate baseline for residential upstream LED lamps?	Baseline	X	X	X		X	
1c. Of the program lamps that were claimed, what percent and quantity were sold in stores?	Quantity Adjustment	X		X	X	X	X
1d. What are the annual sales of lamps and sales-to-shipment ratios in retail stores (including grocery and discount stores)?	Quantity Adjustment	X		X	X		X
1e. What are the percent and quantity of claimed program lamps that are received at the intended storefront destination?	Quantity Adjustment/ Leakage	X			X	X	
1f. What do retailers do with excess lamp stock?	Quantity Adjustment/ Leakage	X			X		
2a. What is the free-ridership level for residential upstream LED lamps?	Free-ridership		X	X			
2b. To what extent, if any, did the program increase sales of LED lamps?	Free-ridership/ Program Influence	X	X	X	X	X	
2c. Are program incentives being passed on to customers when they purchase program lamps?	Program Influence	X	X	X	X	X	
2d. What percent of lamp purchases are made online?	Program Influence			X			X

3.1 Program tracking data

Each of the PAs uploads program tracking data onto a centralized server. We downloaded these data and then analyzed, cleaned, re-categorized, reformatted, and merged these separate datasets into one program tracking database. Tracking data provide details regarding the quantity of lighting measures shipped as well as details regarding the manufacturers and retail stores involved in the 2019 upstream lighting program. Tracking data also enable us to produce estimates of the average discounted lamp wattage for each evaluated upstream lighting measure group and PA and provide the ex ante values needed to pass through for specific parameters that we did not address in this evaluation. We provide more discussion regarding the program tracking data in the measure quantity adjustments (Section 4.1) and gross savings analyses (Section 7.1).

3.1.1 Data issues

The evaluation team encountered data quality issues with the program tracking data and residential customer data during the course of the 2019 impact evaluation, including:

Incomplete or inaccurate retail store phone numbers:

- Phone numbers of retail stores were missing for numerous records in the tracking data of one PA. After a follow-up data request, the PA provided the missing phone numbers.
- The phone numbers for some retail stores were not accurate across all three PAs. The evaluation team had to do additional research to correct inaccurate phone numbers.

Estimated shipment quantities:

- Many stores had an average quantity of shipments across multiple stores. For example, a shipment of 4,000 lamps would be split evenly for a given chain into shipments of 800 across five stores.

Incomplete or inaccurate residential customer data:

- The climate zone for the customers of one PA was incorrect. The evaluation team was able to correct the error by referring to other datasets.

3.2 Lighting sales data

Apex Analytics provided DNV GL with 2019 retail replacement lamp sales data in California.¹⁶ The sales data included point of sale (POS) data for select retail stores from discount, drug, grocery, mass merchandise, and membership club sales channels. The data also included a panel estimate of the remaining sales across the California market, which included home improvement, hardware, remaining stores from the POS channels, and online stores. Apex Analytics processed and analyzed the POS and non-POS panel data and summarized the data in tables by lighting technology (CFL, LED, halogen, incandescent) and by lamp style (reflector, candelabra, globe, A-lamp/spiral). See Appendix G for a description of the California sales data and associated 2019 sales data tables.

¹⁶ Apex Analytics maintains the Consortium for Retail Energy Efficiency Data (CREED) LightTracker, which provides lamp sales data for the U.S. See Apex Analytics 2021.

3.3 Lighting retail store telephone surveys

During October, November, and December 2020 the evaluation team conducted computer-assisted telephone interviewing (CATI) surveys of grocery, discount, big box, and other stores in PG&E, SCE, and SDG&E service territories that received shipments of PA-discounted lamps in 2019.¹⁷ The primary research objective of the telephone surveys was to obtain an estimate of lighting sales volume in these stores in each service territory. The secondary research objective of the surveys was to better understand what these stores do with any unsold PA-discounted lamps.

The team's sampling expert divided the stores that received 2019 PA-discounted lamps in 2019 into 18 primary strata, which included combinations of independent and chain grocery and discount stores in each service territory. As shown in Table 3-2, the team targeted 600 completed surveys and ultimately completed 443 surveys. Discount and grocery stores comprised more than 70% of the targeted sample because 69% of PA-discounted lamps were shipped to these stores in 2019. The sample design was created with a targeted 90/10 precision on sales estimates, using the shipments as proxy. Notably, there were 99 stores that responded that they did not sell light bulbs and had not sold any in the last three years. We show results and standard errors in Section 4.1.5. For further details on the results of the fall 2020 retail store telephone surveys, please see Appendix I. For the data collection instrument, please see Appendix E.

Table 3-2. Final disposition of fall 2020 lighting retail store telephone surveys

PA	Channel	Target	No Lamp Sales in Last 3 Years	Sell or Have Sold Lamps and Provided Sales Estimate	Total Complete
PGE	Big Box	60	0	22	22
PGE	Chain Discount	37	2	27	29
PGE	Independent Discount	3	1	5	1
PGE	Chain Grocery	10	0	1	6
PGE	Independent Grocery	10	3	7	10
PGE	Other	16	0	16	16
SCE	Big Box	54	0	26	26
SCE	Chain Discount	62	9	54	63
SCE	Independent Discount	59	19	12	31
SCE	Chain Grocery	34	8	23	31
SCE	Independent Grocery	117	28	68	96
SCE	Other	31	0	26	26

¹⁷ Big box stores included large home improvement and membership club stores. Other stores primarily included small hardware stores as well as some lighting and electronics stores.

PA	Channel	Target	No Lamp Sales in Last 3 Years	Sell or Have Sold Lamps and Provided Sales Estimate	Total Complete
SDG&E	Big Box	5	0	4	4
SDG&E	Chain Discount	17	10	4	14
SDG&E	Independent Discount	10	1	1	6
SDG&E	Chain Grocery	10	1	5	2
SDG&E	Independent Grocery	56	14	39	53
SDG&E	Other	9	3	4	7
Total		600	99	344	443

3.4 Consumer surveys

During October and November 2020, DNV GL conducted online surveys with PG&E, SCE, and SDG&E residential electric customers in support of the 2019 impact evaluation. These surveys asked consumers how many lamps they purchased within the reflector, candelabra, and globe lamp replacement categories since January 1, 2019, and where they made those purchases.¹⁸ The 2020 consumer telephone survey addressed several key inputs to the 2019 upstream and residential downstream lighting program impact evaluation, including:

- Retail channels where consumers purchased lamps
- Quantity and proportion of lamps purchased in each retail channel
- Installation rates
- Inputs into Consumer Lamp Price Elasticity Model¹⁹

Respondents to the online consumer survey were asked to verify their electricity provider and zip code of their primary home before being asked a series of questions on any recent lamp purchases in California. All recent purchasers were asked whether they purchased reflector, candelabra, or globe lamps in four primary technology categories (LED, incandescent/halogen, CFL). Images of each lamp style shown for multiple technologies were presented to respondents along with the question of whether their recent purchase was a given lamp style (e.g., reflectors) in the live online version of the survey. Within each of the three lamp styles, respondents were asked to identify the technology or technologies they purchased, where they made their purchase or purchases, and how many lamps they purchased at each purchase location. Again, respondents were prompted with photos of each technology to help them identify the technology they purchased in the online version of the survey.

¹⁸ To better understand the impact of the COVID-19 pandemic on lamp purchasers, we asked respondents whether they purchased any lamps before and after March 2020 (before and after shelter-in-place orders took effect). Please see Appendix E for further details on the questions asked in the survey.

¹⁹ Please see Section 3.7 for a description of the Lamp Price Elasticity Model.

After collecting information on purchase location and total number of lamps purchased, respondents who purchased LEDs were asked how many lamps from their recent purchases are currently installed. LED purchasers who did not install all of their recently purchased LED lamps were asked how many lamps they plan to install at their home in the next year. From this series of questions, we were able to determine an installation rate for the three evaluated measures. Section 4.4 provides a summary of installation rate results.

Following the series of questions on LED installations, respondents were presented with lamp purchasing scenarios, depending on the lamps that they bought, showing choices between LED and incandescent/halogen lamps at different price points for one or more lamp styles (reflector, candelabra, and/or globe). We provide a description of how these results were used to inform the Lamp Price Elasticity Model and net-to-gross calculations in Section 3.7 and Appendix F. For detailed consumer survey banner tables of results, please see Appendix J. For the online consumer survey data collection instrument, please see Appendix E.

Table 3-3 shows the targeted and actual number of completed online surveys by stratum. We allocated approximately 40% of the overall sample for PG&E, 40% for SCE, and 20% to SDG&E, and then allocated the sample proportionally to the average daily kWh in each stratum. The targeted number of completed surveys was 600 and the actual number of completed surveys was 1,554. The available number of customers in each stratum was based on availability of the email addresses. We provide further details on the sample stratification for the online consumer survey in the data collection and sampling plan for the 2019 program year.²⁰

Table 3-3. Final disposition of the 2020 consumer surveys

PA/Stratum	Climate Zone Group	CARE/ FERA Participant*	Usage Class	Targeted Completes	Actual Completes	Total Customers	Available Number of Customers
PG&E				240	633	5,617,355	3,274,132
1	Inland/Desert	Y	Low	14	28	417,925	193,811
2	Inland/Desert	Y	Med	14	37	217,565	120,823
3	Inland/Desert	Y	High	14	38	123,107	76,633
4	Inland/Desert	N	Low	23	59	810,716	428,627
5	Inland/Desert	N	Med	23	61	339,664	205,075
6	Inland/Desert	N	High	23	44	179,177	112,485
7	Inland/Desert	Net Meter	Net Meter	9	23	297,349	213,252
8	Mild	Y	Low	8	23	355,666	160,292
9	Mild	Y	Med	8	18	164,778	90,082
10	Mild	Y	High	8	17	64,916	39,296
11	Mild	N	Low	30	76	1,560,009	916,450

²⁰ DNV GL 2020c.

PA/Stratum	Climate Zone Group	CARE/ FERA Participant*	Usage Class	Targeted Completes	Actual Completes	Total Customers	Available Number of Customers
12	Mild	N	Med	30	89	627,846	402,306
13	Mild	N	High	30	84	281,415	184,999
14	Mild	Net Meter	Net Meter	6	36	177,222	130,001
SCE				240	637	4,925,761	1,713,795
15	Inland/Desert	Y	Low	6	19	164,322	52,576
16	Inland/Desert	Y	Med	6	28	73,147	32,653
17	Inland/Desert	Y	High	6	30	30,370	14,082
18	Inland/Desert	N	Low	53	134	1,878,674	563,294
19	Inland/Desert	N	Med	53	117	893,289	344,535
20	Inland/Desert	N	High	53	96	497,075	208,311
21	Inland/Desert	Net Meter	Net Meter	19	62	288,489	143,344
22	Mild	Y	Low	2	20	61,758	18,953
23	Mild	Y	Med	2	21	25,578	10,260
24	Mild	Y	High	2	11	10,320	4,111
25	Mild	N	Low	12	40	579,598	169,398
26	Mild	N	Med	12	29	256,265	88,463
27	Mild	N	High	12	21	126,902	45,092
28	Mild	Net Meter	Net Meter	2	9	39,974	18,723
SDG&E				120	284	1,583,344	1,149,554
29	Inland/Desert	Y	Low	4	10	58,018	42,082
30	Inland/Desert	Y	Med	4	13	29,394	22,573
31	Inland/Desert	Y	High	4	13	11,693	9,276
32	Inland/Desert	N	Low	7	17	136,347	105,028
33	Inland/Desert	N	Med	7	13	59,741	44,136
34	Inland/Desert	N	High	7	15	31,461	23,645
35	Inland/Desert	Net Meter	Net Meter	5	21	76,509	61,151
36	Mild	Y	Low	6	17	153,436	104,980
37	Mild	Y	Med	6	15	76,924	54,675
38	Mild	Y	High	6	15	37,766	27,045
39	Mild	N	Low	19	44	493,127	366,322

PA/Stratum	Climate Zone Group	CARE/ FERA Participant*	Usage Class	Targeted Completes	Actual Completes	Total Customers	Available Number of Customers
40	Mild	N	Med	19	41	206,018	143,285
41	Mild	N	High	19	35	101,330	69,037
42	Mild	Net Meter	Net Meter	7	15	111,580	76,319
Total for all PAs				600	1,554	12,126,460	6,137,481

*California Alternate Rates for Energy (CARE) reduces electric bills for eligible customers by 30-35%. Family Electric Rate Assistance (FERA) reduces electric bills for qualified households by 18%

3.5 Retail lamp shelf stocking surveys

The evaluation team conducted detailed inventories of lamps for sale in California retail stores throughout PG&E, SCE, and SDG&E service territories in support of the 2019 impact evaluation.²¹ The shelf stocking surveys gathered information regarding residential replacement lamps stocked in retail stores. The team completed the most recent phase of shelf stocking surveys during the winter of 2018-19 (November 2018 through February 2019).

The shelf stocking surveys targeted a sample of 200 stores. We stratified the sample by retail channel and PA service territory and designed the sample to represent the retail market for residential lamps in these areas. The sample design targeted roughly equal numbers of stores in each retail channel to ensure enough sample points per channel to enable channel-to-channel comparisons. Field staff attempted to revisit the stores included in the winter 2015-16 shelf stocking surveys to enable time-series comparisons of lamp stocking volumes across the retail stores for market characterization purposes.

Table 3-4. Number of targeted and completed shelf stocking surveys by channel and PA, winter 2018-19

Channel	PG&E	SCE	SDG&E	Total
Discount	11	11	7	29
Drug	11	11	7	29
Grocery	10	11	7	28
Hardware	11	11	7	29
Home improvement	11	10	7	28
Mass merchandise	10	11	8	29
Membership club	11	10	7	28
Total	75	75	50	200

²¹ The shelf stocking surveys also supported the PY 2018 impact evaluation.

We provide a summary of the winter 2018-19 shelf stocking survey results and winter 2015-16 results in Appendix H. These results include comparisons of lamp availability and pricing for those two time periods. Appendix B of the 2015 upstream lighting impact evaluation provides further details on the sampling approach for the shelf stocking surveys.²² For the shelf stocking survey guide, please see Appendix E.

3.6 Prior EM&V studies

We relied upon data from other EM&V studies to support the overall evaluation efforts that we describe below. These data sources include:

- Upstream and Residential Downstream Lighting Impact Evaluation Report: Lighting Sector – Program Year 2018 (DNV GL 2020c). This study included all lighting measures associated with upstream delivery mechanisms and all downstream lighting measures targeted at the residential sector. The PY 2018 impact evaluation focused on three measures—LED reflectors, LED candelabras, and LED globes—that collectively accounted for approximately 97% percent of the PAs’ ex ante net savings from upstream and residential downstream measures.
- Upstream and Residential Downstream Lighting Impact Evaluation Report: Lighting Sector – Program Year 2017 (DNV GL, 2019c). This study included all lighting measures associated with upstream delivery mechanisms and all downstream lighting measures targeted at the residential sector. The PY 2017 impact evaluation focused on four measures that collectively accounted for 90% percent of the PAs’ ex ante net savings from upstream and residential downstream measures. These measures included LED A-lamps, LED reflectors, high wattage CFLs (>30 W), and basic spiral CFLs.
- Impact Evaluation of 2015 California Upstream and Residential Downstream Lighting Programs (DNV GL, 2017). This study included all lighting measures associated with upstream delivery mechanisms and all downstream lighting measures targeted at the residential sector. The impact evaluation focused on six measures that collectively accounted for over 87% percent of the PAs’ ex ante net savings from upstream and residential downstream measures. These measures included basic spiral CFLs, CFL A-lamps, CFL reflectors, high wattage CFLs (>30 W) LED A-lamps, and LED reflectors.
- California Lighting and Appliance Saturation Study (DNV GL, 2014a). The California Lighting and Appliance Saturation Study (CLASS) updates and augments saturation and efficiency characteristics from previous CLASS studies conducted in 2005 and 2000 for use in understanding future energy savings potential and past accomplishments in the residential sector. The 2012 CLASS included onsite observations on a sample of 1,987 single-family, multi-family, and mobile home residences with individually metered electric accounts across the service territories of PG&E, SCE, and SDG&E. The program year 2018 impact evaluation relied upon CLASS data to update the HOU and peak coincidence factors for LED lamps. We provide more detail in Section 5 (Gross Savings).
- Residential Lamp Inventory and Metering Study (DNV GL, 2014c). We conducted detailed lamp inventories and hours-of-use metering of lamps in more than 2,000 California households as part of the California Upstream and Residential Lighting Impact Evaluation Work Order 28 (WO28) Final Report. In this evaluation, we apply these saturation data to metering data collected in support of the 2006-08 evaluation to support estimates of average daily hours of use and peak coincidence factor. Please refer to our gross savings analyses in Section 5 for further detail.

²² DNV GL 2017b.

3.7 Lamp Price Elasticity Model

For this evaluation we used a residential consumer Lamp Price Elasticity Model, developed originally for the PY 2018 evaluation, to support the net-to-gross ratio (NTGR) methodology.

The Lamp Price Elasticity Model relies on data from consumer surveys and the retail lamp shelf stocking surveys. We used the online consumer survey to collect information on consumer choices required for the model, and we used the shelf surveys to capture information regarding the context for those choices, including details related to the selected lamp and its price.


For the PY 2019 impact evaluation, our approach to using the price elasticity model was as follows:

1. **Calculate channel-level average prices** for program LED lamps, non-program LED lamps, and incandescent/halogen lamps for each lamp style in each channel. We used data from shelf stocking surveys conducted in winter 2018-19 to calculate these averages. The average prices for incandescent/halogen categories were combined weighted averages of both technologies.
2. **Weight channel-level prices to overall program and market prices.** For program LED lamps, we weighted up to an overall average program price using program lamp sales (calculation is provided in Section 4.1). We use this weight because the overall average price is reflective of the distribution of prices of program lamps that sold. For the average prices of non-program LED lamps and incandescent/halogen lamps, we weighted up to an overall average price using the relative percent of market sales for each channel (as reported in the Consumer Survey discussed in Section 3.4). We chose these weights because we assumed that most program LED lamps were within grocery and discount stores at very low prices, and therefore, these program lamps most likely induced channel shift. To account for channel shift, we considered market-wide prices for alternative and non-program lamps.
3. **Estimate market shares under two scenarios.** We used the average program LED lamp, non-program LED lamp, and incandescent/halogen prices to estimate market shares within a “with program scenario” and a “without program scenario.”
 - **With program scenario.** This scenario reflects the average program lamp prices that the evaluation team observed in retail stores during the shelf stocking surveys conducted in winter 2018-19. This scenario results in an estimate of the share of program lamp sales for LEDs and incandescent/halogen lamps.
 - **Without program scenario.** This scenario reflects the lamp prices that consumers would have seen in California retail stores in 2019 if the program had not occurred. This scenario results in a counterfactual estimate of market shares that would have occurred if only prices of program discounted lamps changed due no program activity.

The model is similar to the model used in the California 2010-12, 2013-14, 2015, and 2017 upstream and residential downstream lighting evaluations.²³ The model differs from these earlier evaluations in the following ways:

We calculated a **market-wide counterfactual** with an assumption that lamp purchases would have occurred throughout the lighting market in the proportions that customers reported making them. Prior evaluations calculated NTGR for each channel. Due to the dominance of lamps in the grocery

²³ DNV GL 2014c, DNV GL 2016a, DNV GL 2017b, and DNV GL 2019c.



and discount channels and the likelihood that these purchases shifted customers from other channels, it was most appropriate to consider the counterfactual across the entire market.

We used a **price elasticity model** rather than a discrete choice logit model, which was the most appropriate method to leverage our data within the time and resources we had available.

Due to low CFL stock and sales in the market, we only included **incandescent/halogen** lamps in the model and simulations.

In the 2017 evaluation, we used the Lamp Choice Model to calculate the market shares of incandescent/halogen lamps and CFLs in the delta watts baseline. In this evaluation, we found that CFLs no longer have enough market saturation to merit their inclusion in the model.²⁴ Therefore, since the only alternative technologies are halogen and incandescent lamps, we no longer need the Lamp Choice Model to estimate a baseline.

Table 3-5 lists the strengths and weaknesses of the model-based net savings approach. Appendix F provides the coefficients for the price elasticity model and provides more detail regarding its methodology.

²⁴ We used this same approach for the PY 2018 evaluation.

Table 3-5. Strengths and weaknesses of the model-based net savings approach

Strengths	Weaknesses
<ul style="list-style-type: none">• <i>Representative consumer surveys inform the model estimation:</i> We conducted a robust, stratified consumer survey to quantify customer purchasing decisions. This approach is the most representative way to capture state-wide price elasticity.• <i>Streamlined, practical, and efficient:</i> While prior evaluations leveraged the Lamp Choice Model, using that model for the 2019 program would require a new round of intercept surveys. The 2019 program was heavily concentrated in grocery and discount stores; these stores are notoriously difficult to intercept customers actively purchasing lamps. In prior intercept survey efforts, field staff would typically not encounter any lamp purchasers in grocery and discount stores. Therefore, the efficiency and practicality of this approach is a core strength.• <i>Simulation based on up-to-date retail stocking information:</i> We built the simulation using shelf survey data from a representative sample of California retail stores that sold replacement lamps during the 2018 and 2019 program periods. These data record the distribution of lamp models and prices at each store, and these data ground our analyses in the choices that consumers faced during the program period.• <i>Model stability:</i> Through rigorous sensitivity analyses conducted for both PY 2018 and PY 2019 evaluations, we found that the model results remained stable and intuitive.	<ul style="list-style-type: none">• <i>The model does not explicitly represent sales volume:</i> The model predicts market shares. As such, the model does not endogenously account for the different volumes of program shipments.• <i>The model does not comprehensively address substitution between program and non-program lamps:</i> Some stores, such as those in the home improvement channel, have more non-program lamps than program-discounted lamps. The model does not handle this market situation as well as situations in which the volume differences are less skewed.• <i>The model does not capture nuances of lamp, customer, or retail attributes.</i> The model is based exclusively on price. Therefore, it does not account for other lamp attributes, such as color temperature or rated life, and it does not account for other influences such as marketing and product location in the store.

4 MEASURE QUANTITY ADJUSTMENT

An important part of the upstream evaluation is to verify and adjust the quantity of measures claimed in the program tracking data. This evaluation uses multiple measure quantity adjustments to the claimed quantities of measures to determine the final quantities that will have the evaluated unit energy savings (UES) applied to for savings calculations. We produced a “sales-to-shipment ratio” quantity adjustment using a robust retail store survey. The evaluation applied a residential and non-residential proportion for all upstream measures, and applied an installation rate to all upstream measures, consistent with prior upstream lighting evaluations.

4.1 Sales-to-shipment ratio

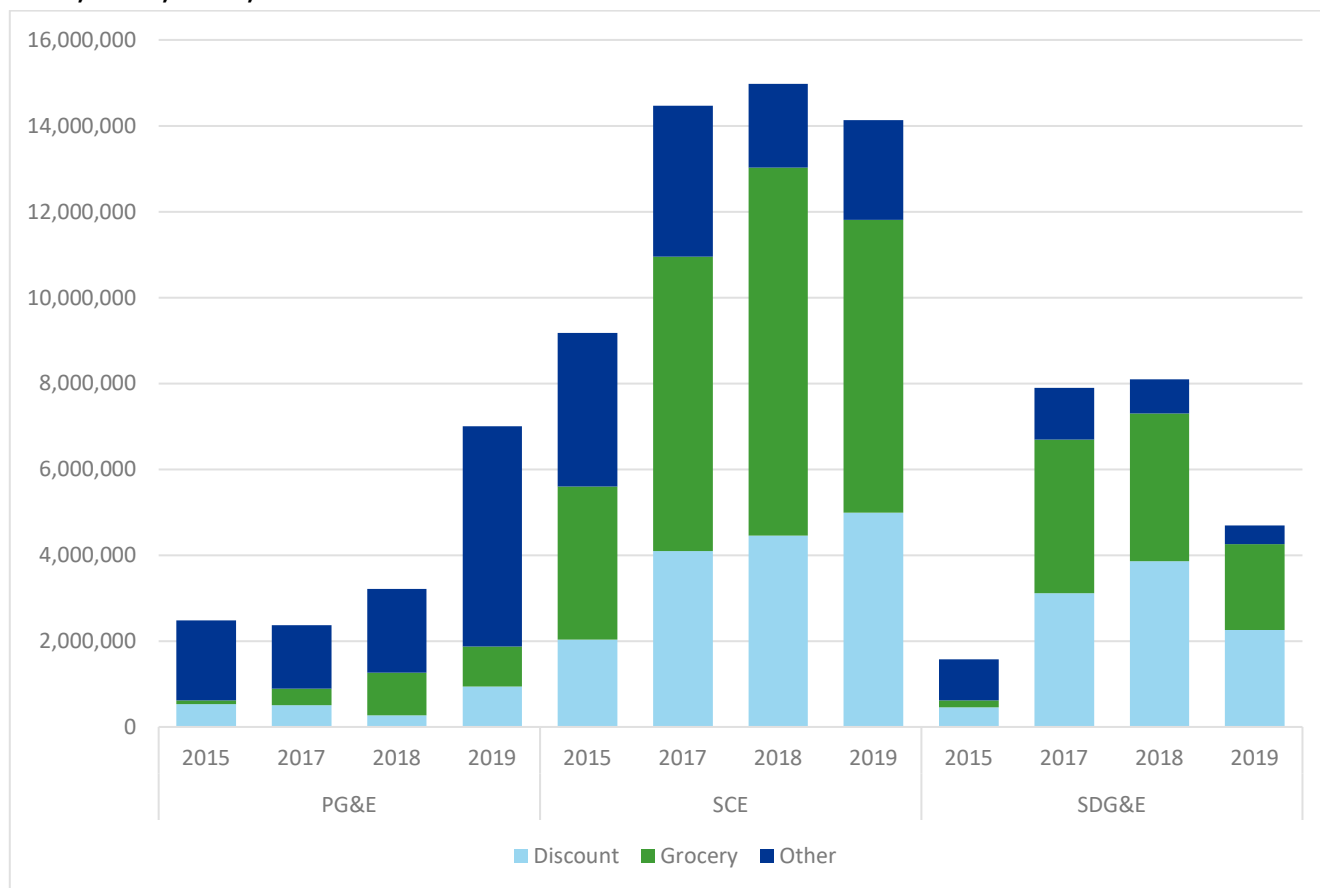
4.1.1 Overview

The 2019 impact evaluation applied a “sales-to-shipment ratio” at the sales channel level. The quantity adjustment is needed to account for heavy program activity in sales channels, mainly grocery and discount stores, that could not support the volume of lamps that were shipped through the upstream lighting program.

The “sales-to-shipment ratio” was introduced in the 2017 impact evaluation when evaluators found unusually large volumes of lamps shipped to many small stores in SCE and SDG&E territories. The reported number of lamps shipped to certain sales channels was significantly higher than the number of total California lamp sales in those channels, as determined from other data sources. The 2018 and 2019 upstream lighting programs continued this trend, especially in the discount and grocery sales channels.

Figure 4-1 shows the quantity of lamps shipped by channel and PA in 2015, 2017, 2018, and 2019. As was the case in 2017 and 2018, the vast majority of upstream lighting program lamps were shipped to discount and grocery channels in 2019. Nearly 70% of the 2019 program shipments went to discount and grocery channels across all PAs, and over 85% SCE’s and SDG&E’s 2019 program shipments went to these two channels.

Figure 4-1. Quantity of lamps in evaluated upstream lighting measure groups by channel* and PA, 2015, 2017, 2018, and 2019



*Other channels include drug, hardware, home improvement, lighting and electronics, mass merchandise, and membership club stores.

To address the issue of such large quantities of lamps being shipped to discount and grocery stores, we calculated and applied a sales-to-shipment quantity adjustment. This quantity adjustment aligned the quantity of measures discounted and shipped in the upstream lighting program with the sales volume that the California replacement lamp market could reasonably accommodate. To understand the relative size and distribution of the California replacement lamp market, we leveraged the data sources in Table 4-1. To calculate the sales-to-shipment ratio, we used the results of the Fall 2020 Retail Store Survey.

Table 4-1. Data sources for estimating California replacement lamp market size

Dataset	Source	Analysis
California Lamp Sales Data	Consortium of Retail Energy Efficiency Data (CREED)*	Estimated top down total sales volume in California
PGE, SCE and SDG&E participating store lamp inventory and sales	Fall 2020 Retail Store Survey^	Estimated total lamp sales volume within the stores that participated in the program in all sales channels
California lamp purchase locations	2020 Online Consumer Survey#	Estimated where consumers buy lamps by channel
California statewide retail lamp stock inventory	2008-2019 Shelf Surveys\$	Reviewed statewide stocking patterns

*Please see Appendix G for more information on the CREED sales data.

^To view the store manager survey instrument, please see Appendix E.

#For further details on the 2020 consumer survey approach and results, please see Section 3.4 and Appendix J.

\$For an overview of the Winter 2018-2019 and Winter 2015-2016 shelf survey results, please see Appendix H.

4.1.2 Size of the California lighting market

Apex Analytics compiled 2019 lamp sales data for California through the Consortium of Retail Energy Efficiency Data (CREED). The data included point-of-sale (POS) data for select retail stores from discount, drug, grocery, mass merchandise, and select membership club channels (POS estimate). The data also included a panel estimate of sales from other channels in the market, which included home improvement, hardware, and online stores, and remaining stores not included in the POS dataset (non-POS estimate).

We did not use the CREED sales data for any calculations of quantity adjustments or savings for impact analysis. Instead, we show the data to illustrate the overall size of market and relative shares of lamp technologies and styles.

Table 4-2 shows a breakdown of total lamp sales in California in 2019 by technology and lamp style for the POS and non-POS estimates as well as the combined total sales from the POS and non-POS datasets. The CREED estimates for total lamp sales volume are on the low end of the range the evaluation team looked at for California lighting market sales.

Table 4-2. California replacement lamp sales estimates, 2019

Technology	Lamp Shape	Total Sales by Lamp Style	Total Sales
LED	A-Lamp	32,550,604	58,794,740
	Reflector	16,520,928	
	Candelabra	6,798,972	
	Globe	2,920,366	
CFL	A-Lamp/Spiral	4,225,802	4,228,313
	Reflector	2,402	
	Candelabra	0	
	Globe	110	

Technology	Lamp Shape	Total Sales by Lamp Style	Total Sales
Halogen	A-Lamp	2,695,033	5,558,598
	Reflector	1,218,134	
	Candelabra	121,204	
	Globe	1,524,227	
Incandescent	A-Lamp	2,911,613	8,663,943
	Reflector	597,780	
	Candelabra	3,350,221	
	Globe	1,676,669	
Total Sales		77,114,063	77,245,594

Table 4-3 shows which technologies and lamp styles comprised the largest and smallest percent of total sales in California. LEDs comprised over three-quarters of all screw-base lamp sales in 2019.

Table 4-3. California replacement lamp sales percentage estimates by lamp style, 2019

Technology	Lamp Shape	Total Sales by Lamp Style	Total Sales
LED	A Lamp	55%	76%
	Reflector	28%	
	Candelabra	12%	
	Globe	5%	
CFL	A Lamp/Spiral	100%	5%
	Reflector	0%	
	Candelabra	0%	
	Globe	0%	
Halogen	A Lamp	48%	7%
	Reflector	22%	
	Candelabra	2%	
	Globe	27%	
Incandescent	A Lamp	34%	11%
	Reflector	7%	
	Candelabra	39%	
	Globe	19%	
Total Sales		77,114,063	100%

Table 4-4 shows that A-lamps accounted for 55% of all lamp sales among the 4 most common lamp styles, while reflector, candelabra, and globe lamps combined to account for approximately 45% of lamp sales.

Table 4-4. California replacement lamp sales percentage estimates by lamp style and lamp technology, 2019

Lamp Style	Lamp Technology	Total Sales by Lamp Technology	% Sales
A-lamp/Spiral	LED	32,550,604	77%
	CFL	4,225,802	10%
	Halogen	2,695,033	6%
	Incandescent	2,911,613	7%
Total A-lamp Sales		42,383,052	55%
Reflector	LED	16,520,928	90%
	CFL	2,402	0%
	Halogen	1,218,134	7%
	Incandescent	597,780	3%
Total Reflector Sales		18,339,243	24%
Candelabra	LED	6,798,972	66%
	CFL	0	0%
	Halogen	121,204	1%
	Incandescent	3,350,221	33%
Total Candelabra Sales		10,270,397	13%
Globe	LED	2,920,366	48%
	CFL	110	0%
	Halogen	1,524,227	25%
	Incandescent	1,676,669	27%
Total Globe Sales		6,121,371	8%
All Sales		77,114,063	100%

4.1.3 Discount and grocery channels market capacity compared with program volumes

We used the CREED sales data estimates of the entire California lamp market and 2020 consumer surveys to estimate sales in discount and grocery store. This is an illustrative example of why we believe that the program activity in these sales channels is oversaturating the market to the point that these stores could not support. Table 4-5 shows a breakdown of estimated total lamp sales, lamp sales in grocery and discount channels, and program lamp shipments in California in 2019. When comparing the estimated 2.5 to 3 million lamps sold across *all* lamp technologies and styles in discount and grocery stores to the program shipments of LED lamps (almost 18 million), it becomes clear that the upstream lighting program discounted and shipped more lamps than these channels could support.

Table 4-5. Estimated California lamp market size (sales) and program shipments for discount and grocery channels, 2019

Retail Channel and Data Source	Estimated Statewide Lamp Sales Range (Million)	Program Shipments (Million)			
		PG&E	SCE	SDG&E	Total
Discount Stores*	2.0-2.1	0.9	5.0	2.3	8.2
Grocery Stores*	0.9-1.0	0.9	6.8	2.0	9.7
Total California Market^	75-80				

*The 2020 consumer survey results show that less than 4% of the lamps that consumers purchased were in the discount and grocery channels (2.7% of lamps were purchased in the discount channel and 1.2% of lamps were purchased in the grocery channel).

^ CREED 2019 California lamp sales data.

To further illustrate the magnitude of program lamps shipped to the discount and grocery channels, Figure 4-2 shows a comparison of the estimated lighting market in the discount and grocery channels when compared to the program shipments in 2019. For this illustration, we assumed a total market size of approximately 77.2 million lamps across all retail store types. It is important to note that the market size estimate is for all screw-base lamps, including the most common general service A-lamps, while the program bulbs were overwhelmingly comprised of reflector, candelabra, and globe LED lamps. The figure clearly illustrates the magnitude of the over-shipment of lamps to these two sales channels. Even if the total market size were double our estimate of 77 million lamps, the program still would have shipped far more lamps to grocery and discount stores than the market capacity for all lighting products in discount and grocery stores.

Figure 4-2 Quantity of 2019 program lamps shipped to grocery and discount stores compared to the estimated market size of the sales channel (in millions of lamps)

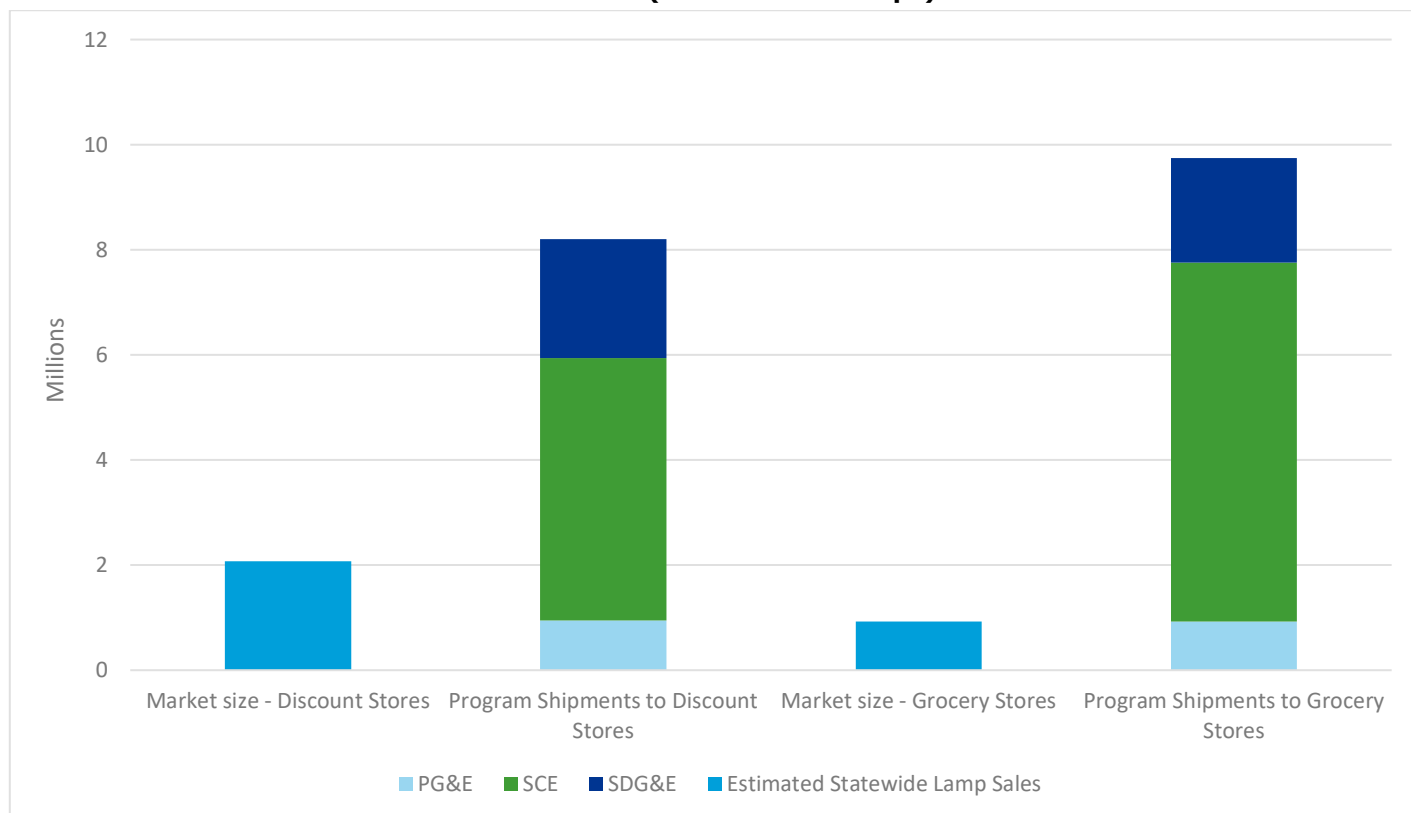
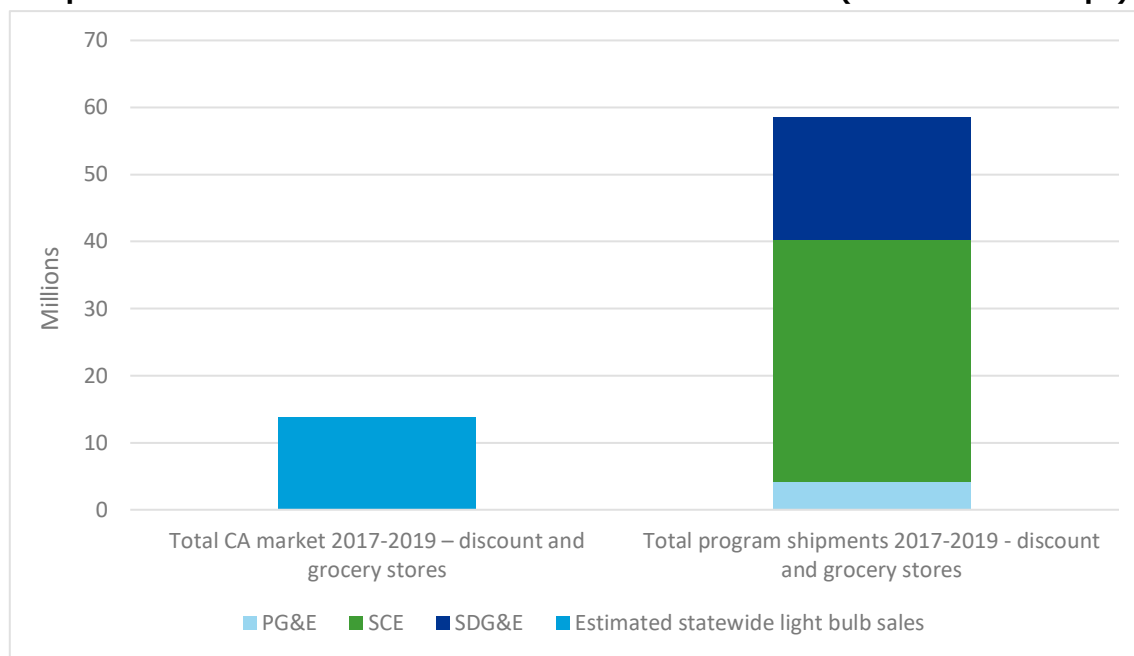


Figure 4-3 shows that over the course of the last three program years, the PAs have reported shipping nearly four times as many discounted light bulbs to discount and grocery stores as the entire California market for light bulbs in these sales channels.²⁵ SCE's program accounted for more than 60% of the program shipments to these channels, and SDG&E accounted for more than 30% of the shipments during this three year period. PY 2019 was a continuation of the trend found in PY 2017 and PY 2018.

Figure 4-3. Quantity of 2017-2019 program lamps shipped to grocery and discount stores compared to the estimated market size of the sales channels (in millions of lamps)*



* Total program shipments to discount and grocery stores in 2017 were 18,610,539 lamps; 2018 total program shipments to discount and grocery stores were 21,958,235 lamps; 2019 total program shipments to discount and grocery stores were 17,943,769 lamps. Screw base lamp sales in discount and grocery stores in 2017 in California were an estimated 6.4 million lamps; 2018 lamp sales in discount and grocery stores were an estimated 4.4 million lamps; and 2019 lamp sales were an estimated 3.0 million lamps.

4.1.4 Distribution of shipments to individual stores

The evaluation team also analyzed the quantity of lamps that programs shipped to each individual store in the tracking data to understand how the program was functioning in the market. Table 4-6 breaks down the number of stores in the discount and grocery channel by bins of total program lamps shipped in 2019. To give some context of how program lamp shipments and lamp sales relate to one another, a store receiving 10,000 lamps would need to sell nearly 30 lamps a day, every day of the year, to sell that volume of lamps. Over 85% of all upstream shipments went to stores that received over 10,000 lamps in 2019, with some stores receiving more than 50,000 or 100,000 lamps. This analysis further reinforces the need to determine

²⁵ The estimate of light bulb sales in California grocery and discount stores includes all light bulb technologies and shapes sold in those stores, including LED, incandescent, halogen, and compact fluorescent light bulbs. Screw base lamp sales in California and the U.S. have trended downward from 2017 to 2019. The most likely reason is that LEDs comprise a greater share of the market each year. Because LEDs have a longer rated life than incandescents and halogens,—typically 10,000 to 25,000 hours for LEDs compared to 1,000 to 3,000 hours for incandescents and halogens—they burn out less frequently and need to be replaced less often.

a sales-to-shipment quantity adjustment to account for the sales volume that stores in the discount and grocery sales channels could support.

Table 4-6. Number of discount and grocery stores receiving program lamps by PA, by quantity of shipped program lamps, PY 2019

Range of Lamps Shipped to Individual Store	Count of Participant Stores			Total Quantity of Discounted Lamps		
	PG&E	SCE	SDG&E	PG&E	SCE	SDG&E
Discount Stores						
1-1,000	2	32	-	1,728	20,108	-
1,001 – 5,000	27	38	3	64,672	96,376	9,496
5,001 – 10,000	39	49	4	214,556	387,256	32,632
10,001 – 50,000	29	282	30	635,428	4,489,456	1,120,640
50,001 – 100,000	1	-	-	50,544	-	-
Greater than 100,000	-	-	7	-	-	1,100,000
Total	98	401	44	966,928	4,993,196	2,262,768
Grocery Stores						
1-1,000	2	7	2	968	5,980	1,061
1,001 – 5,000	5	106	34	18,492	363,640	113,832
5,001 – 10,000	49	69	47	370,768	461,092	307,056
10,001 – 50,000	39	365	118	531,644	6,003,392	1,513,828
50,001 – 100,000	-	-	1	-	-	51,100
Greater than 100,000	-	-	-	-	-	-
Total	95	547	202	921,872	6,834,104	1,986,877

4.1.5 Sales-to-shipment ratios determined from store manager surveys

Table 4-5 and Table 4-6 above provide evidence that the 2019 upstream lighting program shipments exceeded the capacities of the discount and grocery channels. However, that analysis does not provide the data needed for adjusting the shipments to estimated sales quantities. To develop the sales-to-shipment quantity adjustment factor, the evaluation team conducted a CATI survey of store retail store representatives who participated in the 2019 upstream lighting programs. For the survey, we designed a sample that would be representative of participating stores. See Section 3.3 above for the sample targets and actual completes. We asked the store representatives if they sold light bulbs. We then asked them to estimate their weekly lamp sales and describe what their store does with any unsold lamps. From these data, we calculated the ratio of annual sales capacity to 2019 program shipments, by PA, channel, and subchannel (defined as independent vs. chain store). We applied this sales-to-shipment ratio as a quantity adjustment factor for each of these segments. See Appendix I for additional results from the survey, and Appendix E for the data collection instrument.

Table 4-7 shows the results from the retail store survey. Most survey respondents provided estimates of weekly lamp sales as a range in response to the survey question about weekly sales. However, the CATI survey instrument was programmed to extrapolate daily, monthly, or quarterly estimated sales to annual

sales, if respondents preferred to estimate sales in different increments of time. We took the highest value of the weekly range estimates and multiplied it by 52 to obtain yearly sales estimates.²⁶ The sales-to-shipment ratio for each PA and sub-channel is calculated as a standard ratio estimate. Specifically, the numerator of the ratio is the weighted total of yearly sales calculated from the survey responses, using the sample-based expansion weights. The denominator of the ratio is the corresponding expansion-weighted total of shipments for the stores in the sample.

Table 4-7. Store manager survey results by PA and chain and independent channel, PY 2019

PA and Channel	Completed Surveys	Number of Stores in Program	Program Shipments	Weighted Shipments	Weighted Sales Estimate	Sales-to-Shipment Ratio
PGE	84	475	7,003,247	7,107,332	33,930,901	
Big Box	22	121	4,980,923	4,813,773	31,193,829	1.00
Chain Discount	29	95	916,248	1,016,683	356,191	0.35
Independent Discount	1	3	28,704	32,292	468	0.01
Chain Grocery	6	41	466,944	442,007	23,097	0.05
Independent Grocery	10	54	454,928	431,957	68,796	0.16
Other	16	160	155,500	370,620	2,288,520	1.00
SCE	273	1,165	14,131,131	13,493,740	16,400,318	
Big Box	26	134	1,564,996	1,506,639	13,520,600	1.00
Chain Discount	63	195	2,579,248	2,118,034	550,618	0.26
Independent Discount	31	206	2,413,948	2,716,994	494,480	0.18
Chain Grocery	31	115	1,776,032	1,589,330	295,528	0.19
Independent Grocery	96	433	5,058,072	4,853,632	514,584	0.11
Other	26	82	738,835	709,111	1,024,508	1.00
SDG&E	86	333	4,689,482	4,923,130	1,226,343	
Big Box	4	43	288,829	418,057	695,955	1.00
Chain Discount	14	28	2,104,392	2,104,368	7,116	0.00
Independent Discount	6	18	158,376	136,344	51,636	0.38
Chain Grocery	2	10	88,208	127,700	40,300	0.32
Independent Grocery	53	207	1,898,669	2,039,407	250,822	0.12
Other	7	27	151,008	97,254	180,514	1.00

Table 4-7 above shows that the ratios of sales-to-shipments were different for independent stores than for chains. This was a primary reason why we chose to sample by subchannel for the survey. For the evaluation,

²⁶ For those stores that provided different sales ranges for before and after March 2020 (before and after COVID-19 shelter-in-place orders took effect in California), we took the highest sales estimate of the two periods.

we combined the subchannel ratios to provide channel-level ratios, weighting each subchannel ratio in proportion to its total shipments.

Table 4-8 shows the channel-level sales-to-shipment ratios. These are the ratios that were applied to the quantities in the program tracking data. For PG&E we applied a 11% quantity adjustment for the grocery channel and a 34% quantity adjustment for the discount channel. For SCE, we applied a 22% quantity adjustment in the discount channel and a 13% quantity adjustment in the grocery channel. For SDG&E, we applied a 3% quantity adjustment in the discount channel and an 13% quantity adjustment in the grocery channel.

Table 4-8. Store manager survey results by aggregated channel, PY 2019

PA and Channel	Completed Surveys	Number of Stores in Program	Program Shipments	Weighted Shipments	Weighted Sales Estimate	Sales-to-Shipments Ratio	Ratio Standard Error
PGE	84	474	7,003,247	7,107,332	33,930,901		
Big Box	22	121	4,980,923	4,813,773	31,193,829	1.00	3.88
Discount	30	98	944,952	1,048,975	356,659	0.34	0.09
Grocery	16	95	921,872	873,964	91,893	0.11	0.05
Other	16	160	155,500	370,620	2,288,520	1.00	4.46
SCE	273	1,165	14,131,131	13,493,740	16,400,318		
Big Box	26	134	1,564,996	1,506,639	13,520,600	1.00	4.06
Discount	94	401	4,993,196	4,835,028	1,045,098	0.22	0.03
Grocery	127	548	6,834,104	6,442,962	810,112	0.13	0.04
Other	26	82	738,835	709,111	1,024,508	1.00	0.60
SDG&E	86	333	4,689,482	4,923,130	1,226,343		
Big Box	4	43	288,829	418,057	695,955	1.00	0.83
Discount	20	46	2,262,768	2,240,712	58,752	0.03	0.02
Grocery	55	217	1,986,877	2,167,107	291,122	0.13	0.03
Other	7	27	151,008	97,254	180,514	1.00	1.34

Table 4-9 shows the effect of the sales-to-shipment quantity adjustments that we applied to the grocery channel for PG&E and discount and grocery channels for SCE and SDG&E. The affected channels are highlighted in green. The quantity adjustments resulted in a significant decrease in the number of lamps that were credited with savings.

Table 4-9. Lamp quantity adjustments for evaluated measures by PA and channel, PY 2019

PA and Channel	Evaluated Measures Lamps Shipped	Sales Quantity Adjustment	Evaluated Measures Lamps Credited	Evaluated Measures Lamps Not Credited
PG&E				
Discount	944,952	34%	321,284	623,668
Grocery	921,872	11%	101,406	820,466

PA and Channel	Evaluated Measures Lamps Shipped	Sales Quantity Adjustment	Evaluated Measures Lamps Credited	Evaluated Measures Lamps Not Credited
Big Box and Other	5,136,423	100%	5,136,423	0
Total	7,003,247		5,559,113	1,444,134
SCE				
Discount	4,993,196	22%	1,098,503	3,894,693
Grocery	6,834,104	13%	888,434	5,945,670
Big Box and Other	2,303,831	100%	2,303,831	0
Total	14,131,131		4,290,768	9,840,363
SDG&E				
Discount	2,262,768	3%	67,883	2,194,885
Grocery	1,986,877	13%	258,294	1,728,583
Big Box and Other	439,837	100%	439,837	0
Total	4,689,482		766,014	3,923,468

Table 4-10 below shows the shipment and adjusted sales quantities for LED reflector lamps.

Table 4-10. Program lamp quantity shipments and adjustments by PA, LED reflectors, PY 2019

PA and Channel	Quantity Shipped	Sales-to-Shipments Ratio	Quantity Sold	Quantity Not Credited
PGE	4,987,214		4,056,636	930,578
Discount	578,664	34%	196,746	381,918
Grocery	616,472	11%	67,812	548,660
Hardware	142,640	100%	142,640	0
Home Improvement	283,624	100%	283,624	0
Membership Club	3,365,814	100%	3,365,814	0
SCE	6,129,955		2,003,083	4,126,872
Discount	1,737,380	22%	382,224	1,355,156
Drug	10,560	100%	10,560	0
Grocery	3,185,880	13%	414,164	2,771,716
Hardware	345,384	100%	345,384	0
Home Improvement	250,405	100%	250,405	0
Membership Club	600,346	100%	600,346	0
SDG&E	2,628,716		448,746	2,179,970
Discount	1,062,160	3%	31,865	1,030,295
Grocery	1,321,465	13%	171,790	1,149,675
Hardware	66,540	100%	66,540	0
Home Improvement	51,075	100%	51,075	0
Membership Club	93,048	100%	93,048	0

Other	34,428	100%	34,428	0
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Table 4-11 below shows the shipment and adjusted sales quantities for LED candelabra lamps.

Table 4-11. Program lamp quantity shipments and adjustments by PA, LED candelabras, 2019

PA and Channel	Quantity Shipped	Sales-to-Shipment Ratio	Quantity Sold	Quantity Not Credited
PGE	1,525,330		1,124,380	400,950
Discount	262,288	34%	89,178	173,110
Grocery	256,000	11%	28,160	227,840
Hardware	12,860	100%	12,860	0
Home Improvement	346,980	100%	346,980	0
Membership Club	647,202	100%	647,202	0
SCE	3,771,984		1,273,206	2,498,778
Discount	1,632,904	22%	359,239	1,273,665
Drug	4,416	100%	4,416	0
Grocery	1,408,176	13%	183,063	1,225,113
Hardware	145,630	100%	145,630	0
Home Improvement	188,116	100%	188,116	0
Membership Club	392,742	100%	392,742	0
SDG&E	813,958		155,855	658,103
Discount	584,988	3%	17,550	567,438
Grocery	104,212	13%	13,548	90,664
Hardware	11,500	100%	11,500	0
Home Improvement	53,588	100%	53,588	0
Membership Club	53,670	100%	53,670	0
Other	6,000	100%	6,000	0

Table 4-12 below shows the shipment and adjusted sales quantities for LED globe lamps.

Table 4-12. Program lamp quantity shipments and adjustments by PA, LED globes, 2019

PA and Channel	Quantity Shipped	Sales-to-Shipment Ratio	Quantity Sold	Quantity Not Credited
PGE	490,703		378,097	112,606
Discount	104,000	34%	35,360	68,640
Grocery	49,400	11%	5,434	43,966
Home Improvement	337,303	100%	337,303	0
SCE	4,229,192		1,014,479	3,214,713
Discount	1,622,912	22%	357,041	1,265,871

PA and Channel	Quantity Shipped	Sales-to-Shipment Ratio	Quantity Sold	Quantity Not Credited
Drug	7,840	100%	7,840	0
Grocery	2,240,048	13%	291,206	1,948,842
Hardware	225,005	100%	225,005	0
Home Improvement	129,103	100%	129,103	0
Membership Club	4,284	100%	4,284	0
SDG&E	1,246,808		161,413	1,085,395
Discount	615,620	3%	18,469	597,151
Grocery	561,200	13%	72,956	488,244
Hardware	14,820	100%	14,820	0
Home Improvement	37,448	100%	37,448	0
Other	17,720	100%	17,720	0

4.2 Residential vs non-residential

To estimate the portion of upstream lamps that are installed in non-residential applications, the 2010-12 evaluation relied on the results of two onsite survey studies conducted during the 2010-12 period—the CLASS²⁷ and the Commercial Market Share Tracking Study.²⁸ These efforts yielded the residential versus non-residential shares of total upstream lighting program measures shown in Table 4-13. For this evaluation, tracking data accurately accounted for residential and non-residential savings, so we made no additional adjustment.

Table 4-13. Ex post share of residential vs. non-residential upstream lighting measures by PA, PY 2019

PA	Ex Post	
	Residential	Non-Residential
PG&E	94%	6%
SCE	94%	6%
SDG&E	94%	6%

4.3 Leakage

In past upstream lighting evaluations, leakage is defined as the quantity of program-discounted upstream lamps that “leak” out of the collective PA service territories. The sales-to-shipment quantity adjustment described above does raise questions about whether leakage may have accounted for at least a small percentage of the lamps that did not ultimately sell through the discount and grocery channels. However, because of the importance of understanding the quantity of programs lamps sold in retail stores, investigating where and how lamps may have been sold or given away was not within the scope of this

²⁷ DNV GL 2014a. See also Appendix F in DNV GL 2017b for details regarding the CLASS sampling approach.

²⁸ Itron, Inc. 2014.

study. For the purposes of this evaluation, leakage is being captured in the sales-to-shipment quantity adjustment factor, as lamps that may have leaked out of PA service territory were likely captured in that analysis. No additional leakage adjustments were made to the evaluation results.

4.4 Installation rate

For the 2019 impact evaluation, the evaluation team calculated LED lamp installation rates using responses from the 2020 online consumer survey. We applied installation rates that credit savings for lamps purchased within the 2019 program period that were installed or were planned to be installed within one year. The surveys asked respondents about the quantity of LED lamps that they purchased, the quantity that they installed, and the quantity that would be installed within the next year.

Survey results suggest that 92% of LEDs in residential applications within PG&E, SCE, and SDG&E's residential electric service territories are or will be installed within the next year (Table 4-14). We applied these installation rates to calculate gross savings.

Table 4-14. Residential upstream evaluated LED lamp installation rates, 2019

Classification	Percent of LEDs in Household (n = 872)	Standard Error
Installed or will be installed within a year	92%	1.1%
Will not be installed within a year	8%	
Total Lamps in Household	100%	

Table 4-15 shows ex ante and ex post installation rates for 2019 upstream lighting measures by PA and sector for each measure group. For all LED lamp measure groups, residential installation rate estimates were 92%. For non-residential upstream measures, and residential downstream lighting measures, we passed through the ex ante installation rates.

Table 4-15. Ex ante and ex post residential and non-residential installation rates by PA and upstream lighting measure group, 2019

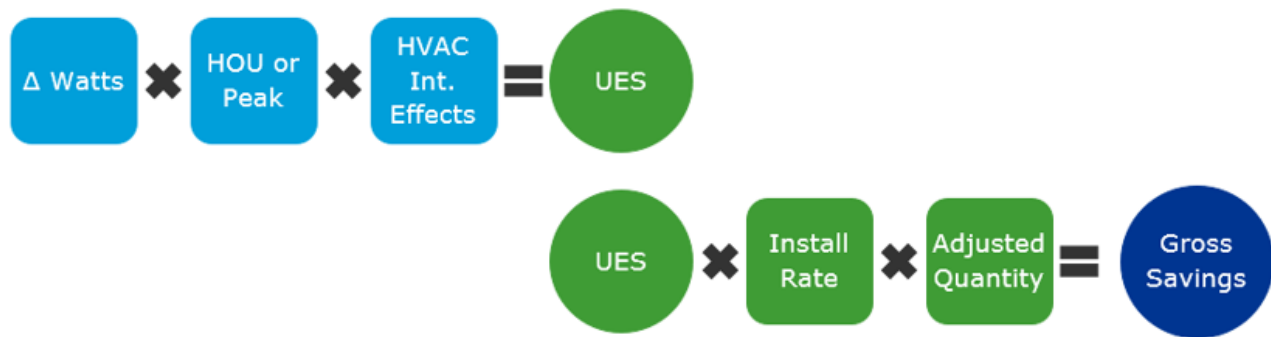
PA	Evaluated Upstream Lighting Measure Group	Residential		Non-residential	
		Ex Ante	Ex Post	Ex Ante	Ex Post
PG&E	LED reflector, all wattages	100%	92%	100%	100%
	LED candelabra, all wattages	100%	92%	100%	100%
	LED globe, all wattages	100%	92%	100%	100%
SCE	LED reflector, all wattages	100%	92%	100%	100%
	LED candelabra, all wattages	100%	92%	100%	100%
	LED globe, all wattages	100%	92%	100%	100%
SDG&E	LED reflector, all wattages	100%	92%	100%	100%
	LED candelabra, all wattages	100%	92%	100%	100%
	LED globe, all wattages	100%	92%	100%	100%

5 GROSS SAVINGS ANALYSIS

5.1 Overview

This section of the report focuses on the gross savings methods and results for the PAs' 2018 upstream and residential downstream lighting programs. Figure 5-1 below shows the components of the gross savings assessment.

Figure 5-1. Gross savings overview



We calculate gross savings using an estimate for UES, an evaluated installation rate, and an adjusted quantity factor. We define the UES for each measure group as the product of three parameters, namely: delta watts (Δ watts), daily hours of use (HOU) or peak coincidence factor (CF), and HVAC interactive effects (IE). The equations for these calculations are presented below in Equation 5-1 through Equation 5-4.

Equation 5-1. Gross unit energy savings

$$UES_L \left[\frac{kWh}{year} \right] = \Delta Watts_L [W] * HOU_L [h] * \frac{1 kWh}{1000 Wh} * \frac{365 days}{1 year} * IE_L [kWh]$$

Where:

$\Delta Watts_L$ = average displaced (delta) wattage for PA-discounted lamp measure group, L, in watts (W)

HOU_L = daily average HOU for PA-discounted lamp measure group, L, in hours (h)

IE_L = HVAC interactive effects factor

Equation 5-2. Gross savings

$$Gross\ savings_L [kWh] = UES_L [kWh] * IR_L * Q_L$$

Where:

UES_L = unit energy savings for lamp measure group, L

IR_L = installation rate for lamp measure group, L

Q_L = rebated measure quantity for lamp measure group, L

Equation 5-3. Gross peak unit energy savings

$$UES_L \left[\frac{kW}{year} \right] = \Delta Watts_L [W] * CF_L * \frac{1 kW}{1000 W} * IE_L [kW]$$

Where:

ΔWatts_L = average displaced (delta) wattage for PA-discounted lamp measure group, L, in watts (W)

CF_L = average percent on at peak for PA-discounted lamp measure group, L

IE_L = HVAC interactive effects factor

Equation 5-4. Gross peak demand reduction

$$Gross\ savings_L [kW] = UES_L [kW] * IR_L * Q_L$$

Where:

UES = unit peak demand reduction for lamp measure group,

IR_L = installation rate for lamp measure group, L

Q_L = rebated measure quantity for lamp measure group, L

5.2 Hours of use

The average daily HOU are multiplied by the delta watts and interactive effects parameters to calculate UES for each relevant measure group. For this evaluation, daily HOU estimates are estimated at a population-level average daily HOU estimates for each measure group. This section of the report applies only to residential HOU estimates, as we passed through the ex ante UES for non-residential savings estimates.

The 2006-08 upstream lighting impact evaluation provided the best available data for HOU estimate for This evaluation. The 2006-08 evaluation developed an ANCOVA model that produced HOU estimated using logger data HOU profiles from the Residential Lighting Metering Study,^{29 30} and lamp installation locations. The ANCOVA methodology takes into account lamp shape as well as room location and usage within the population.

²⁹ KEMA, Inc. and Cadmus Group, 2010. The study included 1,200 households recruited randomly throughout California over three overlapping waves of data collection from July 2008 through December 2009. Please refer to for more details regarding metering study sample sizes.

³⁰ While more current metering data would certainly be preferable, these data are not available. In the absence of more current data, DNV GL believes that adjustments to the 2010 study's metering results provide the most accurate representation available for residential lamp usage in California.

While we acknowledge that these results are dated, this is the best available data for residential HOU in California. The lack of a more recent in-home lighting inventory study and data from a recent residential lighting end-use metering study presented several challenges for creating the LED HOU estimates needed for this evaluation. Most notably, the saturation of LEDs in the 2008 inventory was too small to produce shape-level estimates of HOU with sufficient confidence. It is important to understand technology-specific HOU in the early adoption years because customers usually replace high-use sockets first. As LED saturation has increased, we expect customers install LEDs in increasingly lower-use sockets. We addressed this challenge in the 2015 and 2017 evaluations by estimating HOU of all CFLs and LEDs within the 2012 CLASS inventory, as this served as a proxy of high- and medium-use sockets.³¹

In 2019, as shown in the 2020 consumer surveys, most residential customers have purchased and installed many LEDs. It is no longer justifiable to apply an HOU estimate based on 2008 LED and CFL saturations. We instead applied the overall HOU estimate for each lamp shape, agnostic of the technology in the socket. In other words, because LEDs are the dominant technology in the market, customers are no longer discriminating between high-, medium-, or low-use sockets.

The model produced estimates for lamp shape, which we applied to each measure group at the statewide level and for each PA. Table 5-1 provides an overview of the HOU results used in this evaluation, including confidence intervals (CI).

Table 5-1. Residential lighting HOU estimates by evaluated upstream lighting measure group and PA, 2019

Evaluated Upstream Lighting Measure Group	PG&E		SCE		SDG&E	
	HOU	90% CI	HOU	90% CI	HOU	90% CI
LED Reflector	1.7	0.4	2.2	0.3	1.4	0.4
LED Candelabra	1.7	0.3	2.1	0.3	1.5	0.3
LED Globe	1.4	0.3	1.7	0.3	1.3	0.3

* Please refer to the 2006-2008 lighting impact evaluation for more details regarding metering study (KEMA 2010).

5.3 Peak coincidence factor

Peak CF represents the average percent of time that a lamp is switched on during the peak period, which varies by climate zone. Similar to our approach for HOU estimates, we used lamp shape-specific, technology-agnostic Peak CF values that we calculated in the 2006-2008 evaluation. Table 5-2 shows the final peak CF values that we used in this evaluation.

³¹ DNV GL 2014a.

Table 5-2. Residential lighting peak CF by evaluated upstream lighting measure group and PA, 2019

Evaluated Upstream Lighting Measure Group	PG&E		SCE		SDG&E	
	Peak CF	90% CI	Peak CF	90% CI	Peak CF	90% CI
LED Reflector	0.065	0.032	0.076	0.028	0.032	0.033
LED Candelabra	0.057	0.029	0.079	0.029	0.045	0.03
LED Globe	0.059	0.028	0.074	0.028	0.05	0.029

5.4 Delta watts

In this section we discuss the methodology used to calculate delta watts for estimating savings. The delta watts parameter is the difference in wattage between the baseline, an inefficient non-program lamp, and the rebated program lamp. The wattage difference between the two lamps characterizes the demand savings, which are realized when the consumer purchases a program LED instead of the inefficient baseline alternative. Delta watts is used to calculate the unit energy savings for each evaluated technology.

We compared program lamps to a baseline of incandescent and halogen lamps with the same shape and brightness as the program lamps. In this way, the baseline represents inefficient lamps which are functionally similar to the program lamps, and therefore are displaced by the program. The baseline does not include non-program LEDs, as the program's influence on LEDs is characterized later in the net-to-gross analysis (see Section 6).

This evaluation calculates three delta watts estimates—one for each of the three evaluated technologies for each of the three PAs. We recognize that the baseline and program wattages vary by channel, so we first calculate a delta watt specific to each channel, and then aggregate these channel-based results into a PA average for each evaluated technology, weighted by the sales of program lamps in each channel. In this way, our channel-weighted delta watts proportionally reflect the wattage differences within each channel.


5.4.1 Methodology

To calculate delta watts, we completed the following four steps:

1. Defined baseline and rebated wattage for each sales channel. As needed for each PA, we used average wattages to impute missing values for channels not represented in the shelf database.
2. Calculated the average program-rebated wattage by channel.
3. Calculated channel-specific delta watts as the difference between the baseline wattage and the rebated wattage.
4. Calculated channel-weighted delta watts, for each measure group and PA.

Baseline wattage is defined as the weighted average wattage of alternative lamps with the same shape and brightness as the program lamps. We used DNV GL's 2018-19 shelf survey database to characterize the incandescent and halogen lamps being sold by retail stores. We constructed the weights as the product of the number of lamps on the shelf and the store weight within the overall population of retail stores in California.

Incandescent and halogen alternative lamps are absent from some channels in the shelf database. Most notably, membership club stores. In this case, we use a PA average wattage to impute the average wattage



for unrepresented channels. The PA average baseline wattage for each technology is constructed as a weighted average of the channel-specific baseline wattages. Weights are consumer purchases of inefficient lamps in each channel as reported in the 2020 consumer survey, which we describe in Section 3.4.

Rebated wattage is defined as the average program wattage for each technology type, PA, and channel. We used the measure names to identify the wattage of each measure. To arrive at a rebated wattage for each channel, we calculated a weighted average wattage of the program shipments which were sent to that channel. Weights were defined as program sales in each channel, calculated using the program shipments and sales-to-shipment ratio derived in Section 4.1.

The channel-specific delta watts are calculated as the difference between the baseline and rebated wattages. We average the channel-specific delta watts into a channel-weighted delta watt for each technology type and PA. We use program lamp sales as weights, calculated using the program shipments and sales-to-shipment ratio.

5.4.2 Reflector delta watts

Table 5-3 provides the channel-specific delta watts for LED reflectors. The shelf survey did not find any incandescent or halogen reflectors for sale in membership club stores, so we used the PA average displaced wattage as the baseline wattage in this channel. We also used the PA average as the baseline wattage in the online and other channels, reflecting that program lamps sold through these channels are displacing non-program lamps sold in other channels.

The baseline wattage for reflectors had quite a large variance across channels, ranging from 40.8 W to 65.0 W. Incandescent and halogen reflectors have a wide range of efficiencies, and it is worth noting that the program impact depends on distribution channel. The baseline wattage was the highest for reflectors in the discount channel, so this channel had the largest delta watts. While this channel does have a larger delta watts value than other channels, it is important to note that discount stores have relatively small sales volumes, as we note in Section 4.1.

Table 5-3 shows the delta watts results for LED reflectors by PA and channel. The PA average baseline wattage was used to impute the displaced wattage for the membership club, online, and other channels.

Table 5-3. Delta watts results by PA and channel for LED reflectors*

Channel	Quantity of Sold Program Lamps^	Average Displaced Wattage	Average Program Discounted Wattage	Delta Watts
PG&E				
Discount	196,746	65.0	9.0	56.0
Grocery#	67,812	55.8	11.0	44.8
Hardware	142,640	52.3	9.0	43.3
Home improvement	283,624	50.3	9.0	41.3
Membership club\$	3,365,814	52.9	8.0	44.9
Overall	4,056,636	53.4	8.2	45.2
SCE				
Discount#	382,224	59.1	9.0	50.1
Drug	10,560	54.5	9.0	45.5
Grocery#	414,164	51.9	9.0	42.9
Hardware	345,384	56.2	9.0	47.2
Home improvement	250,405	55.0	9.0	46.0
Membership club\$	600,346	56.1	8.0	48.1
Overall	2,003,083	55.7	8.7	47.0
SDG&E				
Discount#	31,865	65.0	11.0	54.0
Grocery#	171,790	40.8	12.0	28.8
Hardware	66,540	53.7	8.0	45.7
Home improvement	51,075	51.0	11.0	40.0
Membership club\$	93,048	52.4	8.0	44.4
Other\$	34,428	52.4	12.0	40.4
Overall	448,746	48.9	10.4	38.5

* This table omits channels where the PA did not discount any LED reflector lamps.

^ The count of sold lamps is the program shipments, adjusted where applicable by the sales-to-shipment ratio, per Section 4.1.

Sales-to-shipment quantity adjustments are applied to this channel for this PA, as described in Section 4.1.

\$ Alternative lamps in this channel were absent from the shelf database. The PA average was used as the baseline.

5.4.3 Candelabra delta watts

Table 5-4 provides the channel-specific delta watts for LED candelabras. The PA average baseline wattage was used to impute the displaced wattage for the membership club and other channels.

Table 5-4. Delta watts results by PA and channel for LED candelabras*

Channel	Quantity of Sold Program Lamps [^]	Average Displaced Wattage	Average Program Discounted Wattage	Delta Watts
PG&E				
Discount	89,178	40.0	3.0	37.0
Grocery	28,160	41.8	3.0	38.8
Hardware	12,860	40.4	5.0	35.4
Home improvement	346,980	37.2	3.0	34.2
Membership club ^{\$}	647,202	38.8	3.0	35.8
Overall	1,124,380	38.5	3.0	35.5
SCE				
Discount [#]	359,239	40.0	3.0	37.0
Drug	4,416	43.2	3.0	40.2
Grocery [#]	183,063	42.5	3.0	39.5
Hardware	145,630	39.5	3.0	36.5
Home improvement	188,116	41.5	4.0	37.5
Membership club ^{\$}	392,742	40.1	3.0	37.1
Overall	1,273,206	40.6	3.1	37.4
SDG&E				
Discount [#]	17,550	40.0	3.0	37.0
Grocery [#]	13,548	44.2	3.0	41.2
Hardware	11,500	39.6	3.0	36.6
Home improvement	53,588	36.4	3.0	33.4
Membership club ^{\$}	53,670	38.1	3.0	35.1
Other	6,000	38.1	3.0	35.1
Overall	155,855	38.4	3.0	35.4

* This table omits channels where the PA did not discount any LED candelabra lamps.

[^] The count of sold lamps is the program shipments, adjusted where applicable by the sales-to-shipment ratio, per Section 4.1.

[#] Sales-to-shipment quantity adjustments are applied to this channel for this PA, as described in Section 4.1.

^{\$} Alternative lamps in this channel were absent from the shelf database. The PA average was used as the baseline.

5.4.4 Globe results

Table 5-5 provides the channel-specific delta watts for LED globes. The PA average baseline wattage was used to impute the displaced wattage for the membership club and other channels. The baseline wattage of globes was more consistent across channels when compared to candelabras and reflectors. The range of globe displaced wattages (delta between highest and lowest baseline wattages) was 4.4 W, as compared with 7.8 W for candelabra and 24.2 W for reflectors.

Table 5-5. Delta watts results by PA and channel for LED globes*

Channel	Quantity of Sold Program Lamps^	Average Displaced Wattage	Average Program Discounted Wattage	Delta Watts
PG&E				
Discount	104,000	40.0	5.0	35.0
Grocery [#]	49,400	40.0	5.0	35.0
Home improvement	337,303	42.1	4.0	38.1
Overall	490,703	41.9	4.1	37.8
SCE				
Discount [#]	1,622,912	40.0	5.0	35.0
Drug	7,840	40.0	5.0	35.0
Grocery [#]	2,240,048	40.0	4.0	36.0
Hardware	225,005	42.3	5.0	37.3
Home improvement	129,103	41.3	5.0	36.3
Membership club ^{\$}	4,284	43.1	5.0	38.1
Overall	4,229,192	40.7	4.7	36.0
SDG&E				
Discount [#]	615,620	40.0	5.0	35.0
Grocery [#]	561,200	43.2	5.0	38.2
Hardware	14,820	41.9	5.0	36.9
Home improvement	37,448	44.4	4.0	40.4
Other ^{\$}	17,720	43.2	5.0	38.2
Overall	1,246,808	43.0	4.8	38.2

* This table omits channels where the PA did not discount any LED globe lamps.

^ The count of sold lamps is the program shipments, adjusted where applicable by the sales-to-shipment ratio, per Section 4.1.

[#] Sales-to-shipment quantity adjustments are applied to this channel for this PA, as described in Section 4.1.

^{\$} Alternative lamps in this channel were absent from the shelf database. The PA average was used as the baseline.

5.4.5 Overall delta watts results

Table 5-6 provides the channel-weighted delta watts for all technology types, and PAs. Reflectors had the highest delta watts of the three evaluated technologies, as reflectors had a higher baseline wattage than candelabras and globes.

Table 5-6. Overall delta watts results by PA and measure group

PA and Measure Group	Program Sales	Delta Watts
PG&E		
LED Reflector	4,056,636	45.2
LED Candelabra	1,124,380	35.5
LED Globe	378,097	37.8
SCE		
LED Reflector	2,003,083	47.0
LED Candelabra	1,273,206	37.4
LED Globe	1,014,479	36.0
SDG&E		
LED Reflector	448,746	38.5
LED Candelabra	155,855	35.4
LED Globe	161,413	38.2

5.5 HVAC interactive effects

HVAC interactive effects account for the changes in heating and cooling energy requirements due to changes in lamp wattages and efficiency. Generally, lower-wattage efficient lamps release less heat than higher-wattage, inefficient lamps, which results in air conditioning energy savings and increased space heating requirements. The California Database for Energy Efficiency Resources (DEER) reports the estimated kWh, kW, and therm savings factors for indoor LED measures. In this evaluation, we applied the PA-specific residential multipliers reported in DEER (Table 5-7). The same ratios apply to all LED lamps as the interactive effects vary by the wattage reduction estimate and not by lamp technology. Our evaluation team applied these savings factors to the direct impacts as a multiplier for both kWh and kW and a factor of therms per kWh for therm impacts.³² For non-residential measures, we passed through all ex ante savings and accompanying parameters.

Table 5-7. Residential LED HVAC interactive effects factors by PA

Units	PA		
	PG&E	SCE	SDG&E
kWh	1.02	1.07	1.03
kW	1.33	1.40	1.23
Therms	-0.025	-0.019	-0.018

5.6 UES results

The unit energy savings estimate the annual gross energy and peak demand impacts per unit of each measure. The evaluation team calculated residential UES values for each of the evaluated measure groups

³² Therm impacts for upstream lighting measures are negative.

using the delta watts, HOU, peak coincidence factor, and HVAC interactive effects. As in prior evaluations, this report focuses on the parameters necessary for calculating the residential UES. We show the equations for estimating the residential UES in Section 5.1 above.

For upstream measures installed in non-residential settings, we passed through the ex ante UES as the ex post value. To calculate the ex ante UES for upstream nonresidential measures, we divided ex ante gross savings by the product of measure quantity and ex ante installation rates. The ex ante UES was multiplied by the adjusted quantiles to calculate the ex post for nonresidential upstream measures. In this way, the ex post gross savings for non-residential upstream measures reflects the ex ante UES implicit in the PA-reported gross savings.

In Table 5-8, we present the 2019 residential UES results by PA and measure group for the three upstream lighting measure groups evaluated in this report. Reflectors exhibited the largest UES of the three evaluated measures. The high UES of reflectors was influenced by the relatively high delta watts of reflectors when compared to candelabras and globes. The ex post UES were significantly larger than the ex ante UES for all residential measures.

Table 5-8. 2019 Ex ante and ex post upstream residential UES values by PA and measure group

PA	kWh		kW		Therms	
	Ex Ante	Ex Post	Ex Ante	Ex Post	Ex Ante	Ex Post
PG&E						
LED Reflector	13	29	0.002	0.004	-0.296	-0.701
LED Candelabra	8	22	0.001	0.003	-0.174	-0.550
LED Globe	5	20	0.001	0.003	-0.106	-0.482
SCE						
LED Reflector	14	40	0.002	0.005	-0.261	-0.717
LED Candelabra	8	31	0.001	0.004	-0.143	-0.545
LED Globe	6	24	0.001	0.004	-0.113	-0.424
SDG&E						
LED Reflector	16	20	0.002	0.002	-0.245	-0.354
LED Candelabra	7	20	0.001	0.002	-0.115	-0.349
LED Globe	6	19	0.001	0.002	-0.086	-0.327

6 NET SAVINGS ANALYSIS

This section describes how the evaluation team developed 2019 program year net savings.

6.1 Overview of NTGR methodology

The net-to-gross ratio (NTGR) is the proportion of all program lamp purchases that are attributable to the program. Program-attributable lamps are defined as lamp purchases of a given measure for which customers would have purchased a different inefficient technology in the absence of the program. As with prior evaluations, our NTGR analysis leverages a model that predicts the probability that customers would purchase an LED or alternative technology based on program LED prices and counterfactual non-program LED prices. Section 3.7 and Appendix F provide an overview of the lamp price elasticity model that we used for this analysis. In subsequent subsections, we will cover the following calculations:

Market prices

Price elasticity model results

NTGR

6.2 Market prices

Our first step in calculating the NTGR was to calculate the average price of each modeled lamp style using the winter 2018-19 shelf stocking data. In this analysis, the average program lamp price reflects the relative channel distributions through which programs sold lamps (as calculated in Section 4.1). However, through the shelf survey data, we found that many of the channels that programs targeted (primarily discount and grocery) did not include non-program lamps (LEDs and incandescent/halogen lamps). This finding is consistent with customer survey data, which shows that most lamps sell through home improvement stores, membership clubs, and hardware stores.³³ We thus assumed that program lamps likely converted shoppers from the channel through which they usually buy lamps to the channel in which they ultimately bought the program lamp. We refer to this concept as “channel shift.” Therefore, the most appropriate way to calculate average non-program lamp prices was to weight prices by respective lamp quantities sold market-wide through each channel per the consumer survey.

Table 6-1 below displays the average prices for each of the three technologies that we included in our reflector price elasticity model. Note that to most accurately reflect the program LED brightness range, these averages subset non-program LEDs and incandescent/halogen lamps to a lumen range of 310-749. This table demonstrates that program discounts were successful in pushing the price of LED reflector lamps to \$1.37 on average, which was significantly below the naturally occurring market rate of \$4.04. However, the data also show that the naturally occurring \$4.04 was already \$0.37 less than the incandescent/halogen alternative. It could be argued that programs were successful in moving LED prices within discount and grocery stores from above the price of incandescent/halogen lamps to significantly below those prices. However, retail store surveys showed that the volume of shipments to these stores flooded these markets.

³³ These three channels represented 64% of the lamps consumers purchased based on results from the 2020 consumer survey. More than 17% of lamps were purchased online according to the survey. Less than 4% of lamps were purchased in discount and grocery stores.

Many of the lamps in these channels did not sell at all (Section 4.1), and those that did sell appear to have shifted purchasers from other channels due to the very low prices.³⁴

Table 6-1. Average price of reflector lamps by technology, channel, and program classification

Channel	Program LED		Non-Program LED		Incandescent/Halogen	
	Average Price	Weight*	Average Price	Weight^	Average Price	Weight^
Discount	\$0.50	610,834	\$1.34	427,399	\$1.21	1,799
Drug	\$7.65	10,560	\$19.49	73,608	\$10.93	11,207
Grocery	\$0.60	653,767	\$9.16	119,816	\$5.83	85,833
Hardware	\$5.64	554,564	\$6.40	1,144,925	\$6.00	348,850
Home improvement	\$3.81	585,104	\$3.69	7,888,944	\$4.04	1,328,201
Mass merchandise	N/A	N/A	\$4.31	1,187,158	\$3.69	348,919
Membership club	\$0.68	4,059,208	\$3.82	4,132,615	N/A	N/A
Overall	\$1.37		\$4.04		\$4.41	

* This weight reflects the quantity of program LEDs sold in each channel (i.e., the quantity of shipments times the sales-to-shipment ratio)

^ This weight reflects the weighted number of the respective lamp shape and technology sold in California per the consumer survey (Section 3.4)

In Table 6-2 below, we present the average prices for candelabra lamps and associated weights. To ensure that we only included comparable lamps in this analysis, we restricted the brightness range to 210-515 lumens. The average incandescent/halogen price was \$0.89 without discounts, the average non-program LED candelabra was \$3.20 across all channels. With discounts accounted for, the average LED candelabra was \$2.33, and in the case of discount stores, as low as \$0.25. In spite of the higher price of the non-program candelabra as compared to its incandescent/halogen counterpart, many consumers still chose the LED, as discussed in Section 6.3 below.

³⁴ Note that in prior evaluations, we calculated NTGR by each channel. In this evaluation, because all PAs shipped the vast majority of bulbs to stores where customers do not typically purchase light bulbs (discount, grocery, and membership club), the comparable incandescent price within each channel is far less relevant. In this evaluation, we assume that the program shifted purchases away from other, more typical channels, and a market-wide NTGR is in fact the most appropriate representation of the program's influence.

Table 6-2. Average price of candelabra lamps by technology, channel, and program classification

Channel	Program LED		Non-Program LED		Incandescent/halogen	
	Average Price	Weight*	Average Price	Weight^	Average Price	Weight^
Discount	\$0.25	465,966	\$1.87	239,401	\$0.54	67,345
Drug	N/A	N/A	\$7.68	0	\$3.13	28,251
Grocery	N/A	N/A	\$7.83	110,765	\$1.55	56,901
Hardware	N/A	N/A	\$5.91	483,287	\$1.48	321,639
Home improvement	\$4.16	588,684	\$3.07	3,660,006	\$0.97	1,403,146
Mass merchandise	N/A	N/A	\$4.91	671,847	\$0.54	1,052,465
Membership club	\$2.24	1,093,614	\$1.88	1,661,734	N/A	N/A
Overall	\$2.33		\$3.20		\$0.89	

* This weight reflects the quantity of program LEDs sold in each channel (i.e., the quantity of shipments times the sales-to-shipment ratio)

^ This weight reflects the weighted number of the respective lamp shape and technology sold in California per the consumer survey (Section 3.4)

Finally, Table 6-3 provides average prices and weights for program LED, non-program LED, and incandescent/halogen lamps. Program discounts moved LED globe prices (\$1.83 on average) below incandescent/halogen prices (\$2.82 on average). Without the discounts, LED globes were \$4.46 on average. Again, as we will describe in Section 6.3 below, even at \$4.33 per lamp, customers showed a dominant preference for LEDs over the cheaper incandescent/halogen.

Table 6-3. Average price of globe lamps by technology, channel, and program classification

Channel	Program LED		Non-Program LED		Incandescent/Halogen	
	Average Price	Weight*	Average Price	Weight^	Average Price	Weight^
Discount	\$0.50	410,869	N/A	N/A	\$1.02	247,089
Drug	N/A	N/A	\$11.24	0	\$4.36	0
Grocery	N/A	N/A	\$9.07	78,752	\$3.41	170,598
Hardware	N/A	N/A	\$7.55	567,961	\$3.17	141,820
Home improvement	\$2.91	503,854	\$4.67	5,047,477	\$3.25	1,429,037
Mass merchandise	N/A	N/A	\$4.37	1,379,115	\$2.02	404,393
Membership club	\$2.49	4,284	\$2.49	1,563,182	N/A	N/A
Overall	\$1.83		\$4.46		\$2.82	

* This weight reflects the quantity of program LEDs sold in each channel (i.e., the quantity of shipments times the sales-to-shipment ratio)

^ This weight reflects the weighted number of the respective lamp shape and technology sold in California per the consumer survey (Section 3.4)

6.3 Price elasticity model results

To calculate the NTGR, we used the price elasticity model to estimate market shares of each lamp technology within a specific lamp shape, as discussed in Section 3.7 and Appendix F. Using this model, we calculated market shares of each technology with and without program discounts. The 2019 lighting market was so heavily dominated by LED and incandescent/halogen products, we only considered

incandescent/halogen lamps as the alternative choice. As discussed in Section 5.4, we accounted for the difference in halogen and incandescent wattages within the delta watts parameter.

Table 6-4 below shows the LED market shares that the model produced for each lamp style. As noted above, in both with-program and without-program scenarios, the remaining market share is assumed to be incandescent/halogen lamps. For each shape, it is notable how high the without-program market share is. Without program incentives, LEDs would have accounted for 80% of reflector lamp sales, the lamp shape that overwhelmingly dominated program activity. As observed in shelf stocking data, the non-program LED reflector price was, on average, \$0.37 less expensive than the alternative price. The program was successfully able to push that LED price significantly lower to \$1.37. However, that reduction in price appears to have been an unnecessarily aggressive reduction, as it only boosted LEDs to an estimated 86% of the reflector market.

For the candelabra measure group, program discounts moved the market slightly more significantly. Without the program, LEDs would have accounted for an estimated 70% of candelabra lamp sales, with incandescent/halogen lamps costing an average \$0.89 and non-program LEDs costing an average \$3.20. Program discounts pushed the price of LEDs down to \$2.33 on average, which, while still higher than the inefficient alternative, did boost the LED market share to an estimated 80%.

Lastly, the program seemed to have the greatest influence on the globe measure group. Without program discounts, LEDs would have accounted for an estimated 66% of globe lamps. In this simulation, incandescent/halogen lamps were \$2.82 on average and non-program LEDs were \$4.46. Programs reduced LED globes to an average of \$1.83 per lamp, which boosted the LED globe market share to 88%. Still, for each of the three lamp shapes, the non-program LED market shares were already so high that programs could do very little to substantially move the market. These findings support the view that LED sales dominated a largely transformed lighting market.

Table 6-4. Average price and market share of lamps by lamp style, technology and program classification

Lamp style	Program LED Price	Non-Program LED Price	Alternative Price	With-Program LED Market Share	Without Program LED Market Share
Reflector	\$1.37	\$4.04	\$4.41	86%	80%
Candelabra	\$2.33	\$3.20	\$0.89	80%	70%
Globe	\$1.83	\$4.46	\$2.82	88%	66%

6.4 NTGR

As described above, we used the lamp price elasticity model to calculate the market shares of LEDs and incandescent/halogen lamps using the LED prices with program and the LED prices without program. The NTGR is equal to the percentage of program-discounted lamps that displaced purchases of other technologies. Table 6-5 presents the final NTGR for each measure group. Consistent with the findings discussed in Section 6.3, the without-program LED market share was above 65% for each of the technologies. LED reflectors, which make up the majority of shipments and savings within the upstream program, received a NTGR of 0.073, LED candelabras received a NTGR of 0.123, and LED globes received a TGR of 0.245. Once again, while we note that these are low NTGR, they are indicative of a transformed lighting market.

Table 6-5. LED market share and NTGR results with standard errors

Measure Group	With Program LED Market Share	Without Program LED Market Share	NTGR	Standard Error
LED Reflector	86%	80%	0.073	0.001
LED Candelabra	80%	70%	0.123	0.017
LED Globe	88%	66%	0.245	0.003

We note that these NTGRs are significantly lower than those in the PY 2017 evaluation, but consistent with those found in the PY 2018 evaluation. This dramatic reduction in program attribution is due to substantive market changes within the past three years. We have seen an increase in the quality of bulbs available in the lighting market and a dramatic reduction in pricing. We have identified that there have also been significant changes in customer preferences and increased preference for LEDs over incandescents. Furthermore, across the market, LED reflectors without program discounts were cheaper than incandescent reflectors. While the reduction of NTGR between the PY 2017 and PY 2019 evaluations is dramatic, our PY 2017 evaluation relied on intercept surveys that supported the PY2013-14 and PY2015 evaluations and did not adequately reflect the changes in customer lamp purchasing preferences used to support the 2018 and 2019 evaluations. It is very likely that the PY 2017 evaluation NTGR would have been significantly lower had we been able to utilize more recent consumer preference data to support that analysis.



7 EVALUATION RESULTS

In this section, we provide gross savings and net savings results by PA.

7.1 Gross savings results

This section presents the total gross savings results by measure group and PA. The methodology for calculating gross savings is described in Section 5. Gross realization rates are the ratio of ex post evaluated savings to the reported ex ante savings claims. Upstream lighting measures generally had ex post gross unit energy savings that exceeded ex ante assumptions. However, the sales-to-shipment quantity adjustment described in section 4.1 reduced overall gross savings. For additional context on how each parameter changes gross savings you can reference the waterfall graphics in Appendix D. Below we show overall gross savings results for the evaluated measures as well as a breakdown by each PA.

7.1.1 Overall

Table 7-1 provides statewide gross realization rates for each evaluated measure group by kWh, kW, and therms. The evaluated upstream measures include both residential and non-residential savings. The pass-through measures include upstream measures that were not evaluated and residential downstream measures.

Table 7-1. Ex ante and ex post gross savings and gross realization rates by measure group across all PAs, PY 2019

Evaluated Upstream Lighting Measure Group	Ex Ante			Ex Post			Gross Realization Rates		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
LED Reflector	223,893,556	32,634	-3,622,307	197,307,683	27,920	-3,936,141	88%	86%	109%
LED Candelabra	43,986,675	6,486	-705,541	61,626,098	8,351	-1,195,031	140%	129%	169%
LED Globe	40,798,670	6,083	-613,455	31,670,813	5,062	-579,270	78%	83%	94%
Pass-through measures	6,054,798	352	-89,058	6,054,798	352	-89,058	100%	100%	100%
Overall	314,733,698	45,554	-5,030,361	296,659,393	41,685	-5,799,500	94%	92%	115%

Table 7-2 shows a breakdown of statewide ex post results split into residential and non-residential gross savings. We explain how the residential and non-residential split is calculated and applied for the evaluated upstream measures in section 4.2. The pass-through measures include upstream measures that were not evaluated and residential downstream measures.

Table 7-2. Ex post gross savings by lighting measure group and sector across all PAs, PY 2019

Measure Group	Annual Energy Savings (kWh)		Peak Demand Reductions (kW)		Gas Impact (Therms)	
	Residential	Non-residential	Residential	Non-residential	Residential	Non-residential
LED Reflector	178,263,496	19,044,187	22,980	4,940	-3,842,716	-93,425
LED Candelabra	58,254,526	3,371,572	7,431	920	-1,181,264	-13,767
LED Globe	29,945,866	1,724,948	4,561	501	-574,387	-4,883
Pass-through measures	5,989,850	64,949	336	16	-88,818	-241
Overall	272,453,738	24,205,655	35,308	6,377	-5,687,184	-112,316

7.1.2 PG&E

Table 7-3 provides the PG&E gross realization rates for each evaluated measure group by kWh, kW, and therms.

Table 7-3. PG&E ex ante and ex post gross savings and gross realization rates by lighting measure group, PY 2019

Evaluated Upstream Lighting Measure Group	Ex Ante			Ex Post			Gross Realization Rates		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
LED Reflector	80,226,265	11,435	-1,536,411	113,312,670	16,752	-2,548,614	141%	147%	166%
LED Candelabra	11,692,356	1,676	-222,772	23,606,368	3,033	-547,042	202%	181%	246%
LED Globe	3,056,958	441	-58,031	6,882,875	1,076	-160,401	225%	244%	276%
Pass-through measures	2,159,310	250	-44,008	2,159,310	250	-44,008	100%	100%	100%
Overall	97,134,888	13,802	-1,861,222	145,961,223	21,111	-3,300,065	150%	153%	177%

Table 7-4 shows a breakdown of PG&E ex post results split into residential and non-residential gross savings.

Table 7-4. PG&E ex post gross savings by evaluated upstream lighting measure group and sector, PY 2019

Measure Group	Annual Energy Savings (kWh)		Peak Demand Reductions (kW)		Gas Impact (Therms)	
	Residential	Non-residential	Residential	Non-residential	Residential	Non-residential
LED Reflector	100,624,554	12,688,116	13,744	3,008	-2,466,288	-82,326
LED Candelabra	21,856,535	1,749,833	2,618	415	-535,699	-11,343
LED Globe	6,422,530	460,345	967	109	-157,415	-2,986
Pass-through measures	2,159,310	0	250	0	-44,008	0
Overall	131,062,928	14,898,295	17,580	3,531	-3,203,410	-96,654

7.1.3 SCE

SCE gross realization rates are presented in Table 7-5. As explained in Section 4.1, SCE focused a large portion of their program on the discount and grocery channels. This evaluation applied a significant adjustment to the quantity of measures that received savings credit within those channels. As such, the measures that were affected by the quantity adjustment achieved a lower gross realization rate.

Table 7-5. SCE ex ante and ex post gross savings and gross realization rates by measure group, PY 2019

Evaluated Upstream Lighting Measure Group	Ex Ante			Ex Post			Gross Realization Rates		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
LED Reflector	95,457,367	14,333	-1,454,964	74,438,200	10,155	-1,244,055	78%	71%	86%
LED Candelabra	26,274,338	3,946	-403,942	35,064,489	4,987	-600,096	133%	126%	149%
LED Globe	29,087,069	4,373	-442,017	21,956,019	3,602	-372,532	75%	82%	84%
Pass-through measures	1,650,065	18	-16,771	1,650,065	18	-16,771	100%	100%	100%
Overall	152,468,839	22,670	-2,317,694	133,108,773	18,762	-2,233,454	87%	83%	96%

Table 7-6 shows a breakdown of SCE ex post results split into residential and non-residential gross savings.

Table 7-6. SCE ex post gross energy savings by measure group and sector, PY 2019

Measure Group	Annual Energy Savings (kWh)		Peak Demand Reductions (kW)		Gas Impact (Therms)	
	Residential	Non-residential	Residential	Non-residential	Residential	Non-residential
LED Reflector	69,790,186	4,648,014	8,649	1,506	-1,239,265	-4,790
LED Candelabra	33,714,911	1,349,578	4,550	438	-598,676	-1,420
LED Globe	20,920,142	1,035,877	3,267	336	-371,479	-1,053
Pass-through measures	1,650,065	0	18	0	-16,771	0
Overall	126,075,304	7,033,469	16,483	2,279	-2,226,191	-7,263

7.1.4 SDG&E

Similar to the results for SCE, SDG&E had low gross realization rates largely due to the sales-to-shipment quantity adjustment described in section 4.1. SDG&E gross realization rates are presented in Table 7-7.

Table 7-7. SDG&E ex ante and ex post gross savings and gross realization rates by measure group, PY 2019

Evaluated Upstream Lighting Measure Group	Ex Ante			Ex Post			Gross Realization Rates		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
LED Reflector	48,209,924	6,866	-630,932	9,556,813	1,013	-143,472	20%	15%	23%
LED Candelabra	6,019,981	864	-78,827	2,955,241	331	-47,893	49%	38%	61%
LED Globe	8,654,643	1,269	-113,407	2,831,919	384	-46,336	33%	30%	41%
Pass-through measures	2,018,905	66	-25,289	2,018,905	66	-25,289	100%	100%	100%
Overall	64,903,453	9,066	-848,455	17,362,879	1,794	-262,991	27%	20%	31%

Table 7-8 shows a breakdown of SDG&E ex post results split into residential and non-residential gross savings.

Table 7-8. SDG&E ex post gross savings by measure group and sector, PY 2019

Measure Group	Annual Energy Savings (kWh)		Peak Demand Reductions (kW)		Gas Impact (Therms)	
	Residential	Non-residential	Residential	Non-residential	Residential	Non-residential
LED Reflector	7,848,757	1,708,057	587	426	-137,163	-6,309
LED Candelabra	2,683,081	272,161	263	68	-46,889	-1,005
LED Globe	2,603,193	228,726	328	57	-45,493	-844
Pass-through measures	1,953,957	64,949	50	16	-25,048	-241
Overall	15,088,987	2,273,892	1,228	567	-254,593	-8,398



7.2 Net savings results

This section presents the total net savings results by measure group and PA. The methodology for calculating gross savings is described in Section 6. The net-to-gross ratios from Section 6 are applied to the residential UES of the evaluated upstream measures. Net realization rates are the ratio of ex post evaluated net savings to the reported ex ante net savings assumptions. For additional context on how each parameter changes net savings you can reference the waterfall graphics in Appendix D. Below we show overall net savings results for the evaluated measures as well as a breakdown by each PA.

7.2.1 Overall

Table 7-9 provides statewide net realization rates for each evaluated measure group by kWh, kW, and therms. The evaluated upstream measures include both residential and non-residential savings. The pass-through measures include upstream measures that were not evaluated and residential downstream measures.

Table 7-9. Ex ante and ex post net savings and realization rates by measure group across all PAs, PY 2019

Measure Group	Ex Ante			Ex Post			Net Realization Rates		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
LED Reflector	214,572,749	31,277	-3,472,641	40,205,111	7,567	-562,516	19%	24%	16%
LED Candelabra	42,200,100	6,223	-676,965	13,418,709	2,182	-219,702	32%	35%	32%
LED Globe	39,109,303	5,831	-588,164	10,494,425	1,827	-174,244	27%	31%	30%
Pass-through measures	5,236,203	329	-78,337	5,236,203	329	-78,337	100%	100%	100%
Overall	301,118,354	43,659	-4,816,107	69,354,448	11,904	-1,034,799	23%	27%	21%

Table 7-10 shows a breakdown of statewide ex post results split into residential and non-residential net savings. We explain how the residential and non-residential split is calculated and applied in for the evaluated upstream measures section 4.2. The pass-through measures include upstream measures that were not evaluated and residential downstream measures.

Table 7-10. Ex post net savings by measure group and sector across all PAs, PY 2019

Measure Group	Annual Energy Savings		Peak Demand Reductions		Gas Impact	
	(kWh)		(kW)		(Therms)	
	Residential	Non-residential	Residential	Non-residential	Residential	Non-residential
LED Reflector	21,936,929	18,268,182	2,828	4,739	-472,881	-89,635
LED Candelabra	10,183,142	3,235,568	1,299	883	-206,490	-13,212
LED Globe	8,840,241	1,654,184	1,346	481	-169,563	-4,681
Pass-through measures	5,173,879	62,324	313	16	-78,106	-231
Overall	46,134,189	23,220,258	5,786	6,118	-927,040	-107,760

7.2.2 PG&E

We present PG&E net realization rates in Table 7-11.

Table 7-11. PG&E ex ante and ex post net savings and realization rates by measure group, PY 2019

Measure Group	Ex Ante			Ex Post			Net Realization Rates		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
LED Reflector	77,017,214	10,977	-1,474,955	24,563,349	4,579	-382,531	32%	42%	26%
LED Candelabra	11,224,661	1,609	-213,861	5,500,456	856	-104,531	49%	53%	49%
LED Globe	2,934,680	423	-55,710	2,337,909	390	-49,337	80%	92%	89%
Pass-through measures	2,072,830	240	-42,245	2,072,830	240	-42,245	100%	100%	100%
Overall	93,249,385	13,250	-1,786,771	34,474,545	6,065	-578,645	37%	46%	32%

Table 7-12 shows a breakdown of PG&E ex post results split into residential and non-residential net savings.

Table 7-12. PG&E ex post net savings by measure group and sector, PY 2019

Measure Group	Annual Energy Savings		Peak Demand Reductions		Gas Impact	
	(kWh)		(kW)		(Therms)	
	Residential	Non-residential	Residential	Non-residential	Residential	Non-residential
LED Reflector	12,382,758	12,180,592	1,691	2,887	-303,499	-79,033
LED Candelabra	3,820,616	1,679,840	458	398	-93,643	-10,889
LED Globe	1,895,978	441,931	285	105	-46,470	-2,867
Pass-through measures	2,072,830	0	240	0	-42,245	0
Overall	20,172,182	14,302,363	2,675	3,390	-485,857	-92,788

7.2.3 SCE

We present SCE net realization rates in Table 7-13.

Table 7-13. SCE ex ante and ex post net savings and realization rates by measure group, PY 2019

Measure Group	Ex Ante			Ex Post			Net Realization Rates		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
LED Reflector	91,639,072	13,760	-1,396,766	13,050,404	2,510	-157,101	14%	18%	11%
LED Candelabra	25,223,364	3,788	-387,784	7,189,106	1,215	-106,014	29%	32%	27%
LED Globe	27,923,587	4,198	-424,336	7,170,222	1,287	-110,674	26%	31%	26%
Pass-through measures	1,422,258	15	-14,001	1,422,258	15	-14,001	100%	100%	100%
Overall	146,208,281	21,761	-2,222,887	28,831,991	5,027	-387,790	20%	23%	17%

Table 7-14 shows a breakdown of SCE ex post results split into residential and non-residential net savings.

Table 7-14. SCE ex post net savings by evaluated upstream lighting measure group and sector, PY 2019

Measure Group	Annual Energy Savings		Peak Demand Reductions		Gas Impact	
	(kWh)		(kW)		(Therms)	
	Residential	Non-residential	Residential	Non-residential	Residential	Non-residential
LED Reflector	8,588,311	4,462,093	1,064	1,446	-152,503	-4,599
LED Candelabra	5,893,511	1,295,595	795	420	-104,651	-1,363
LED Globe	6,175,780	994,442	964	322	-109,663	-1,011
Pass-through measures	1,422,258	0	15	0	-14,001	0
Overall	22,079,861	6,752,130	2,839	2,188	-380,818	-6,972

7.2.4 SDG&E

We present SDG&E's net realization rates in Table 7-15. SDG&E's program was dominated by large shipments to discount and grocery stores, and therefore this adjustment had a large impact on their program-level net realization rates.

Table 7-15. SDG&E ex ante and ex post net savings and realization rates by measure group, PY 2019

Measure Group	Ex Ante			Ex Post			Net Realization Rates		
	kWh	kW	Therms	kWh	kW	Therms	kWh	kW	Therms
LED Reflector	45,916,463	6,539	-600,921	2,591,358	478	-22,883	6%	7%	4%
LED Candelabra	5,752,074	826	-75,319	729,147	111	-9,157	13%	13%	12%
LED Globe	8,251,037	1,210	-108,118	986,293	151	-14,233	12%	12%	13%
Pass-through measures	1,555,754	58	-19,510	1,555,754	58	-19,510	100%	100%	100%
Overall	61,475,327	8,633	-803,869	5,862,552	797	-65,784	10%	9%	8%

Table 7-16 shows a breakdown of SDG&E ex post results split into residential and non-residential net savings.

Table 7-16. SDG&E ex post net savings by measure group and sector, PY 2019

Measure Group	Annual Energy Savings		Peak Demand Reductions		Gas Impact	
	(kWh)		(kW)		(Therms)	
	Residential	Non-residential	Residential	Non-residential	Residential	Non-residential
LED Reflector	965,860	1,625,497	72	406	-16,879	-6,004
LED Candelabra	469,014	260,133	46	65	-8,196	-960
LED Globe	768,482	217,811	97	54	-13,430	-803
Pass-through measures	1,493,430	62,324	43	16	-19,279	-231
Overall	3,696,786	2,165,766	258	540	-57,785	-7,999

8 CONCLUSIONS AND RECOMMENDATIONS

We summarize the conclusions and corresponding recommendations below.

8.1 Conclusions and recommendations for programs

8.1.1 Program oversight

Programs continued to significantly over ship light bulbs to stores. The PY 2019 upstream lighting programs continued to ship significantly more light bulbs to individual stores, particularly to the discount and grocery channels, than stores could reasonably stock and sell. Evaluation results suggest that there was inadequate monitoring and verification of program light bulb shipments and that many participating retail stores were not required to purchase program discounted light bulbs from manufacturers. Based on these conclusions, we have the following recommendations:

Recommendation 1: PAs should have a clear understanding of the estimated size of the market and segmentation of the market by sales channel to make an informed decision on the appropriate level of program shipments.

Recommendation 2: Program monitoring should always include verification of shipment and delivery documentation from manufacturers and an adequate number of in-store verifications to confirm stocking and sufficient sell-through rates of program discounted measures. Verifications results should be shared and monitored regularly among program staff and PA management.

8.1.2 Market transformation

The lighting market has largely been transformed. Evaluation results suggest that the California lighting market has shifted, and LEDs are the dominant technology and the preferred choice by most consumers for the evaluated measure types. LEDs account for more than 75% of the market across all three evaluated measure groups and more than 90% of the reflector market. LED prices have fallen to a point where they are competitive with inefficient technologies, even without program incentives. Upstream lighting program incentives no longer influence customer purchases as much as they did when inefficient light bulbs dominated the lighting market. Based on these conclusions, we have the following recommendations:

Recommendation 3: The PAs discontinued the statewide upstream lighting program in 2020 and should not revive the program in 2021 or future years.

Recommendation 4: Increases in standards are expected to remove the remaining pockets of halogen bulbs in the market, and halogens that remain in sockets have such short measure lives that they will soon be replaced by LEDs. To the extent that pockets of inefficient bulbs remain and/or these changes happen inequitably, residential lighting programs should be tailored to reach the appropriate segments of customers, but these programs should be designed thoughtfully to maximize impact.

8.1.3 Program cost-effectiveness

LEDs were a cost-effective upstream measure, but this is no longer the case. The upstream lighting program was a cost-effective vehicle for accelerating the adoption of efficient light bulbs for more than a decade, but the lighting market transformed to the point where LEDs comprised an ever increasing majority of the market during the 2017, 2018, and 2019 program years. With LEDs becoming so common and accepted by consumers, the upstream lighting program's influence on consumer behavior diminished considerably. Based on these conclusions we have the following recommendation:

Recommendation 5: PAs offering upstream programs should closely monitor market trends, particularly trends in overall market size and market share of efficient technologies and less efficient alternatives.

8.2 Further research

Based on the conclusions and recommendations for programs from this evaluation, we have identified potential topics for further research.

8.2.1 Develop lessons learned from program intervention and market transformation

The evaluation comes at a time when the lighting market has largely been transformed in California. The upstream lighting programs have been successful for years, incentivizing CFLs when the programs first began and then shifting to incentivizing LEDs in recent years. A study on lessons learned from this evaluation could be highly beneficial to program administrators in other states that have less mature programs and lighting markets as well as program administrators of other non-lighting measures. Such a study could further investigate how programs can effectively utilize smaller, niche channels to reach disadvantaged communities while not oversaturating these markets. In addition, the study could identify the final pockets of customers who are not willing to adopt LEDs or have limited access to them. This research would thus identify the specific remaining barriers to adoption and recommend the most cost-effective ways of overcoming those barriers.

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10 APPENDICES

10.1 Appendix A: Data standardized high-level savings

Gross Lifecycle Savings (MWh)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_RES	PGE	PassThru Res Downstream	31,695	31,695	1.00	100.0%	
LTG_RES	PGE	Total	31,695	31,695	1.00	100.0%	
LTG_RES	SCE	PassThru Res Downstream	9,424	9,424	1.00	100.0%	
LTG_RES	SCE	Total	9,424	9,424	1.00	100.0%	
LTG_RES	SDGE	PassThru Res Downstream	8,632	8,632	1.00	100.0%	
LTG_RES	SDGE	Total	8,632	8,632	1.00	100.0%	
LTG_RES	BAY	PassThru Res Downstream	360	360	1.00	100.0%	
LTG_RES	BAY	Total	360	360	1.00	100.0%	
LTG_RES	MCE	PassThru Res Downstream	1,972	1,972	1.00	100.0%	
LTG_RES	MCE	Total	1,972	1,972	1.00	100.0%	
LTG_RES		Statewide	52,084	52,084	1.00	100.0%	
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	16,596	12,249	0.74	0.0%	0.74
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	5,995	4,327	0.72	0.0%	0.72
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	147,925	119,268	0.81	0.0%	0.81
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	149,144	349,705	2.34	0.0%	2.34
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	38,707	102,761	2.65	0.0%	2.65
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	1,031,833	1,609,993	1.56	0.0%	1.56
LTG_UPSTREAM	PGE	Total	1,390,200	2,198,302	1.58	0.0%	1.58
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	42,432	14,670	0.35	0.0%	0.35
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	51,942	12,431	0.24	0.0%	0.24
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	170,516	55,776	0.33	0.0%	0.33
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	357,932	539,439	1.51	0.0%	1.51
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	396,137	334,722	0.84	0.0%	0.84
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	1,299,963	1,116,643	0.86	0.0%	0.86
LTG_UPSTREAM	SCE	Total	2,318,922	2,073,681	0.89	0.0%	0.89
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	8,953	1,905	0.21	0.0%	0.21
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	17,270	2,150	0.12	0.0%	0.12
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	96,087	16,056	0.17	0.0%	0.17
LTG_UPSTREAM	SDGE	PassThru Upstream	4,475	4,475	1.00	100.0%	

Gross Lifecycle Savings (MWh)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	75,855	42,929	0.57	0.0%	0.57
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	109,078	41,651	0.38	0.0%	0.38
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	607,806	125,580	0.21	0.0%	0.21
LTG_UPSTREAM	SDGE	Total	919,525	234,746	0.26	0.5%	0.25
LTG_UPSTREAM		Statewide	4,628,647	4,506,729	0.97	0.1%	0.97

Net Lifecycle Savings (MWh)

Report Name	PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Eval Ex-Ante NTG	Eval Ex-Post NTG
LTG_RES	PGE	PassThru Res Downstream	30,425	30,425	1.00	100.0%	0.96	0.96		
LTG_RES	PGE	Total	30,425	30,425	1.00	100.0%	0.96	0.96		
LTG_RES	SCE	PassThru Res Downstream	8,238	8,238	1.00	100.0%	0.87	0.87		
LTG_RES	SCE	Total	8,238	8,238	1.00	100.0%	0.87	0.87		
LTG_RES	SDGE	PassThru Res Downstream	6,373	6,373	1.00	100.0%	0.74	0.74		
LTG_RES	SDGE	Total	6,373	6,373	1.00	100.0%	0.74	0.74		
LTG_RES	BAY	PassThru Res Downstream	346	346	1.00	100.0%	0.96	0.96		
LTG_RES	BAY	Total	346	346	1.00	100.0%	0.96	0.96		
LTG_RES	MCE	PassThru Res Downstream	1,497	1,497	1.00	100.0%	0.76	0.76		
LTG_RES	MCE	Total	1,497	1,497	1.00	100.0%	0.76	0.76		
LTG_RES		Statewide	46,879	46,879	1.00	100.0%	0.90	0.90		
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	15,932	11,759	0.74	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	5,755	4,154	0.72	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	142,008	114,498	0.81	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	143,178	61,130	0.43	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	37,158	30,336	0.82	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	990,560	198,124	0.20	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	PGE	Total	1,334,592	420,000	0.31	0.0%	0.96	0.19	0.96	0.19
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	40,735	14,083	0.35	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	49,864	11,933	0.24	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	163,696	53,545	0.33	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	343,614	94,296	0.27	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	380,292	98,812	0.26	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	1,247,964	137,413	0.11	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	SCE	Total	2,226,165	410,083	0.18	0.0%	0.96	0.20	0.96	0.20
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	8,555	1,821	0.21	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	16,465	2,047	0.12	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	91,517	15,280	0.17	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	PassThru Upstream	4,294	4,294	1.00	100.0%	0.96	0.96		

Net Lifecycle Savings (MWh)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Net Pass Through			NTG	NTG
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	72,479	7,504	0.10	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	103,991	12,296	0.12	0.0%	0.95	0.30	0.95	0.30
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	578,891	15,454	0.03	0.0%	0.95	0.12	0.95	0.12
LTG_UPSTREAM	SDGE	Total	876,191	58,696	0.07	0.5%	0.95	0.25	0.95	0.24
LTG_UPSTREAM		Statewide	4,436,948	888,779	0.20	0.1%	0.96	0.20	0.96	0.20

Gross Lifecycle Savings (MW)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_RES	PGE	PassThru Res Downstream	3.7	3.7	1.00	100.0%	
LTG_RES	PGE	Total	3.7	3.7	1.00	100.0%	
LTG_RES	SCE	PassThru Res Downstream	0.1	0.1	1.00	100.0%	
LTG_RES	SCE	Total	0.1	0.1	1.00	100.0%	
LTG_RES	SDGE	PassThru Res Downstream	0.1	0.1	1.00	100.0%	
LTG_RES	SDGE	Total	0.1	0.1	1.00	100.0%	
LTG_RES	BAY	PassThru Res Downstream	0.0	0.0	1.00	100.0%	
LTG_RES	BAY	Total	0.0	0.0	1.00	100.0%	
LTG_RES	MCE	PassThru Res Downstream	0.1	0.1	1.00	100.0%	
LTG_RES	MCE	Total	0.1	0.1	1.00	100.0%	
LTG_RES		Statewide	4.1	4.1	1.00	100.0%	
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	3.9	2.9	0.74	0.0%	0.74
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	1.4	1.0	0.72	0.0%	0.72
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	35.1	28.3	0.81	0.0%	0.81
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	17.8	41.9	2.35	0.0%	2.35
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	4.6	15.5	3.34	0.0%	3.34
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	123.3	219.9	1.78	0.0%	1.78
LTG_UPSTREAM	PGE	Total	186.2	309.5	1.66	0.0%	1.66
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	13.8	4.8	0.35	0.0%	0.35
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	16.8	4.0	0.24	0.0%	0.24
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	55.3	18.1	0.33	0.0%	0.33
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	42.9	72.8	1.70	0.0%	1.70
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	47.5	52.3	1.10	0.0%	1.10
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	155.6	138.4	0.89	0.0%	0.89
LTG_UPSTREAM	SCE	Total	331.9	290.3	0.87	0.0%	0.87
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	2.2	0.5	0.21	0.0%	0.21
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	4.3	0.5	0.12	0.0%	0.12
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	24.0	4.0	0.17	0.0%	0.17
LTG_UPSTREAM	SDGE	PassThru Upstream	0.6	0.6	1.00	100.0%	

Gross Lifecycle Savings (MW)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	8.8	4.2	0.48	0.0%	0.48
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	13.0	5.2	0.40	0.0%	0.40
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	69.0	9.4	0.14	0.0%	0.14
LTG_UPSTREAM	SDGE	Total	121.9	24.4	0.20	0.5%	0.20
LTG_UPSTREAM		Statewide	639.9	624.2	0.98	0.1%	0.98

Net Lifecycle Savings (MW)

Report Name	PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Eval Ex-Ante NTG	Eval Ex-Post NTG
LTG_RES	PGE	PassThru Res Downstream	3.5	3.5	1.00	100.0%	0.96	0.96		
LTG_RES	PGE	Total	3.5	3.5	1.00	100.0%	0.96	0.96		
LTG_RES	SCE	PassThru Res Downstream	0.1	0.1	1.00	100.0%	0.85	0.85		
LTG_RES	SCE	Total	0.1	0.1	1.00	100.0%	0.85	0.85		
LTG_RES	SDGE	PassThru Res Downstream	0.1	0.1	1.00	100.0%	0.74	0.74		
LTG_RES	SDGE	Total	0.1	0.1	1.00	100.0%	0.74	0.74		
LTG_RES	BAY	PassThru Res Downstream	0.0	0.0	1.00	100.0%	0.96	0.96		
LTG_RES	BAY	Total	0.0	0.0	1.00	100.0%	0.96	0.96		
LTG_RES	MCE	PassThru Res Downstream	0.1	0.1	1.00	100.0%	0.76	0.76		
LTG_RES	MCE	Total	0.1	0.1	1.00	100.0%	0.76	0.76		
LTG_RES		Statewide	3.8	3.8	1.00	100.0%	0.95	0.95		
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	3.8	2.8	0.74	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	1.4	1.0	0.72	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	33.7	27.1	0.81	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	17.1	7.3	0.43	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	4.4	4.6	1.03	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	118.3	27.1	0.23	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	PGE	Total	178.7	69.9	0.39	0.0%	0.96	0.23	0.96	0.23
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	13.2	4.6	0.35	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	16.2	3.9	0.24	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	53.1	17.4	0.33	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	41.1	12.7	0.31	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	45.6	15.4	0.34	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	149.3	17.0	0.11	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	SCE	Total	318.6	71.0	0.22	0.0%	0.96	0.24	0.96	0.24
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	2.1	0.5	0.21	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	4.1	0.5	0.12	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	22.8	3.8	0.17	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	PassThru Upstream	0.6	0.6	1.00	100.0%	0.96	0.96		

Net Lifecycle Savings (MW)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante Net Pass	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Through	NTG	NTG	Ex-Ante NTG	Ex-Post NTG
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	8.4	0.7	0.09	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	12.4	1.5	0.12	0.0%	0.95	0.30	0.95	0.30
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	65.8	1.2	0.02	0.0%	0.95	0.12	0.95	0.12
LTG_UPSTREAM	SDGE	Total	116.2	8.8	0.08	0.5%	0.95	0.36	0.95	0.34
LTG_UPSTREAM		Statewide	613.5	149.6	0.24	0.1%	0.96	0.24	0.96	0.24

Gross Lifecycle Savings (MTherms)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_RES	PGE	PassThru Res Downstream	-694	-694	1.00	100.0%	
LTG_RES	PGE	Total	-694	-694	1.00	100.0%	
LTG_RES	SCE	PassThru Res Downstream	-68	-68	1.00	100.0%	
LTG_RES	SCE	Total	-68	-68	1.00	100.0%	
LTG_RES	SDGE	PassThru Res Downstream	-106	-106	1.00	100.0%	
LTG_RES	SDGE	Total	-106	-106	1.00	100.0%	
LTG_RES	BAY	PassThru Res Downstream	-9	-9	1.00	100.0%	
LTG_RES	BAY	Total	-9	-9	1.00	100.0%	
LTG_RES	MCE	PassThru Res Downstream	-15	-15	1.00	100.0%	
LTG_RES	MCE	Total	-15	-15	1.00	100.0%	
LTG_RES		Statewide	-892	-892	1.00	100.0%	
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	-108	-79	0.74	0.0%	0.74
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	-39	-28	0.72	0.0%	0.72
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	-960	-774	0.81	0.0%	0.81
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	-3,318	-8,571	2.58	0.0%	2.58
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	-862	-2,519	2.92	0.0%	2.92
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	-22,949	-39,461	1.72	0.0%	1.72
LTG_UPSTREAM	PGE	Total	-28,236	-51,432	1.82	0.0%	1.82
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	-47	-15	0.33	0.0%	0.33
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	-54	-13	0.23	0.0%	0.23
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	-183	-57	0.31	0.0%	0.31
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	-6,394	-9,579	1.50	0.0%	1.50
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	-7,000	-5,944	0.85	0.0%	0.85
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	-23,036	-19,828	0.86	0.0%	0.86
LTG_UPSTREAM	SCE	Total	-36,714	-35,436	0.97	0.0%	0.97
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	-33	-7	0.21	0.0%	0.21
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	-64	-8	0.12	0.0%	0.12
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	-355	-59	0.17	0.0%	0.17
LTG_UPSTREAM	SDGE	PassThru Upstream	-63	-63	1.00	100.0%	

Gross Lifecycle Savings (MTherms)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	-1,186	-750	0.63	0.0%	0.63
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	-1,706	-728	0.43	0.0%	0.43
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	-9,491	-2,195	0.23	0.0%	0.23
LTG_UPSTREAM	SDGE	Total	-12,897	-3,810	0.30	0.5%	0.29
LTG_UPSTREAM		Statewide	-77,847	-90,678	1.16	0.1%	1.16

Net Lifecycle Savings (MTherms)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Net Pass Through			Ex-Ante	Ex-Post
							NTG	NTG	NTG	NTG
LTG_RES	PGE	PassThru Res Downstream	-666	-666	1.00	100.0%	0.96	0.96		
LTG_RES	PGE	Total	-666	-666	1.00	100.0%	0.96	0.96		
LTG_RES	SCE	PassThru Res Downstream	-55	-55	1.00	100.0%	0.81	0.81		
LTG_RES	SCE	Total	-55	-55	1.00	100.0%	0.81	0.81		
LTG_RES	SDGE	PassThru Res Downstream	-78	-78	1.00	100.0%	0.74	0.74		
LTG_RES	SDGE	Total	-78	-78	1.00	100.0%	0.74	0.74		
LTG_RES	BAY	PassThru Res Downstream	-8	-8	1.00	100.0%	0.96	0.96		
LTG_RES	BAY	Total	-8	-8	1.00	100.0%	0.96	0.96		
LTG_RES	MCE	PassThru Res Downstream	-12	-12	1.00	100.0%	0.75	0.75		
LTG_RES	MCE	Total	-12	-12	1.00	100.0%	0.75	0.75		
LTG_RES		Statewide	-819	-819	1.00	100.0%	0.92	0.92		
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	-103	-76	0.74	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	-37	-27	0.72	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	-922	-743	0.81	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	-3,186	-1,498	0.47	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	-828	-744	0.90	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	-22,031	-4,856	0.22	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	PGE	Total	-27,106	-7,944	0.29	0.0%	0.96	0.15	0.96	0.15
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	-45	-15	0.33	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	-52	-12	0.23	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	-175	-55	0.31	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	-6,138	-1,674	0.27	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	-6,720	-1,755	0.26	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	-22,114	-2,440	0.11	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	SCE	Total	-35,245	-5,951	0.17	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	-32	-7	0.21	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	-61	-8	0.12	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	-338	-56	0.17	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	PassThru Upstream	-60	-60	1.00	100.0%	0.96	0.96		

Net Lifecycle Savings (MTherms)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Net Pass Through			NTG	NTG
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	-1,133	-131	0.12	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	-1,627	-215	0.13	0.0%	0.95	0.30	0.95	0.30
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	-9,040	-270	0.03	0.0%	0.95	0.12	0.95	0.12
LTG_UPSTREAM	SDGE	Total	-12,289	-747	0.06	0.5%	0.95	0.20	0.95	0.18
LTG_UPSTREAM		Statewide	-74,641	-14,642	0.20	0.1%	0.96	0.16	0.96	0.16

Gross First Year Savings (MWh)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_RES	PGE	PassThru Res Downstream	2,159	2,159	1.00	100.0%	
LTG_RES	PGE	Total	2,159	2,159	1.00	100.0%	
LTG_RES	SCE	PassThru Res Downstream	1,650	1,650	1.00	100.0%	
LTG_RES	SCE	Total	1,650	1,650	1.00	100.0%	
LTG_RES	SDGE	PassThru Res Downstream	1,712	1,712	1.00	100.0%	
LTG_RES	SDGE	Total	1,712	1,712	1.00	100.0%	
LTG_RES	BAY	PassThru Res Downstream	67	67	1.00	100.0%	
LTG_RES	BAY	Total	67	67	1.00	100.0%	
LTG_RES	MCE	PassThru Res Downstream	159	159	1.00	100.0%	
LTG_RES	MCE	Total	159	159	1.00	100.0%	
LTG_RES		Statewide	5,748	5,748	1.00	100.0%	
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	2,371	1,750	0.74	0.0%	0.74
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	638	460	0.72	0.0%	0.72
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	15,737	12,688	0.81	0.0%	0.81
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	9,322	21,857	2.34	0.0%	2.34
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	2,419	6,423	2.65	0.0%	2.65
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	64,490	100,625	1.56	0.0%	1.56
LTG_UPSTREAM	PGE	Total	94,976	143,802	1.51	0.0%	1.51
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	3,904	1,350	0.35	0.0%	0.35
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	4,328	1,036	0.24	0.0%	0.24
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	14,210	4,648	0.33	0.0%	0.33
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	22,371	33,715	1.51	0.0%	1.51
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	24,759	20,920	0.84	0.0%	0.84
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	81,248	69,790	0.86	0.0%	0.86
LTG_UPSTREAM	SCE	Total	150,819	131,459	0.87	0.0%	0.87
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	1,279	272	0.21	0.0%	0.21
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	1,837	229	0.12	0.0%	0.12
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	10,222	1,708	0.17	0.0%	0.17
LTG_UPSTREAM	SDGE	PassThru Upstream	306	306	1.00	100.0%	

Gross First Year Savings (MWh)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	4,741	2,683	0.57	0.0%	0.57
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	6,817	2,603	0.38	0.0%	0.38
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	37,988	7,849	0.21	0.0%	0.21
LTG_UPSTREAM	SDGE	Total	63,191	15,650	0.25	0.5%	0.24
LTG_UPSTREAM		Statewide	308,985	290,911	0.94	0.1%	0.94

Net First Year Savings (MWh)

Report Name	PA	Standard Report Group	Ex-Ante Net	Ex-Post Net	NRR	% Ex-Ante Net Pass Through	Ex-Ante NTG	Ex-Post NTG	Eval Ex-Ante NTG	Eval Ex-Post NTG
LTG_RES	PGE	PassThru Res Downstream	2,073	2,073	1.00	100.0%	0.96	0.96		
LTG_RES	PGE	Total	2,073	2,073	1.00	100.0%	0.96	0.96		
LTG_RES	SCE	PassThru Res Downstream	1,422	1,422	1.00	100.0%	0.86	0.86		
LTG_RES	SCE	Total	1,422	1,422	1.00	100.0%	0.86	0.86		
LTG_RES	SDGE	PassThru Res Downstream	1,262	1,262	1.00	100.0%	0.74	0.74		
LTG_RES	SDGE	Total	1,262	1,262	1.00	100.0%	0.74	0.74		
LTG_RES	BAY	PassThru Res Downstream	64	64	1.00	100.0%	0.96	0.96		
LTG_RES	BAY	Total	64	64	1.00	100.0%	0.96	0.96		
LTG_RES	MCE	PassThru Res Downstream	121	121	1.00	100.0%	0.76	0.76		
LTG_RES	MCE	Total	121	121	1.00	100.0%	0.76	0.76		
LTG_RES		Statewide	4,942	4,942	1.00	100.0%	0.86	0.86		
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	2,276	1,680	0.74	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	612	442	0.72	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	15,107	12,181	0.81	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	8,949	3,821	0.43	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	2,322	1,896	0.82	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	61,910	12,383	0.20	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	PGE	Total	91,177	32,402	0.36	0.0%	0.96	0.23	0.96	0.23
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	3,747	1,296	0.35	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	4,155	994	0.24	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	13,641	4,462	0.33	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	21,476	5,894	0.27	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	23,768	6,176	0.26	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	77,998	8,588	0.11	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	SCE	Total	144,786	27,410	0.19	0.0%	0.96	0.21	0.96	0.21
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	1,222	260	0.21	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	1,752	218	0.12	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	9,736	1,625	0.17	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	PassThru Upstream	294	294	1.00	100.0%	0.96	0.96		

Net First Year Savings (MWh)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Net Pass Through			Ex-Ante	Ex-Post
							NTG	NTG	NTG	NTG
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	4,530	469	0.10	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	6,499	768	0.12	0.0%	0.95	0.30	0.95	0.30
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	36,181	966	0.03	0.0%	0.95	0.12	0.95	0.12
LTG_UPSTREAM	SDGE	Total	60,214	4,601	0.08	0.5%	0.95	0.29	0.95	0.28
LTG_UPSTREAM		Statewide	296,176	64,412	0.22	0.1%	0.96	0.22	0.96	0.22

Gross First Year Savings (MW)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_RES	PGE	PassThru Res Downstream	0.3	0.3	1.00	100.0%	
LTG_RES	PGE	Total	0.3	0.3	1.00	100.0%	
LTG_RES	SCE	PassThru Res Downstream	0.0	0.0	1.00	100.0%	
LTG_RES	SCE	Total	0.0	0.0	1.00	100.0%	
LTG_RES	SDGE	PassThru Res Downstream	0.0	0.0	1.00	100.0%	
LTG_RES	SDGE	Total	0.0	0.0	1.00	100.0%	
LTG_RES	BAY	PassThru Res Downstream	0.0	0.0	1.00	100.0%	
LTG_RES	BAY	Total	0.0	0.0	1.00	100.0%	
LTG_RES	MCE	PassThru Res Downstream	0.0	0.0	1.00	100.0%	
LTG_RES	MCE	Total	0.0	0.0	1.00	100.0%	
LTG_RES		Statewide	0.3	0.3	1.00	100.0%	
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	0.6	0.4	0.74	0.0%	0.74
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	0.2	0.1	0.72	0.0%	0.72
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	3.7	3.0	0.81	0.0%	0.81
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	1.1	2.6	2.35	0.0%	2.35
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	0.3	1.0	3.34	0.0%	3.34
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	7.7	13.7	1.78	0.0%	1.78
LTG_UPSTREAM	PGE	Total	13.6	20.9	1.54	0.0%	1.54
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	1.3	0.4	0.35	0.0%	0.35
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	1.4	0.3	0.24	0.0%	0.24
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	4.6	1.5	0.33	0.0%	0.33
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	2.7	4.5	1.70	0.0%	1.70
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	3.0	3.3	1.10	0.0%	1.10
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	9.7	8.6	0.89	0.0%	0.89
LTG_UPSTREAM	SCE	Total	22.7	18.7	0.83	0.0%	0.83
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	0.3	0.1	0.21	0.0%	0.21
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	0.5	0.1	0.12	0.0%	0.12
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	2.6	0.4	0.17	0.0%	0.17
LTG_UPSTREAM	SDGE	PassThru Upstream	0.0	0.0	1.00	100.0%	

Gross First Year Savings (MW)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	0.5	0.3	0.48	0.0%	0.48
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	0.8	0.3	0.40	0.0%	0.40
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	4.3	0.6	0.14	0.0%	0.14
LTG_UPSTREAM	SDGE	Total	9.0	1.8	0.20	0.5%	0.19
LTG_UPSTREAM		Statewide	45.2	41.4	0.91	0.1%	0.91

Net First Year Savings (MW)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Net Pass Through			Ex-Ante	Ex-Post
							NTG	NTG	NTG	NTG
LTG_RES	PGE	PassThru Res Downstream	0.2	0.2	1.00	100.0%	0.96	0.96		
LTG_RES	PGE	Total	0.2	0.2	1.00	100.0%	0.96	0.96		
LTG_RES	SCE	PassThru Res Downstream	0.0	0.0	1.00	100.0%	0.84	0.84		
LTG_RES	SCE	Total	0.0	0.0	1.00	100.0%	0.84	0.84		
LTG_RES	SDGE	PassThru Res Downstream	0.0	0.0	1.00	100.0%	0.74	0.74		
LTG_RES	SDGE	Total	0.0	0.0	1.00	100.0%	0.74	0.74		
LTG_RES	BAY	PassThru Res Downstream	0.0	0.0	1.00	100.0%	0.96	0.96		
LTG_RES	BAY	Total	0.0	0.0	1.00	100.0%	0.96	0.96		
LTG_RES	MCE	PassThru Res Downstream	0.0	0.0	1.00	100.0%	0.76	0.76		
LTG_RES	MCE	Total	0.0	0.0	1.00	100.0%	0.76	0.76		
LTG_RES		Statewide	0.3	0.3	1.00	100.0%	0.93	0.93		
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	0.5	0.4	0.74	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	0.1	0.1	0.72	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	3.6	2.9	0.81	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	1.1	0.5	0.43	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	0.3	0.3	1.03	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	7.4	1.7	0.23	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	PGE	Total	13.0	5.8	0.45	0.0%	0.96	0.28	0.96	0.28
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	1.2	0.4	0.35	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	1.3	0.3	0.24	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	4.4	1.4	0.33	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	2.6	0.8	0.31	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	2.9	1.0	0.34	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	9.3	1.1	0.11	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	SCE	Total	21.7	5.0	0.23	0.0%	0.96	0.27	0.96	0.27
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	0.3	0.1	0.21	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	0.4	0.1	0.12	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	2.4	0.4	0.17	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	PassThru Upstream	0.0	0.0	1.00	100.0%	0.96	0.96		

Net First Year Savings (MW)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante Net Pass	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Through	NTG	NTG	Ex-Ante NTG	Ex-Post NTG
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	0.5	0.0	0.09	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	0.8	0.1	0.12	0.0%	0.95	0.30	0.95	0.30
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	4.1	0.1	0.02	0.0%	0.95	0.12	0.95	0.12
LTG_UPSTREAM	SDGE	Total	8.6	0.8	0.09	0.5%	0.95	0.44	0.95	0.43
LTG_UPSTREAM		Statewide	43.4	11.6	0.27	0.1%	0.96	0.28	0.96	0.28

Gross First Year Savings (MTherms)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_RES	PGE	PassThru Res Downstream	-44	-44	1.00	100.0%	
LTG_RES	PGE	Total	-44	-44	1.00	100.0%	
LTG_RES	SCE	PassThru Res Downstream	-17	-17	1.00	100.0%	
LTG_RES	SCE	Total	-17	-17	1.00	100.0%	
LTG_RES	SDGE	PassThru Res Downstream	-21	-21	1.00	100.0%	
LTG_RES	SDGE	Total	-21	-21	1.00	100.0%	
LTG_RES	BAY	PassThru Res Downstream	-2	-2	1.00	100.0%	
LTG_RES	BAY	Total	-2	-2	1.00	100.0%	
LTG_RES	MCE	PassThru Res Downstream	-1	-1	1.00	100.0%	
LTG_RES	MCE	Total	-1	-1	1.00	100.0%	
LTG_RES		Statewide	-85	-85	1.00	100.0%	
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	-15	-11	0.74	0.0%	0.74
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	-4	-3	0.72	0.0%	0.72
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	-102	-82	0.81	0.0%	0.81
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	-207	-536	2.58	0.0%	2.58
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	-54	-157	2.92	0.0%	2.92
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	-1,434	-2,466	1.72	0.0%	1.72
LTG_UPSTREAM	PGE	Total	-1,817	-3,256	1.79	0.0%	1.79
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	-4	-1	0.33	0.0%	0.33
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	-5	-1	0.23	0.0%	0.23
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	-15	-5	0.31	0.0%	0.31
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	-400	-599	1.50	0.0%	1.50
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	-437	-371	0.85	0.0%	0.85
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	-1,440	-1,239	0.86	0.0%	0.86
LTG_UPSTREAM	SCE	Total	-2,301	-2,217	0.96	0.0%	0.96
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	-5	-1	0.21	0.0%	0.21
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	-7	-1	0.12	0.0%	0.12
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	-38	-6	0.17	0.0%	0.17
LTG_UPSTREAM	SDGE	PassThru Upstream	-4	-4	1.00	100.0%	

Gross First Year Savings (MTherms)

Report Name	PA	Standard Report Group	Ex-Ante Gross	Ex-Post Gross	GRR	% Ex-Ante Gross Pass Through	Eval GRR
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	-74	-47	0.63	0.0%	0.63
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	-107	-45	0.43	0.0%	0.43
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	-593	-137	0.23	0.0%	0.23
LTG_UPSTREAM	SDGE	Total	-827	-242	0.29	0.5%	0.29
LTG_UPSTREAM		Statewide	-4,945	-5,714	1.16	0.1%	1.16

Net First Year Savings (MTherms)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Net Pass Through			Ex-Ante	Ex-Post
							NTG	NTG	NTG	NTG
LTG_RES	PGE	PassThru Res Downstream	-42	-42	1.00	100.0%	0.96	0.96		
LTG_RES	PGE	Total	-42	-42	1.00	100.0%	0.96	0.96		
LTG_RES	SCE	PassThru Res Downstream	-14	-14	1.00	100.0%	0.83	0.83		
LTG_RES	SCE	Total	-14	-14	1.00	100.0%	0.83	0.83		
LTG_RES	SDGE	PassThru Res Downstream	-16	-16	1.00	100.0%	0.74	0.74		
LTG_RES	SDGE	Total	-16	-16	1.00	100.0%	0.74	0.74		
LTG_RES	BAY	PassThru Res Downstream	-2	-2	1.00	100.0%	0.96	0.96		
LTG_RES	BAY	Total	-2	-2	1.00	100.0%	0.96	0.96		
LTG_RES	MCE	PassThru Res Downstream	-1	-1	1.00	100.0%	0.75	0.75		
LTG_RES	MCE	Total	-1	-1	1.00	100.0%	0.75	0.75		
LTG_RES		Statewide	-74	-74	1.00	100.0%	0.88	0.88		
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	-15	-11	0.74	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	-4	-3	0.72	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	-98	-79	0.81	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	-199	-94	0.47	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	-52	-46	0.90	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	-1,377	-303	0.22	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	PGE	Total	-1,745	-536	0.31	0.0%	0.96	0.16	0.96	0.16
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	-4	-1	0.33	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	-4	-1	0.23	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	-15	-5	0.31	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	-384	-105	0.27	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	-420	-110	0.26	0.0%	0.96	0.30	0.96	0.30
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	-1,382	-153	0.11	0.0%	0.96	0.12	0.96	0.12
LTG_UPSTREAM	SCE	Total	-2,209	-374	0.17	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	-5	-1	0.21	0.0%	0.96	0.96	0.96	0.96
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	-6	-1	0.12	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	-36	-6	0.17	0.0%	0.95	0.95	0.95	0.95
LTG_UPSTREAM	SDGE	PassThru Upstream	-4	-4	1.00	100.0%	0.96	0.96		

Net First Year Savings (MTherms)

Report Name	PA	Standard Report Group	Ex-Ante	Ex-Post	NRR	% Ex-Ante Net Pass	Ex-Ante	Ex-Post	Eval	Eval
			Net	Net		Through	NTG	NTG	Ex-Ante NTG	Ex-Post NTG
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	-71	-8	0.12	0.0%	0.96	0.17	0.96	0.17
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	-102	-13	0.13	0.0%	0.95	0.30	0.95	0.30
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	-565	-17	0.03	0.0%	0.95	0.12	0.95	0.12
LTG_UPSTREAM	SDGE	Total	-788	-50	0.06	0.5%	0.95	0.21	0.95	0.19
LTG_UPSTREAM		Statewide	-4,742	-960	0.20	0.1%	0.96	0.17	0.96	0.17



10.2 Appendix B: Standardized per unit savings

Per Unit (Quantity) Gross Energy Savings (kWh)

Report Name	PA	Standard Report Group	Pass Through	% ER Ex-Ante	% ER Ex-Post	Average EUL (yr)	Ex-Post Lifecycle	Ex-Post First Year	Ex-Post Annualized
LTG_RES	PGE	PassThru Res Downstream	1	0.0%		9.7	63.0	4.3	4.3
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	7.0	190.9	27.3	27.3
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	9.4	190.7	20.3	20.3
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	9.4	535.4	57.0	57.0
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	329.8	20.6	20.6
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	289.1	18.1	18.1
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	419.9	26.2	26.2
LTG_RES	SCE	PassThru Res Downstream	1	0.0%		12.1	151.5	26.5	26.5
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	10.9	192.0	17.7	17.7
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	12.0	204.2	17.0	17.0
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	12.0	464.1	38.7	38.7
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	450.7	28.2	28.2
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	351.0	21.9	21.9
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	593.0	37.1	37.1
LTG_RES	SDGE	PassThru Res Downstream	1	99.5%		15.0	229.7	45.6	15.3
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	7.0	203.7	29.1	29.1
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	9.4	222.0	23.6	23.6
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	9.4	596.3	63.4	63.4
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	293.0	18.3	18.3
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	274.5	17.2	17.2
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	297.7	18.6	18.6
LTG_UPSTREAM	SDGE	PassThru Upstream	1	0.0%		15.6	122.3	8.4	8.4
LTG_RES	BAY	PassThru Res Downstream	1	100.0%		16.0	16.0	3.0	1.0
LTG_RES	MCE	PassThru Res Downstream	1	0.0%		13.3	2,672.5	216.1	216.1

Per Unit (Quantity) Gross Energy Savings (Therms)

Report Name	PA	Standard Report Group	Pass Through	% ER Ex-Ante	% ER Ex-Post	Average EUL (yr)	Ex-Post Lifecycle	Ex-Post First Year	Ex-Post Annualized
LTG_RES	PGE	PassThru Res Downstream	1	0.0%		9.7	-1.4	-0.1	-0.1
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	7.0	-1.2	-0.2	-0.2
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	9.4	-1.2	-0.1	-0.1
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	9.4	-3.5	-0.4	-0.4
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	-8.1	-0.5	-0.5
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	-7.1	-0.4	-0.4
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	-10.3	-0.6	-0.6
LTG_RES	SCE	PassThru Res Downstream	1	0.0%		12.1	-1.1	-0.3	-0.3
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	10.9	-0.2	0.0	0.0
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	12.0	-0.2	0.0	0.0
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	12.0	-0.5	0.0	0.0
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	-8.0	-0.5	-0.5
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	-6.2	-0.4	-0.4
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	-10.5	-0.7	-0.7
LTG_RES	SDGE	PassThru Res Downstream	1	99.5%		15.0	-2.8	-0.6	-0.2
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	7.0	-0.8	-0.1	-0.1
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	9.4	-0.8	-0.1	-0.1
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	9.4	-2.2	-0.2	-0.2
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	-5.1	-0.3	-0.3
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	-4.8	-0.3	-0.3
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	-5.2	-0.3	-0.3
LTG_UPSTREAM	SDGE	PassThru Upstream	1	0.0%		15.6	-1.7	-0.1	-0.1
LTG_RES	BAY	PassThru Res Downstream	1	100.0%		16.0	-0.4	-0.1	0.0
LTG_RES	MCE	PassThru Res Downstream	1	0.0%		13.3	-20.8	-1.9	-1.9

Per Unit (Quantity) Net Energy Savings (kWh)

Report Name	PA	Standard Report Group	Pass Through	% ER Ex-Ante	% ER Ex-Post	Average EUL (yr)	Ex-Post Lifecycle	Ex-Post First Year	Ex-Post Annualized
LTG_RES	PGE	PassThru Res Downstream	1	0.0%		9.7	60.5	4.1	4.1
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	7.0	183.2	26.2	26.2
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	9.4	183.1	19.5	19.5
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	9.4	514.0	54.7	54.7
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	57.7	3.6	3.6
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	85.4	5.3	5.3
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	51.7	3.2	3.2
LTG_RES	SCE	PassThru Res Downstream	1	0.0%		12.1	132.4	22.9	22.9
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	10.9	184.4	17.0	17.0
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	12.0	196.1	16.3	16.3
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	12.0	445.5	37.1	37.1
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	78.8	4.9	4.9
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	103.6	6.5	6.5
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	73.0	4.6	4.6
LTG_RES	SDGE	PassThru Res Downstream	1	99.5%		15.0	169.6	33.6	11.3
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	7.0	194.7	27.8	27.8
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	9.4	211.4	22.5	22.5
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	9.4	567.5	60.4	60.4
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	51.2	3.2	3.2
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	81.0	5.1	5.1
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	36.6	2.3	2.3
LTG_UPSTREAM	SDGE	PassThru Upstream	1	0.0%		15.6	117.4	8.0	8.0
LTG_RES	BAY	PassThru Res Downstream	1	100.0%		16.0	15.3	2.9	1.0
LTG_RES	MCE	PassThru Res Downstream	1	0.0%		13.3	2,027.8	163.9	163.9

Per Unit (Quantity) Net Energy Savings (Therms)

Report Name	PA	Standard Report Group	Pass Through	% ER Ex-Ante	% ER Ex-Post	Average EUL (yr)	Ex-Post Lifecycle	Ex-Post First Year	Ex-Post Annualized
LTG_RES	PGE	PassThru Res Downstream	1	0.0%		9.7	-1.3	-0.1	-0.1
LTG_UPSTREAM	PGE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	7.0	-1.2	-0.2	-0.2
LTG_UPSTREAM	PGE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	9.4	-1.2	-0.1	-0.1
LTG_UPSTREAM	PGE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	9.4	-3.3	-0.4	-0.4
LTG_UPSTREAM	PGE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	-1.4	-0.1	-0.1
LTG_UPSTREAM	PGE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	-2.1	-0.1	-0.1
LTG_UPSTREAM	PGE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	-1.3	-0.1	-0.1
LTG_RES	SCE	PassThru Res Downstream	1	0.0%		12.1	-0.9	-0.2	-0.2
LTG_UPSTREAM	SCE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	10.9	-0.2	0.0	0.0
LTG_UPSTREAM	SCE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	12.0	-0.2	0.0	0.0
LTG_UPSTREAM	SCE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	12.0	-0.5	0.0	0.0
LTG_UPSTREAM	SCE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	-1.4	-0.1	-0.1
LTG_UPSTREAM	SCE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	-1.8	-0.1	-0.1
LTG_UPSTREAM	SCE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	-1.3	-0.1	-0.1
LTG_RES	SDGE	PassThru Res Downstream	1	99.5%		15.0	-2.1	-0.4	-0.1
LTG_UPSTREAM	SDGE	Nonres INDOOR LED CANDELABRA	0	0.0%	0.0%	7.0	-0.7	-0.1	-0.1
LTG_UPSTREAM	SDGE	Nonres INDOOR LED GLOBE	0	0.0%	0.0%	9.4	-0.8	-0.1	-0.1
LTG_UPSTREAM	SDGE	Nonres INDOOR LED REFLECTOR LA	0	0.0%	0.0%	9.4	-2.1	-0.2	-0.2
LTG_UPSTREAM	SDGE	Res INDOOR LED CANDELABRA	0	0.0%	0.0%	16.0	-0.9	-0.1	-0.1
LTG_UPSTREAM	SDGE	Res INDOOR LED GLOBE	0	0.0%	0.0%	16.0	-1.4	-0.1	-0.1
LTG_UPSTREAM	SDGE	Res INDOOR LED REFLECTOR LAMP	0	0.0%	0.0%	16.0	-0.6	0.0	0.0
LTG_UPSTREAM	SDGE	PassThru Upstream	1	0.0%		15.6	-1.6	-0.1	-0.1
LTG_RES	BAY	PassThru Res Downstream	1	100.0%		16.0	-0.4	-0.1	0.0
LTG_RES	MCE	PassThru Res Downstream	1	0.0%		13.3	-15.7	-1.4	-1.4

10.3 Appendix C: Recommendations

Study ID	Study Type	Study Title	Study Manager
Group A Lighting Sector	Impact Evaluation	Impact Evaluation of 2019 Upstream and Residential Downstream Lighting Programs	Jacob “Coby” Rudolph

Rec #	Program or Database	Summary of Findings	Additional Supporting Information	Best Practice/Recommendations	Recipient	Affected Workpaper or DEER
1	Upstream Lighting Program	Programs continued to significantly over ship light bulbs to stores.	The PY 2019 upstream lighting programs continued to ship significantly more light bulbs to individual stores, particularly to the discount and grocery channels, than stores could reasonably stock and sell. Evaluation results suggest that there was inadequate monitoring and verification of program light bulb shipments and that many participating retail stores were not required to purchase program discounted light bulbs from manufacturers.	PAs should have a clear understanding of the estimated size of the market and segmentation of the market by sales channel to make an informed decision on the appropriate level of program shipments.	All PAs	All upstream measures
2	Upstream Lighting Program			Program monitoring should always include verification of shipment and delivery documentation from manufacturers and an adequate number of in-store verifications to confirm stocking and sufficient sell-through rates of program discounted measures. Verifications results should be shared and monitored regularly among program staff and PA management.		

Rec #	Program or Database	Summary of Findings	Additional Supporting Information	Best Practice/Recommendations	Recipient	Affected Workpaper or DEER
3	Upstream Lighting Program	The lighting market has largely been transformed.	Evaluation results suggest that the California lighting market has shifted, and LEDs are the dominant technology and the preferred choice by most consumers for the evaluated measure types. LEDs account for more than 75% of the market across all three evaluated measure groups and more than 90% of the reflector market. LED prices have fallen to a point where they are competitive with inefficient technologies, even without program incentives. Upstream lighting program incentives no longer influence customer purchases as much as they did when inefficient light bulbs dominated the lighting market.	The PAs discontinued the statewide upstream lighting program in 2020 and should not revive the program in 2021 or future years.	All PAs	All upstream measures
4				Increases in standards are expected to remove the remaining pockets of halogen bulbs in the market, and halogens that remain in sockets have such short measure lives that they will soon be replaced by LEDs. To the extent that pockets of inefficient bulbs remain and/or these changes happen inequitably, residential lighting programs should be tailored to reach the appropriate segments of customers, but these programs should be designed thoughtfully to maximize impact.		
5	Upstream Lighting Program	LEDs were a cost-effective upstream measure, but this is no longer the case.	The upstream lighting program was a cost-effective vehicle for accelerating the adoption of efficient light bulbs for more than a decade, but the lighting market transformed to the point where LEDs comprised an ever increasing majority of the market during the 2017, 2018, and 2019 program years. With LEDs becoming so common and accepted by consumers, the upstream lighting program's influence on consumer behavior diminished considerably.	PAs offering upstream programs should closely monitor market trends, particularly trends in overall market size and market share of efficient technologies and less efficient alternatives.	All PAs	All upstream measures

10.4 Appendix D: Waterfall graphics

In this section, we present waterfall graphics that to demonstrate the energy savings changes relative to each parameter.

10.4.1 LED reflectors

Figure 10-1. Upstream and residential downstream LED reflectors gross savings waterfall, PG&E

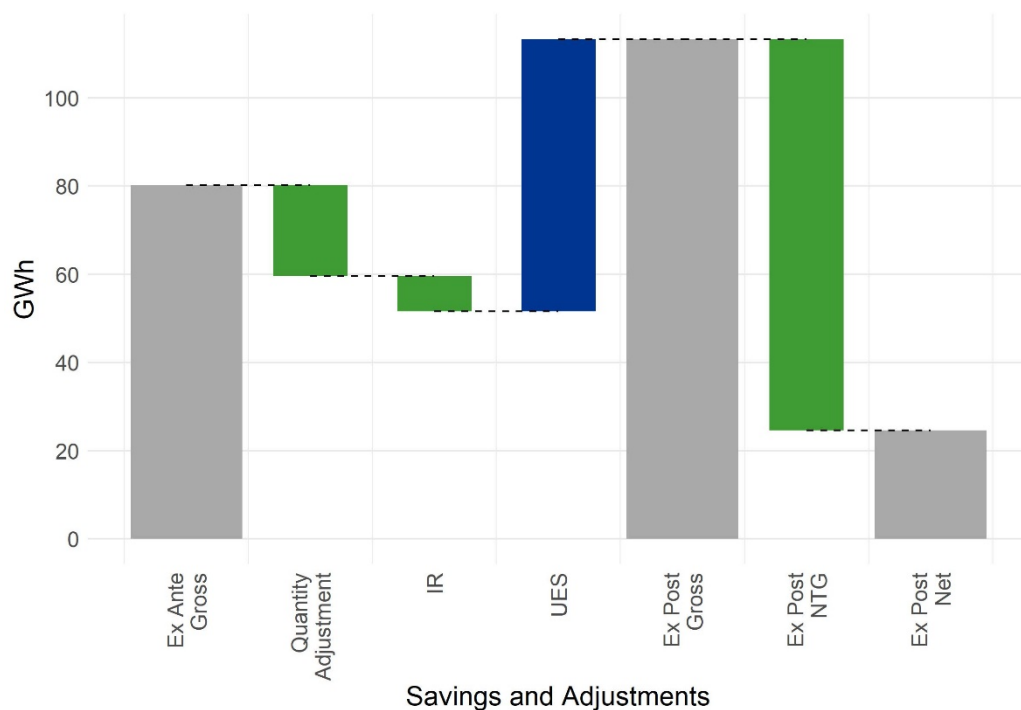


Figure 10-2. Upstream and residential downstream LED reflectors gross savings waterfall, SCE

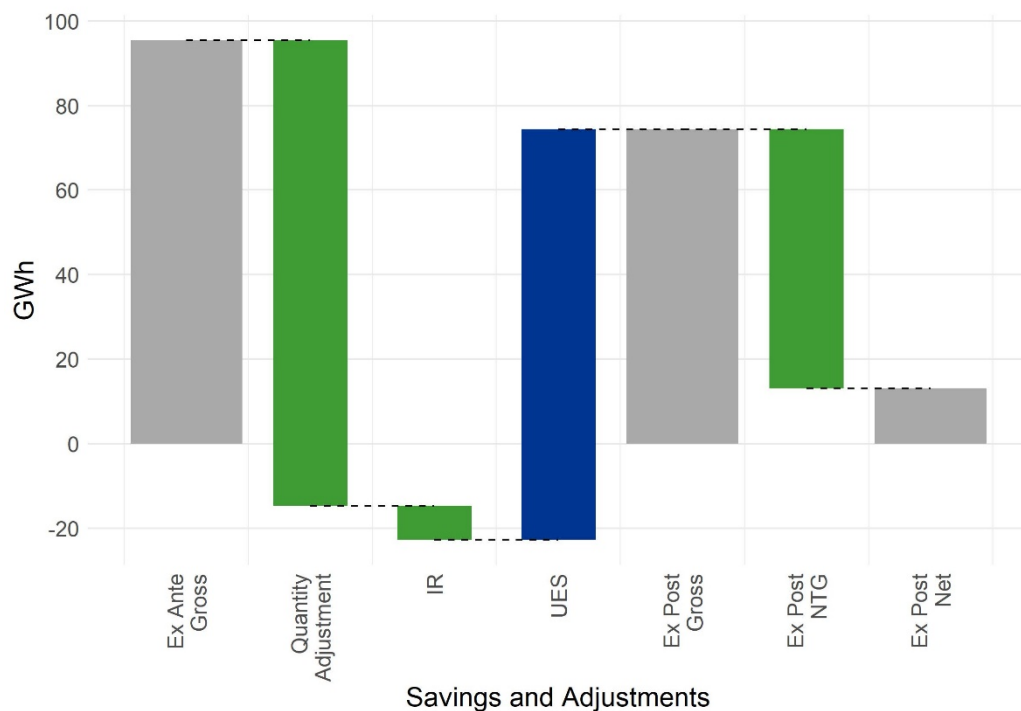
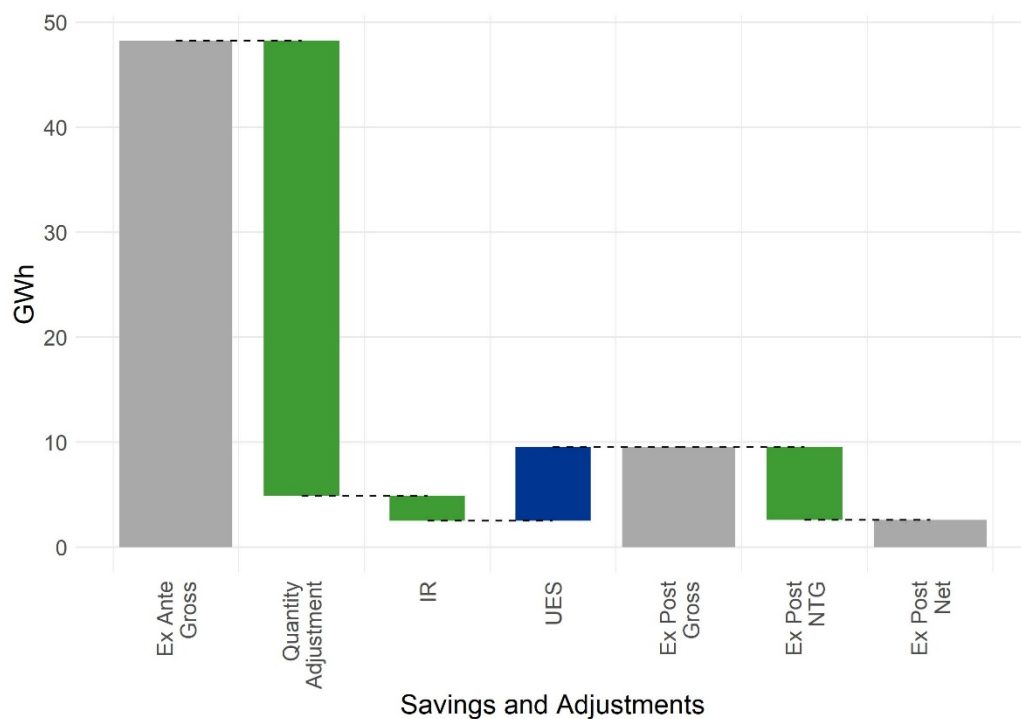


Figure 10-3. Upstream and residential downstream LED reflectors gross savings waterfall, SDG&E



10.4.2 LED candelabras

Figure 10-4. Upstream and residential downstream LED candelabras gross savings waterfall, PG&E

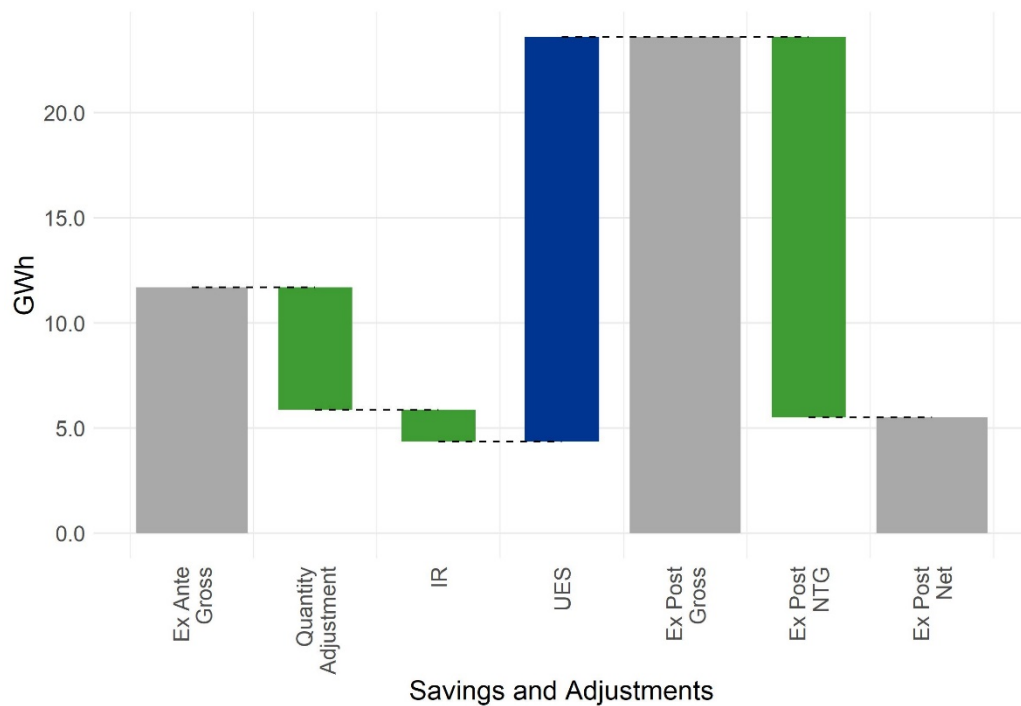


Figure 10-5. Upstream and residential downstream LED candelabras gross savings waterfall, SCE

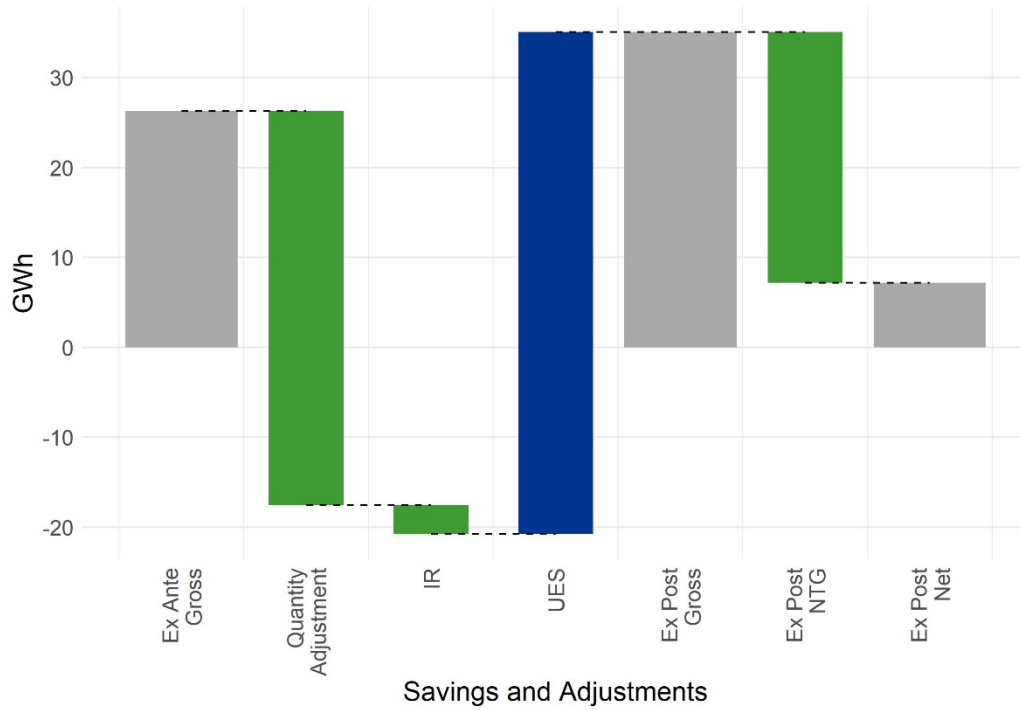
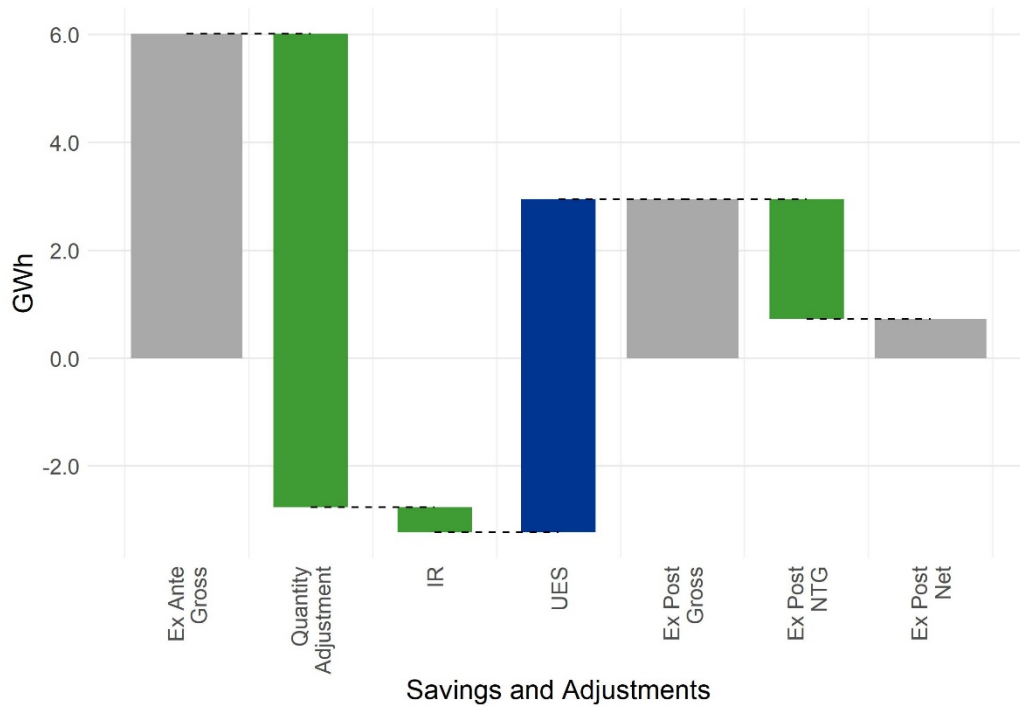


Figure 10-6. Upstream and residential downstream LED candelabras gross savings waterfall, SDG&E



10.4.3 LED globe

Figure 10-7. Upstream and residential downstream LED Globe gross savings waterfall, PG&E

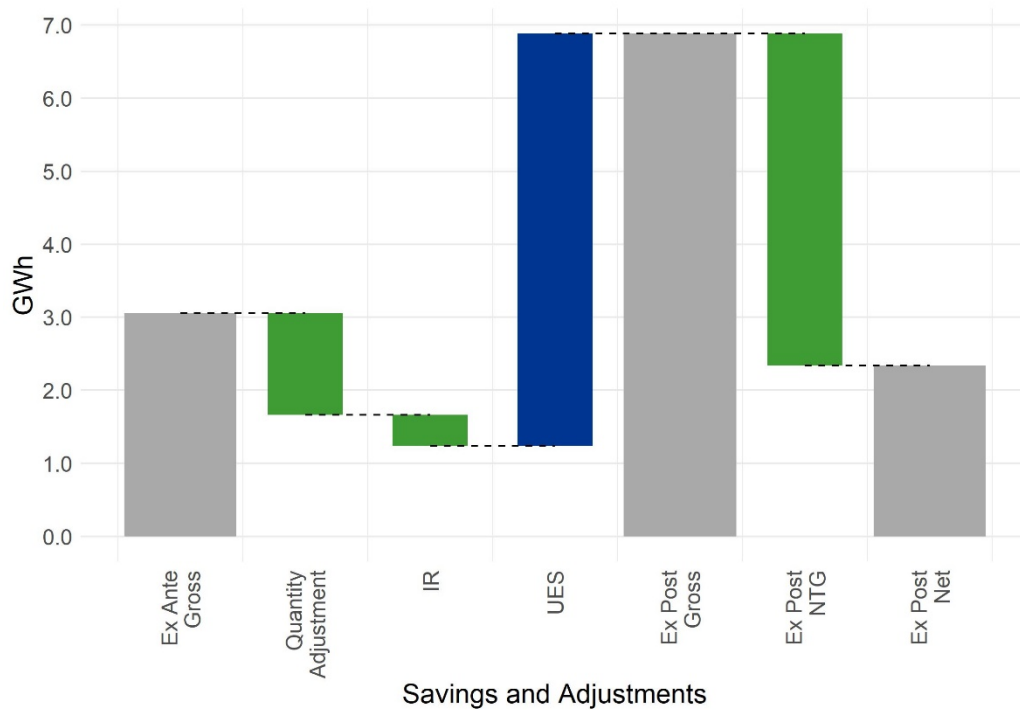


Figure 10-8. Upstream and residential downstream LED Globe gross savings waterfall, SCE

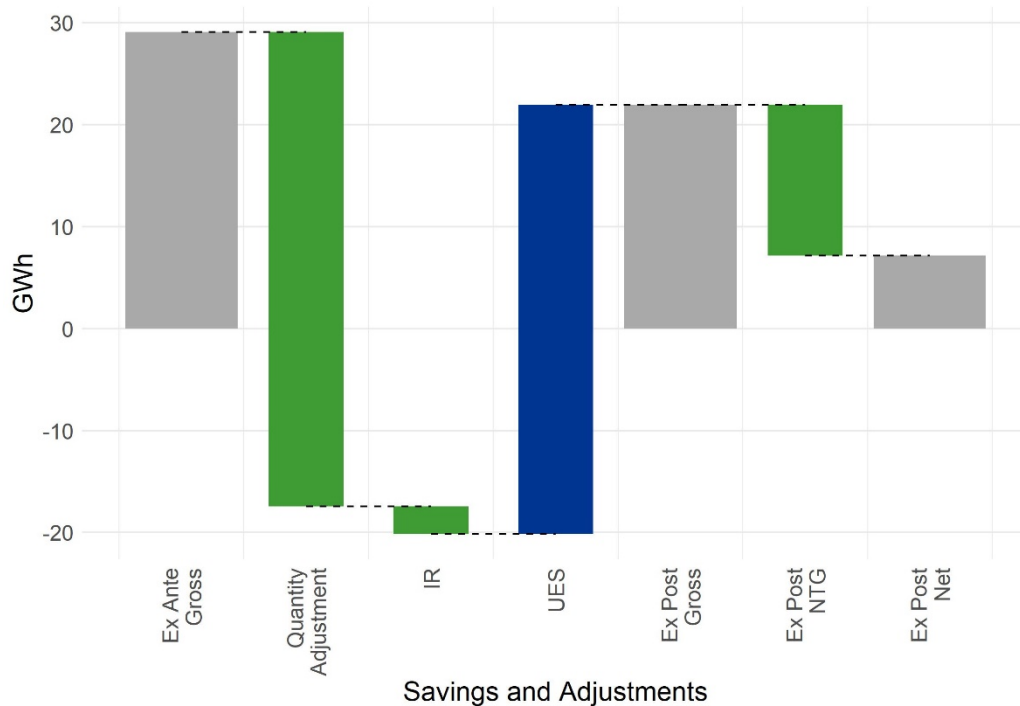
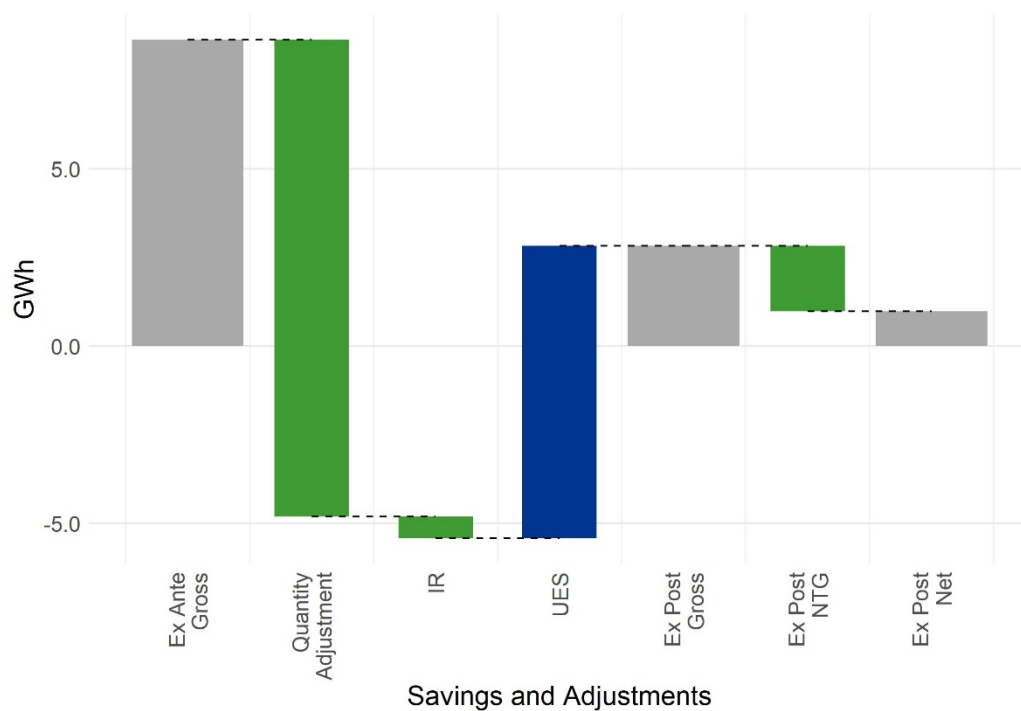


Figure 10-9. Upstream and residential downstream LED Globe gross savings waterfall, SDG&E





10.5 Appendix E: Data collection instruments

In this section, we include the data collection instruments used to support this evaluation.



DNV GL - ENERGY

SAFER, SMARTER, GREENER

Program Year 2019 Upstream Lighting Retail Store Survey- **FINAL**

Lighting Sector

CALIFORNIA PUBLIC UTILITIES COMMISSION
EM&V Group A

October 1, 2020

1 RESEARCH QUESTIONS

Primary Research Question: What is the estimated lighting sales volume in independent and chain grocery and discount, big box, and other channels?

Secondary Research Question: What do stores in independent and chain grocery and discount, big box, and other channels do with overstock of lighting products?

2 SURVEY QUESTIONS

Screener: Hello, is this <STORE NAME>?

[IF DISCOUNT, GROCERY, or OTHER, ASK QUESTION 1]

[IF HOME IMPROVEMENT OR MEMBERSHIP CLUB, SKIP TO INTRODUCTION]

Question 1. Does your store sell light bulbs?

Yes [IF YES, GO TO INTRODUCTION]

No/Don't know/Refused [IF NO/DON'T KNOW/REFUSED, GO TO QUESTION 1a]

Question 1A. Have you sold light bulbs in the last 3 years? (Yes/No/Don't know/Refused)

[IF YES, GO TO QUESTION 1B. IF NO/DON'T KNOW/REFUSED, TERMINATE SURVEY]

Question 1B. Have you sold light bulbs since March 1, 2020? (Yes/No/Don't know/Refused)

Introduction: I am calling on behalf of the California Public Utilities Commission to research lighting products in California.

[IF DISCOUNT, GROCERY, or OTHER, ask for store manager or owner, if available. Then continue with introduction.]

[IF MEMBERSHIP CLUB, ask to speak with Home Improvement or DIY Department manager who is familiar with lighting.]

[IF HOME IMPROVEMENT, ask to speak with Lighting and Electrical Manager.]

Can I ask you a few questions? This will only take a minute or two. [IF NEEDED] This data will not be shared publicly and will be kept confidential. We are conducting this research for the California Public Utilities Commission.

We are interested in lighting sales before COVID-19 shelter-in-place protocols took effect and after the shelter-in-place protocols took place.

Question 2A: By your estimate, how many light bulbs do customers purchase at your store in an average week before shelter-in-place orders took effect due to COVID-19? We are looking for number of bulbs purchased, not packages purchased. [NOTE TO INTERVIEWER: Be sure we're getting counts of bulbs sold, not packages of bulbs. If it's easier for the respondent to estimate per day or per month, record and convert sell rate to per week after interview]

Record Answer <NUMBER OF BULBS SOLD PER WEEK BEFORE COVID-19>

[IF Q1B=NO, SKIP TO 3]

Question 2B: By your estimate, how many light bulbs do customers purchase at your store in an average week after shelter-in-place orders took effect due to COVID-19? We are looking for number of bulbs purchased, not packages purchased. [NOTE TO INTERVIEWER: Be sure we're getting counts of bulbs sold, not packages of bulbs. If it's easier for the respondent to estimate per day or per month, record and convert sell rate to per week after interview] [Please allow zero to be entered in this response as to not terminate]

Record Answer <NUMBER OF BULBS SOLD PER WEEK AFTER COVID-19>

[IF DISCOUNT, GROCERY, or OTHER, ASK QUESTION 3]

[IF HOME IMPROVEMENT OR MEMBERSHIP CLUB, SKIP TO QUESTION 4]

Question 3: Thanks. Next, I want to ask if you sell some different light bulb technologies.

3.1: Do you sell LED bulbs? (Yes/No/Don't know/Refused)

3.1.1 Do you sell LED spotlight or reflector bulbs? (Yes/No/Don't know/Refused)

3.2: Do you sell CFL bulbs? (Yes/No/Don't know/Refused)

3.3: Do you sell any other types of light bulbs such as incandescent or halogen? (Yes/No/Don't know/Refused)

Record answer <OTHER LIGHT BULB TYPES SOLD>

[IF DISCOUNT, GROCERY, OTHER, or MEMBERSHIP CLUB, ASK QUESTION 4]

[IF HOME IMPROVEMENT, SKIP TO QUESTION 5]

Question 4: Does your store have back stock of light bulbs in storage that are not displayed for sale? (Yes/No/Don't know/Refused)

[CLARIFY IF NEEDED: By storage, I mean any back stock that you have for the bulbs that currently aren't on shelves]

Question 5: If you have excess bulbs that you can't sell in a reasonable amount of time, what do you do with them? [Select all that apply, unless option A is selected] [PROBE IF NEEDED: Does the store sell overstock? Who do they sell it to?]

- A. Store does not have excess bulbs/ Store sells through all bulbs [If A is selected, no other options may be selected]
- B. Keep excess bulbs in back storage
- C. Keep excess bulbs on store floor
- D. Send excess bulbs back to corporate warehouse
- E. Send excess bulbs to a different store
- F. Other <RECORD RESPONSE>
- G. Don't know
- H. Refused

[IF QUESTION 5=E, SKIP TO QUESTION 6B]

[GO TO QUESTION 6A ONLY IF DISCOUNT CHAIN, GROCERY CHAIN, MEMBERSHIP CLUB, HARDWARE and HOME IMPROVEMENT. ELSE SKIP TO 7A].

Question 6A: Have you ever sent excess bulbs to a different store? (Yes/No/Don't know/Refused)

[IF QUESTION 6A=NO, SKIP TO QUESTION 7A]

Question 6B: Do you ever have excess bulbs sent out of state? (Yes/No/Don't know/Refused)

[IF Q1B=NO, SKIP TO CLOSE OUT]

Question 7A: From your experience with shelter-in-place orders, how did COVID-19 impact your store's light bulb sales in 2020? [READ RESPONSE A, B, AND C IF NECESSARY]

- A. Store was not impacted by COVID-19
- B. More overall light bulb sales
- C. Fewer overall light bulb sales
- D. Other <RECORD RESPONSE>
- E. Don't know
- F. Refused

Question 7B: From your experience with shelter-in-place orders, how did COVID-19 impact your store's light bulb stocking practices in 2020?

- A. Store was not impacted by COVID-19
- B. More stocking of inexpensive light bulb models
- C. Fewer light bulbs ordered and stocked with decrease in sales
- D. Moved bulk packages to endcap for easier customer access
- E. Other <RECORD RESPONSE>
- F. Don't know
- G. Refused

[GO TO CLOSE OUT]

Close out: Thank you for your answers. [IF NOT STATED ABOVE] What is your position or title at this store? Record answer <RESPONDENT POSITION: E.g., manager, owner, cashier, etc.>

End Survey: Great, thank you very much for your time!

Email Invitation Text

To: [CUSTOMER NAME AND EMAIL]

From: [SENDER NAME AND EMAIL]

[NOTE: Use BCC line for actual customer email addresses to ensure they are not visible]

Subject: Incentive card for participation in a CPUC Home Lighting Questionnaire

Dear [CUSTOMER NAME],

The Energy Division of the **California Public Utilities Commission (CPUC)** would like to learn more from residential customers of [IOU] who have purchased light bulbs in the last two years. Your household has been selected as a potential candidate for this study. The CPUC is interested in understanding the energy savings associated with different types of light bulb purchases. All data collected, including responses to this questionnaire, will be kept confidential and only used for the purpose of this study.

If you qualify and complete the questionnaire by October 31, 2020, you will be eligible for a drawing to receive a \$600 incentive card as a way to thank you for your participation. If you complete the questionnaire after October 31, 2020, you will be entered into a drawing to receive a \$300 incentive card.

To get started, please click on this link: [LINK TO STUDY]

This questionnaire request is NOT an attempt to sell you any products or services of any kind. The CPUC has retained DNV GL and Pacific Market Research to complete this study. To verify the authenticity of this request or the managing contractor (DNV GL) please visit the following website: www.cpuc.ca.gov/eevalidation

On behalf of the CPUC Energy Division, thank you in advance for your participation.



California Public Utilities Commission
505 Van Ness Ave.
San Francisco, CA 94102

If you would like to unsubscribe from this questionnaire request, please click on this link:
[remove]

California Home Lighting Survey



Dear [CUSTOMER NAME],

Thank you for your interest in the California Home Lighting Questionnaire. If you qualify and complete the questionnaire by [XXX Date], you will be eligible for a drawing to receive a \$600 incentive card as a way to thank you for your participation. If you complete the questionnaire after [xxx date] you will be entered into a drawing to receive a \$300 incentive card.

To verify the authenticity of this request, please visit the following web site:

www.cpuc.ca.gov/eevalidation

Confidentiality and Disclosures: This information will be used solely for research purposes. No one associated with this study is soliciting any products or services of any kind. All data collected, including the responses to this questionnaire, will be treated confidentially by the CPUC and authorized vendors. You will not be asked to make changes of any kind as a result of the research. You are not obligated to participate in the study and may decline now or at a later date if so desired.

We'll start with a few questions to make sure you qualify. Please click NEXT to continue.

1 SURVEY INTRODUCTION

S1 Can you please confirm that [IOU] provides electricity to your home?

1	Yes	[SKIP TO S3]
2	No	
-88	Don't know	

S2 Who provides electricity to your home?

	[Verbatim]	
-88	Don't Know	

S3 Can you please confirm that [ZIP CODE] is the zip code of your primary home?

1	Yes	[SKIP TO LP1]
2	No	
-88	Don't know	

S4 What is the zip code of your primary home?

1	Zip code	[RECORD ZIP CODE]
-88	Don't know	[SKIP TO CLOSE_DQ]

2 LED AWARENESS AND RECENT BULB PURCHASES

LP1. Have you heard of LED light bulbs?

1	Yes	
2	No	[SKIP TO CLOSE_DQ]
-88	Don't know	[SKIP TO CLOSE_DQ]

LP2. Have you ever purchased any LED light bulbs? Please consider only LED light bulbs that can go into sockets inside or outside a home. Do *not* consider nightlights, holiday lights or Christmas lights.

1	Yes	
2	No	
-88	Don't know	

LP3. Have you purchased any light bulbs in California for your home since January 1, 2019? Consider any LED, compact fluorescent (CFL), incandescent, or halogen light bulb purchases you made.

1	Yes	
2	No	[SKIP TO RG1A]
-88	Don't know	[SKIP TO RG1A]

LP4. How many light bulbs did you purchase between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19)? Please provide a count of individual bulbs purchased, not packages.

	Quantity of light bulbs purchased	[RECORD QUANTITY]
0	Zero	
-88	Don't know	

LP5. How many light bulbs did you purchase after March 2020 (after shelter-in-place orders took effect due to COVID-19)? Please provide a count of individual bulbs purchased, not packages.

	Quantity of light bulbs purchased	[RECORD QUANTITY]
0	Zero	
-88	Don't know	

[NOTE TO PROGRAMMER: If LP4 AND LP5=0 or -88, SKIP TO RG1A]

3 REFLECTOR PURCHASES

RL1. The first light bulb shape I want to ask you about is reflector or flood light bulbs. Of the [LP4 quantity] light bulbs you've purchased between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any reflector or flood bulbs? [NOTE TO PROGRAMMER: If LP4=0 or -88 and LP5>0, use quantity in LP5 (after shelter-in-place orders took effect due to COVID-19). If LP4>0, use quantity in LP4 throughout RL, CL and GL series, else use LP5 value.]

1	Yes	
2	No	[SKIP TO SECTION 4]
-88	Don't know	[SKIP TO SECTION 4]

RL2. What type of reflector bulbs were they? [Select all that apply]

1	LED	
2	Incandescent/ Halogen	
3	CFL	
-88	Don't know	[SKIP TO SECTION 4]

RL3. Where did you purchase these reflector bulbs? [Select all that apply]

1	Home Depot or Lowe's	
2	Other Large Home Improvement Store (e.g., Dixieline Lumber, Ashby Lumber, Orchard Supply or HD Supply)	
3	Costco or Sam's Club	
4	Wal-Mart or Target	
5	Small Hardware Store (e.g., Ace Hardware or True Value Hardware)	
6	Convenience Store	
7	Discount Store (e.g., 99 Cents Only Store, Dollar Tree, or Dollar General)	
8	Grocery Store (e.g., Safeway, Vons, Ralph's, Sprouts, Northgate Market)	
9	Lighting and Electronics Store (e.g., Best Buy or Fry's)	
10	Drug Store (e.g., CVS or Walgreens)	
11	Online Purchase from Online Retailer (e.g., Amazon.com or 1000bulbs.com)	
12	Retail Store Website (e.g., HomeDepot.com or Walmart.com)	
-77	Other [SPECIFY NAME OF STORE]	
-88	Don't know	

RL4. How many reflector bulbs did you purchase at these locations? Please provide a count of individual bulbs purchased, not packages. [NOTE TO PROGRAMER: ONLY SHOW STORE TYPES SELECTED BY RESPONDENT IN RL3]

	Store Type	LED	Incandescent/ Halogen	CFL
1	Home Depot or Lowe's			
2	Other Large Home Improvement Store (e.g., Dixieline Lumber, Ashby Lumber, Orchard Supply or HD Supply)			
3	Costco or Sam's Club			
4	Wal-Mart or Target			
5	Small Hardware Store (e.g., Ace Hardware or True Value Hardware)			
6	Convenience Store			
7	Discount Store (e.g., 99 Cents Only Store, Dollar Tree, or Dollar General)			
8	Grocery Store (e.g., Safeway, Vons, Ralph's, Sprouts, Northgate Market)			
9	Lighting and Electronics Store (e.g., Best Buy or Fry's)			

10	Drug Store (e.g., CVS or Walgreens)			
11	Online Purchase from Online Retailer (e.g., Amazon.com or 1000bulbs.com)			
12	Retail Store Website (e.g., HomeDepot.com or Walmart.com)			
-77	Other [SPECIFY NAME OF STORE]			
-88	Don't know			

LED Reflector Installation

RL5. [IF LED BULB COUNT IN RL4=0, SKIP TO SECTION 4] How many of the [RL4] LED reflector bulbs you purchased are currently installed at your home (either indoors or outdoors)?

	Quantity of LED reflector bulbs installed	[RECORD QUANTITY] [IF LED BULB COUNT IN RL5= LED BULB COUNT IN RL4, SKIP TO SECTION 4]
0	Zero	
-88	Don't know	[SKIP TO SECTION 4]

RL6. Of the remaining [RL4 – RL5] LED reflector bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)?

	Quantity of LED reflector bulbs installed	[RECORD QUANTITY]
0	Zero	
-88	Don't know	

4 CANDELABRA PURCHASES

[IF BULB COUNT IN LP4 or LP5= BULB COUNT IN RL4, SKIP TO RG1A]

CL1. The next light bulb shape I want to ask you about is candelabra light bulbs. Of the [LP4 quantity] light bulbs you've purchased between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any candelabra bulbs? [NOTE TO PROGRAMMER: If LP4=0 or -88 and LP5>0, use quantity in LP5 (after shelter-in-place orders took effect due to COVID-19). If LP4>0, use quantity in LP4 throughout RL, CL and GL series, else use LP5 value.]

1	Yes	
2	No	[SKIP TO SECTION 5]

-88	Don't know	[SKIP TO SECTION 5]
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CL2. What type of candelabra bulbs were they? [Select all that apply]

1	LED	
2	Incandescent/ Halogen	
3	CFL	
-88	Don't know	[SKIP TO SECTION 5]

CL3. Where did you purchase these candelabra bulbs? [Select all that apply]

1	Home Depot or Lowe's	
2	Other Large Home Improvement Store (e.g., Dixieline Lumber, Ashby Lumber, Orchard Supply or HD Supply)	
3	Costco or Sam's Club	
4	Wal-Mart or Target	
5	Small Hardware Store (e.g., Ace Hardware or True Value Hardware)	
6	Convenience Store	
7	Discount Store (e.g., 99 Cents Only Store, Dollar Tree, or Dollar General)	
8	Grocery Store (e.g., Safeway, Vons, Ralph's, Sprouts, Northgate Market)	
9	Lighting and Electronics Store (e.g., Best Buy or Fry's)	
10	Drug Store (e.g., CVS or Walgreens)	
11	Online Purchase from Online Retailer (e.g., Amazon.com or 1000bulbs.com)	
12	Retail Store Website (e.g., HomeDepot.com or Walmart.com)	
-77	Other [SPECIFY NAME OF STORE]	
-88	Don't know	

CL4. How many candelabra bulbs did you purchase at these locations? Please provide a count of individual bulbs purchased, not packages. [NOTE TO PROGRAMER: ONLY SHOW STORE TYPES SELECTED BY RESPONDENT IN CL3]

	Store Type	LED	Incandescent/ Halogen	CFL
1	Home Depot or Lowe's			
2	Other Large Home Improvement Store (e.g., Dixieline Lumber, Ashby Lumber, Orchard Supply or HD Supply)			
3	Costco or Sam's Club			
4	Wal-Mart or Target			
5	Small Hardware Store (e.g., Ace Hardware or True Value Hardware)			
6	Convenience Store			

7	Discount Store (e.g., 99 Cents Only Store, Dollar Tree, or Dollar General)			
8	Grocery Store (e.g., Safeway, Vons, Ralph's, Sprouts, Northgate Market)			
9	Lighting and Electronics Store (e.g., Best Buy or Fry's)			
10	Drug Store (e.g., CVS or Walgreens)			
11	Online Purchase from Online Retailer (e.g., Amazon.com or 1000bulbs.com)			
12	Retail Store Website (e.g., HomeDepot.com or Walmart.com)			
-77	Other [SPECIFY NAME OF STORE]			
-88	Don't know			

LED Candelabra Installation

CL5. [IF LED BULB COUNT IN CL4=0, SKIP TO SECTION 5] How many of the [CL4] LED candelabra bulbs you purchased are currently installed at your home (either indoors or outdoors)?

	Quantity of LED candelabra bulbs installed	[RECORD QUANTITY] [IF LED BULB COUNT IN CL5= LED BULB COUNT IN CL4, SKIP TO SECTION 5]
0	Zero	
-88	Don't know	[SKIP TO SECTION 5]

CL6. Of the remaining [CL4 – CL5] LED candelabra bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)?

	Quantity of LED candelabra bulbs installed	[RECORD QUANTITY]
0	Zero	
-88	Don't know	

5 GLOBE PURCHASES

[IF BULB COUNT IN LP4 or LP5= BULB COUNT IN RL4 + BULB COUNT IN CL4, SKIP TO RG1A]

GL1. The last light bulb shape I want to ask you about is globe light bulbs. Of the [LP4 quantity] light bulbs you've purchased between January 1, 2109 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any globe bulbs? Please only consider purchases of round globe shape bulbs, and not standard A-lamp or pear shaped bulbs that are commonly used in the home.[NOTE TO PROGRAMMER: If LP4=0 or -88 and LP5>0, use quantity in LP5 (after shelter-in-place orders took effect due to COVID-19). If LP4>0, use quantity in LP4 throughout RL, CL and GL series, else use LP5 value.]

1	Yes	
2	No	[SKIP TO SECTION 6]
-88	Don't know	[SKIP TO SECTION 6]

GL2. What type of globe bulbs were they? [Select all that apply]

1	LED	
2	Incandescent/ Halogen	
3	CFL	
-88	Don't know	[SKIP TO SECTION 6]

GL3. Where did you purchase these globe bulbs? [Select all that apply]

1	Home Depot or Lowe's	
2	Other Large Home Improvement Store (e.g., Dixieline Lumber, Ashby Lumber, Orchard Supply or HD Supply)	
3	Costco or Sam's Club	
4	Wal-Mart or Target	
5	Small Hardware Store (e.g., Ace Hardware or True Value Hardware)	
6	Convenience Store	
7	Discount Store (e.g., 99 Cents Only Store, Dollar Tree, or Dollar General)	
8	Grocery Store (e.g., Safeway, Vons, Ralph's, Sprouts, Northgate Market)	
9	Lighting and Electronics Store (e.g., Best Buy or Fry's)	
10	Drug Store (e.g., CVS or Walgreens)	
11	Online Purchase from Online Retailer (e.g., Amazon.com or 1000bulbs.com)	
12	Retail Store Website (e.g., HomeDepot.com or Walmart.com)	
-77	Other [SPECIFY NAME OF STORE]	
-88	Don't know	

GL4. How many globe bulbs did you purchase at these locations? Please provide a count of individual bulbs purchased, not packages. [NOTE TO PROGRAMER: ONLY SHOW STORE TYPES SELECTED BY RESPONDENT IN GL3]

	Store Type	LED	Incandescent/ Halogen	CFL
1	Home Depot or Lowe's			
2	Other Large Home Improvement Store (e.g., Dixieline Lumber, Ashby Lumber, Orchard Supply or HD Supply)			
3	Costco or Sam's Club			
4	Wal-Mart or Target			
5	Small Hardware Store (e.g., Ace Hardware or True Value Hardware)			
6	Convenience Store			
7	Discount Store (e.g., 99 Cents Only Store, Dollar Tree, or Dollar General)			
8	Grocery Store (e.g., Safeway, Vons, Ralph's, Sprouts, Northgate Market)			
9	Lighting and Electronics Store (e.g., Best Buy or Fry's)			
10	Drug Store (e.g., CVS or Walgreens)			
11	Online Purchase from Online Retailer (e.g., Amazon.com or 1000bulbs.com)			
12	Retail Store Website (e.g., HomeDepot.com or Walmart.com)			
-77	Other [SPECIFY NAME OF STORE]			
-88	Don't know			

LED Globe Installation

GL5. [IF LED BULB COUNT IN GL4=0, SKIP TO SECTION 6] How many of the [GL4] LED globe bulbs you purchased are currently installed at your home (either indoors or outdoors)?

	Quantity of LED globe bulbs installed	[RECORD QUANTITY] [IF LED BULB COUNT IN GL5= LED BULB COUNT IN GL4, SKIP TO SECTION 6]
0	Zero	
-88	Don't know	[SKIP TO SECTION 6]

GL6. Of the remaining [GL4 – GL5] LED candelabra bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)?

	Quantity of LED globe bulbs installed	[RECORD QUANTITY]
0	Zero	
-88	Don't know	

6 REFLECTOR LAMP PURCHASING GAME

[IF REFLECTOR PURCHASER (RL1=1); OR LP1 = 1 and CL1=2 or -88 and GL1=2 or -88; OR LP3 = 2 or -88]

- Purchasers of reflectors, candelabras and/or globes will be prioritized above all other respondents.
- Respondents who did recently purchase light bulbs [LP3 = 1], but did not purchase any reflector, candelabra, or globe lamps will only play the reflector lamp purchasing game. This could be A-lamp purchasers, for example.
- Respondents who did not recently purchase light bulbs [LP3 = 2 or -88] will play only the reflector lamp purchasing game.
- For purchasers of reflectors, candelabras and/or globes, respondent will only get game for the bulb styles(s) they purchased.
- Respondents will see lamp purchasing games in the channel in which they bought their bulbs prioritized as shown below.
- If respondents didn't purchase any lamps in any of the high priority channels (grocery, discount, hardware, and home improvement), then prioritize as follows:

Channel	Reflector Lamps	Candelabra Lamps	Globe Lamps
Grocery	40%	0%	0%
Discount	40%	75%	75%
Hardware	10%	0%	0%
Home Improvement	10%	25%	25%

- Respondents will see up to two lamp purchasing questions for up to three lamp styles (for a maximum of six lamp purchasing games).
- Randomize order of 1A and 1B questions (without program and with program discount)
- Randomize order that LED and incandescent bulbs appear (left or right)

RG1A [without program]: Which bulb would you buy at the following prices? [SHOW ONLY ONE CHANNEL ACCORDING TO PRIORITY LISTED BELOW BASED ON WHERE RESPONDENT PURCHASED BULBS]?

Channel	LED Reflector [Prices based on average shelf data excluding all program lamps]	Incandescent/Halogen Reflector [Prices based on average shelf data]
	Photo of LED reflector lamp	Photo of incandescent reflector lamp
Grocery (first priority)	\$9.15	\$5.85
Discount (second priority)	\$1.35	\$1.20
Hardware (third priority)	\$6.40	\$6.00
Home Improvement (fourth priority)	\$3.70	\$4.05

RG1B [with program]: Which bulb would you buy at the following prices? [SHOW ONLY ONE CHANNEL ACCORDING TO PRIORITY LISTED BELOW BASED ON WHERE RESPONDENT PURCHASED BULBS]?

Channel	LED reflector [Prices based on average shelf data including program lamps only]	Incandescent/Halogen Reflector [Prices based on average shelf data]
	Photo of LED reflector lamp	Photo of incandescent reflector lamp
Grocery (first priority)	\$0.60	\$5.85
Discount (second priority)	\$0.50	\$1.20
Hardware (third priority)	\$5.65	\$6.00
Home Improvement (fourth priority)	\$3.80	\$4.05

7 CANDELABRA LAMP PURCHASING GAME

[IF CANDELABRA PURCHASER (CL1=1)]

CG1A [without program]: Which bulb would you buy at the following prices? [SHOW ONLY ONE CHANNEL ACCORDING TO PRIORITY LISTED BELOW BASED ON WHERE RESPONDENT PURCHASED BULBS]?

Channel	LED Candelabra [Prices based on average shelf data excluding all program lamps]	Incandescent/Halogen Candelabra [Prices based on average shelf data]
	Photo of LED candelabra lamp	Photo of incandescent candelabra lamp
Discount (first priority)	\$1.85	\$0.55
Home Improvement (second priority)	\$3.05	\$0.95

CG1B [with program]: Which bulb would you buy at the following prices? [SHOW ONLY ONE CHANNEL ACCORDING TO PRIORITY LISTED BELOW BASED ON WHERE RESPONDENT PURCHASED BULBS]?

Channel	LED Candelabra [Prices based on average shelf data including program lamps only]	Incandescent/Halogen Candelabra [Prices based on average shelf data]
	Photo of LED candelabra lamp	Photo of incandescent candelabra lamp
Discount (first priority)	\$0.25	\$0.55
Home Improvement (second priority)	\$4.15	\$0.95

8 GLOBE LAMP PURCHASING GAME

[IF GLOBE PURCHASER (GL1=1)]

GG1A [without program]: Which bulb would you buy at the following prices? [SHOW ONLY ONE CHANNEL ACCORDING TO PRIORITY LISTED BELOW BASED ON WHERE RESPONDENT PURCHASED BULBS]?

Channel	LED Globe [Prices based on average shelf data excluding all program lamps]	Incandescent/Halogen Globe [Prices based on average shelf data]
	Photo of LED globe lamp	Photo of incandescent globe lamp
Discount (first priority)	\$1.00	\$1.00
Home Improvement (first priority)	\$4.65	\$3.25

GG1B [with program]: Which bulb would you buy at the following prices? [SHOW ONLY ONE CHANNEL ACCORDING TO PRIORITY LISTED BELOW BASED ON WHERE RESPONDENT PURCHASED BULBS]?

Channel	LED Globe [Prices based on average shelf data including program lamps only]	Incandescent/Halogen Globe [Prices based on average shelf data]
	Photo of LED globe lamp	Photo of incandescent globe lamp
Discount (first priority)	\$0.50	\$1.00
Home Improvement (second priority)	\$2.90	\$3.25

9 LIGHT SOCKET PERCENTAGE

LSP1. Thinking of all the light bulbs installed in your home, about what percent of your sockets have LED bulbs in them?

1	None of them	
2	1% - 25%	
3	26% - 50%	
4	51% - 75%	
5	76% - 99%	
6	All of them	
-88	Don't know	

10 DEMOGRAPHICS

DEM1. Do you or members of your household own your home, or do you rent it?

1	Own/Buying	
2	Rent/Lease	
3	Occupied without payment of rent	
-77	Other [SPECIFY]	
-88	Don't know	

DEM2. How many full bathrooms do you have at your home?

A full bathroom is one that has a sink with running water, and a toilet, and either a bathtub or shower. A half bathroom has a sink and either a toilet, bathtub or shower.

	Number of full bathrooms	[RECORD QUANTITY]
-88	Don't know	

DEM3. How many bedrooms do you have at your home?

If you have a STUDIO or a ONE-ROOM APARTMENT, please enter "0" (zero).

	Number of bedrooms	[RECORD QUANTITY]
-88	Don't know	

DEM4. What is the highest level of education you have completed?

1	Elementary (grades 1-8)	
2	Some high school (grades 9-12)	
3	High school graduate	
4	Some college/trade/vocational school	
5	College graduate	
6	Postgraduate degree	
-88	Don't know	

DEM5. What was your annual household income from all sources in 2019, before taxes?
(Note: This information is confidential and will only be used for the purpose of characterizing study respondents.)

1	Less than \$10,000 per year	
2	\$10,000 - \$19,999	
3	\$20,000 - \$24,999	
4	\$25,000 - \$49,999	
5	\$50,000 - \$74,999	
6	\$75,000 - \$99,999	
7	\$100,000 - \$149,999	
8	\$150,000 - \$174,999	
9	\$175,000 - \$199,999	
10	\$200,000 - \$249,999	
11	\$250,000 or more	
-99	Prefer not to answer	

DEM6. Would you like to be entered into the drawing for an incentive card?

1	Yes	
2	No	
-88	Don't know	

[CLOSE_COMPLETE]

Thank you for completing the questionnaire! If you are selected as a winner of the incentive card drawing, we will notify you by email by [XX Date].

[CLOSE_DQ]

We are sorry, but you do not qualify for this survey. These are all of the questions I have for you today. Thank you for your time, and have a great day.

WINTER 2018-2019 CALIFORNIA RETAIL LIGHTING SHELF SURVEYS CPUC PROGRAM YEAR 2019 RESIDENTIAL LIGHTING IMPACT EVALUATION

STORE DETAILS









PLEASE FILL IN THIS SECTION USING THE INFORMATION CONTAINED IN THE SAMPLE DATABASE

Field researcher name:	Store address:
Date:	Store city:
Store name:	Store zip code:
Store channel:	












LAMP CODES (TECHNOLOGY TYPE AND BASE TYPE)

Technology Type Codes		Base Type Codes	
Technology Type	Code	Base Type Codes	Code
CFL	CF	Medium Screw	M
Incandescent	I	Pin	P
Halogen	H	GU-Type	G
LED	L	Candelabra/Intermediate	C
Smart LED	SL	Large Screw Base	L
Cold Cathode	CC	Candelabra with Medium Screw Adaptor	C/M
Other	OT	Other	OT

LAMP CODES (STYLE CODES)

Lamp Style Codes					
Lamp Style	Code	Image	Lamp Style	Code	Image
Spiral/Twister	TW		Spotlight/Reflector/ Flood	See below	See spotlight/reflector/flood codes in table below.
Globe (e.g., for bathroom vanity fixtures)	GL		Circline	CI	
A-lamp (shaped like standard incandescent)	AL		Tube Style	TU	
Torpedo/Bullet	TO		Night Light	NL	
Bug Light	BU		Other/Unknown	OT	Record style code, if indicated on package.

LAMP CODES (CONTINUED)

Reflector Lamp Style Codes					
Lamp Style	Code	Image	Lamp Style	Code	Image
BR25	B25		PAR16	P16	
BR30	B30		PAR20	P20	
BR40	B40		PAR30	P30	
R20	R20		PAR38	P38	
R30	R30		MR16	M16	
R40	R40		Other	OT	Record other style if indicated on package

LAMP INVENTORY

Survey all replacement CFLs, cold cathodes, incandescents, halogens, LEDs and Smart LEDs.

Use as many pages as necessary.

For 3-way, dimmable, ENERGY STAR, and rough/vibration service incandescent columns: X if applicable.

Model Characteristic	Model1	Model2	Model3	...
Manufacturer/Brand				
Technology Type (See Technology Codes table above)				
Package Includes Hub (for Smart LEDs only)				
Base Type (See Base Codes table above)				
Bulb Style (See Style Codes table above)				
Reflector/Spotlight/Flood Style (If applicable; see style codes above)				
Model Number				
Barcode				
Quantity in Pack				
# of Packages				
Package Location [Aisle=A; Endcap=E; Free Standing Display=FS; Pallet=P; Fenceline=F; Other-OT]				
* Full/Original Price (If discounted, record price before discount. If not discounted, record product price here)				
* Discounted Price (If on sale/discounted)				
Discount Provider (if discounted) [R=Retailer; U=Utility; M=Manufacturer; O=Other; DK= don't know]				
Color Name [Soft White=SW; Warm White=WW; Cool White=CW; Bright White=BW; Daylight=D; Enhanced Spectrum=ES; Colored= CR; Other=OT] or Smart LEDs [Multi-colored=MC, Standard=SD]				
Lumens				
Wattage				
Color Temperature (or Color Temperature Range for Smart LEDs)				
Color Rendering Index (If LED)				
Rated Life				
3-way?				
Dimmable?				
Energy Star?				
Vintage Style Lamp?				
Rough/Vibration Service Incandescent?				

*** IF ONLY ONE PRICE SHOWN:** Try to determine whether it's a discounted price/sale price or if it's a full-priced lamp. If sale price, record value in "Discounted price." If full price, record value in "Original Price."

10.6 Appendix F: Net-to-gross methodology

As part of the 2019 online consumer survey, the evaluation team designed a series of questions to better understand consumer price elasticities with respect to the probability of purchasing LED lamps over an alternative technology (incandescent or halogen reflector, candelabra, or globe lamps). The NTGR was then calculated as the product of the difference in the probability of purchasing a LED with a program discount from the probability of purchasing a LED without the program discount over the probability of purchasing a LED with a program discount, as shown in Equation 10-1.

Equation 10-1. NTGR at the aggregate level

$$NTG_l = \frac{(P(\text{buy LED} | \text{program}) - P(\text{buy LED} | \text{no program}))}{P(\text{buy LED} | \text{program})}$$

where l = lamp style, and P = probability

10.6.1 Developing the Lamp Price Elasticity Model

To better understand how price drives a consumer's decision to purchase an LED over an alternative technology, the evaluation team developed a lamp purchasing game that was deployed using the online consumer survey. The respondent played the game for each of the lamp styles (reflector, candelabra, or globe) that they indicated they purchased. If the respondent did not purchase any of the lamp styles, then they were only shown the lamp purchasing game for the reflector lamps. In each iteration of the game, the respondent was shown two images—one of an LED and another of an incandescent/halogen lamp in the same lamp style. Along with these images, the respondent was shown the respective price of each lamp and then asked to select which technology they would choose. The respondent was also shown the same set of images with the only difference being the price of the LED. In one case, the price of the LED included the program discount, and in the other case, the price did not include the program discount, although the respondent was not told that one price included a discount. The order of the rounds of the game were randomized, so some respondents were shown the price of the LED with the program discount first while others were shown the price of the LED without the program discount first. In both cases, the price of the incandescent/halogen lamp was held constant.

The prices that the respondents were shown were based on the average prices in each retail channel as determined from shelf stocking survey data. Each respondent was shown two sets of prices, one set at a time, for each lamp style they purchased, reflecting program and non-program prices, randomized to reflect actual purchases across the market. Table 10-1 shows the total number of responses for each combination of lamp style and set of prices that were shown. Respondents that were asked questions for two different lamp styles are represented twice in the number of responses, and those asked questions for three different lamp styles are represented three times.

Table 10-1. Survey prices and number of responses by lamp style, lamp technology, and retail channel

Lamp Style	Retail Channel	Number of Responses	Price of LED Program	Price of LED No Program	Price of Alternative
Reflector	Discount	372	\$0.50	\$1.35	\$1.20
Reflector	Grocery	370	\$3.80	\$3.70	\$4.05
Reflector	Hardware	99	\$0.60	\$9.15	\$5.85
Reflector	Home Improvement	310	\$5.65	\$6.40	\$6.00
Globe	Discount	200	\$0.50	\$1.00	\$1.00
Globe	Home Improvement	205	\$2.90	\$4.65	\$3.25
Candelabra	Discount	195	\$0.25	\$1.85	\$0.55
Candelabra	Home Improvement	177	\$4.15	\$3.05	\$0.95

To convert responses from the lamp purchasing game into set of price elasticity curves, the evaluation team calculated a logistic regression for each lamp style based on the set of discrete consumer choices to determine the natural log of the odds of choosing an LED over the alternative technology as a function of the price of an LED and the price of the alternative technology, defined below in Equation 10-2. Table 10-2 shows the coefficients of this regression. Responses to each lamp style game were aggregated across retail channel price levels to provide variance in price-level responses for the regression.

Equation 10-2. The logit function

$$\ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2$$

where: $\ln\left(\frac{P}{1-P}\right)$ = natural log of the odds of choosing an LED, X_1 = price of the LED, and X_2 = price of the alternative technology

Table 10-2. Coefficient results of the logistic regression

Lamp	β_0	β_1	β_2
Reflector	1.422	-0.166	0.140
Globe	1.497	-0.493	0.488
Candelabra	1.066	-0.607	1.916

This logistic regression can be transformed to interpret the results as the probability of choosing an LED over the alternative, as show in Equation 10-3. Figure 10-10 shows the probability curves of adopting an LED as a function of the price of the LED, holding the price of the alternative technology constant. These curves show how, as the price of LED increases, the probability of choosing the LED over the alternative declines. While this trend holds true for all three lamp styles, the reflector lamps show a more inelastic shape

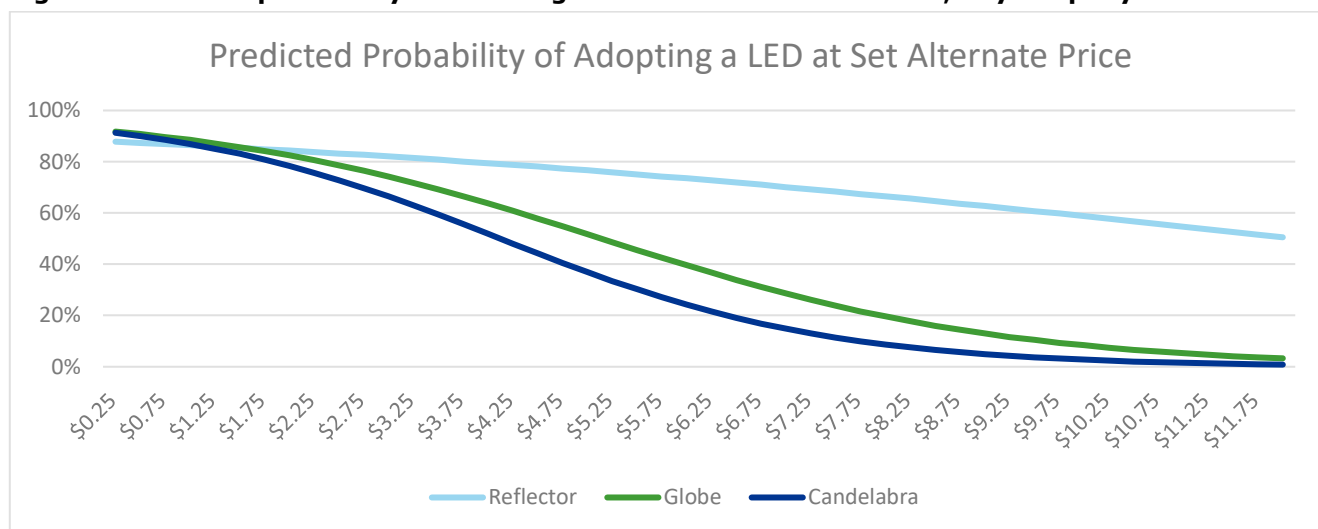
compared to globes and candelabras. This indicates that the price of the LED is less influential in the consumer's decision to purchase an LED reflector over an incandescent or halogen reflector compared to that of a globe or candelabra.

Equation 10-3. Calculating probability from logit function

$$P = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2)}}$$

where: P = probability of choosing a LED, X_1 = price of the LED, and X_2 = price of the alternative technology

Figure 10-10. The probability of choosing an LED over the alternative,* by lamp style



*Alternative prices held constant: Reflector = \$4.41, Globe = \$2.66, and Candelabra = \$0.89

10.6.2 NTGR sensitivity analysis

Methodology

In Section 6.4 we calculated the NTGR for each of the evaluated technologies. We used the price elasticity model to calculate the probability of a program LED purchase and a non-program LED purchase. The NTGR was calculated as the difference of these probabilities, divided by the probability of a program purchase.

Three prices informed the NTGR calculation. We used the average program lamp price, average non-program LED price, and average non-program incandescent/halogen price for each technology type as inputs to the price elasticity model. Incandescent and halogen lamps were considered as the inefficient alternative to LED lamps. We used the results of the 2018-2019 shelf stocking surveys to estimate the distributions of lamps on the shelves of retail stores across California.

The shelf survey is administered as a stratified random sample of the population of retail stores in California, with strata defined by PA and store channel. We generalized our results across all three PAs to increase the sample size and robustness of our results. Within each channel, we estimated three prices for each technology type. These channel-specific prices were then combined into a weighted average price for each technology type using consumer purchases as weights for non-program lamps and program sales as the

weights for program lamps. In this way, we calculated three average prices for each technology type. The channel-weighted average prices for each technology type were intended to represent the average price which an average consumer would experience considering consumer purchasing patterns.

Market prices

To further increase the generalizability of our results, we performed a supplementary NTGR sensitivity analysis, which compared the NTGR results when the price elasticity model was informed by the 25th percentile price, median price, and 75th percentile price for each technology type. The price distributions used for the sensitivity analysis are estimates of the population price distributions and are not corrected for consumer purchasing patterns.

The program price drops significantly at the 25th percentile for candelabras and globes. The bottom quartile of the program candelabra and globe distributions were entirely represented by shipments to discount stores. As discussed in 6.4, prices alone are insufficient to represent the effect of program in discount stores. Shipments to discount stores often exceeded the sales volume of each store, so many of these lamps did not reach the consumers. In addition to flooding the market in this channel, most consumers do not purchase their lamps in discount stores.

Table 10-3. Estimated price distribution for reflectors

Product Type	Program Discounted	Min	25th Percentile	50th Percentile	75th Percentile	Max
Alternative	Non-discounted	\$0.99	\$2.00	\$3.99	\$6.19	\$19.99
LED	Discounted	\$0.49	\$0.50	\$0.50	\$3.27	\$17.99
LED	Non-discounted	\$0.49	\$2.98	\$4.18	\$5.82	\$49.99

Table 10-4. Estimated price distribution for candelabras

Product Type	Program Discounted	Min	25th Percentile	50th Percentile	75th Percentile	Max
Alternative	Non-discounted	\$0.40	\$0.60	\$1.12	\$1.80	\$5.50
LED	Discounted	\$0.25	\$0.25	\$2.50	\$2.50	\$4.61
LED	Non-discounted	\$0.99	\$3.24	\$3.98	\$5.46	\$19.99

Table 10-5. Estimated price distribution for globes

Product Type	Program Discounted	Min	25th Percentile	50th Percentile	75th Percentile	Max
Alternative	Non-discounted	\$0.99	\$1.70	\$2.66	\$3.90	\$8.99
LED	Discounted	\$0.49	\$0.50	\$0.50	\$0.50	\$4.00
LED	Non-discounted	\$2.00	\$3.86	\$4.76	\$4.98	\$19.99

NTGR results

We used the estimated price distributions to calculate the NTGR, at the 25th percentile, median, and 75th percentile price for each technology type. The NTGR was calculated as outlined in section 6 (net savings analysis). The results below are intended to represent the price sensitivity of the NTGR.

The candelabra NTGR is greatest when calculated using the 25th percentile prices. This is largely because inexpensive program lamps were shipped to discount stores. The 25th percentile prices are not representative of the overall lighting market because they consist entirely of program lamps sold in discount stores. Most consumer purchases took place in other channels, specifically, home improvement and membership club stores.

The reflector and globe NTGRs are greatest when calculated using the median price. The lower NTGR in the third quartile can be explained by the dramatic increase in alternative lamp prices in the third quartile for these two technology types. Expensive alternative lamps minimize the effect of the program as consumers are already influenced to purchase the less expensive non-program LED.

The price distributions used for the sensitivity analysis are estimates of the population price distributions and are not corrected for consumer purchasing patterns. When calculating the NTGR in section 6, the prices of each technology type are weighted by the quantity of bulbs sold in each channel to correct for these consumer purchasing patterns. Because the prices used to create Table 10-6 are not weighted, the values may differ from the NTGR values reported in section 6, and should only be used for sensitivity analysis.

Table 10-6. Low, medium, and high-price scenarios: probabilities of LED selection and NTGRs

Technology Type	Measurement	25th Percentile NTGR	50th Percentile NTGR	75th Percentile NTGR
Reflector	Without-Program LED Probability	77%	78%	79%
	With Program LED Probability	83%	87%	85%
	NTGR	7.8%	9.9%	7.3%
Candelabra	Without-Program LED Probability	56%	69%	77%
	With Program LED Probability	89%	84%	95%
	NTGR	36.7%	18.4%	19.3%
Globe	Without-Program LED Probability	60%	61%	72%
	With Program LED Probability	89%	93%	96%
	NTGR	32.0%	34.2%	24.9%

10.7 Appendix G: CREED sales data

10.7.1 Introduction

Developed by Apex Analytics, the Consortium for Retail Energy Efficiency Data (CREED) serves as a consortium of PAs, retail stores, and manufacturers working together to collect the necessary data to better plan and evaluate energy efficiency programs.³⁵ LightTracker is CREED's first initiative, focused on acquiring full-category lighting data, including incandescent, halogen, CFL, and LED bulb types, for all distribution channels in the United States. As a consortium, CREED speaks as one voice for PAs nationwide as they request, collect, and report on the sales data needed by the energy efficiency community. The Full Category Sales report (LightTracker) on many data sources. There are two primary data sources which are purchased from data vendors (Nielsen and IRI), and secondary data available publicly from different sources (see below). The Point-of-Sale (POS) dataset is used to report actual scanned sales from available retail stores, and the Panel dataset is used to fill-in the remaining retail stores' sales estimates.

10.7.2 Proprietary data sources

POS dataset

The POS dataset includes lighting sales data for grocery, drug, dollar, discount, and mass merchandise distribution channels. These data represent actual sales that are scanned at the cash register for participating retail stores. Since there are a larger number of smaller chains and independent locations within the grocery channel, the data vendors have defined the grocery channel as stores that do over \$2 million annually in sales, meaning the smallest locations are omitted from the dataset.³⁶ The raw data is aggregated at the state level and is reported at a product-level. For example, the dataset provides the number of units of a specific UPC purchased in any given state in the calendar year.

Panel dataset

The Panel data represent the remaining retail channels, including home improvement, club, hardware, online, and smaller grocery/bodega stores (not included in the POS). The Panel data are largely derived from the National Consumer Panel (NCP), which represents a panel of approximately 100,000 residential households – including over 6,000 in California – that are provided a handheld scanner for their homes and instructed to scan every purchase they make that has a bar code. The use of a scanner avoids potential “recall bias,” which is prevalent in self-report methods that ask about lighting purchases. The NCP data is aggregated at the state-level and at a category of bulb type-level (e.g., the total number of LEDs purchased in California).

Combining the datasets

The Apex team combines the POS and panel data, and then verifies and calibrates (as needed) based on additional secondary data sources, including:

- U.S. Census Bureau import data (CFL and LED imports)
- ENERGY STAR shipment data (released by the U.S. Environmental Protection Agency)
- North American Electrical Manufacturers Association shipment data

³⁵ For further details on CREED, please see <https://www.creedlighttracker.com/>

³⁶ CREED addresses the omission of these smaller, independent grocery stores by capturing the estimated sales in the Panel dataset.

- General population surveys, lighting saturation studies, and other secondary data collection made publicly available through evaluation reports

10.7.3 Data cleaning

Although the dataset includes detailed records of lighting data purchases, the Apex team devotes a considerable effort to ensure data integrity and inclusion of all the necessary bulb attributes. For example, not all records were populated with some of the more critical variables such as bulb type, style, and wattage or the data had clearly erroneous values (e.g., 60-W LEDs).

After thorough review and quality control of the dataset, the Apex team reclassified, standardized, and populated missing records, created additional variables, and performed general enhancements to the data. To populate missing records, validate existing records, and include additional bulb attributes, the Apex Team created a proprietary Universal Product Code (UPC) database with approximately 36,000 lamps from five sources:

- Manufacturer product databases provided to LightTracker
- Product catalogs downloaded from manufacturer web sites via Python-based web scraping
- Product offerings downloaded from retail store websites
- Automated lookups of online UPC databases (such as www.upcitemdb.com)
- ENERGY STAR databases available online (such as <https://www.energystar.gov/productfinder/product/certified-light-bulbs>)

LightTracker then merged the bulb database with the POS/Panel data, populating fields based on a hierarchy of data sources believed to be most reliable. Prioritization was typically based in the following order: manufacturer specifications, UPC lookups, original data provider (IRI and Nielsen) database values. The Apex team also conducted manual web lookups on individual lamps to determine final assignments.

In addition, the Apex team investigated the bulb assignment and the quantity of lamps per package by examining the average price per unit and identifying outliers in terms of per bulb prices. This process helped in identifying misclassifications of certain bulb types (e.g., lamps that were flagged as low-cost LEDs but were really LED nightlights, so needed to be moved under “other”), as well as bulb counts that represented box shipments (e.g., a package identified as having 36 lamps was really a 6-pack of LEDs that was shipped with 6 packages per box). The sales model is restricted to screw-based lamps, so any lamps classified as type “other” were not included in the model.

10.7.4 2019 California and U.S. lamp sales

Apex Analytics compiled California lamp sales data for 2019. The sales data included point of sales (POS) data for select retail stores from discount, drug, grocery, mass merchandise, and select membership club channels (POS estimate). The data also included a panel estimate of sales from other channels in the market, which included home improvement, hardware, remaining stores not included in the POS dataset, and online stores (non-POS estimate). Table 10-7 shows a breakdown of total lamp sales in California and U.S. by technology and lamp shape for the POS and non-POS estimates as well as the combined total sales from the POS and non-POS datasets.

Table 10-7. California replacement lamp sales estimates, 2019

Technology	CA and Total U.S. Sales	POS Estimate	Non-POS Estimate	Total Sales
LED	California	9,903,749	48,890,992	58,794,740
	Total U.S.	186,623,337	565,925,969	752,549,305
CFL	California	157,230	4,071,083	4,228,313
	Total U.S.	1,088,696	23,363,088	24,451,784
Halogen	California	928,250	4,630,348	5,558,598
	Total U.S.	134,518,721	207,911,367	342,430,089
Incandescent	California	5,754,872	2,909,071	8,663,943
	Total U.S.	96,252,275	35,748,873	132,001,148
Total Lamps	California	16,744,100	60,501,494	77,245,594
	Total U.S.	418,483,028	832,949,297	1,251,432,326

Table 10-8 shows a breakdown of total lamp sales in California by technology and lamp style for the POS and non-POS estimates as well as the combined total sales from the POS and non-POS datasets.

Table 10-8. California replacement lamp sales estimates by lamp technology and lamp style, 2019

Technology	Lamp Style	Total Sales by Lamp Style	Total Sales
LED	A Lamp	32,550,604	58,794,740
	Reflector	16,520,928	
	Candelabra	6,798,972	
	Globe	2,920,366	
CFL	A Lamp/Spiral	4,225,802	4,228,313
	Reflector	2,402	
	Candelabra	0	
	Globe	110	
Halogen	A Lamp	2,695,033	5,558,598
	Reflector	1,218,134	
	Candelabra	121,204	
	Globe	1,524,227	
Incandescent	A Lamp	2,911,613	8,663,943
	Reflector	597,780	
	Candelabra	3,350,221	
	Globe	1,676,669	
Total Sales		77,114,063	77,245,594

Table 10-9 shows a breakdown of total lamp sales percentages in California by technology and lamp style for the POS and non-POS estimates as well as the combined total sales from the POS and non-POS datasets.

Table 10-9. California replacement lamp sales shares by lamp technology and lamp style, 2019

Technology	Lamp Style	Total Sales by Lamp Style	Total Sales
LED	A Lamp	55%	76%
	Reflector	28%	
	Candelabra	12%	
	Globe	5%	
CFL	A Lamp/Spiral	100%	5%
	Reflector	0%	
	Candelabra	0%	
	Globe	0%	
Halogen	A Lamp	48%	7%
	Reflector	22%	
	Candelabra	2%	
	Globe	27%	
Incandescent	A Lamp	34%	11%
	Reflector	7%	
	Candelabra	39%	
	Globe	19%	
Total Sales		77,114,063	100%

Table 10-10 shows a breakdown of total lamp sales and percentages in California by lamp style and lamp technology for the POS and non-POS estimates as well as the combined total sales from the POS and non-POS datasets.

Table 10-10. California replacement lamp sales by lamp style and lamp technology, 2019

Lamp Style	Lamp Technology	Total Sales by Lamp Technology	% Sales
A-lamp/Spiral	LED	32,550,604	77%
	CFL	4,225,802	10%
	Halogen	2,695,033	6%
	Incandescent	2,911,613	7%
Total A-lamp Sales		42,383,052	55%
Reflector	LED	16,520,928	90%
	CFL	2,402	0%
	Halogen	1,218,134	7%
	Incandescent	597,780	3%
Total Reflector Sales		18,339,243	24%

Lamp Style	Lamp Technology	Total Sales by Lamp Technology	% Sales
Candelabra	LED	6,798,972	66%
	CFL	0	0%
	Halogen	121,204	1%
	Incandescent	3,350,221	33%
Total Candelabra Sales		10,270,397	13%
Globe	LED	2,920,366	48%
	CFL	110	0%
	Halogen	1,524,227	25%
	Incandescent	1,676,669	27%
Total Globe Sales		6,121,371	8%
All Sales		77,114,063	100%

Table 10-11 shows POS sales estimates for A-Line lamps in California by lumen bin.

Table 10-11. California A-Line sales by lumen bin (POS only), 2019

Technology	Lumen Range	Sales
LED Sales	0-309	44,053
	310-449	349,045
	450-749	1,421,564
	750-1049	3,731,060
	1050-1489	993,483
	1490-2600	529,486
	2601-3300	-
	>3300	-
	Total LED	7,068,690
CFL Sales	0-309	-
	310-449	27
	450-749	307
	750-1049	27,889
	1050-1489	117,435
	1490-2600	7,628
	2601-3300	-
	>3300	-
	Total CFL	153,286
Halogen Sales	0-309	-
	310-449	58,857
	450-749	41,749

Technology	Lumen Range	Sales
	750-1049	269,664
	1050-1489	69,872
	1490-2600	122,497
	2601-3300	-
	>3300	-
	Total Halogen	562,639
Incandescent Sales	0-309	238,573
	310-449	312,667
	450-749	43,298
	750-1049	410,934
	1050-1489	349,706
	1490-2600	623,164
	2601-3300	72,923
	>3300	123,067
	Total Incandescent	2,174,331
Total All Technologies		9,958,947

Table 10-12 shows the list of retail stores that were included in the POS dataset.

Table 10-12. List of participating retail stores by channel (provided by Nielsen), 2019

Retail Store	Channel	Store Location
DOLLAR GENERAL	Discount	CA and U.S.
FAMILY DOLLAR	Discount	CA and U.S.
CVS PHARMACY	Drug	CA and U.S.
RITE AID	Drug	CA and U.S.
WALGREENS	Drug	CA and U.S.
ALBERTSONS	Grocery	CA and U.S.
CARDENAS MARKETS	Grocery	CA and U.S.
CITY MARKET	Grocery	CA and U.S.
DECA COMMISSARY	Grocery	CA
EL RANCHO SUPERMARKET	Grocery	CA and U.S.
EL SUPER	Grocery	CA and U.S.
FOOD 4 LESS	Grocery	CA and U.S.
FOOD MAXX STORES	Grocery	CA and U.S.
GELSONS	Grocery	CA
GROCERY OUTLET BARGAIN MARKET	Grocery	CA
IGA	Grocery	CA and U.S.
KROGER	Grocery	CA and U.S.

Retail Store	Channel	Store Location
LUCKY STORE	Grocery	CA
NOB HILL	Grocery	CA
RALEYS	Grocery	CA and U.S.
RALPHS	Grocery	CA and U.S.
SAFEWAY	Grocery	CA and U.S.
SAVE MART	Grocery	CA and U.S.
SMART & FINAL	Grocery	CA and U.S.
STATER BROS	Grocery	CA and U.S.
VONS	Grocery	CA and U.S.
WHOLE FOODS	Grocery	CA and U.S.
KMART	Mass Merchandise	CA and U.S.
TARGET	Mass Merchandise	CA and U.S.
TARGET FRESH	Mass Merchandise	CA and U.S.
TARGET SUPERCENTER	Mass Merchandise	CA and U.S.
WALMART	Mass Merchandise	CA and U.S.
SAM'S CLUB	Membership Club	CA and U.S.
FRED'S HOMETOWN	Discount	Non-CA
CARDINAL HEALTH	Drug	Non-CA
HY VEE DRUGSTORES	Drug	Non-CA
KINNEY DRUGS INC	Drug	Non-CA
ACME MARKET	Grocery	Non-CA
AMERICAS FOOD BASKET	Grocery	Non-CA
BASHAS	Grocery	Non-CA
BEL AIR MARKETS	Grocery	Non-CA
BI LO	Grocery	Non-CA
BIG Y	Grocery	Non-CA
BROOKSHIRE	Grocery	Non-CA
BYERLYS/LUNDS	Grocery	Non-CA
CARLIE CS IGA/BUY	Grocery	Non-CA
COBORNS/CASH WISE	Grocery	Non-CA
COSENTINOS	Grocery	Non-CA
CUB FOODS	Grocery	Non-CA
DEMOULAS/MARKET BA	Grocery	Non-CA
DIERBERGS	Grocery	Non-CA
DILLON	Grocery	Non-CA
FAMILY FARE SUPERMARKET	Grocery	Non-CA
FAREWAY	Grocery	Non-CA
FESTIVAL FOODS	Grocery	Non-CA

Retail Store	Channel	Store Location
FIESTA MART INC	Grocery	Non-CA
FOOD CITY	Grocery	Non-CA
FOOD CO	Grocery	Non-CA
FOOD LION	Grocery	Non-CA
FOODTOWN	Grocery	Non-CA
FRED MEYER	Grocery	Non-CA
FRESCO Y MAS	Grocery	Non-CA
FRESH BRANDS	Grocery	Non-CA
FRYS	Grocery	Non-CA
FULMER SUPERMARKET	Grocery	Non-CA
GIANT EAGLE	Grocery	Non-CA
GIANT FOOD	Grocery	Non-CA
GREERS	Grocery	Non-CA
GRISTEDES	Grocery	Non-CA
HANNAFORDS	Grocery	Non-CA
HARDINGS	Grocery	Non-CA
HARPS	Grocery	Non-CA
HARRIS TEETER INC	Grocery	Non-CA
HARVEYS SUPERMARKET	Grocery	Non-CA
HEB	Grocery	Non-CA
HEINENS	Grocery	Non-CA
HOMELAND	Grocery	Non-CA
HOUCHENS	Grocery	Non-CA
HYVEE	Grocery	Non-CA
INDIANA GROCERY	Grocery	Non-CA
INGLES	Grocery	Non-CA
JAY C STORE	Grocery	Non-CA
JEWEL OSCO	Grocery	Non-CA
KING KULLEN	Grocery	Non-CA
KING SOOPER	Grocery	Non-CA
KINGS	Grocery	Non-CA
LEWIS FOOD TOWN	Grocery	Non-CA
LOWES	Grocery	Non-CA
MACEYS MARKET	Grocery	Non-CA
MARKET BASKET	Grocery	Non-CA
MARKET PLACE	Grocery	Non-CA
MARTINS	Grocery	Non-CA
MEIJER	Grocery	Non-CA

Retail Store	Channel	Store Location
NASH FINCH	Grocery	Non-CA
NIEMANN FOODS	Grocery	Non-CA
PIGGLY WIGGLY	Grocery	Non-CA
PRICE CHOPPER	Grocery	Non-CA
PRICE RITE	Grocery	Non-CA
PUBLIX	Grocery	Non-CA
QUALITY FOODS	Grocery	Non-CA
RAMEY SUPER MARKET	Grocery	Non-CA
RANDALLS	Grocery	Non-CA
RAYS FOOD PLACE	Grocery	Non-CA
REDNERS	Grocery	Non-CA
RIDLEYS FOOD	Grocery	Non-CA
RIESBECK FOOD MARKET	Grocery	Non-CA
ROCHE BROS	Grocery	Non-CA
ROSAUERS	Grocery	Non-CA
ROUNDYS	Grocery	Non-CA
ROUSES	Grocery	Non-CA
SAVE A LOT	Grocery	Non-CA
SCHNUCK MARKETS	Grocery	Non-CA
SHAWS SUPERMARKETS	Grocery	Non-CA
SHOP RITE	Grocery	Non-CA
SHOPPERS FOOD	Grocery	Non-CA
SMITHS FOOD & DRUG	Grocery	Non-CA
STOP & SHOP	Grocery	Non-CA
SUPER ONE	Grocery	Non-CA
TOM THUMB	Grocery	Non-CA
TOPS	Grocery	Non-CA
TOWN & COUNTRY	Grocery	Non-CA
UNITED SUPERMARKET	Grocery	Non-CA
WEGMANS	Grocery	Non-CA
WEIS	Grocery	Non-CA
WINN DIXIE	Grocery	Non-CA
BJ's	Membership Club	Non-CA

10.8 Appendix H: Lighting stock shelf surveys

In this section, we present the results of the Winter 2018-19 lighting shelf stocking surveys. We refer to the results in this data collection effort as 2018 in the figures and tables below. From late October 2018 to early March 2019, the evaluation team conducted lighting stock shelf surveys in retail stores in PG&E, SCE and SDG&E service territories that received shipments of PA-discounted lamps in 2019. To view the survey instrument, please see Appendix E. For comparative purposes we also present results from the Winter 2015-2016 lighting shelf stocking surveys in the tables and figures below (referred to as 2015).

As the data below demonstrate, the lighting market changed dramatically between 2015 and 2018. LEDs now dominate lamp stock and comprise the majority of lamps stocked in retail stores overall among all lamp styles, among A-lamps, and among the lamp styles evaluated as part of this study (reflectors, candelabras, and globes). Additionally, LED lamp prices have declined in the above mentioned lamp styles. Both of these factors help explain why consumers overwhelmingly prefer LEDs as seen in the results from the 2020 consumer survey (see Section 6 and Appendix J).

10.8.1 Share of Lamps Stocked

Shelf survey staff evaluated the lamps available on retail store shelves. Figure 10-11 shows the percent of all lamps stocked overall.

Figure 10-11. Percent of all lamps stocked: overall, 2015 and 2018

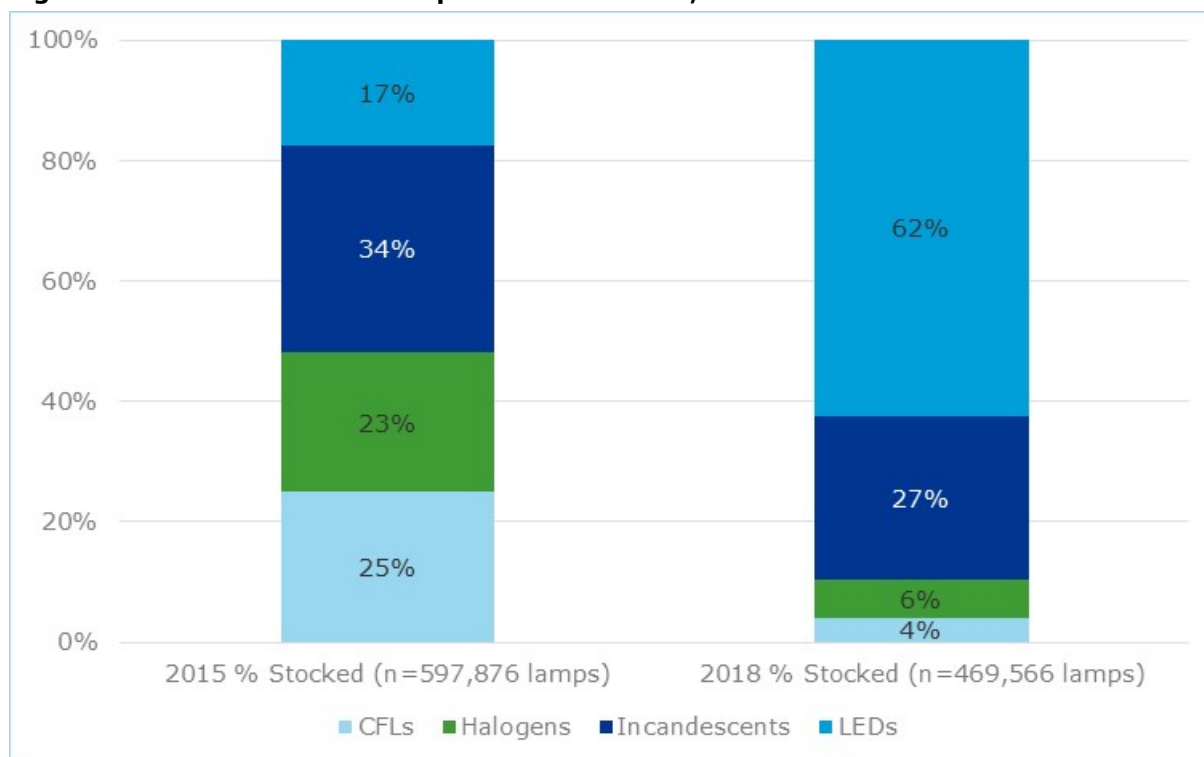


Figure 10-12 shows the percent of A-Lamps stocked overall.

Figure 10-12. Percent of A-Lamps and spiral stocked: overall, 2015 and 2018

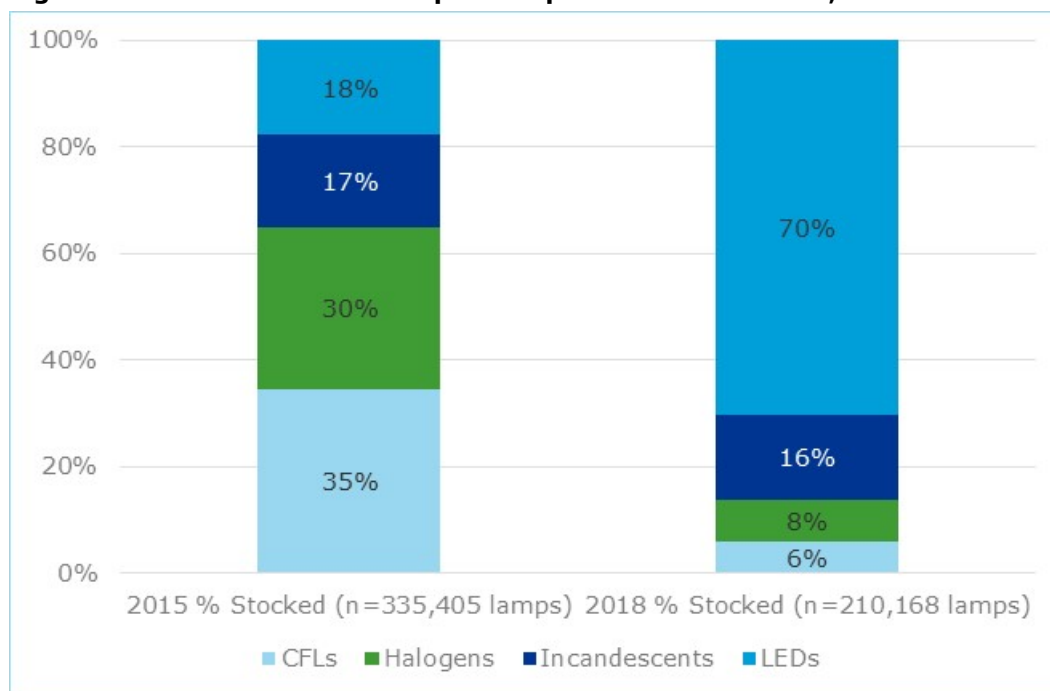


Figure 10-13 shows the percent of halogens and incandescent lamps by Energy Independence and Security Act (EISA) compliance status overall.

Figure 10-13. Percent of halogens/incandescent by EISA status stocked overall, 2015 and 2018

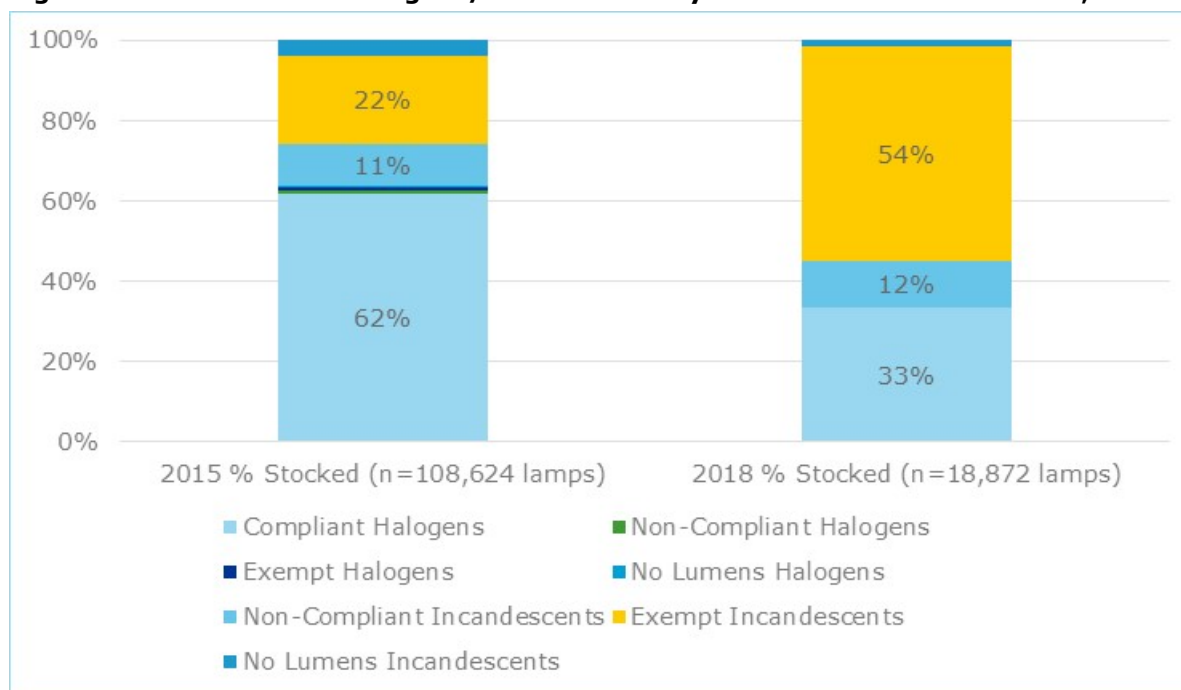


Figure 10-14 shows the percent of reflector lamps stocked overall.

Figure 10-14. Percent of reflector lamps: overall, 2015 and 2018

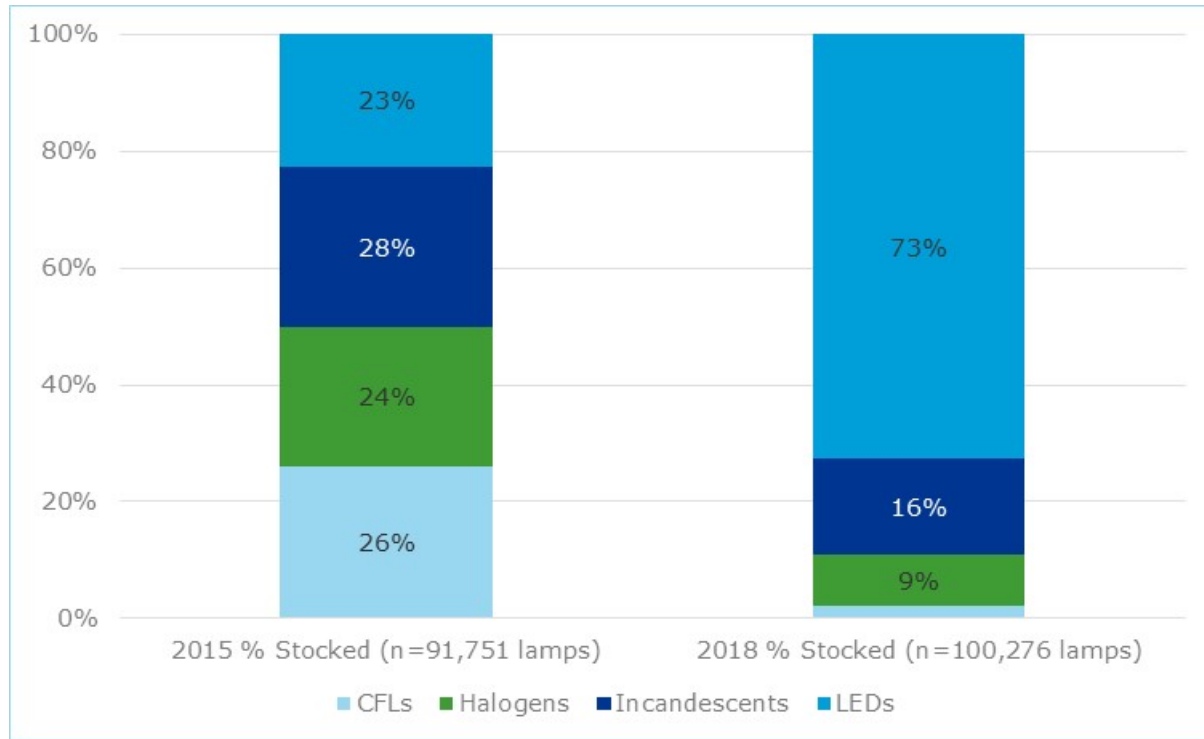


Figure 10-15 shows the percent of candelabra lamps stocked overall.

Figure 10-15. Percent of candelabra lamps: overall, 2015 and 2018

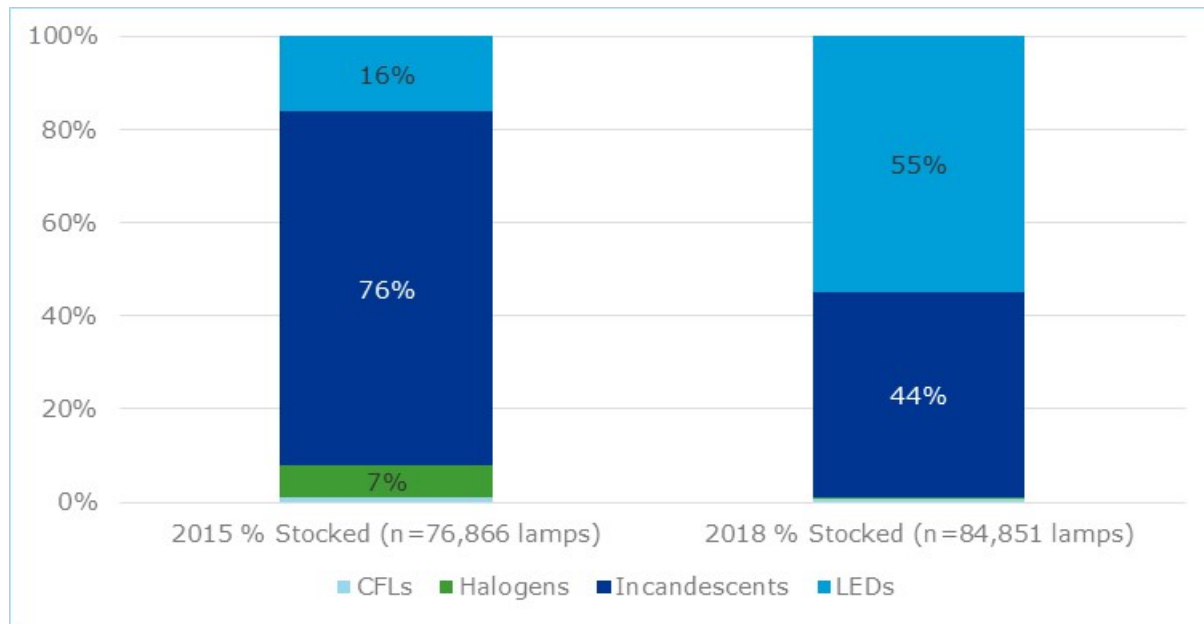


Figure 10-16 shows the percent of globe lamps stocked overall.

Figure 10-16. Percent of globe lamps: overall, 2015 and 2018

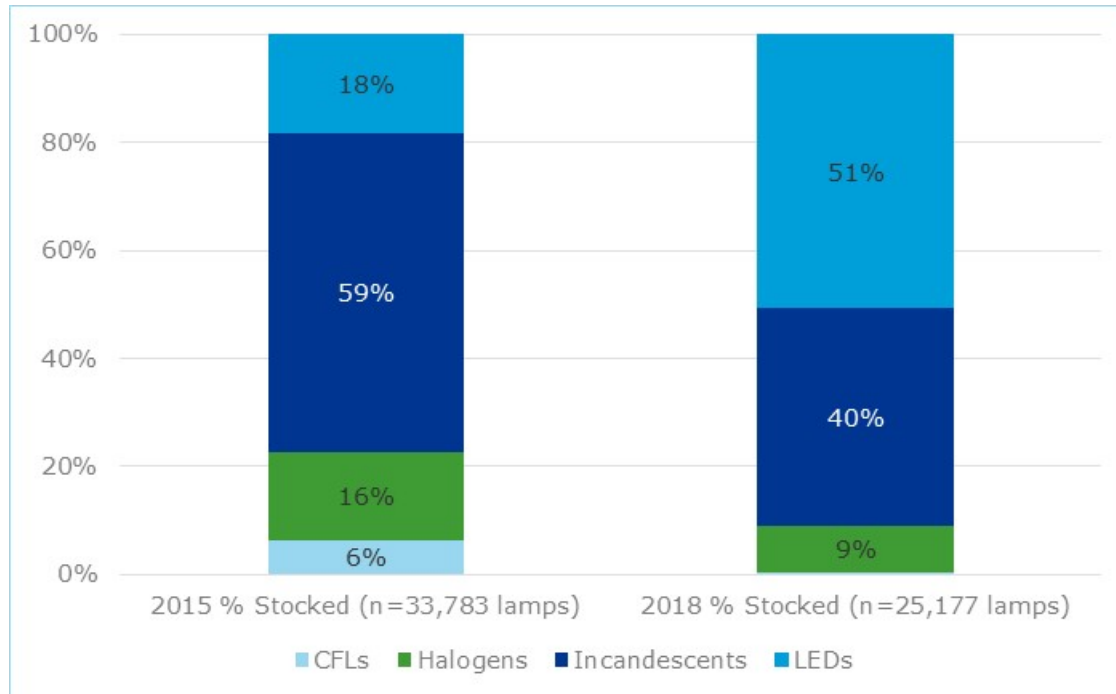


Figure 10-17 shows the percent of A-Lamps stocked in discount stores.

Figure 10-17. Percent of A-Lamps: discount, 2015 and 2018

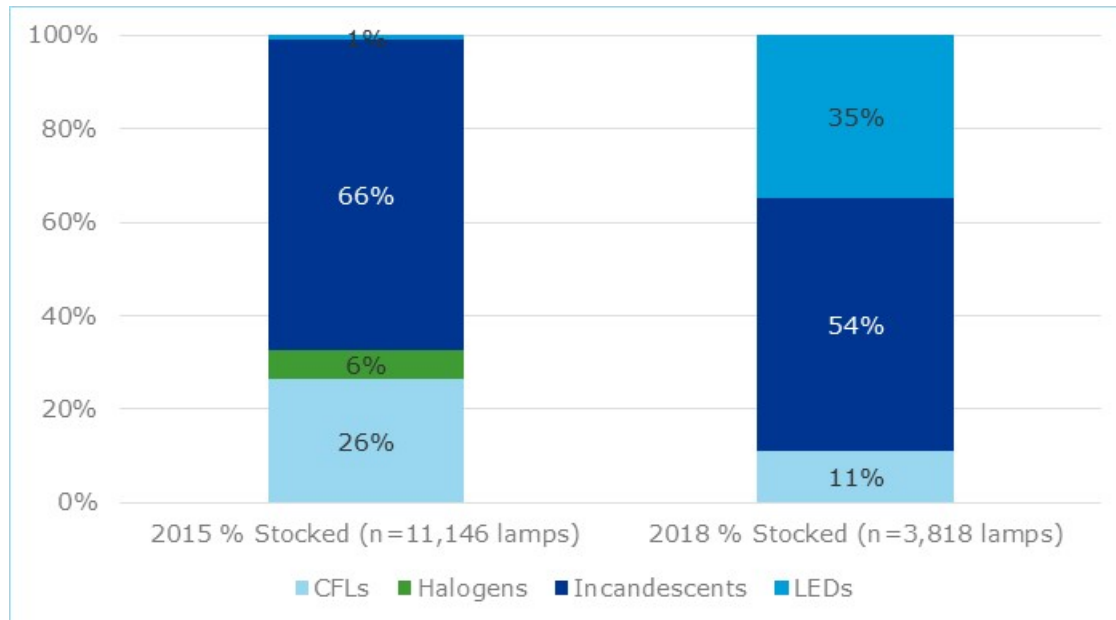


Figure 10-18 shows the percent of A-Lamps stocked in grocery stores.

Figure 10-18. Percent of A-Lamps: grocery, 2015 and 2018

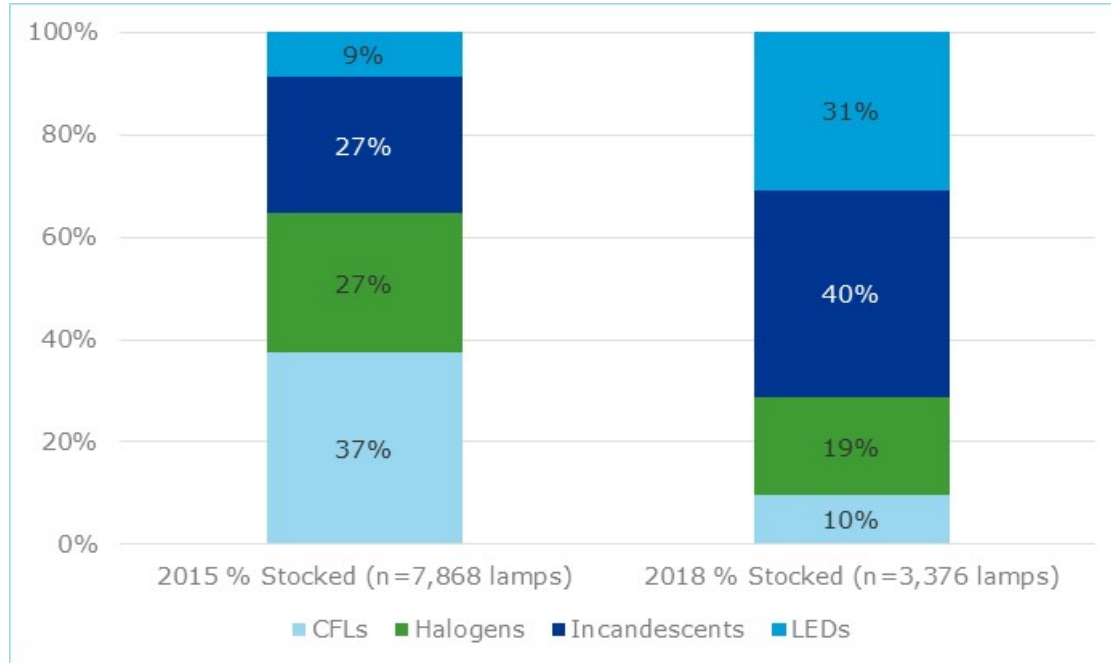


Figure 10-19 shows the percent of A-Lamps stocked in home improvement stores.

Figure 10-19. Percent of A-Lamps: home improvement, 2015 and 2018

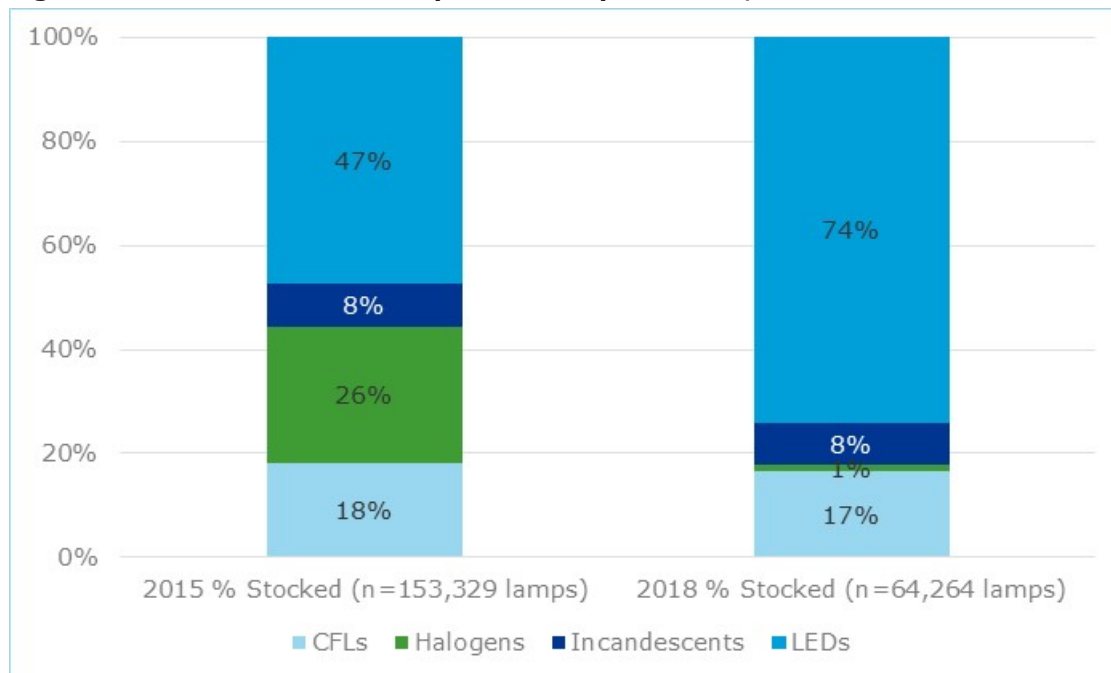


Figure 10-20 shows the percent of reflector lamps stocked in discount stores.

Figure 10-20. Percent of reflector lamps: discount, 2015 and 2018

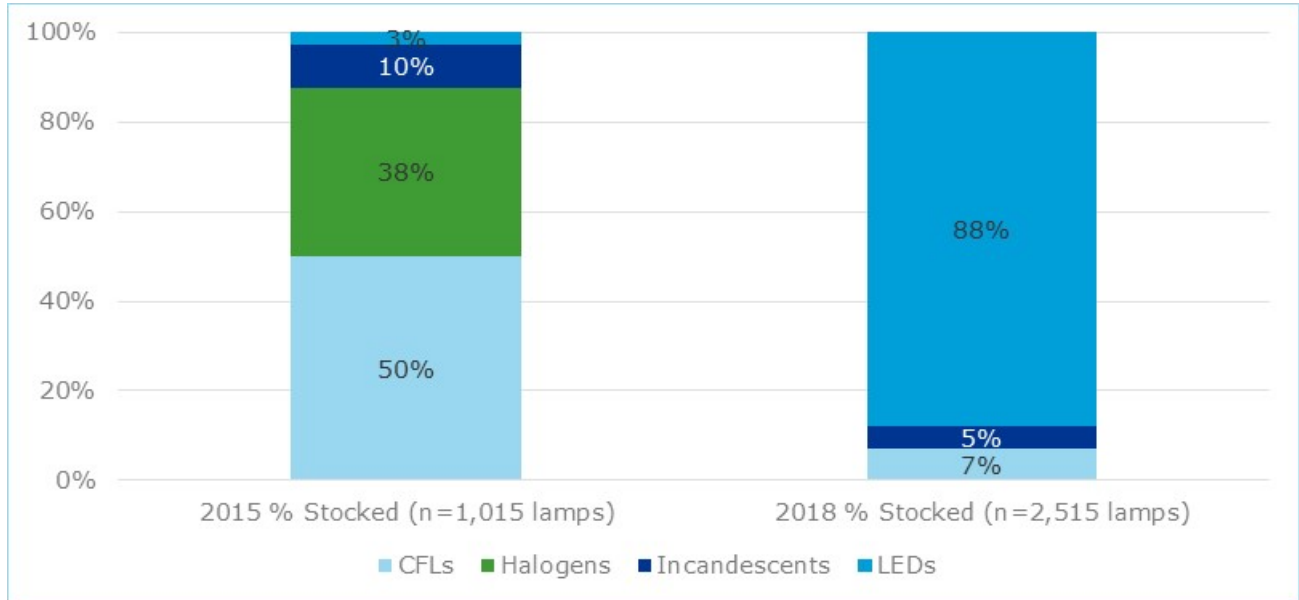


Figure 10-21 shows the percent of reflector lamps stocked in grocery stores.

Figure 10-21. Percent of reflector lamps: grocery, 2015 and 2018

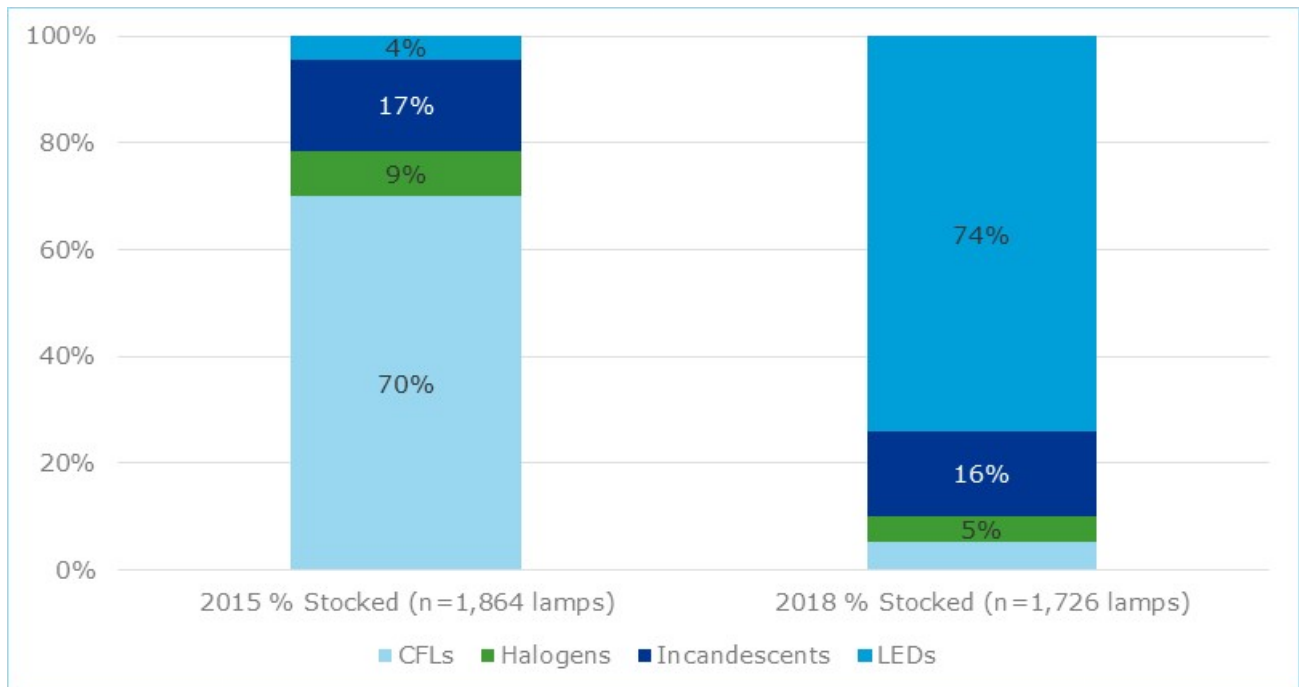


Figure 10-22 shows the percent of reflector lamps stocked in home improvement stores.

Figure 10-22. Percent of reflector lamps: home improvement, 2015 and 2018

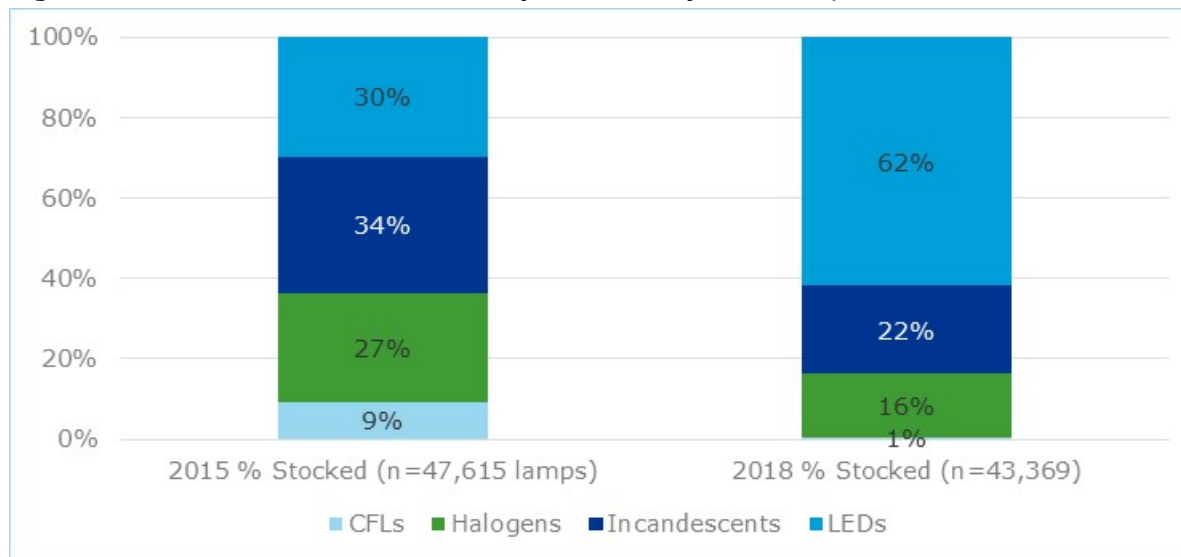


Figure 10-23 shows the percent of candelabra lamps stocked in discount stores.

Figure 10-23. Percent of candelabra lamps: discount, 2015 and 2018

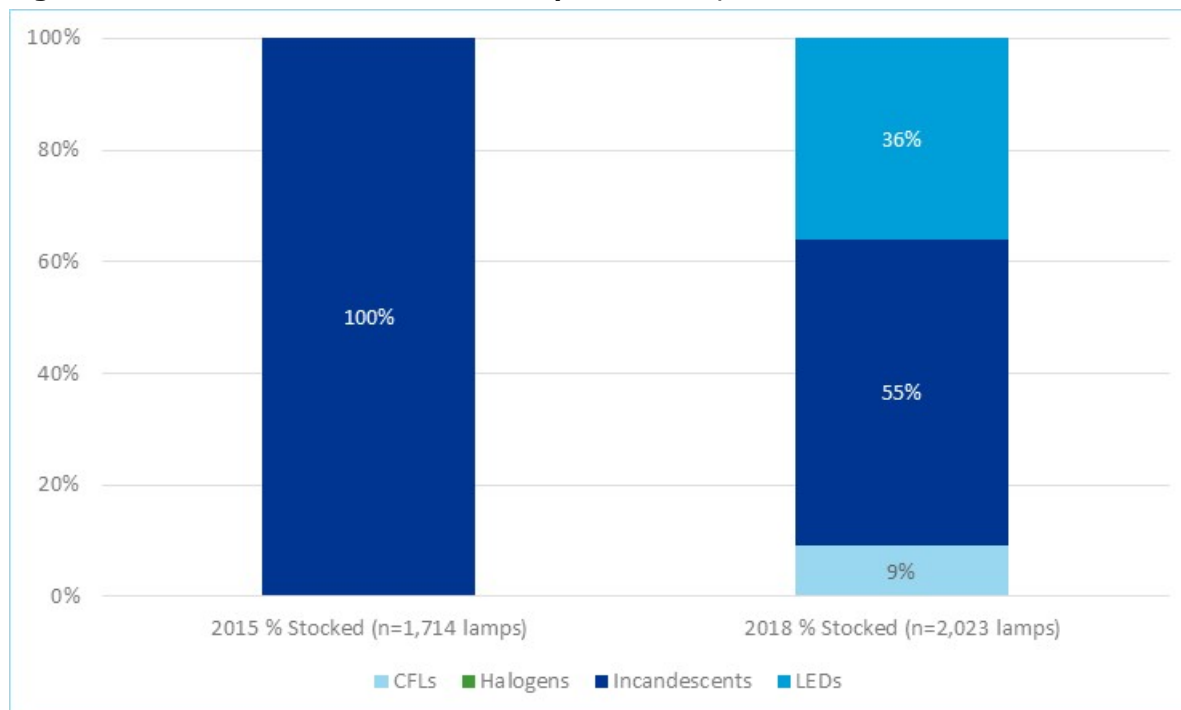


Figure 10-24 shows the percent of candelabra lamps stocked in grocery stores.

Figure 10-24. Percent of candelabra lamps: grocery, 2015 and 2018

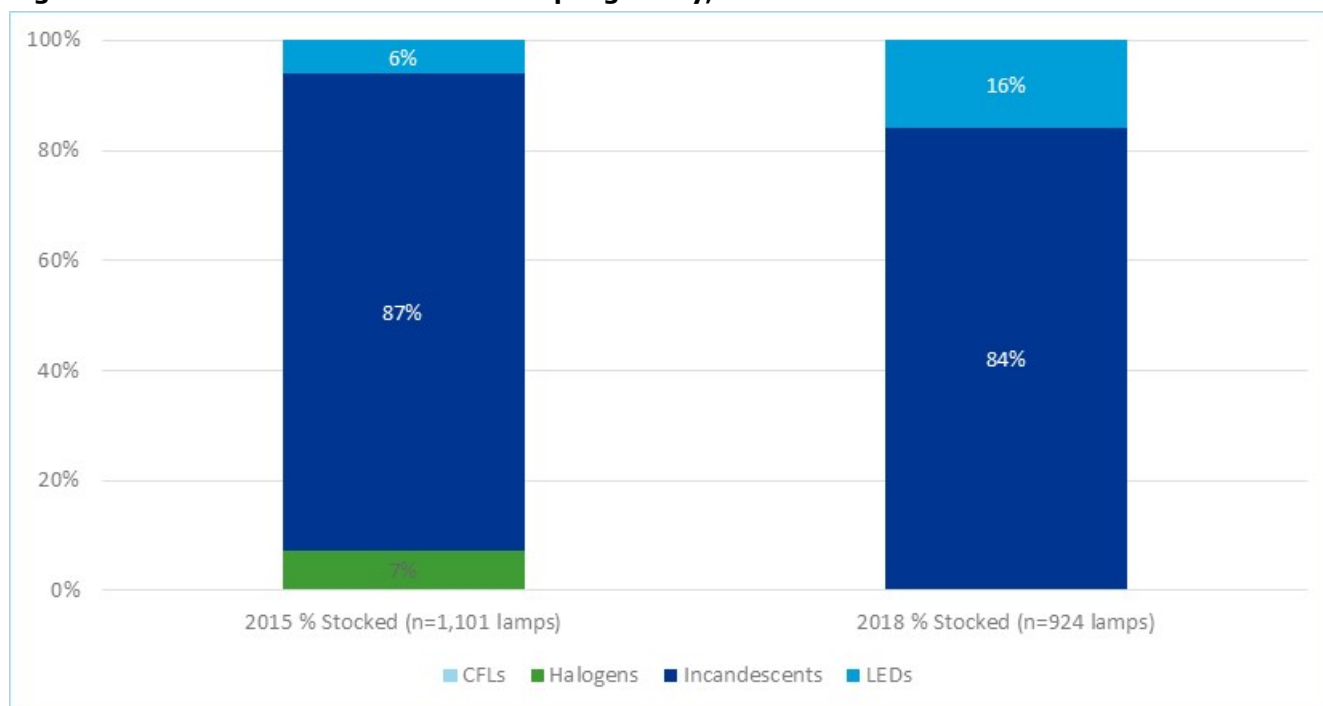


Figure 10-25 shows the percent of candelabra lamps stocked in home improvement stores.

Figure 10-25. Percent of candelabra lamps: home improvement, 2015 and 2018

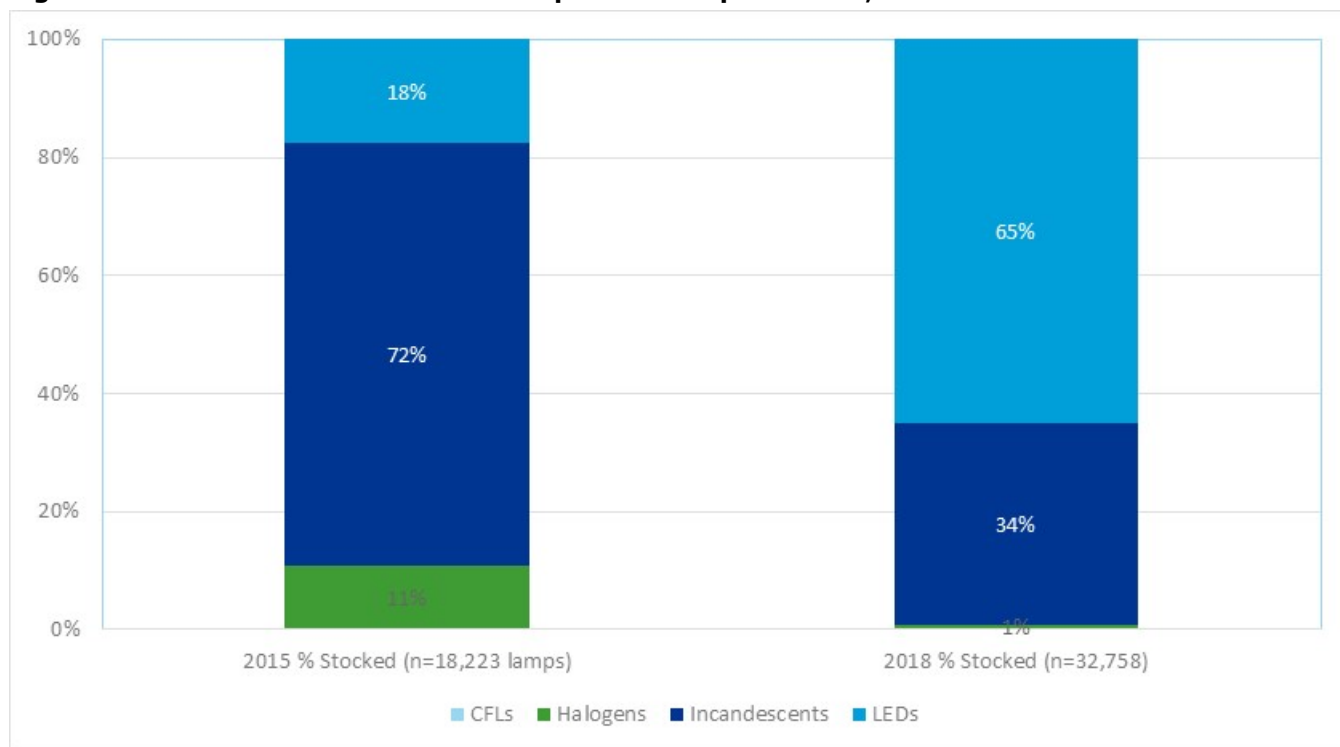


Figure 10-26 shows the percent of globe lamps stocked in discount stores.

Figure 10-26. Percent of globe lamps: discount, 2015 and 2018

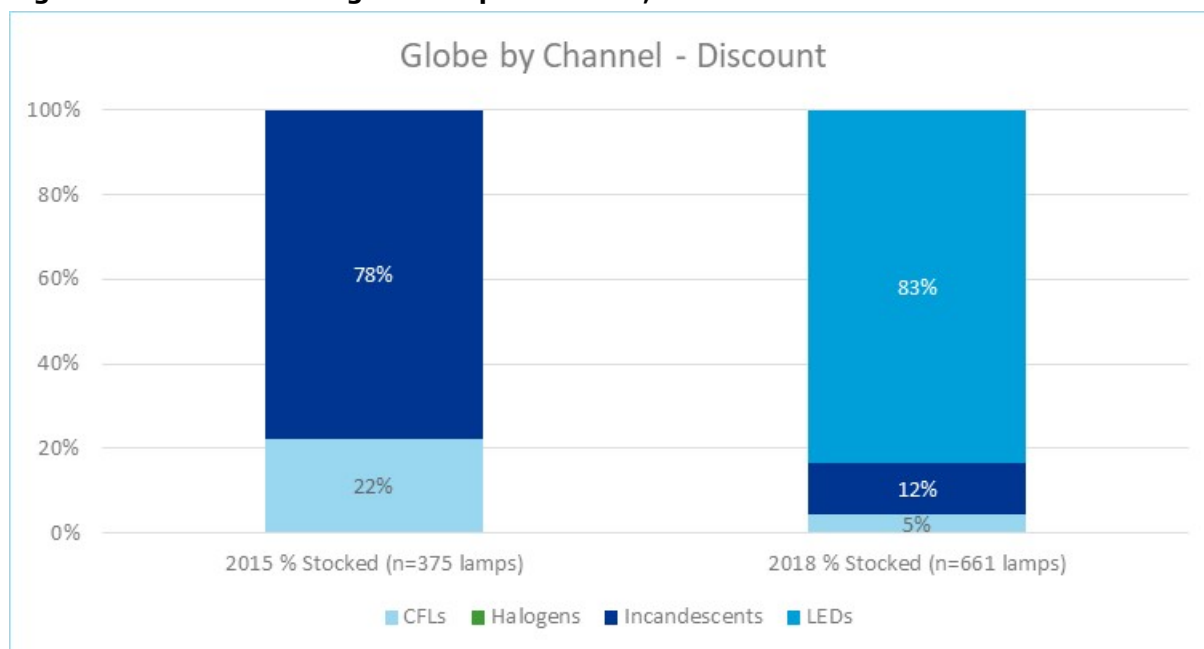


Figure 10-27 shows the percent of globe lamps stocked in grocery stores.

Figure 10-27. Percent of globe lamps: grocery, 2015 and 2018

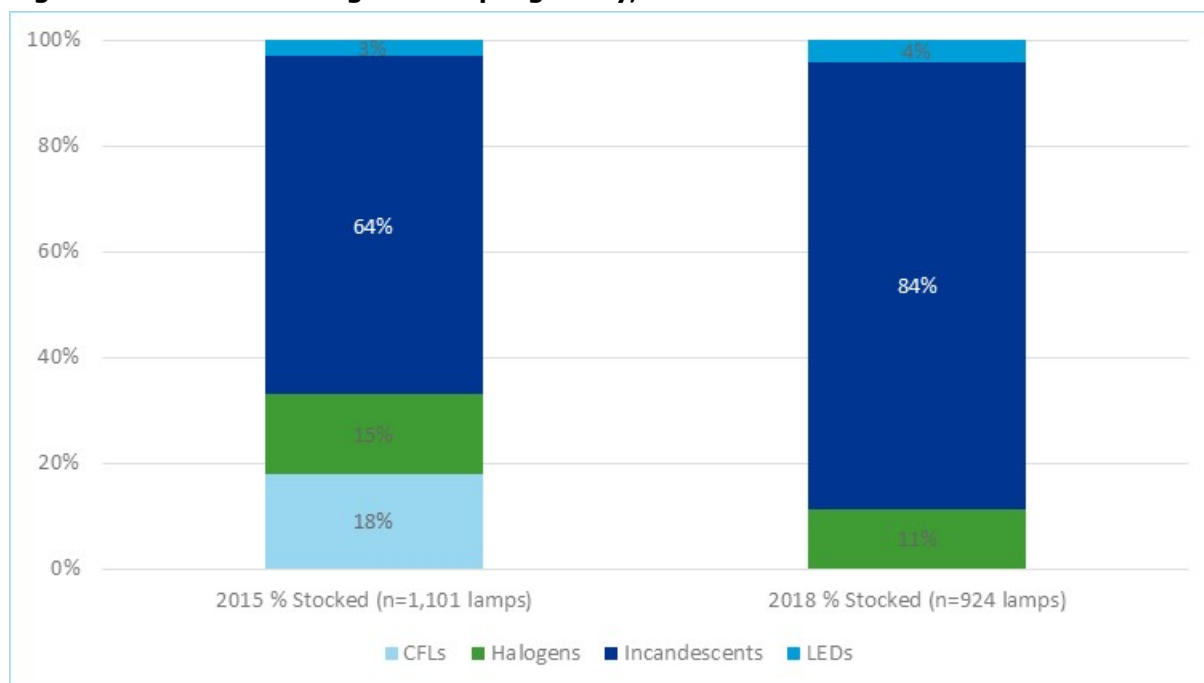
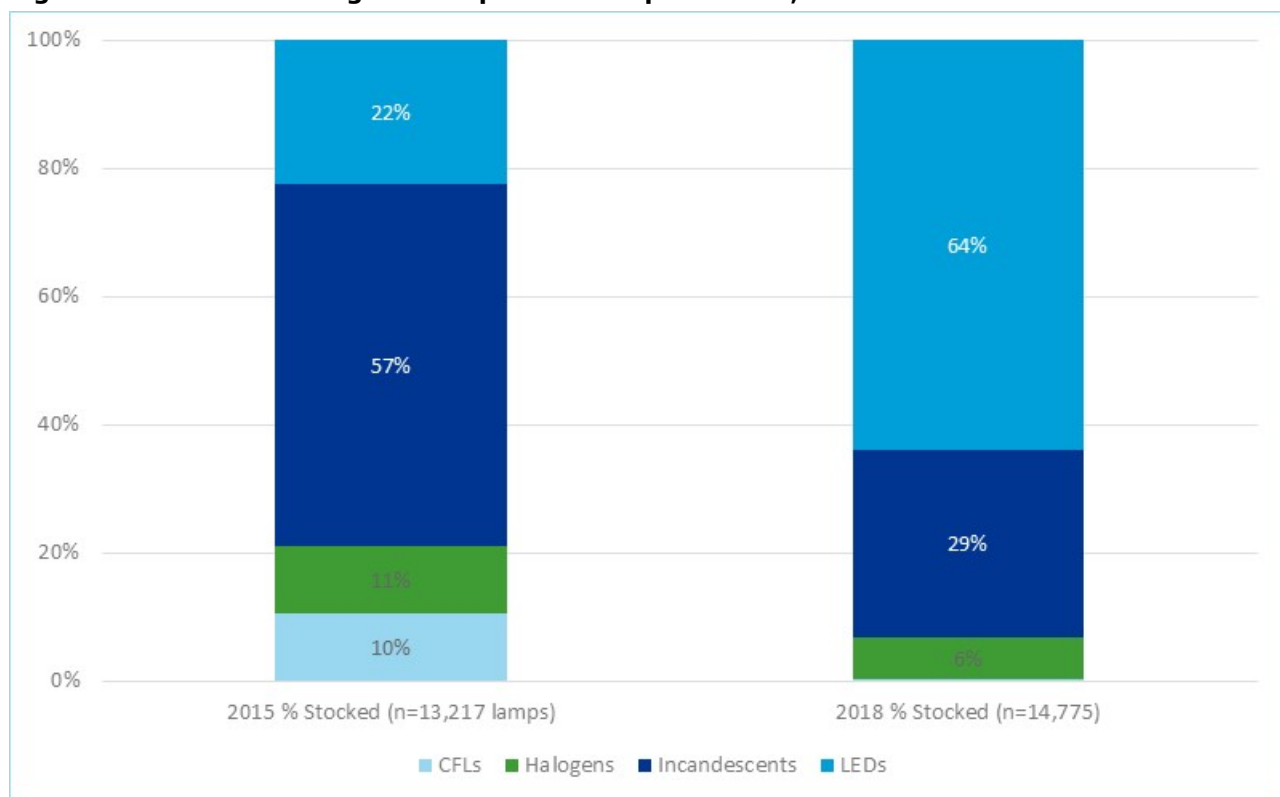


Figure 10-28 shows the percent of globe lamps stocked in home improvement stores.

Figure 10-28. Percent of globe lamps: home improvement, 2015 and 2018



10.8.2 Average price

Shelf survey staff evaluated the lamps available on retail store shelves. Figure 10-29 shows the average price per A-Lamp overall.

Figure 10-29. Average price per A-Lamp: overall, 2015 and 2018

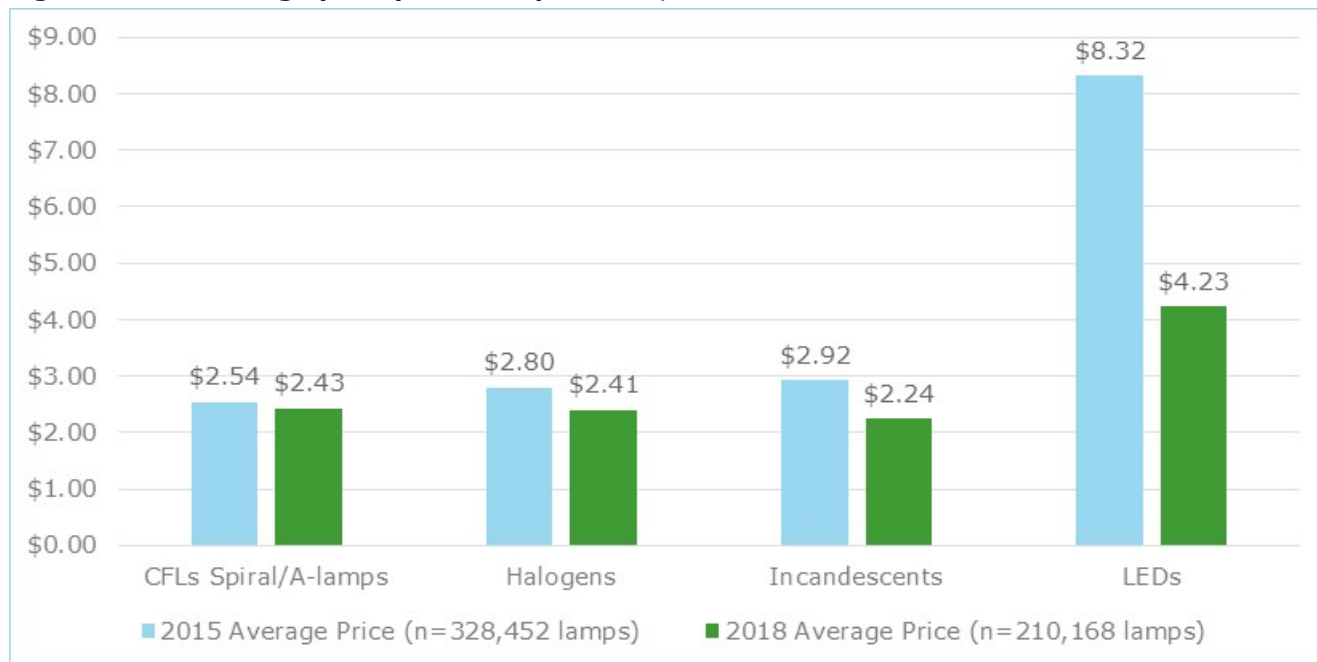


Figure 10-30 shows the average price per reflector lamp overall.

Figure 10-30. Average price per reflector lamp: overall, 2015 and 2018



Figure 10-31 shows the average price per candelabra lamp overall.

Figure 10-31. Average price per candelabra lamp: overall, 2015 and 2018



Figure 10-32 shows the average price per globe lamp overall.

Figure 10-32. Average price per globe lamp: overall, 2015 and 2018

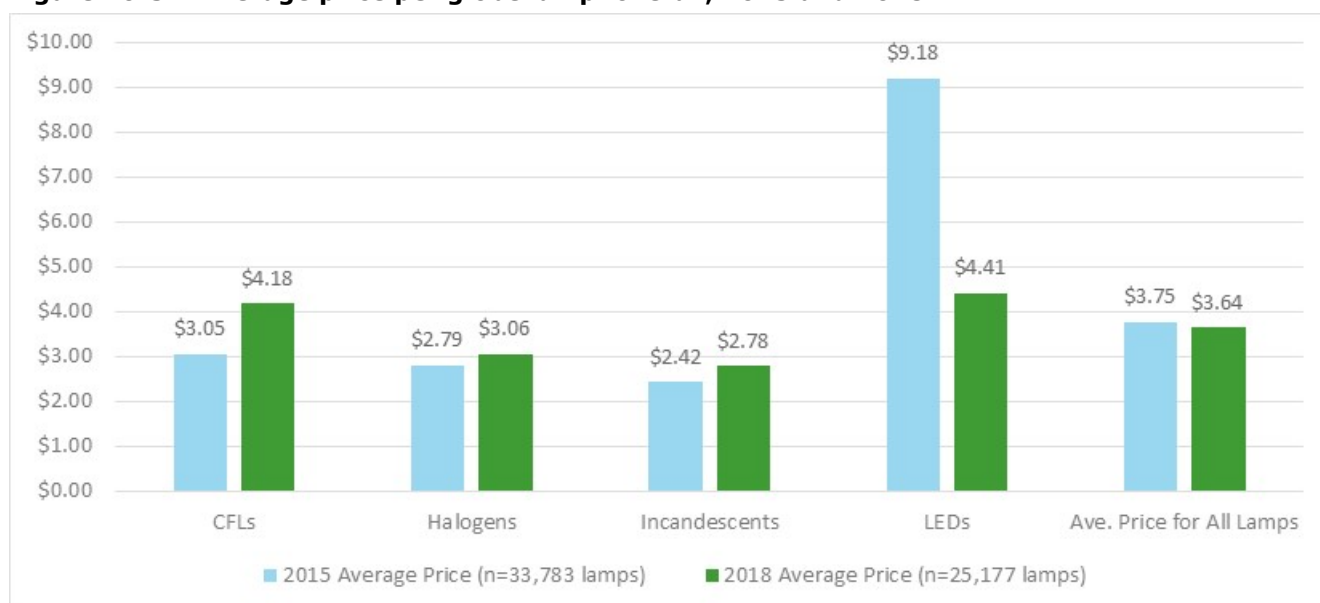


Figure 10-33 shows the average price per A-Lamp in discount stores.

Figure 10-33. Average price per A-Lamp: discount, 2015 and 2018

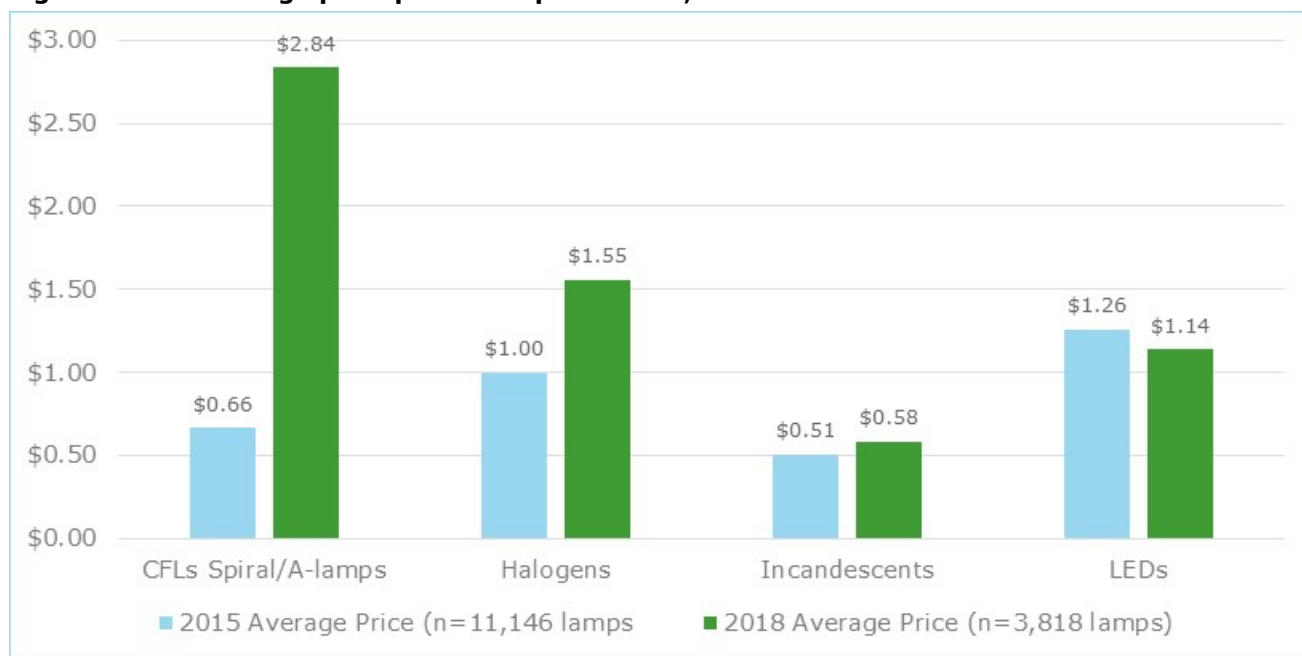


Figure 10-34 shows the average price per A-Lamp in grocery stores.

Figure 10-34. Average price per A-Lamp: grocery, 2015 and 2018

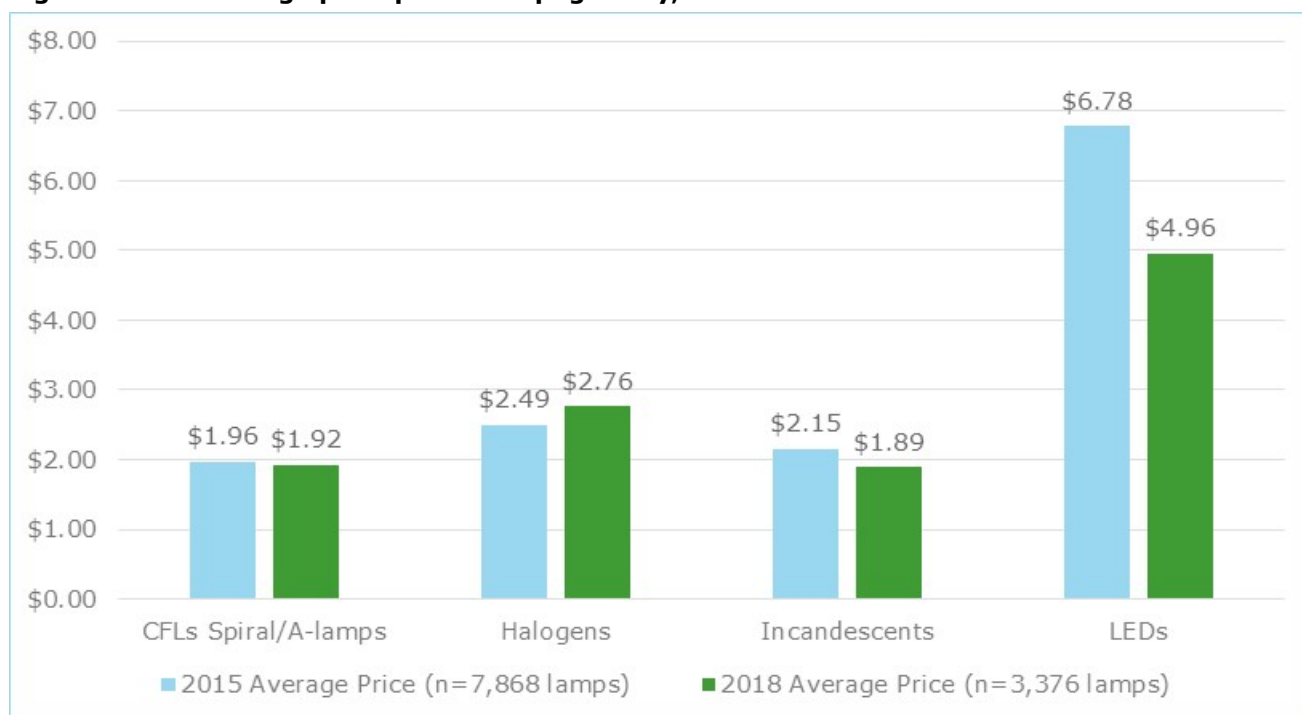


Figure 10-35 shows the average price per A-Lamp in home improvement stores.

Figure 10-35. Average price per A-Lamp: home improvement, 2015 and 2018

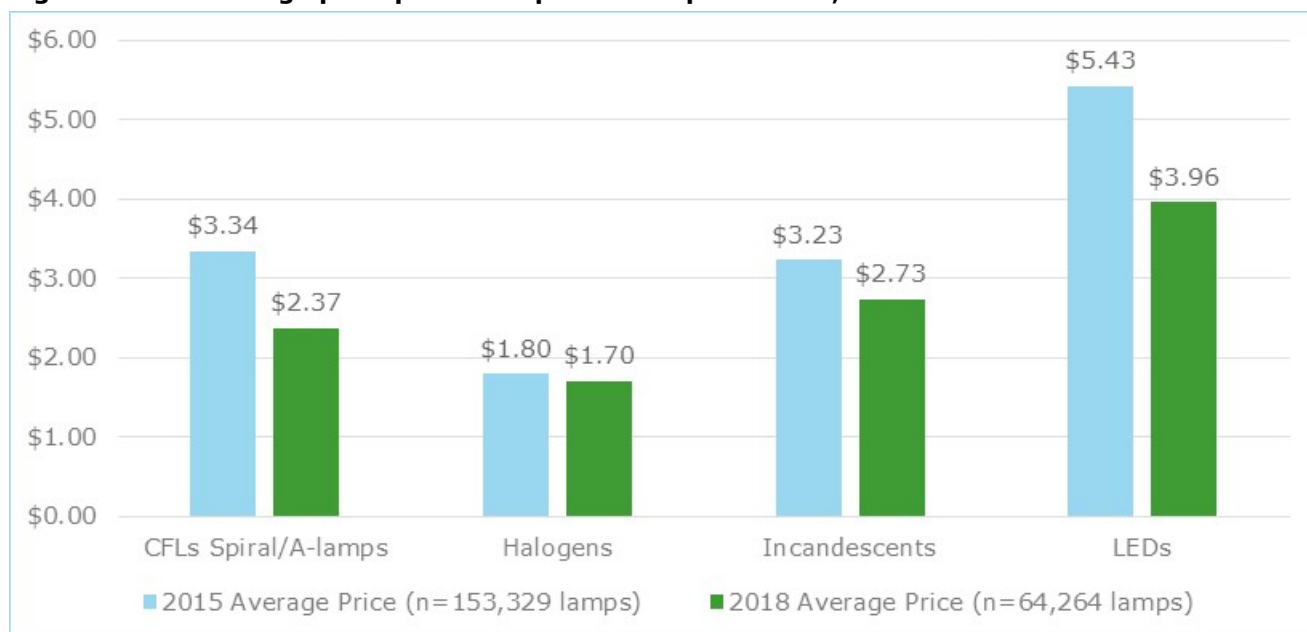


Figure 10-36 shows the average price per reflector lamp in discount stores.

Figure 10-36. Average price per reflector lamp: discount, 2015 and 2018

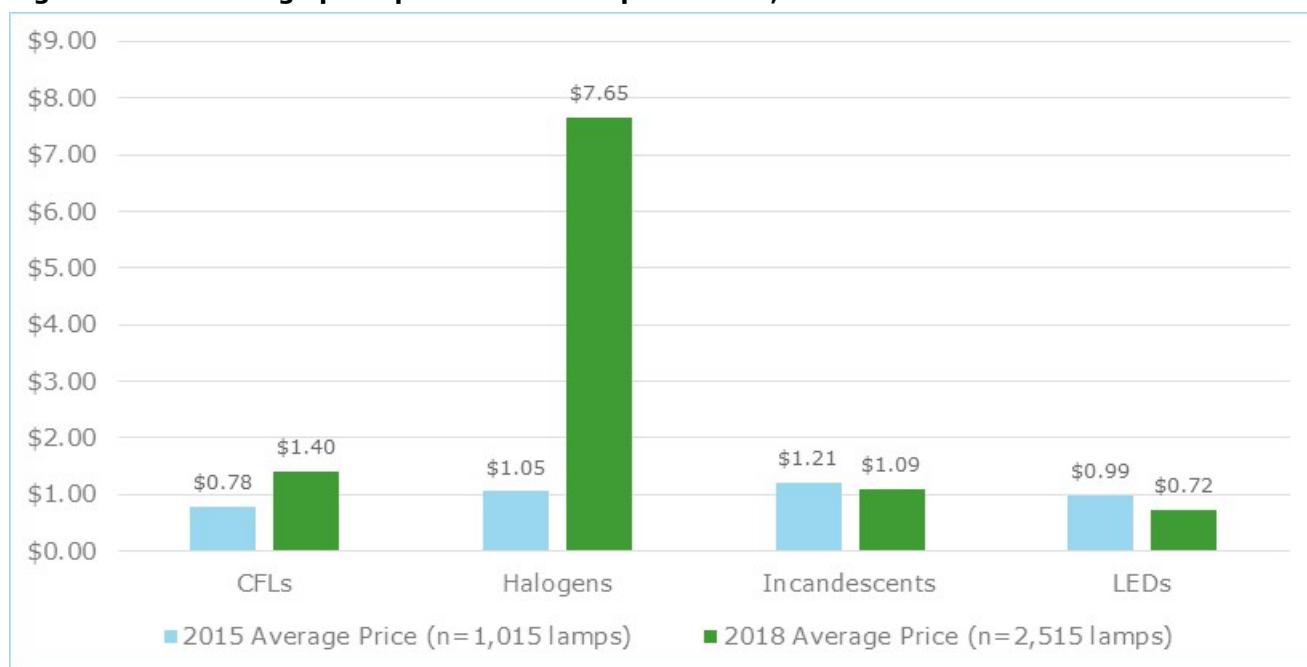


Figure 10-37 shows the average price per reflector lamp in grocery stores.

Figure 10-37. Average price per reflector lamp: grocery, 2015 and 2018

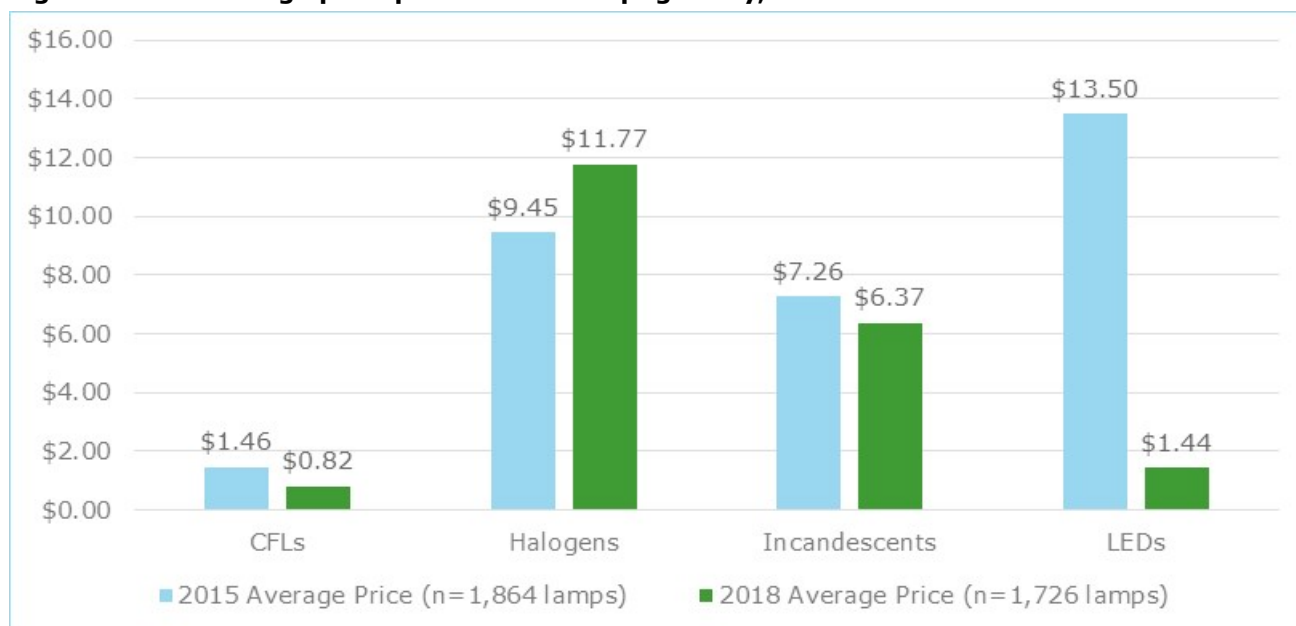


Figure 10-38 shows the average price per reflector lamp in home improvement stores.

Figure 10-38. Average price per reflector lamp: home improvement, 2015 and 2018

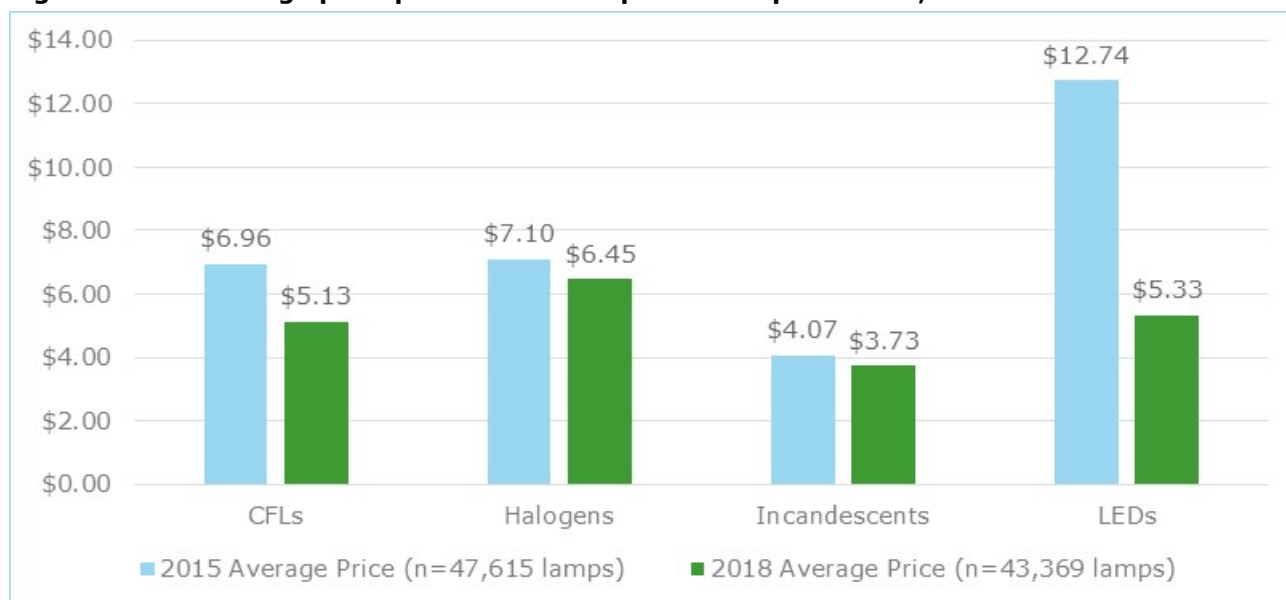


Figure 10-39 shows the average price per candelabra lamp in discount stores.

Figure 10-39. Average price per candelabra lamp: discount, 2015 and 2018



Figure 10-40 shows the average price per candelabra lamp in grocery stores.

Figure 10-40. Average price per candelabra lamp: grocery, 2015 and 2018



Figure 10-41 shows the average price per candelabra lamp in home improvement stores.

Figure 10-41. Average price per candelabra lamp: home improvement, 2015 and 2018



Figure 10-42 shows the average price per globe lamp in discount stores.

Figure 10-42. Average price per globe lamp: discount, 2015 and 2018

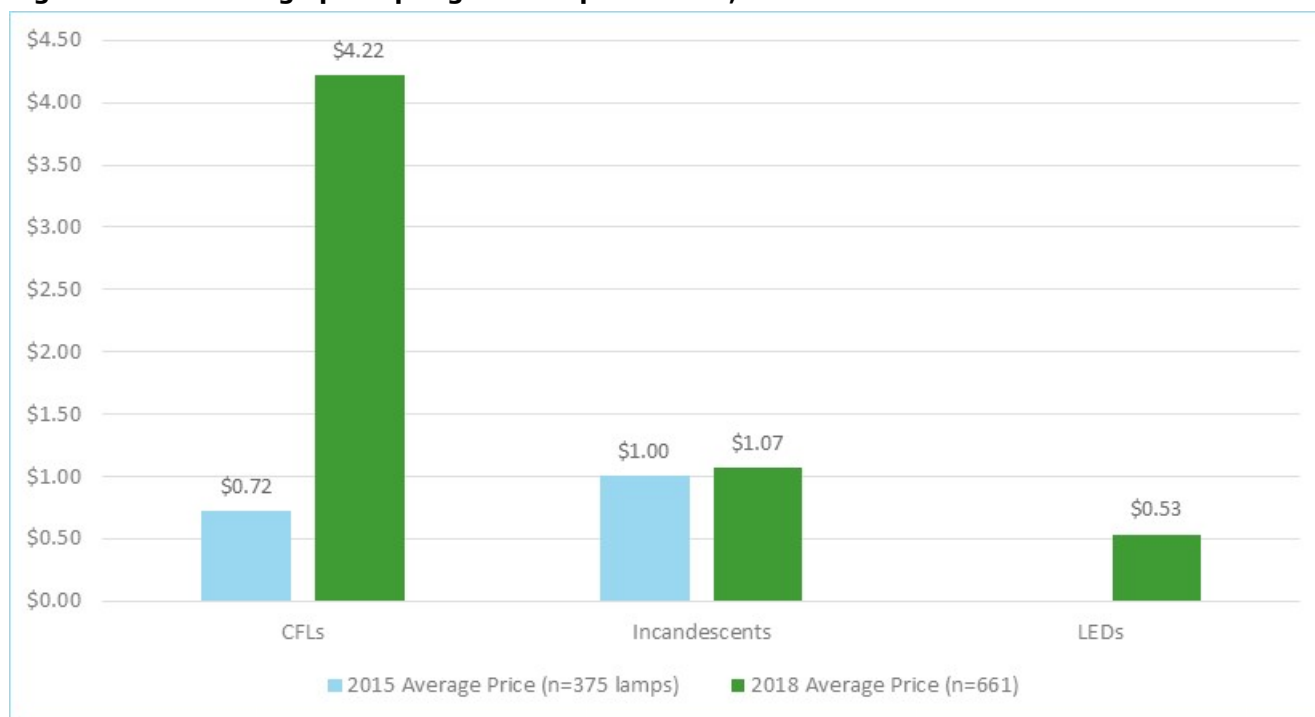


Figure 10-43 shows the average price per globe lamp in grocery stores.

Figure 10-43. Average price per globe lamp: grocery, 2015 and 2018



Figure 10-44 shows the average price per globe lamp in home improvement stores.

Figure 10-44. Average price per globe lamp: home improvement, 2015 and 2018



10.9 Appendix I: Lighting retail-store telephone survey results

In this section, we present the results of the 2020 retail store survey. From October through early December 2020, the evaluation team conducted telephone surveys with grocery and discount stores in PG&E, SCE, and SDG&E service territories that received shipments of PA-discounted lamps in 2019. For further details on the targeted versus completed surveys as well as research objectives, please see Section 3.3. To view the survey instrument, please see Appendix E. For information on estimated annual lamp sales by PA and channel, please see Section 4.1.5.³⁷

The 2020 retail store survey was conducted as a Computer Assisted Telephone Interviewing (CATI) survey. Pacific Market Research (PMR) utilized multiple experienced interviewers and ran several data checks with DNV GL to ensure accurate and efficient administration of the survey. As additional verification, DNV GL attempted to reach 99 retail store representatives, including all 84 representatives that initially stated their store did not sell light bulbs as well as three representatives who were not able to complete the CATI survey with PMR. In some cases, representatives who reported that they did not sell light bulbs were converted to stores that did sell light bulbs after interviewers asked a follow-up battery of questions and received confirmation of light bulb sales. Of the 71 store representatives who were successfully reached and initially said they did not sell light bulbs, DNV GL confirmed 69 of the stores did not sell light bulbs and two stores did actually sell light bulbs. The evaluation team also engaged 10 store representatives that stated they had sold bulbs during the 2019 retail-store telephone survey effort, but when asked again in 2020, these store representatives stated their store did not sell light bulbs. We flagged these 10 stores as stores that sold bulbs in the final dataset.

10.9.1 Lamp sales

Interviewers asked respondents whether their store sells light bulbs. All big box stores were assumed to sell light bulbs, and thus interviewers did not ask these big box store representatives whether they sell lights bulbs or whether they sold light bulbs in the last three years. Throughout this section, all big box stores were assumed to sell LEDs and LED reflectors, and all big box stores, except for membership club stores, were assumed to sell CFLs, incandescent, halogen, and linear fluorescent lamps.

Table 10-13 shows the number of stores that currently sell light bulbs by PA and channel.

Table 10-13. Number of stores that currently sell light bulbs by PA and channel, 2019

PA	Channel	Yes	No	Total
PGE	BIG BOX	22	0	22
	CHAIN DISCOUNT	27	2	29
	CHAIN GROCERY	5	1	6
	IND DISCOUNT	1	0	1
	IND GROCERY	7	3	10
	OTHER	16	0	16
	PGE Total	78	6	84

³⁷ Sales estimates were derived from question 2 of the lighting retail store telephone survey: "By your estimate, how many light bulbs does your store sell in an average week?"

PA	Channel	Yes	No	Total
SCE	BIG BOX	26	0	26
	CHAIN DISCOUNT	54	9	63
	CHAIN GROCERY	12	19	31
	IND DISCOUNT	23	8	31
	IND GROCERY	68	28	96
	OTHER	26	0	26
	SCE Total	209	64	273
SDGE	BIG BOX	4	0	4
	CHAIN DISCOUNT	4	10	14
	CHAIN GROCERY	1	1	2
	IND DISCOUNT	5	1	6
	IND GROCERY	39	14	53
	OTHER	4	3	7
	SDG&E Total	57	29	86
Overall	Overall	344	99	443

Table 10-14 shows the weighted percent of stores that currently sell light bulbs by PA and channel.

Table 10-14. Percent of stores that sell light bulbs by PA and channel, 2019

PA	Channel	Yes	No	Total
PGE	BIG BOX	100%	0%	100%
	CHAIN DISCOUNT	93%	7%	100%
	CHAIN GROCERY	83%	17%	100%
	IND DISCOUNT	100%	0%	100%
	IND GROCERY	70%	30%	100%
	OTHER	100%	0%	100%
	PGE Total	94%	6%	100%
SCE	BIG BOX	100%	0%	100%
	CHAIN DISCOUNT	86%	14%	100%
	CHAIN GROCERY	39%	61%	100%
	IND DISCOUNT	74%	26%	100%
	IND GROCERY	71%	29%	100%
	OTHER	100%	0%	100%
	SCE Total	76%	24%	100%
SDG&E	BIG BOX	100%	0%	100%

PA	Channel	Yes	No	Total
	CHAIN DISCOUNT	25%	75%	100%
	CHAIN GROCERY	50%	50%	100%
	IND DISCOUNT	83%	17%	100%
	IND GROCERY	74%	26%	100%
	OTHER	57%	43%	100%
	SDG&E Total	71%	29%	100%
Overall	Overall	80%	20%	100%

Interviewers asked those survey respondents who said that their store currently does not sell light bulbs whether their store has sold light bulbs in the past three years. Table 10-15 shows the number of respondents who said that their stores have sold light bulbs in the past three years.

Table 10-15. Number of stores that have sold light bulbs in past three years by PA and channel, 2019

PA	Channel	Yes	No	Total
PGE	CHAIN DISCOUNT	2	0	2
	CHAIN GROCERY	0	1	1
	IND DISCOUNT	1	0	1
	IND GROCERY	1	2	3
	PGE Total	4	3	7
SCE	CHAIN DISCOUNT	2	9	11
	CHAIN GROCERY	6	13	19
	IND DISCOUNT	0	8	8
	IND GROCERY	6	23	29
	SCE Total	14	53	67
SDG&E	CHAIN DISCOUNT	3	7	10
	CHAIN GROCERY	1	0	1
	IND DISCOUNT	1	1	2
	IND GROCERY	3	11	14
	OTHER	0	3	3
	SDG&E Total	8	22	30
Overall	Overall	26	78	104

Table 10-16 shows the weighted percent of stores that did not sell light bulbs in 2020 but have sold light bulbs in the past three years by PA and channel.

Table 10-16. Percent of stores that have sold light bulbs in past three years by PA and channel, 2019

PA	Channel	Yes	No	Total
PGE	CHAIN DISCOUNT	100%	0%	100%
	CHAIN GROCERY	0%	100%	100%
	IND DISCOUNT	100%	0%	100%
	IND GROCERY	33%	67%	100%
	PGE Total	46%	54%	100%
SCE	CHAIN DISCOUNT	18%	82%	100%
	CHAIN GROCERY	32%	68%	100%
	IND DISCOUNT	0%	100%	100%
	IND GROCERY	21%	79%	100%
	SCE Total	19%	81%	100%
SDG&E	CHAIN DISCOUNT	30%	70%	100%
	CHAIN GROCERY	100%	0%	100%
	IND DISCOUNT	50%	50%	100%
	IND GROCERY	21%	79%	100%
	OTHER	0%	100%	100%
	SDG&E Total	26%	74%	100%
Overall	Overall	23%	77%	100%

10.9.2 Lamp sales by lamp technology

Interviewers asked respondents what type of light bulbs they sell or have sold in the past three years. Table 10-17 shows the number of stores that sell LEDs by PA and channel. We assumed that big box stores sold general purpose LED, LED spotlight or reflector, CFL and other bulbs, so we only asked respondents from discount, grocery and other stores about the type of light bulbs they sell or have sold in the past three years.

Table 10-17. Number of stores that sell LEDs by PA and channel, 2019

PA	Channel	Yes	No	Don't Know	Refused	Total
PGE	CHAIN DISCOUNT	25	3	1	0	29
	CHAIN GROCERY	3	2	0	0	5
	IND DISCOUNT	1	0	0	0	1
	IND GROCERY	8	0	0	0	8
	OTHER	16	0	0	0	16
	PGE Total	53	5	1	0	59
SCE	CHAIN DISCOUNT	50	4	0	0	54

PA	Channel	Yes	No	Don't Know	Refused	Total
	CHAIN GROCERY	13	5	0	0	18
	IND DISCOUNT	20	3	0	0	23
	IND GROCERY	63	10	0	0	73
	OTHER	26	0	0	0	26
	SCE Total	172	22	0	0	194
SDG&E	CHAIN DISCOUNT	6	1	0	0	7
	CHAIN GROCERY	1	1	0	0	2
	IND DISCOUNT	4	1	0	0	5
	IND GROCERY	35	7	0	0	42
	OTHER	4	0	0	0	4
	SDG&E Total	50	10	0	0	60
Overall	Overall	275	37	1	0	313

Table 10-18 shows the weighted percent of stores that sell LEDs by PA and channel.

Table 10-18. Percent of stores that sell LEDs by PA and channel, 2019

PA	Channel	Yes	No	Don't Know	Refused	Total
PGE	CHAIN DISCOUNT	86%	10%	3%	0%	100%
	CHAIN GROCERY	60%	40%	0%	0%	100%
	IND DISCOUNT	100%	0%	0%	0%	100%
	IND GROCERY	100%	0%	0%	0%	100%
	OTHER	100%	0%	0%	0%	100%
	PGE Total	92%	7%	1%	0%	100%
SCE	CHAIN DISCOUNT	93%	7%	0%	0%	100%
	CHAIN GROCERY	72%	28%	0%	0%	100%
	IND DISCOUNT	87%	13%	0%	0%	100%
	IND GROCERY	86%	14%	0%	0%	100%
	OTHER	100%	0%	0%	0%	100%
	SCE Total	88%	12%	0%	0%	100%
SDG&E	CHAIN DISCOUNT	84%	16%	0%	0%	100%
	CHAIN GROCERY	50%	50%	0%	0%	100%
	IND DISCOUNT	80%	20%	0%	0%	100%
	IND GROCERY	83%	17%	0%	0%	100%
	OTHER	100%	0%	0%	0%	100%

PA	Channel	Yes	No	Don't Know	Refused	Total
	SDG&E Total	83%	17%	0%	0%	100%
Overall	Overall	88%	12%	0%	0%	100%

Table 10-19 shows the number of stores that sell LED Reflectors by PA and channel.

Table 10-19. Number of stores that sell LED Reflectors by PA and channel, 2019

PA	Channel	Yes	No	Don't Know	Refused	Total
PGE	CHAIN DISCOUNT	10	19	0	0	29
	CHAIN GROCERY	2	3	0	0	5
	IND DISCOUNT	0	1	0	0	1
	IND GROCERY	2	6	0	0	8
	OTHER	16	0	0	0	16
	PGE Total	30	29	0	0	59
SCE	CHAIN DISCOUNT	22	31	1	0	54
	CHAIN GROCERY	7	11	0	0	18
	IND DISCOUNT	9	12	2	0	23
	IND GROCERY	26	45	2	0	73
	OTHER	20	6	0	0	26
	SCE Total	84	105	5	0	194
SDG&E	CHAIN DISCOUNT	2	4	1	0	7
	CHAIN GROCERY	0	2	0	0	2
	IND DISCOUNT	0	5	0	0	5
	IND GROCERY	19	23	0	0	42
	OTHER	4	0	0	0	4
	SDG&E Total	25	34	1	0	60
Overall	Overall	139	168	6	0	313

Table 10-20 shows the weighted percent of stores that sell LED Reflectors by PA and channel.

Table 10-20. Percent of stores that sell LED reflectors by PA and channel, 2019

PA	Channel	Yes	No	Don't Know	Refused	Total
PGE	CHAIN DISCOUNT	34%	66%	0%	0%	100%
	CHAIN GROCERY	40%	60%	0%	0%	100%
	IND DISCOUNT	0%	100%	0%	0%	100%
	IND GROCERY	25%	75%	0%	0%	100%
	OTHER	100%	0%	0%	0%	100%
	PGE Total	65%	35%	0%	0%	100%



PA	Channel	Yes	No	Don't Know	Refused	Total
SCE	CHAIN DISCOUNT	41%	57%	2%	0%	100%
	CHAIN GROCERY	39%	61%	0%	0%	100%
	IND DISCOUNT	39%	52%	9%	0%	100%
	IND GROCERY	36%	62%	3%	0%	100%
	OTHER	77%	23%	0%	0%	100%
	SCE Total	42%	55%	3%	0%	100%
SDG&E	CHAIN DISCOUNT	29%	55%	16%	0%	100%
	CHAIN GROCERY	0%	100%	0%	0%	100%
	IND DISCOUNT	0%	100%	0%	0%	100%
	IND GROCERY	45%	55%	0%	0%	100%
	OTHER	100%	0%	0%	0%	100%
	SDG&E Total	43%	56%	1%	0%	100%
Overall	Overall	48%	50%	2%	0%	100%

Table 10-21 shows the number of stores that sell CFLs by PA and channel.

Table 10-21. Number of stores that sell CFLs by PA and channel, 2019

PA	Channel	Yes	No	Don't Know	Refused	Total
PGE	CHAIN DISCOUNT	11	16	2	0	29
	CHAIN GROCERY	1	4	0	0	5
	IND DISCOUNT	1	0	0	0	1
	IND GROCERY	0	7	1	0	8
	OTHER	11	4	1	0	16
	PGE Total	24	31	4	0	59
SCE	CHAIN DISCOUNT	12	37	5	0	54
	CHAIN GROCERY	5	9	4	0	18
	IND DISCOUNT	9	12	2	0	23
	IND GROCERY	24	44	5	0	73
	OTHER	10	15	1	0	26
	SCE Total	60	117	17	0	194
SDG&E	CHAIN DISCOUNT	3	3	1	0	7
	CHAIN GROCERY	0	2	0	0	2
	IND DISCOUNT	1	3	1	0	5
	IND GROCERY	18	18	6	0	42
	OTHER	2	2	0	0	4
	SDG&E Total	24	28	8	0	60
Overall	Overall	108	176	29	0	313

Table 10-22 shows the weighted percent of stores that sell CFLs by PA and channel.

Table 10-22. Percent of stores that sell CFLs by PA and channel, 2019

PA	Channel	Yes	No	Don't Know	Refused	Total
PGE	CHAIN DISCOUNT	38%	55%	7%	0%	100%
	CHAIN GROCERY	20%	80%	0%	0%	100%
	IND DISCOUNT	100%	0%	0%	0%	100%
	IND GROCERY	0%	88%	13%	0%	100%
	OTHER	69%	25%	6%	0%	100%
	PGE Total	46%	47%	7%	0%	100%
SCE	CHAIN DISCOUNT	22%	69%	9%	0%	100%
	CHAIN GROCERY	28%	50%	22%	0%	100%
	IND DISCOUNT	39%	52%	9%	0%	100%
	IND GROCERY	33%	60%	7%	0%	100%
	OTHER	38%	58%	4%	0%	100%
	SCE Total	32%	59%	9%	0%	100%
SDG&E	CHAIN DISCOUNT	42%	42%	16%	0%	100%
	CHAIN GROCERY	0%	100%	0%	0%	100%
	IND DISCOUNT	20%	60%	20%	0%	100%
	IND GROCERY	43%	43%	14%	0%	100%
	OTHER	50%	50%	0%	0%	100%
	SDG&E Total	40%	47%	13%	0%	100%
Overall	Overall	37%	54%	9%	0%	100%

Table 10-23 shows the number of stores that sell other lamp technologies by PA and channel.

Table 10-23. Number of stores that sell other lamp technologies by PA and channel, 2019

PA	Channel	Yes – Linear Fluoresc.	Yes – Incand./ Halogens	Yes – Incand./ Halogens and Linear Fluoresc.	Yes - technology not specified	No	Don't Know	Refused	Total
PGE	CHAIN DISCOUNT	0	4	1	2	0	0	0	7
	CHAIN GROCERY	0	1	0	0	0	0	0	1
	IND DISCOUNT	0	0	0	0	0	0	0	0
	IND GROCERY	0	1	0	0	0	0	0	1
	OTHER	0	5	6	2	0	0	0	13
	PGE Total	0	11	7	4	0	0	0	22
SCE	CHAIN DISCOUNT	0	7	0	3	0	0	0	10
	CHAIN GROCERY	1	1	0	0	0	0	0	2
	IND DISCOUNT	0	4	0	0	0	0	0	4
	IND GROCERY	0	7	0	0	0	0	0	7
	OTHER	1	4	0	5	0	0	0	10
	SCE Total	2	23	0	8	0	0	0	33
SDG&E	CHAIN DISCOUNT	0	2	0	0	0	0	0	2
	CHAIN GROCERY	0	0	0	0	0	0	0	0
	IND DISCOUNT	0	0	0	1	0	0	0	1
	IND GROCERY	0	6	0	0	0	0	0	6
	OTHER	0	1	0	0	0	0	0	1
	SDG&E Total	0	9	0	1	0	0	0	10
Overall	Overall	2	43	7	13	0	0	0	65

Table 10-24 shows the weighted percent of stores that sell other lamp technologies by PA and channel.

Table 10-24. Percent of stores that sell other lamp technologies by PA and channel, 2019

PA	Channel	Yes – Linear Fluoresc.	Yes – Incand./ Halogens	Yes – Incand./ Halogens and Linear Fluoresc.	Yes - technology not specified	No	Don't Know	Refused	Total
PGE	CHAIN DISCOUNT	0%	57%	14%	29%	0%	0%	0%	100%
	CHAIN GROCERY	0%	100%	0%	0%	0%	0%	0%	100%
	IND DISCOUNT	0%	0%	0%	0%	0%	0%	0%	0%
	IND GROCERY	0%	100%	0%	0%	0%	0%	0%	100%
	OTHER	0%	38%	46%	15%	0%	0%	0%	100%
	PGE Total	0%	46%	38%	16%	0%	0%	0%	100%
SCE	CHAIN DISCOUNT	0%	70%	0%	30%	0%	0%	0%	100%
	CHAIN GROCERY	50%	50%	0%	0%	0%	0%	0%	100%
	IND DISCOUNT	0%	100%	0%	0%	0%	0%	0%	100%
	IND GROCERY	0%	100%	0%	0%	0%	0%	0%	100%
	OTHER	10%	40%	0%	50%	0%	0%	0%	100%
	SCE Total	5%	75%	0%	20%	0%	0%	0%	100%
SDG&E	CHAIN DISCOUNT	0%	100%	0%	0%	0%	0%	0%	100%
	CHAIN GROCERY	0%	0%	0%	0%	0%	0%	0%	0%
	IND DISCOUNT	0%	0%	0%	100%	0%	0%	0%	100%
	IND GROCERY	0%	100%	0%	0%	0%	0%	0%	100%
	OTHER	0%	100%	0%	0%	0%	0%	0%	100%
	SDG&E Total	0%	91%	0%	9%	0%	0%	0%	100%
Overall	Overall	2%	62%	19%	17%	0%	0%	0%	100%

10.9.3 Lamp stocking practices

Interviewers asked respondents whether their stores have a back stock of light bulbs in storage that are not displayed for sales. Table 10-25 shows the number of stores that have a back stock of light bulbs in storage.

Table 10-25. Number of stores that have back stock of light bulbs by PA and channel, 2020

PA	Channel	Yes	No	Don't Know	Refused	Total
PGE	BIG BOX	12	10	0	0	22
	CHAIN DISCOUNT	5	24	0	0	29
	CHAIN GROCERY	0	5	0	0	5
	IND DISCOUNT	0	1	0	0	1
	IND GROCERY	6	2	0	0	8
	OTHER	7	9	0	0	16
	PGE Total	30	51	0	0	81
SCE	BIG BOX	25	1	0	0	26
	CHAIN DISCOUNT	2	52	0	0	54
	CHAIN GROCERY	2	16	0	0	18
	IND DISCOUNT	7	16	0	0	23
	IND GROCERY	40	33	0	0	73
	OTHER	8	17	1	0	26
	SCE Total	84	135	1	0	220
SDGE	BIG BOX	4	0	0	0	4
	CHAIN DISCOUNT	2	5	0	0	7
	CHAIN GROCERY	1	1	0	0	2
	IND DISCOUNT	1	4	0	0	5
	IND GROCERY	15	27	0	0	42
	OTHER	2	2	0	0	4
	SDG&E Total	25	39	0	0	64
Overall	Overall	139	225	1	0	365

Table 10-26 shows the weighted percent of stores that have a back stock of light bulbs in storage.

Table 10-26. Percent of stores that have back stock of light bulbs by PA and channel, 2020

PA	Channel	Yes	No	Don't Know	Refused	Total
PGE	BIG BOX	70%	30%	0%	0%	100%
	CHAIN DISCOUNT	17%	83%	0%	0%	100%
	CHAIN GROCERY	0%	100%	0%	0%	100%
	IND DISCOUNT	0%	100%	0%	0%	100%
	IND GROCERY	75%	25%	0%	0%	100%
	OTHER	44%	56%	0%	0%	100%
	PGE Total	44%	56%	0%	0%	100%
SCE	BIG BOX	96%	4%	0%	0%	100%
	CHAIN DISCOUNT	4%	96%	0%	0%	100%
	CHAIN GROCERY	11%	89%	0%	0%	100%
	IND DISCOUNT	30%	70%	0%	0%	100%
	IND GROCERY	55%	45%	0%	0%	100%
	OTHER	31%	65%	4%	0%	100%
	SCE Total	42%	57%	0%	0%	100%
SDG&E	BIG BOX	100%	0%	0%	0%	100%
	CHAIN DISCOUNT	29%	71%	0%	0%	100%
	CHAIN GROCERY	50%	50%	0%	0%	100%
	IND DISCOUNT	20%	80%	0%	0%	100%
	IND GROCERY	36%	64%	0%	0%	100%
	OTHER	50%	50%	0%	0%	100%
	SDG&E Total	46%	54%	0%	0%	100%
Overall	Overall	44%	56%	0%	0%	100%

Interviewers asked respondents what their stores do with any excess light bulbs that they cannot sell in a reasonable amount of time. Table 10-27 shows what stores do with excess light bulbs, in number of stores, by PA and channel.

Table 10-27. Process for excess light bulbs, in percent of stores, by PA and channel, 2019

PA	Channel	Has Excess Bulbs	Does Not Have Excess Bulbs	Don't Know	Refused	Total
PGE	BIG BOX	14	8	0	0	22
	CHAIN DISCOUNT	24	4	1	0	29
	CHAIN GROCERY	3	2	0	0	5
	IND DISCOUNT	1	0	0	0	1
	IND GROCERY	6	2	0	0	8
	OTHER	6	8	2	0	16
	PGE Total	54	24	3	0	81
SCE	BIG BOX	14	12	0	0	26
	CHAIN DISCOUNT	37	16	1	0	54
	CHAIN GROCERY	10	7	1	0	18
	IND DISCOUNT	17	6	0	0	23
	IND GROCERY	48	25	0	0	73
	OTHER	18	8	0	0	26
	SCE Total	144	74	2	0	220
SDGE	BIG BOX	4	0	0	0	4
	CHAIN DISCOUNT	4	3	0	0	7
	CHAIN GROCERY	0	2	0	0	2
	IND DISCOUNT	4	1	0	0	5
	IND GROCERY	27	14	1	0	42
	OTHER	2	1	1	0	4
	SDG&E Total	41	21	2	0	64
Overall	Overall	239	119	7	0	365

Table 10-28 shows what stores do with excess light bulbs, in weighted percent of stores, by PA and channel.

Table 10-28. Process for excess light bulbs, in percent of stores, by PA and channel, 2019

PA	Channel	Has Excess Bulbs	Does Not Have Excess Bulbs	Don't Know	Refused	Total
PGE	BIG BOX	59%	41%	0%	0%	100%
	CHAIN DISCOUNT	83%	14%	3%	0%	100%
	CHAIN GROCERY	60%	40%	0%	0%	100%
	IND DISCOUNT	100%	0%	0%	0%	100%
	IND GROCERY	75%	25%	0%	0%	100%
	OTHER	38%	50%	13%	0%	100%
	PGE Total	58%	37%	5%	0%	100%
SCE	BIG BOX	54%	46%	0%	0%	100%
	CHAIN DISCOUNT	69%	30%	2%	0%	100%
	CHAIN GROCERY	56%	39%	6%	0%	100%
	IND DISCOUNT	74%	26%	0%	0%	100%
	IND GROCERY	66%	34%	0%	0%	100%
	OTHER	69%	31%	0%	0%	100%
	SCE Total	65%	34%	1%	0%	100%
SDG&E	BIG BOX	100%	0%	0%	0%	100%
	CHAIN DISCOUNT	55%	45%	0%	0%	100%
	CHAIN GROCERY	0%	100%	0%	0%	100%
	IND DISCOUNT	80%	20%	0%	0%	100%
	IND GROCERY	64%	33%	2%	0%	100%
	OTHER	50%	25%	25%	0%	100%
	SDG&E Total	67%	30%	3%	0%	100%
Overall	Overall	64%	34%	2%	0%	100%

Table 10-29 shows what stores do with excess light bulbs, in number of stores, by PA and channel. None of the store representatives stated that they have sent their excess bulbs to a different state.

Table 10-29. Process for handling excess light bulbs, in number of stores, by PA and channel, 2019³⁸

PA	Channel	Bulbs Remain on Store Floor	Keep Excess Bulbs in Back	Send Bulbs Back to Corporate	Send Bulbs to Different Store	Discount Price	Give Them Away	Recycle Them	Send Bulbs Back to Vendor	Total
PGE	BIG BOX	0	0	3	0	1	0	0	4	8
	CHAIN DISCOUNT	0	2	1	1	0	0	0	0	4
	CHAIN GROCERY	0	1	1	0	0	0	0	0	2
	IND DISCOUNT	0	0	0	0	0	0	0	0	0
	IND GROCERY	0	1	0	0	1	0	0	0	2
	OTHER	1	3	0	1	0	2	0	1	8
	PGE Total	1	7	5	2	2	2	0	5	24
SCE	BIG BOX	2	0	2	0	2	0	1	5	12
	CHAIN DISCOUNT	3	4	1	0	5	1	2	1	17
	CHAIN GROCERY	1	3	0	2	1	0	0	0	7
	IND DISCOUNT	0	1	0	0	2	1	1	1	6
	IND GROCERY	2	10	1	0	3	9	1	0	26
	OTHER	0	1	2	0	3	2	0	1	9
	SCE Total	8	19	6	2	16	13	5	8	77
SDGE	BIG BOX	0	0	0	0	0	0	0	0	0
	CHAIN DISCOUNT	0	1	1	0	0	0	1	0	3

³⁸ Total column is the number of respondents who gave one or more response for what they do with excess bulbs. In some cases, respondents gave more than one response.

PA	Channel	Bulbs Remain on Store Floor	Keep Excess Bulbs in Back	Send Bulbs Back to Corporate	Send Bulbs to Different Store	Discount Price	Give Them Away	Recycle Them	Send Bulbs Back to Vendor	Total
	CHAIN GROCERY	0	0	0	0	2	0	0	0	2
	IND DISCOUNT	0	0	0	0	0	0	0	0	0
	IND GROCERY	0	1	1	0	3	9	0	0	14
	OTHER	0	1	0	0	0	0	0	0	1
	SDG&E Total	0	3	2	0	5	9	1	0	20
Overall	Overall	9	29	13	4	23	24	6	13	121

Table 10-30 shows what stores do with excess light bulbs, in percent of stores, by PA and channel.

Table 10-30. Process for handling for excess light bulbs, in percent of stores, by PA and channel, 2019³⁹

PA	Channel	Bulbs Remain on Store Floor	Keep Excess Bulbs in Back	Send Bulbs Back to Corporate	Send Bulbs to Different Store	Discount Price	Give Them Away	Recycle Them	Send Bulbs Back to Vendor	Total
PGE	BIG BOX	0%	0%	30%	0%	16%	0%	0%	54%	100%
	CHAIN DISCOUNT	0%	50%	25%	25%	0%	0%	0%	0%	100%
	CHAIN GROCERY	0%	50%	50%	0%	0%	0%	0%	0%	100%
	IND DISCOUNT	0%	0%	0%	0%	0%	0%	0%	0%	0%
	IND GROCERY	0%	50%	0%	0%	50%	0%	0%	0%	100%
	OTHER	13%	38%	0%	13%	0%	25%	0%	13%	100%

³⁹ Percentages may be greater than 100% because respondents could give multiple responses to this question.

PA	Channel	Bulbs Remain on Store Floor	Keep Excess Bulbs in Back	Send Bulbs Back to Corporate	Send Bulbs to Different Store	Discount Price	Give Them Away	Recycle Them	Send Bulbs Back to Vendor	Total
	PGE Total	6%	29%	15%	8%	8%	12%	0%	22%	100%
SCE	BIG BOX	17%	0%	17%	0%	17%	0%	8%	42%	100%
	CHAIN DISCOUNT	18%	24%	6%	0%	29%	6%	12%	6%	100%
	CHAIN GROCERY	14%	43%	0%	29%	14%	0%	0%	0%	100%
	IND DISCOUNT	0%	17%	0%	0%	33%	17%	17%	17%	100%
	IND GROCERY	8%	38%	4%	0%	12%	35%	4%	0%	100%
	OTHER	0%	11%	22%	0%	33%	22%	0%	11%	100%
	SCE Total	10%	24%	7%	2%	20%	17%	7%	12%	100%
SDG&E	BIG BOX	0%	0%	0%	0%	0%	0%	0%	0%	0%
	CHAIN DISCOUNT	0%	29%	35%	0%	0%	0%	35%	0%	100%
	CHAIN GROCERY	0%	0%	0%	0%	100%	0%	0%	0%	100%
	IND DISCOUNT	0%	0%	0%	0%	0%	0%	0%	0%	0%
	IND GROCERY	0%	7%	7%	0%	21%	64%	0%	0%	100%
	OTHER	0%	100%	0%	0%	0%	0%	0%	0%	100%
	SDG&E Total	0%	13%	8%	0%	29%	47%	3%	0%	100%
Overall	Overall	7%	24%	10%	4%	18%	20%	4%	13%	100%

10.9.4 COVID-19 Impact on Stores

Interviewers asked respondents about their experience with shelter-in-place orders and how COVID-19 impacted their store's light bulb sales and stocking practices in 2020. Table 10-31 shows the impact that COVID-19 had on stores' light bulb sales in 2020. Store representatives who responded with "other" response to this question during the survey stated sales impacts such as the store being closed for more than a week, bulbs not being shipped in a timely manner, and a reduction in customers.

Table 10-31. COVID-19 impact on store's light bulb sales, in number of stores, by PA and channel, 2020

PA	Channel	Store was not impacted by COVID-19	More overall light bulb sales	Fewer overall light bulb sales	Other	Don't Know	Total
PGE	BIG BOX	10	7	4	1	0	22
	CHAIN DISCOUNT	20	0	8	1	0	29
	CHAIN GROCERY	3	0	2	0	0	5
	IND DISCOUNT	0	0	1	0	0	1
	IND GROCERY	4	0	3	0	1	8
	OTHER	7	6	2	1	0	16
	PGE Total	44	13	20	3	1	81
SCE	BIG BOX	16	8	2	0	0	26
	CHAIN DISCOUNT	38	8	7	0	1	54
	CHAIN GROCERY	12	1	4	1	0	18
	IND DISCOUNT	13	1	6	2	1	23
	IND GROCERY	47	8	17	0	1	73
	OTHER	12	7	6	0	1	26
	SCE Total	138	33	42	3	4	220
SDGE	BIG BOX	2	1	1	0	0	4
	CHAIN DISCOUNT	4	0	3	0	0	7
	CHAIN GROCERY	1	0	1	0	0	2
	IND DISCOUNT	2	0	1	2	0	5
	IND GROCERY	33	4	5	0	0	42
	OTHER	2	1	1	0	0	4

PA	Channel	Store was not impacted by COVID-19	More overall light bulb sales	Fewer overall light bulb sales	Other	Don't Know	Total
	SDG&E Total	44	6	12	2	0	64
Overall	Overall	226	52	74	8	5	365

Table 10-36 shows the weighted percentage of different impacts that COVID-19 had on store's light bulb sales in 2020.

Table 10-32. COVID-19 impact on store's light bulb sales, in percent of stores, by PA and channel, 2020

PA	Channel	Store was not impacted by COVID-19	More overall light bulb sales	Fewer overall light bulb sales	Other	Don't Know	Total
PGE	BIG BOX	47%	35%	12%	6%	0%	100%
	CHAIN DISCOUNT	69%	0%	28%	3%	0%	100%
	CHAIN GROCERY	60%	0%	40%	0%	0%	100%
	IND DISCOUNT	0%	0%	100%	0%	0%	100%
	IND GROCERY	50%	0%	38%	0%	13%	100%
	OTHER	44%	38%	13%	6%	0%	100%
	PGE Total	51%	22%	21%	5%	1%	100%
SCE	BIG BOX	62%	31%	8%	0%	0%	100%
	CHAIN DISCOUNT	70%	15%	13%	0%	2%	100%
	CHAIN GROCERY	67%	6%	22%	6%	0%	100%
	IND DISCOUNT	57%	4%	26%	9%	4%	100%
	IND GROCERY	64%	11%	23%	0%	1%	100%
	OTHER	46%	27%	23%	0%	4%	100%
	SCE Total	62%	14%	20%	2%	2%	100%

PA	Channel	Store was not impacted by COVID-19	More overall light bulb sales	Fewer overall light bulb sales	Other	Don't Know	Total
SDG&E	BIG BOX	50%	25%	25%	0%	0%	100%
	CHAIN DISCOUNT	61%	0%	39%	0%	0%	100%
	CHAIN GROCERY	50%	0%	50%	0%	0%	100%
	IND DISCOUNT	40%	0%	20%	40%	0%	100%
	IND GROCERY	79%	10%	12%	0%	0%	100%
	OTHER	50%	25%	25%	0%	0%	100%
	SDG&E Total	68%	12%	18%	2%	0%	100%
Overall	Overall	60%	16%	20%	3%	1%	100%

Table 10-33 shows the impact that COVID-19 had on store's light bulb stocking practices in 2020. Store representatives who responded with "other" responses to this question during the survey stated stocking impacts such as the store being closed for an extended period of time, bulbs not being shipped as frequently, fewer bulbs being donated, and having to go entirely through backstock inventory to meet demand.

Table 10-33. COVID-19 impact on store's light bulb stocking, in number of stores, by PA and channel, 2020

PA	Channel	Store was not impacted by COVID-19	More stocking of less expensive light bulb models	Fewer light bulbs ordered and stocked with decrease in sales	Moved bulk packages to endcap for easier customer access	Difficulty obtaining light bulbs and/or supply interruptions	Other	Don't Know	Refused	Total
PGE	BIG BOX	18	0	3	0	1	0	0	0	22
	CHAIN DISCOUNT	22	0	5	0	0	2	0	0	29
	CHAIN GROCERY	3	0	2	0	0	0	0	0	5

PA	Channel	Store was not impacted by COVID-19	More stocking of less expensive light bulb models	Fewer light bulbs ordered and stocked with decrease in sales	Moved bulk packages to endcap for easier customer access	Difficulty obtaining light bulbs and/or supply interruptions	Other	Don't Know	Refused	Total
	IND DISCOUNT	0	0	0	1	0	0	0	0	1
	IND GROCERY	6	0	2	0	0	0	0	0	8
	OTHER	9	1	1	1	0	4			16
	PGE Total	58	1	13	2	1	6	0	0	81
SCE	BIG BOX	19	2	0	1	3	1	0	0	26
	CHAIN DISCOUNT	39	0	4	2	3	3	2	1	54
	CHAIN GROCERY	13	0	3	0	2	0	0	0	18
	IND DISCOUNT	12	0	3	0	4	2	2	0	23
	IND GROCERY	54	0	10	1	1	6	1	0	73
	OTHER	16		1	0	3	6	0	0	26
	SCE Total	153	2	21	4	16	18	5	1	220
SDGE	BIG BOX	3	0	0	0	1	0	0	0	4
	CHAIN DISCOUNT	4	0	3	0	0	0	0	0	7
	CHAIN GROCERY	1	0	0	0	1	0	0	0	2
	IND DISCOUNT	3	0	1	0	0	1	0	0	5
	IND GROCERY	39	0	1	1	0	1	0	0	42
	OTHER	3	0	0	0	0	1	0	0	4

PA	Channel	Store was not impacted by COVID-19	More stocking of less expensive light bulb models	Fewer light bulbs ordered and stocked with decrease in sales	Moved bulk packages to endcap for easier customer access	Difficulty obtaining light bulbs and/or supply interruptions	Other	Don't Know	Refused	Total
	SDG&E Total	53	0	5	1	2	3	0	0	64
Overall	Overall	264	3	39	7	19	27	5	1	365

Table 10-34 shows the weighted percentage of different impacts that COVID-19 had on stores' light bulb stocking in 2020.

Table 10-34. COVID-19 impact on store's light bulb stocking, in percent of stores, by PA and channel, 2020

PA	Channel	Store was not impacted by COVID-19	More stocking of less expensive light bulb models	Fewer light bulbs ordered and stocked with decrease in sales	Moved bulk packages to endcap for easier customer access	Difficulty obtaining light bulbs and/or supply interruptions	Other	Don't Know	Refused	Total
PGE	BIG BOX	81%	0%	12%	0%	6%	0%	0%	0%	100%
	CHAIN DISCOUNT	76%	0%	17%	0%	7%	0%	0%	0%	100%
	CHAIN GROCERY	60%	0%	40%	0%	0%	0%	0%	0%	100%
	IND DISCOUNT	0%	0%	0%	100%	0%	0%	0%	0%	100%
	IND GROCERY	75%	0%	25%	0%	0%	0%	0%	0%	100%
	OTHER	56%	6%	6%	6%	0%	25%	0%	0%	100%
	PGE Total	69%	2%	14%	3%	3%	9%	0%	0%	100%

PA	Channel	Store was not impacted by COVID-19	More stocking of less expensive light bulb models	Fewer light bulbs ordered and stocked with decrease in sales	Moved bulk packages to endcap for easier customer access	Difficulty obtaining light bulbs and/or supply interruptions	Other	Don't Know	Refused	Total
SCE	BIG BOX	73%	8%	0%	4%	12%	4%	0%	0%	100%
	CHAIN DISCOUNT	72%	0%	7%	4%	6%	6%	4%	2%	100%
	CHAIN GROCERY	72%	0%	17%	0%	11%	0%	0%	0%	100%
	IND DISCOUNT	52%	0%	13%	0%	17%	9%	9%	0%	100%
	IND GROCERY	74%	0%	14%	1%	1%	8%	1%	0%	100%
	OTHER	62%	0%	4%	0%	12%	23%	0%	0%	100%
	SCE Total	69%	1%	10%	2%	8%	8%	3%	0%	100%
SDG&E	BIG BOX	75%	0%	0%	0%	25%	0%	0%	0%	100%
	CHAIN DISCOUNT	61%	0%	39%	0%	0%	0%	0%	0%	100%
	CHAIN GROCERY	50%	0%	0%	0%	50%	0%	0%	0%	100%
	IND DISCOUNT	60%	0%	20%	0%	0%	20%	0%	0%	100%
	IND GROCERY	93%	0%	2%	2%	0%	2%	0%	0%	100%
	OTHER	75%	0%	0%	0%	0%	25%	0%	0%	100%
	SDG&E Total	84%	0%	5%	1%	6%	4%	0%	0%	100%
Overall	Overall	71%	1%	10%	2%	6%	8%	1%	0%	100%

10.9.5 Survey respondent positions

At the close of each survey, interviewers asked respondents for their position. Table 10-35 shows the number of respondents who were managers, cashiers/clerks, and stockers by PA and channel.

Table 10-35. Position of respondents, in number of stores, by PA and channel, 2019

PA	Channel	Owner	Manager	Assistant Manager	Store Employee	Refused	Total
PGE	BIG BOX	0	14	5	3	0	22
	CHAIN DISCOUNT	0	20	7	2	0	29
	CHAIN GROCERY	2	3	0	1	0	6
	IND DISCOUNT	0	1	0	0	0	1
	IND GROCERY	0	10	0	0	0	10
	OTHER	1	13	0	2	0	16
	PGE Total	3	61	12	8	0	84
SCE	BIG BOX	0	12	8	6	0	26
	CHAIN DISCOUNT	0	43	15	5	0	63
	CHAIN GROCERY	1	21	2	7	0	31
	IND DISCOUNT	16	10	2	3	0	31
	IND GROCERY	28	56	4	4	4	96
	OTHER	5	20	1	0	0	26
	SCE Total	50	162	32	25	4	273
SDGE	BIG BOX	0	2	1	1	0	4
	CHAIN DISCOUNT	0	5	4	5	0	14
	CHAIN GROCERY	0	2	0	0	0	2
	IND DISCOUNT	3	2	0	1	0	6
	IND GROCERY	14	31	1	6	1	53
	OTHER	1	5	0	1	0	7
	SDG&E Total	18	47	6	14	1	86
Overall	Overall	71	270	50	47	5	443

Table 10-36 shows the weighted percent of respondents who were managers, cashiers/clerks, and stockers by PA and channel.

Table 10-36. Position of respondents, in percent of stores, by PA and channel, 2019

PA	Channel	Owner	Manager	Assistant Manager	Store Employee	Refused	Total
PGE	BIG BOX	0%	59%	25%	16%	0%	100%
	CHAIN DISCOUNT	0%	69%	24%	7%	0%	100%
	CHAIN GROCERY	33%	50%	0%	17%	0%	100%
	IND DISCOUNT	0%	100%	0%	0%	0%	100%
	IND GROCERY	0%	100%	0%	0%	0%	100%
	OTHER	6%	81%	0%	13%	0%	100%
	PGE Total	5%	73%	11%	11%	0%	100%
SCE	BIG BOX	0%	46%	31%	23%	0%	100%
	CHAIN DISCOUNT	0%	68%	24%	8%	0%	100%
	CHAIN GROCERY	3%	68%	6%	23%	0%	100%
	IND DISCOUNT	52%	32%	6%	10%	0%	100%
	IND GROCERY	29%	58%	4%	4%	4%	100%
	OTHER	19%	77%	4%	0%	0%	100%
	SCE Total	22%	56%	11%	9%	2%	100%
SDG&E	BIG BOX	0%	50%	25%	25%	0%	100%
	CHAIN DISCOUNT	0%	35%	30%	35%	0%	100%
	CHAIN GROCERY	0%	100%	0%	0%	0%	100%
	IND DISCOUNT	50%	33%	0%	17%	0%	100%
	IND GROCERY	26%	58%	2%	11%	2%	100%
	OTHER	14%	71%	0%	14%	0%	100%
	SDG&E Total	20%	56%	7%	15%	1%	100%
Overall	Overall	17%	60%	10%	11%	1%	100%



10.10 Appendix J: Online consumer survey banner tables

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Banner 1 - Main Weight

Table PA	Page 1	S1/S2 Electricity Provider BASE = ALL RESPONDENTS
Table CLIMATE	Page 2	Climate Zone BASE = ALL RESPONDENTS
Table CAREFERA	Page 3	CARE/FERA Participation Status BASE = ALL RESPONDENTS
Table USAGE	Page 4	Usage Class BASE = ALL RESPONDENTS
Table SCR3	Page 5	S3 Can you please confirm that _____ is the zip code of your primary home? BASE = ALL RESPONDENTS
Table LP2	Page 6	LP2 Have you ever purchased any LED light bulbs? BASE = ALL CALIFORNIA ZIP CODE RESPONDENTS
Table LP3	Page 7	LP3 Have you purchased any light bulbs in California for your home since January 1, 2019? BASE = ALL CALIFORNIA ZIP CODE RESPONDENTS
Table LP4	Page 8	LP4 How many light bulbs did you purchase since between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19)? BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]
Table LP5ALL	Page 9	LP5 How many light bulbs did you purchase after March 2020 (after shelter-in-place orders took effect due to COVID-19)? BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]
Table LP5noLP4	Page 10	LP5 - LP4=NO or DK. How many light bulbs did you purchase after March 2020 (after shelter-in-place orders took effect due to COVID-19)? BASE = DID NOT PURCHASE ANY LIGHT BULBS IN CALIFORNIA FOR HOME BETWEEN JANUARY 1, 2019 AND MARCH 2020 [LP4]
Table LP4-5	Page 11	Summary of LP4 (Pre-COVID) vs. LP5 (Post-COVID) bulbs purchased. BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]
Table LP4PercTot	Page 12	Summary of LP4 (Pre-COVID) percent of bulbs purchased. BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]
Table LP5PercTot	Page 13	Summary of LP5 (Post-COVID) percent of bulbs purchased. BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]
Table RL1	Page 14	RL1 Of the [LP4] light bulbs you've purchased between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any reflector or flood bulbs? BASE = ALL RESPONDENTS
Table RL1-LP5	Page 15	RL1-LP5 Of the [LP5] light bulbs you've purchased after March 2020 (after shelter-in-place orders took effect due to COVID-19), did you buy any reflector or flood bulbs? BASE = ALL RESPONDENTS
Table RL2-1	Page 16	RL2-1 What type of reflector bulbs were they? BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] (Jan 2019-Mar 2020)
Table RL2-2	Page 17	RL2-2 What type of reflector bulbs were they? BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] (Jan 2019-Mar 2020)
Table RL3-1	Page 18	RL3-1 Where did you purchase these reflector bulbs? BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)
Table RL3-2	Page 20	RL3-2 Where did you purchase these reflector bulbs? BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)
Table RL4_MEANS	Page 22	RL4_MEANS Number of reflector bulbs purchased Mean number of purchases reported BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)

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Table RL4_TOT	Page 25	RL4_TOT Number of reflector bulbs purchased Total VOLUMETRIC BASE = TOTAL NUMBER OF REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)
Table RL4_LED	Page 29	RL4_LED Number of reflector bulbs purchased LED VOLUMETRIC BASE = TOTAL NUMBER OF LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)
Table RL4_IH	Page 31	RL4_IH Number of reflector bulbs purchased Incandescent/Halogen VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)
Table RL4_CFL	Page 33	RL4_CFL Number of reflector bulbs purchased CFL VOLUMETRIC BASE = TOTAL NUMBER OF CFL REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)
Table RL5_1	Page 35	RL5 How many of the LED reflector bulbs you purchased are currently installed at your home (either indoors or outdoors)? BASE = 1 OR MORE LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)
Table RL6_1	Page 36	RL6_1 Of the remaining LED reflector bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)? BASE = LED REFLECTOR BULBS YET TO BE INSTALLED / QUANTITY CURRENTLY INSTALLED PROVIDED [RL5] (Jan 2019-Mar 2020)
Table RL56-1	Page 37	RL5/RL6-1 Sum of LED reflector bulbs currently installed or planned for installation within the next year. BASE = 1 OR MORE LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)
Table RL56-2	Page 38	RL5/RL6-2 Installation Rate (Percentage of LED reflector bulbs purchased that are currently installed or planned for installation.) BASE = 1 OR MORE LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)
Table CL1	Page 39	CL1 Of the [LP4] light bulbs you've purchased between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any candelabra bulbs? BASE = ALL RESPONDENTS
Table CL1-LP5	Page 40	CL1-LP5 Of the [LP5] light bulbs you've purchased after March 2020 (after shelter-in-place orders took effect due to COVID-19), did you buy any candelabra bulbs? BASE = ALL RESPONDENTS
Table CL2-1	Page 41	CL2-1 What type of candelabra bulbs were they? BASE = BOUGHT ANY CANDELABRA BULBS [CL1] (Jan 2019-Mar 2020)
Table CL2-2	Page 42	CL2-2 What type of candelabra bulbs were they? BASE = BOUGHT ANY CANDELABRA BULBS [CL1] (Jan 2019-Mar 2020)
Table CL3-1	Page 43	CL3-1 Where did you purchase these candelabra bulbs? BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)
Table CL3-2	Page 45	CL3-2 Where did you purchase these candelabra bulbs? BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)
Table CL4_MEANS	Page 47	CL4_MEANS Number of candelabra bulbs purchased Mean number of purchases reported BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)
Table CL4_TOT	Page 50	CL4_TOT Number of candelabra bulbs purchased Total VOLUMETRIC BASE = TOTAL NUMBER OF CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)
Table CL4_LED	Page 54	CL4_LED Number of candelabra bulbs purchased LED VOLUMETRIC BASE = TOTAL NUMBER OF LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

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Table CL4_IH	Page 56	CL4_IH Number of candelabra bulbs purchased Incandescent/Halogen VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)
Table CL4_CFL	Page 58	CL4_CFL Number of candelabra bulbs purchased CFL VOLUMETRIC BASE = TOTAL NUMBER OF CFL CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)
Table CL5_1	Page 60	CL5_1 How many of the LED candelabra bulbs you purchased are currently installed at your home (either indoors or outdoors)? BASE = 1 OR MORE LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)
Table CL6_1	Page 61	CL6_1 Of the remaining LED candelabra bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)? BASE = LED CANDELABRA BULBS YET TO BE INSTALLED / QUANTITY CURRENTLY INSTALLED PROVIDED [CL5] (Jan 2019-Mar 2020)
Table CL56-1	Page 62	CL5/CL6-1 Sum of LED candelabra bulbs currently installed or planned for installation within the next year. BASE = 1 OR MORE LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)
Table CL56-2	Page 63	CL5/CL6-2 Installation Rate (Percentage of LED candelabra bulbs purchased that are currently installed or planned for installation.) BASE = 1 OR MORE LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)
Table GL1	Page 64	GL1 Of the [LP4] light bulbs you've purchased between January 1, 2109 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any globe bulbs? BASE = ALL RESPONDENTS
Table GL1-LP5	Page 65	GL1-LP5 Of the [LP5] light bulbs you've purchased after March 2020 (after shelter-in-place orders took effect due to COVID-19), did you buy any globe bulbs? BASE = ALL RESPONDENTS
Table GL2-1	Page 66	GL2-1 What type of globe bulbs were they? BASE = BOUGHT ANY GLOBE BULBS [CL1] (Jan 2019-Mar 2020)
Table GL2-2	Page 67	GL2-2 What type of globe bulbs were they? BASE = BOUGHT ANY GLOBE BULBS [CL1] (Jan 2019-Mar 2020)
Table GL3-1	Page 68	GL3-1 Where did you purchase these globe bulbs? BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)
Table GL3-2	Page 70	GL3-2 Where did you purchase these globe bulbs? BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)
Table GL4_MEANS	Page 72	GL4_MEANS Number of globe bulbs purchased Mean number of purchases reported BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)
Table GL4_TOT	Page 75	GL4_TOT Number of globe bulbs purchased Total VOLUMETRIC BASE = TOTAL NUMBER OF GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)
Table GL4_LED	Page 79	GL4_LED Number of globe bulbs purchased LED VOLUMETRIC BASE = TOTAL NUMBER OF LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)
Table GL4_IH	Page 81	GL4_IH Number of globe bulbs purchased Incandescent/Halogen VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)
Table GL4_CFL	Page 83	GL4_CFL Number of globe bulbs purchased CFL VOLUMETRIC BASE = TOTAL NUMBER OF CFL GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

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Table GL5_1	Page 85	GL5_1 How many of the LED globe bulbs you purchased are currently installed at your home (either indoors or outdoors)? BASE = 1 OR MORE LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)
Table GL6_1	Page 86	GL6 Of the remaining LED globe bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)? BASE = LED GLOBE BULBS YET TO BE INSTALLED / QUANTITY CURRENTLY INSTALLED PROVIDED [GL5] (Jan 2019-Mar 2020)
Table GL56-1	Page 87	GL5/GL6-1 Sum of LED globe bulbs currently installed or planned for installation within the next year. BASE = 1 OR MORE LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)
Table GL56-2	Page 88	GL5/GL6-2 Installation Rate (Percentage of LED globe bulbs purchased that are currently installed or planned for installation.) BASE = 1 OR MORE LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)
Table REFLECT-1	Page 89	Reflector Purchasing Game Weighted Table BASE = ALL RESPONDENTS ASKED
Table REFLECT-2	Page 90	Reflector Purchasing Game Unweighted Table BASE = ALL RESPONDENTS ASKED
Table PRICE1	Page 91	Price1 BASE = ALL RESPONDENTS ASKED
Table PRICE2	Page 92	Price2 BASE = ALL RESPONDENTS ASKED
Table PRICE3	Page 93	Price3 BASE = ALL RESPONDENTS ASKED
Table PRICE4	Page 94	Price4 BASE = ALL RESPONDENTS ASKED
Table CANDEL-1	Page 95	Candelabra Purchasing Game Weighted Table BASE = ALL RESPONDENTS ASKED
Table CANDEL-2	Page 96	Candelabra Purchasing Game Unweighted Table BASE = ALL RESPONDENTS ASKED
Table PRICE5	Page 97	Price5 BASE = ALL RESPONDENTS ASKED
Table PRICE6	Page 98	Price6 BASE = ALL RESPONDENTS ASKED
Table PRICE7	Page 99	Price7 BASE = ALL RESPONDENTS ASKED
Table PRICE8	Page 100	Price8 BASE = ALL RESPONDENTS ASKED
Table GLOBE-1	Page 101	Globe Purchasing Game Weighted Table BASE = ALL RESPONDENTS ASKED
Table GLOBE-2	Page 102	Globe Purchasing Game Unweighted Table BASE = ALL RESPONDENTS ASKED

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Table PRICE9	Page 103	Price9 BASE = ALL RESPONDENTS ASKED
Table PRICE10	Page 104	Price10 BASE = ALL RESPONDENTS ASKED
Table PRICE11	Page 105	Price11 BASE = ALL RESPONDENTS ASKED
Table PRICE12	Page 106	Price12 BASE = ALL RESPONDENTS ASKED
Table RG1A_1	Page 107	RG1A_1 Which bulb would you buy at the following prices? Reflector without program BASE = PLAYED GROCERY GAME
Table RG1A_2	Page 108	RG1A_2 Which bulb would you buy at the following prices? Reflector without program BASE = PLAYED DISCOUNT GAME
Table RG1A_3	Page 109	RG1A_3 Which bulb would you buy at the following prices? Reflector without program BASE = PLAYED HARDWARE GAME
Table RG1A_4	Page 110	RG1A_4 Which bulb would you buy at the following prices? Reflector without program BASE = PLAYED HOME IMPROVEMENT GAME
Table RG1B_1	Page 111	RG1B_1 Which bulb would you buy at the following prices? Reflector with program BASE = PLAYED GROCERY GAME
Table RG1B_2	Page 112	RG1B_2 Which bulb would you buy at the following prices? Reflector with program BASE = PLAYED DISCOUNT GAME
Table RG1B_3	Page 113	RG1B_3 Which bulb would you buy at the following prices? Reflector with program BASE = PLAYED HARDWARE GAME
Table RG1B_4	Page 114	RG1B_4 Which bulb would you buy at the following prices? Reflector with program BASE = PLAYED HOME IMPROVEMENT GAME
Table CG1A_1	Page 115	CG1A_1 Which bulb would you buy at the following prices? Candelabra without program BASE = PLAYED DISCOUNT GAME
Table CG1A_2	Page 116	CG1A_2 Which bulb would you buy at the following prices? Candelabra without program BASE = PLAYED HOME IMPROVEMENT GAME
Table CG1B_1	Page 117	CG1B_1 Which bulb would you buy at the following prices? Candelabra with program BASE = PLAYED DISCOUNT GAME

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Table CG1B_2	Page 118	CG1B_2 Which bulb would you buy at the following prices? Candelabra with program BASE = PLAYED DISCOUNT GAME
Table GG1A_1	Page 119	GG1A_1 Which bulb would you buy at the following prices? Globe without program BASE = PLAYED DISCOUNT GAME
Table GG1A_2	Page 120	GG1A_2 Which bulb would you buy at the following prices? Globe without program BASE = PLAYED HOME IMPROVEMENT GAME
Table GG1B_1	Page 121	GG1B_1 Which bulb would you buy at the following prices? Globe with program BASE = PLAYED DISCOUNT GAME
Table GG1B_2	Page 122	GG1B_2 Which bulb would you buy at the following prices? Globe with program BASE = PLAYED HOME IMPROVEMENT GAME
Table LSP1-1	Page 123	LSP1-1 Thinking of all the light bulbs installed in your home, about what percent of your sockets have LED bulbs in them? BASE = ALL RESPONDENTS
Table LSP1-2	Page 124	LSP1-2 Thinking of all the light bulbs installed in your home, about what percent of your sockets have LED bulbs in them? BASE = ALL RESPONDENTS
Table DEM1	Page 125	DEM1 Do you or members of your household own your home or do you rent it? BASE = ALL RESPONDENTS
Table DEM2	Page 126	DEM2 How many full bathrooms do you have at your home? BASE = ALL RESPONDENTS
Table DEM3	Page 127	DEM3 How many bedrooms do you have at your home? BASE = ALL RESPONDENTS
Table DEM4-1	Page 128	DEM4-1 What is the highest level of education you have completed? BASE = ALL RESPONDENTS
Table DEM4-2	Page 129	DEM4-2 What is the highest level of education you have completed? BASE = ALL RESPONDENTS
Table DEM5-1	Page 130	DEM5-1 What was your annual household income from all sources in 2019, before taxes? BASE = ALL RESPONDENTS
Table DEM5-2	Page 132	DEM5-2 What was your annual household income from all sources in 2019, before taxes? BASE = ALL RESPONDENTS
Table DEM6	Page 134	DEM6 Would you like to be entered into the drawing for an incentive card? BASE = ALL RESPONDENTS
Table LANGUAGE	Page 135	LANGUAGE Do you prefer to conduct the survey in English or Spanish? BASE = ALL RESPONDENTS
Table STRATUM	Page 136	Stratum BASE = ALL RESPONDENTS
Table Banner1	Page 139	Banner 1 BASE = ALL RESPONDENTS

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S1/S2 Electricity Provider

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
PGE	5587812 46%	5587812 100%	-	-	2385502 36%	3202310 58% E	1319339 64% HI	3798825 42%	469648 47%	3128850 47%	1340699 45%	648615 43%	469648 47%
SCE	4930260 41%	-	4930260 100%	-	3820712 58% F	1109548 20%	374649 18%	4231801 47% GI	323810 33% G	2684351 40%	1257432 42% M	664667 44% M	323810 33%
SDGE	1583344 13%	-	-	1583344 100%	403163 6%	1180181 21% E	367231 18% H	1028024 11%	188089 19% H	840928 13%	372077 13%	182250 12%	188089 19% L
Other	25040 *%	-	-	-	4653 *%	20387 *%	15464 1%	-	9576 1%	15464 *%	-	-	9576 1%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Climate Zone

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Inland/Desert	6614030 55%	2385502 43% D	3820712 77% BD	403163 25%	6614030 100%	-	1125541 54%	4826142 53%	662347 67% GH	3466000 52%	1612800 54%	872883 58% J	662347 67% JKL
Mild	5512426 45%	3202310 57% C	1109548 23%	1180181 75% BC	-	5512426 100%	951142 46% I	4232508 47% I	328776 33%	3203593 48% LM	1357408 46% M	622649 42% M	328776 33%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CARE/FERA Participation Status

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Participant	2076683 17%	1319339 24% C	374649 8%	367231 23% C	1125541 17%	951142 17%	2076683 100%	-	-	1211125 18%	587386 20%	278172 19%	-
Non-Participant	9058650 75%	3798825 68%	4231801 86% BD	1028024 65%	4826142 73%	4232508 77%	-	9058650 100%	-	5458468 82%	2382822 80%	1217360 81%	-
Net Meter	991123 8%	469648 8%	323810 7%	188089 12% C	662347 10% F	328776 6%	-	-	991123 100%	-	-	-	991123 100%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Usage Class

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Low	6669593 55%	3128850 56%	2684351 54%	840928 53%	3466000 52%	3203593 58% E	1211125 58%	5458468 60%	-	6669593 100%	-	-	-
Medium	2970208 24%	1340699 24%	1257432 26%	372077 23%	1612800 24%	1357408 25%	587386 28%	2382822 26%	-	-	2970208 100%	-	-
High	1495532 12%	648615 12%	664667 13%	182250 12%	872883 13%	622649 11%	278172 13%	1217360 13%	-	-	-	1495532 100%	-
Net Meter	991123 8%	469648 8%	323810 7%	188089 12% C	662347 10% F	328776 6%	-	-	991123 100%	-	-	-	991123 100%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

S3 Can you please confirm that ____ is the zip code of your primary home?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Yes	11115425 92%	5008050 90%	4674586 95% BD	1423214 90%	6313209 95% F	4802216 87%	1917449 92%	8234090 91%	963886 97% GH	5952611 89%	2777118 93% J	1421810 95% J	963886 97% JK
No	1011031 8%	579763 10% C	255674 5%	160130 10% C	300821 5%	710210 13% E	159234 8% I	824560 9% I	27237 3%	716982 11% KLM	193090 7% M	73722 5%	27237 3%
Don't Know	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LP2 Have you ever purchased any LED light bulbs?

BASE = ALL CALIFORNIA ZIP CODE RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Yes	11442270 94%	5367337 96% C	4556278 92%	1493616 94%	6167295 93%	5274975 96% E	1958016 94%	8510501 94%	973753 98% GH	6209608 93%	2818589 95%	1440319 96% J	973753 98% JK
No	532453 4%	160471 3%	290173 6% B	81808 5%	348108 5% F	184345 3%	78683 4%	436400 5% I	17370 2%	373050 6% KLM	93968 3%	48066 3%	17370 2%
Don't know	151734 1%	60004 1%	83810 2%	7920 1%	98627 1%	53107 1%	39984 2%	111750 1%	-	86935 1%	57651 2% L	7147 *%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LP3 Have you purchased any light bulbs in California for your home since January 1, 2019?

BASE = ALL CALIFORNIA ZIP CODE RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Yes	11322383 93%	5288177 95% C	4531266 92%	1477900 93%	6188533 94%	5133849 93%	1933543 93%	8407293 93%	981547 99% GH	6124583 92%	2764852 93%	1451400 97% JK	981547 99% JK
No	703833 6%	254382 5%	349931 7% B	99519 6%	360098 5%	343734 6%	112315 5% I	586865 6% I	4653 *%	501469 8% LM	166246 6% LM	31464 2%	4653 *%
Don't know	100241 1%	45253 1%	49063 1%	5924 *%	65398 1%	34842 1%	30825 1%	64493 1%	4923 *%	43541 1%	39109 1%	12667 1%	4923 *%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LP4 How many light bulbs did you purchase since between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19)?

BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	11322383 100%	5288177 100%	4531266 100%	1477900 100%	6188533 100%	5133849 100%	1933543 100%	8407293 100%	981547 100%	6124583 100%	2764852 100%	1451400 100%	981547 100%
Unweighted Total	1463	597	597	266	827	636	350	949	164	445	449	405	164
1-5	2945511 26%	1291452 24%	1208757 27%	440649 30%	1422417 23%	1523094 30% E	527572 27% I	2259334 27% I	158605 16%	1903078 31% KLM	674403 24% LM	209425 14%	158605 16%
6-9	2347396 21%	1159454 22%	900940 20%	287002 19%	1300177 21%	1047219 20%	471077 24%	1651751 20%	224569 23%	1210516 20%	664806 24% L	247506 17%	224569 23%
10-19	2510431 22%	1146194 22%	1071889 24%	292349 20%	1398722 23%	1111709 22%	381000 20%	1878276 22%	251156 26%	1236600 20%	576475 21%	446202 31% JK	251156 26%
20 or more	1601516 14%	787710 15%	581157 13%	227727 15%	1032932 17% F	568584 11%	207107 11%	1157495 14%	236914 24% GH	688629 11%	344972 12%	331001 23% JK	236914 24% JK
None	542039 5%	301307 6%	170550 4%	70181 5%	257167 4%	284872 6%	83568 4%	430764 5%	27707 3%	361800 6% L	105887 4%	46645 3%	27707 3%
Don't Know	1375490 12%	602060 11%	597974 13%	159992 11%	777118 13%	598371 12%	263219 14%	1029673 12%	82597 8%	723961 12%	398310 14% M	170621 12%	82597 8%
Mean	11.39	11.22	10.73	13.91	12.19	10.41	10.04	11.01	16.79 GH	9.84	10.52	15.48 JK	16.79 JK
Median	8.00	8.00	8.00	7.00	8.00	6.00	8.00	8.00	10.00	7.00	8.00	12.00	10.00
Maximum	500.00	126.00	108.00	500.00	500.00	150.00	124.00	500.00	120.00	150.00	75.00	500.00	120.00

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LP5 How many light bulbs did you purchase after March 2020 (after shelter-in-place orders took effect due to COVID-19)?

BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	11322383 100%	5288177 100%	4531266 100%	1477900 100%	6188533 100%	5133849 100%	1933543 100%	8407293 100%	981547 100%	6124583 100%	2764852 100%	1451400 100%	981547 100%
Unweighted Total	1463	597	597	266	827	636	350	949	164	445	449	405	164
1-5	2742892 24%	1120466 21%	1237617 27% B	384809 26%	1568156 25%	1174736 23%	536059 28% I	2024385 24%	182448 19%	1350457 22%	784771 28% JM	425217 29% JM	182448 19%
6-9	1089252 10%	652697 12% CD	331653 7%	104901 7%	638603 10%	450648 9%	283518 15% HI	727209 9%	78524 8%	566447 9%	280123 10%	164157 11%	78524 8%
10-19	1001898 9%	445079 8%	386435 9%	165461 11%	511923 8%	489975 10%	162682 8%	713173 8%	126043 13%	557305 9%	175246 6%	143304 10% K	126043 13% K
20 or more	367039 3%	191331 4%	132465 3%	43243 3%	201472 3%	165568 3%	47206 2%	294965 4%	24868 3%	144926 2%	96193 3%	101052 7% JKM	24868 3%
None	5390998 48%	2592134 49%	2098833 46%	695378 47%	2846138 46%	2544860 50%	785027 41%	4067338 48% G	538633 55% G	3112057 51% L	1245708 45% L	494599 34%	538633 55% KL
Don't Know	730304 6%	286469 5%	344262 8%	84109 6%	422241 7%	308062 6%	119050 6%	580222 7% I	31032 3%	393390 6%	182811 7% M	123071 8% M	31032 3%
Mean	7.19	7.66	6.69	7.06	7.14	7.26	6.22	7.30	8.63 G	6.72	6.28	9.45 JK	8.63 JK
Median	5.00	6.00	4.00	4.00	5.00	5.00	5.00	5.00	6.00	5.00	4.00	5.00	6.00
Maximum	126.00	126.00	60.00	100.00	60.00	126.00	48.00	126.00	50.00	48.00	36.00	126.00	50.00

Comparison Groups: BCD/EF/GHI/JKLM

Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)

Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LP5 - LP4=NO or DK. How many light bulbs did you purchase after March 2020 (after shelter-in-place orders took effect due to COVID-19)?

BASE = DID NOT PURCHASE ANY LIGHT BULBS IN CALIFORNIA FOR HOME BETWEEN JANUARY 1, 2019 AND MARCH 2020 [LP4]

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1917528 100%	903367 100%	768524 100%	230174 100%	1034285 100%	883243 100%	346788 100%	1460437 100%	110304 100%	1085761 100%	504197 100%	217267 100%	110304 100%
Unweighted Total	241	100	98	42	135	106	62	157	22	75	83	61	22
1-5	237936 12%	124409 14%	90421 12%	23107 10%	148575 14%	89361 10%	55126 16%	174514 12%	8296 8%	158657 15%	51200 10%	19783 9%	8296 8%
6-9	117183 6%	64925 7%	42208 5%	10050 4%	66774 6%	50409 6%	24080 7%	93103 6%	-	49851 5%	54732 11%	12600 6%	-
10-19	89384 5%	48661 5%	21596 3%	19127 8%	33249 3%	56134 6%	23418 7%	61312 4%	4653 4%	46933 4%	29724 6%	8073 4%	4653 4%
20 or more	19879 1%	14723 2%	-	5156 2%	7829 1%	12049 1%	11415 3%	8463 1%	-	-	16984 3%	2895 1%	-
None	910934 48%	457811 51%	345780 45%	107343 47%	458248 44%	452686 51%	137543 40%	702416 48%	70975 64% G	556001 51%	201346 40%	82612 38%	70975 64% KL
Don't Know	542213 28%	192839 21%	268519 35% B	65391 28%	319609 31%	222603 25%	95205 27%	420629 29%	26379 24%	274318 25%	150212 30%	91303 42% J	26379 24%
Mean	6.51	6.88	4.96	9.01	5.62	7.59	6.75	6.39	7.52	5.07	8.34	8.19	7.52
Median	5.00	6.00	4.00	8.00	4.00	6.00	6.00	5.00	5.00	4.00	8.00	6.00	5.00
Maximum	36.00	30.00	15.00	36.00	30.00	36.00	25.00	36.00	15.00	16.00	30.00	36.00	15.00

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Summary of LP4 (Pre-COVID) vs. LP5 (Post-COVID) bulbs purchased.

BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	11322383 100%	5288177 100%	4531266 100%	1477900 100%	6188533 100%	5133849 100%	1933543 100%	8407293 100%	981547 100%	6124583 100%	2764852 100%	1451400 100%	981547 100%
Unweighted Total	1463	597	597	266	827	636	350	949	164	445	449	405	164
Purchased bulbs BOTH pre and post-COVID	4736699 42%	2156855 41%	1933947 43%	640974 43%	2663726 43%	2072973 40%	915426 47% H	3422340 41%	398933 41%	2363693 39%	1183694 43%	790379 54% JKM	398933 41%
Purchased bulbs ONLY pre-COVID	4668155 41%	2227954 42%	1828796 40%	606753 41%	2490522 40%	2177633 42%	671330 35%	3524515 42% G	472310 48% G	2675128 44% L	1076961 39% L	443755 31%	472310 48% KL
Purchased bulbs ONLY post-COVID	464382 4%	252718 5%	154224 3%	57440 4%	256428 4%	207954 4%	114040 6% I	337392 4% I	12949 1%	255442 4% M	152639 6% LM	43351 3%	12949 1%
LP4 and LP5 NONE	1453146 13%	650650 12%	614299 14%	172734 12%	777857 13%	675289 13%	232747 12%	1123045 13%	97354 10%	830319 14%	351558 13%	173915 12%	97354 10%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Summary of LP4 (Pre-COVID) percent of bulbs purchased.

BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	11322383 100%	5288177 100%	4531266 100%	1477900 100%	6188533 100%	5133849 100%	1933543 100%	8407293 100%	981547 100%	6124583 100%	2764852 100%	1451400 100%	981547 100%
Unweighted Total	1463	597	597	266	827	636	350	949	164	445	449	405	164
100%	4670253 41%	2227954 42%	1828796 40%	608850 41%	2492620 40%	2177633 42%	671330 35%	3526613 42% G	472310 48% G	2675128 44% L	1076961 39% L	445853 31%	472310 48% KL
76-99%	1201735 11%	455210 9%	531143 12%	215381 15% B	694669 11%	507065 10%	158599 8%	910779 11%	132357 13%	546083 9%	328189 12%	195106 13% J	132357 13%
51-75%	1888561 17%	932391 18%	717825 16%	233422 16%	1098125 18%	790437 15%	448656 23% HI	1334700 16% I	105206 11%	887581 14%	544877 20% JM	350898 24% JM	105206 11%
1-50%	1644306 15%	769254 15%	684978 15%	190073 13%	868835 14%	775471 15%	308171 16%	1174764 14%	161370 16%	930029 15% K	310629 11%	242277 17% K	161370 16%
0%	464382 4%	252718 5%	154224 3%	57440 4%	256428 4%	207954 4%	114040 6% I	337392 4% I	12949 1%	255442 4% M	152639 6% LM	43351 3%	12949 1%
Don't Know/No bulbs purchased	1453146 13%	650650 12%	614299 14%	172734 12%	777857 13%	675289 13%	232747 12%	1123045 13%	97354 10%	830319 14%	351558 13%	173915 12%	97354 10%
Mean	0.78	0.77	0.79	0.79	0.78	0.78	0.73	0.79 G	0.83 G	0.79 L	0.77	0.75	0.83 KL

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Summary of LP5 (Post-COVID) percent of bulbs purchased.

BASE = PURCHASED ANY LIGHT BULBS IN CALIFORNIA FOR HOME SINCE JANUARY 1, 2019 [LP3]

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	11322383 100%	5288177 100%	4531266 100%	1477900 100%	6188533 100%	5133849 100%	1933543 100%	8407293 100%	981547 100%	6124583 100%	2764852 100%	1451400 100%	981547 100%
Unweighted Total	1463	597	597	266	827	636	350	949	164	445	449	405	164
100%	464382 4%	252718 5%	154224 3%	57440 4%	256428 4%	207954 4%	114040 6% I	337392 4% I	12949 1%	255442 4% M	152639 6% LM	43351 3%	12949 1%
76-99%	18402 *%	8918 *%	9484 *%	-	10746 *%	7656 *%	4306 *%	14096 *%	-	3088 *%	6786 *%	8528 1%	-
51-75%	382090 3%	216927 4%	123156 3%	42007 3%	178777 3%	203313 4%	68394 4%	285033 3%	28663 3%	230668 4%	73299 3%	49460 3%	28663 3%
1-50%	4336207 38%	1931009 37%	1801307 40%	598968 41%	2474203 40%	1862004 36%	842726 44%	3123211 37%	370270 38%	2129938 35%	1103609 40%	732390 50% JKM	370270 38%
0%	4668155 41%	2227954 42%	1828796 40%	606753 41%	2490522 40%	2177633 42%	671330 35%	3524515 42% G	472310 48% G	2675128 44% L	1076961 39% L	443755 31%	472310 48% KL
Don't Know/No bulbs purchased	1453146 13%	650650 12%	614299 14%	172734 12%	777857 13%	675289 13%	232747 12%	1123045 13%	97354 10%	830319 14%	351558 13%	173915 12%	97354 10%
Mean	0.22	0.23	0.21	0.21	0.22	0.22	0.27 HI	0.21	0.17	0.21	0.23 M	0.25 JM	0.17

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL1 Of the [LP4] light bulbs you've purchased between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any reflector or flood bulbs?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Yes	3832069 32%	1757565 31%	1545284 31%	529221 33%	2093608 32%	1738461 32%	559265 27%	2823799 31%	449005 45% GH	1892334 28%	862174 29%	628556 42% JK	449005 45% JK
No	6580067 54%	3110531 56%	2604146 53%	855814 54%	3535119 53%	3044947 55%	1164604 56% I	4969161 55% I	446302 45%	3860878 58% LM	1608968 54% LM	663919 44%	446302 45%
Don't know	1714320 14%	719716 13%	780831 16%	198310 13%	985302 15%	729018 13%	352814 17% I	1265691 14%	95816 10%	916381 14%	499066 17% M	203058 14%	95816 10%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL1-LP5 Of the [LP5] light bulbs you've purchased after March 2020 (after shelter-in-place orders took effect due to COVID-19), did you buy any reflector or flood bulbs?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	464382 100%	252718 100%	154224 100%	57440 100%	256428 100%	207954 100%	114040 100%	337392 100%	12949 100%	255442 100%	152639 100%	43351 100%	12949 100%
Unweighted Total	57	26	19	12	32	25	17	37	3	17	25	12	3
Yes Post-COVID ONLY	91365 20%	49577 20%	30973 20%	10815 19%	50153 20%	41213 20%	38209 34%	53157 16%	-	14926 6%	41851 27% J	34588 80% JK	-
No	373017 80%	203141 80%	123251 80%	46625 81%	206276 80%	166741 80%	75832 66%	284235 84%	12949 100% GH	240516 94% KL	110788 73% L	8763 20%	12949 100% KL
Don't know	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL2-1 What type of reflector bulbs were they?

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3832069 100%	1757565 100%	1545284 100%	529221 100%	2093608 100%	1738461 100%	559265 100%	2823799 100%	449005 100%	1892334 100%	862174 100%	628556 100%	449005 100%
Unweighted Total	529	204	223	102	304	225	121	337	71	135	143	180	71
LED	2871369 75%	1299008 74%	1111898 72%	460462 87% BC	1521507 73%	1349862 78%	366066 65%	2112647 75%	392656 87% GH	1334217 71%	680739 79%	463756 74%	392656 87% JL
CFL	645470 17%	336733 19% D	252418 16%	56319 11%	370134 18%	275335 16%	189345 34% HI	411867 15%	44257 10%	298116 16%	162975 19% M	140121 22% M	44257 10%
Incandescent/ Halogen	544729 14%	267441 15%	214454 14%	62834 12%	256931 12%	287797 17%	86752 16%	427273 15% I	30704 7%	306585 16% M	115280 13%	92159 15% M	30704 7%
Don't know	154653 4%	61684 4%	85530 6% D	7439 1%	111924 5% F	42729 2%	10673 2%	123613 4%	20367 5%	114270 6% KL	7635 1%	12380 2%	20367 5%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL2-2 What type of reflector bulbs were they?

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3832069	1757565	1545284	529221	2093608	1738461	559265	2823799	449005	1892334	862174	628556	449005
TOTAL RESPONDING	3677416 100%	1695881 100%	1459754 100%	521782 100%	1981684 100%	1695732 100%	548592 100%	2700186 100%	428638 100%	1778064 100%	854539 100%	616175 100%	428638 100%
Unweighted Total	514	200	213	101	292	222	118	327	69	127	142	176	69
LED	2871369 78%	1299008 77%	1111898 76%	460462 88% BC	1521507 77%	1349862 80%	366066 67%	2112647 78% G	392656 92% GH	1334217 75%	680739 80%	463756 75%	392656 92% JKL
CFL	645470 18%	336733 20% D	252418 17%	56319 11%	370134 19%	275335 16%	189345 35% HI	411867 15%	44257 10%	298116 17%	162975 19% M	140121 23% M	44257 10%
Incandescent/ Halogen	544729 15%	267441 16%	214454 15%	62834 12%	256931 13%	287797 17%	86752 16%	427273 16% I	30704 7%	306585 17% M	115280 13%	92159 15%	30704 7%
Don't know	154653	61684	85530	7439	111924	42729	10673	123613	20367	114270	7635	12380	20367

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL3-1 Where did you purchase these reflector bulbs?

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3677416 100%	1695881 100%	1459754 100%	521782 100%	1981684 100%	1695732 100%	548592 100%	2700186 100%	428638 100%	1778064 100%	854539 100%	616175 100%	428638 100%
Unweighted Total	514	200	213	101	292	222	118	327	69	127	142	176	69
[NET] Large Home Improvement	2230134 61%	907848 54%	1007439 69% B	314847 60%	1244299 63%	985835 58%	352178 64%	1619834 60%	258122 60%	1019844 57%	530587 62%	421581 68% J	258122 60%
Home Depot or Lowe's	2171935 59%	869620 51%	1007439 69% BD	294876 57%	1232636 62%	939299 55%	340506 62%	1581874 59%	249556 58%	991023 56%	521433 61%	409923 67% J	249556 58%
Other Large Home Improvement Store	76793 2%	41578 2%	9831 1%	25385 5%	21495 1%	55299 3%	14190 3%	49384 2%	13219 3%	28821 2%	9154 1%	25599 4% K	13219 3%
[NET] Retail Store Website	747314 20%	369133 22%	239683 16%	138497 27% C	382264 19%	365050 22%	70096 13%	536682 20%	140536 33% GH	305321 17%	197171 23%	104286 17%	140536 33% JL
Online Purchase from Online Retailer	738064 20%	365061 22%	234505 16%	138497 27% C	373014 19%	365050 22%	70096 13%	527432 20%	140536 33% GH	305321 17%	197171 23%	95036 15%	140536 33% JL
Retail Store Website	13903 *%	4072 *%	9831 1%	-	13903 1%	-	-	9250 *%	4653 1%	-	-	9250 2%	4653 1%
Costco or Sam's Club	630056 17%	323928 19%	199725 14%	106404 20%	353525 18%	276532 16%	155372 28% H	393647 15%	81037 19%	309332 17%	138990 16%	100697 16%	81037 19%
Wal-Mart or Target	470365 13%	234218 14% D	205706 14% D	30441 6%	333233 17% F	137132 8%	174299 32% HI	286490 11% I	9576 2%	256187 14% M	114015 13% M	90588 15% M	9576 2%
Small Hardware Store	352911 10%	216072 13% D	110119 8%	26720 5%	159307 8%	193604 11%	15536 3%	319794 12% GI	17581 4%	164740 9%	93715 11% M	76875 12% M	17581 4%
Discount Store	85025 2%	48310 3%	22280 2%	14434 3%	55513 3%	29512 2%	51889 9% H	33136 1%	-	37436 2%	29407 3%	18182 3%	-
[NET] Grocery Store	74567 2%	47137 3%	14125 1%	13305 3%	16223 1%	58344 3% E	19282 4%	55285 2%	-	61597 3%	7054 1%	5916 1%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL3-1 Where did you purchase these reflector bulbs?

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Grocery Store	56623 2%	43318 3%	-	13305 3%	2097 *%	54526 3% E	15464 3%	41159 2%	-	47471 3%	7054 1%	2097 *%	-
Convenience Store	33408 1%	19282 1%	14125 1%	-	14125 1%	19282 1%	19282 4% H	14125 1%	-	29589 2%	-	3819 1%	-
Lighting and Electronics Store	61970 2%	33378 2%	14490 1%	14103 3%	18050 1%	43920 3%	-	57047 2%	4923 1%	39675 2%	7054 1%	10318 2%	4923 1%
Drug Store	35095 1%	20800 1%	3088 *%	11207 2%	-	35095 2%	3088 1%	32008 1%	-	35095 2%	-	-	-
Other [SPECIFY NAME OF STORE]	67212 2%	27855 2%	14125 1%	25232 5%	22364 1%	44848 3%	2518 *%	61051 2%	3643 1%	34925 2%	11650 1%	16993 3%	3643 1%
Don't know	29719 1%	29719 2%	-	-	5568 *%	24150 1%	-	29719 1%	-	20800 1%	5568 1%	3350 1%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL3-2 Where did you purchase these reflector bulbs?

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3677416	1695881	1459754	521782	1981684	1695732	548592	2700186	428638	1778064	854539	616175	428638
TOTAL RESPONDING	3647698 100%	1666162 100%	1459754 100%	521782 100%	1976116 100%	1671582 100%	548592 100%	2670468 100%	428638 100%	1757264 100%	848971 100%	612825 100%	428638 100%
Unweighted Total	511	197	213	101	291	220	118	324	69	126	141	175	69
[NET] Large Home Improvement	2230134 61%	907848 54%	1007439 69% B	314847 60%	1244299 63%	985835 59%	352178 64%	1619834 61%	258122 60%	1019844 58%	530587 62%	421581 69% J	258122 60%
Home Depot or Lowe's	2171935 60%	869620 52%	1007439 69% BD	294876 57%	1232636 62%	939299 56%	340506 62%	1581874 59%	249556 58%	991023 56%	521433 61%	409923 67% J	249556 58%
Other Large Home Improvement Store	76793 2%	41578 2%	9831 1%	25385 5%	21495 1%	55299 3%	14190 3%	49384 2%	13219 3%	28821 2%	9154 1%	25599 4% K	13219 3%
[NET] Retail Store Website	747314 20%	369133 22%	239683 16%	138497 27% C	382264 19%	365050 22%	70096 13%	536682 20%	140536 33% GH	305321 17%	197171 23%	104286 17%	140536 33% JL
Online Purchase from Online Retailer	738064 20%	365061 22%	234505 16%	138497 27% C	373014 19%	365050 22%	70096 13%	527432 20%	140536 33% GH	305321 17%	197171 23%	95036 16%	140536 33% JL
Retail Store Website	13903 *%	4072 *%	9831 1%	-	13903 1%	-	-	9250 *%	4653 1%	-	-	9250 2%	4653 1%
Costco or Sam's Club	630056 17%	323928 19%	199725 14%	106404 20%	353525 18%	276532 17%	155372 28% H	393647 15%	81037 19%	309332 18%	138990 16%	100697 16%	81037 19%
Wal-Mart or Target	470365 13%	234218 14% D	205706 14% D	30441 6%	333233 17% F	137132 8%	174299 32% HI	286490 11% I	9576 2%	256187 15% M	114015 13% M	90588 15% M	9576 2%
Small Hardware Store	352911 10%	216072 13% D	110119 8%	26720 5%	159307 8%	193604 12%	15536 3%	319794 12% GI	17581 4%	164740 9%	93715 11% M	76875 13% M	17581 4%
Discount Store	85025 2%	48310 3%	22280 2%	14434 3%	55513 3%	29512 2%	51889 9% H	33136 1%	-	37436 2%	29407 3%	18182 3%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL3-2 Where did you purchase these reflector bulbs?

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
[NET] Grocery Store	74567 2%	47137 3%	14125 1%	13305 3%	16223 1%	58344 3% E	19282 4%	55285 2%	-	61597 4%	7054 1%	5916 1%	-
Grocery Store	56623 2%	43318 3%	-	13305 3%	2097 *%	54526 3% E	15464 3%	41159 2%	-	47471 3%	7054 1%	2097 *%	-
Convenience Store	33408 1%	19282 1%	14125 1%	-	14125 1%	19282 1%	19282 4% H	14125 1%	-	29589 2%	-	3819 1%	-
Lighting and Electronics Store	61970 2%	33378 2%	14490 1%	14103 3%	18050 1%	43920 3%	-	57047 2%	4923 1%	39675 2%	7054 1%	10318 2%	4923 1%
Drug Store	35095 1%	20800 1%	3088 *%	11207 2%	-	35095 2%	3088 1%	32008 1%	-	35095 2%	-	-	-
Other [SPECIFY NAME OF STORE]	67212 2%	27855 2%	14125 1%	25232 5%	22364 1%	44848 3%	2518 *%	61051 2%	3643 1%	34925 2%	11650 1%	16993 3%	3643 1%
Don't know	29719	29719	-	-	5568	24150	-	29719	-	20800	5568	3350	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_MEANS Number of reflector bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3677416	1695881	1459754	521782	1981684	1695732	548592	2700186	428638	1778064	854539	616175	428638
Unweighted Total	514	200	213	101	292	222	118	327	69	127	142	176	69
Total Reflector bulbs purchased	7.06	6.72	6.55	9.60 BC	7.53	6.52	8.22	6.69	7.92	6.37	7.13	8.38	7.92
Total LED Reflector	5.30	5.30	4.57	7.34 C	5.69	4.84	5.71	4.91	7.23 H	4.46	5.66	5.88	7.23 J
NET Home Depot/Lowe's / Other Large Home Improvement	2.12	1.91	2.27	2.38	2.20	2.04	2.20	2.02	2.65	1.85	1.89	2.87 JK	2.65
Home Depot or Lowe's	4.60	4.77	4.48	4.52	4.81	4.35	4.87	4.45	5.12	4.39	4.00	5.50	5.12
Other Large Home Improvement Store	2.12	2.18	0.00	2.92	1.09	2.54	0.78	2.66	1.30	2.00	1.00	3.19	1.30
Costco or Sam's Club	7.60	7.81	5.76	9.97	7.63	7.56	7.36	6.63	12.28 H	5.67	9.12	7.90	12.28 J
Wal-Mart or Target	3.89	4.10	3.60	4.87	3.88	3.91	5.39	2.98	3.00	4.75	2.07	3.79	3.00
Small Hardware Store	3.90	3.84	3.72	5.01	4.43	3.53	3.36	3.75	6.41	3.29	4.18	4.19	6.41
NET Convenience Store/Grocery Store	0.03	0.02	0.05	0.02	0.04	0.03	0.06 I	0.03	0.00	0.06	0.01	0.00	0.00
Convenience Store	2.91	1.00	5.00	-	5.00	1.00	1.00	5.00	-	2.91	-	-	-
Grocery Store	1.00	1.00	-	1.00	-	1.00	1.00	1.00	-	1.00	1.00	-	-
Discount Store	6.44	2.71	1.15	29.78 B	9.27	2.30	2.38	12.01	-	8.10	3.89	6.00	-
Lighting and Electronics Store	4.19	6.06	2.00	2.00	4.61	4.01	-	4.12	5.00	1.65	2.00	15.06	5.00 J
Drug Store	2.30	3.00	-	1.00	-	2.30	-	2.30	-	2.30	-	-	-
NET Online Purchase / Retail Store Website	1.07	1.16	0.87	1.35	1.24	0.87	0.62	1.02	1.96	0.62	1.88 JL	0.64	1.96 JL
Online Purchase from Online Retailer	5.58	5.47	5.50	6.06	6.54	4.50	5.20	5.51	6.01	3.92	8.44	4.03	6.01

Comparison Groups: BCD/EF/GHI/JKLM

Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)

Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_MEANS Number of reflector bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Retail Store Website	4.18	6.00	3.42	-	4.18	-	-	3.76	5.00	-	-	3.76	5.00
Other	11.04	10.00	10.00	11.91	9.43	12.53	2.00	11.79	9.00	10.00	9.21	13.59	9.00
Total Incandescent/Halogen Reflector	0.67	0.49	0.91	0.62	0.83	0.49	0.83	0.70	0.32	0.74	0.64	0.76	0.32
NET Home Depot/Lowe's / Other Large Home Improvement	0.36	0.16	0.66 B	0.19	0.50 F	0.20	0.23	0.40	0.30	0.39	0.24	0.47	0.30
Home Depot or Lowe's	3.55	1.90	5.19 B	2.16	5.42 F	1.77	2.17	3.85	3.52	3.73	2.75	3.95	3.52
Other Large Home Improvement Store	2.60	-	4.00	0.00	4.00	0.00	0.00	-	4.00	-	-	0.00	4.00
Costco or Sam's Club	3.97	1.36	9.03	1.85	7.18	1.13	2.97	4.38	-	1.00	6.43	2.55	-
Wal-Mart or Target	3.00	2.21	2.90	7.12 BC	3.31	2.66	4.57	2.18	2.00	4.11	2.22	2.89	2.00
Small Hardware Store	3.23	2.83	4.64	-	5.18	1.34	3.76	3.20	-	2.81	5.78	2.20	-
NET Convenience Store/Grocery Store	0.02	0.04 C	0.00	0.03 C	0.00	0.05 E	0.06 HI	0.02	0.00	0.05 KL	0.00	0.00	0.00
Convenience Store	1.00	1.00	-	-	-	1.00	1.00	-	-	1.00	-	-	-
Grocery Store	1.42	1.57	-	1.00	1.00	1.44	1.00	1.61	-	1.44	-	1.00	-
Discount Store	2.00	-	-	2.00	2.00	-	2.00	-	-	-	-	2.00	-
Lighting and Electronics Store	0.00	-	-	0.00	-	0.00	-	0.00	-	0.00	-	-	-
Drug Store	1.00	-	-	1.00	-	1.00	-	1.00	-	1.00	-	-	-
NET Online Purchase / Retail Store Website	0.04	0.02	0.03	0.13	0.03	0.05	0.10	0.03	0.00	0.05	0.00	0.10	0.00
Online Purchase from Online Retailer	1.91	1.66	1.45	2.43	2.02	1.86	5.80 I	1.39	0.00	1.67	-	3.36	0.00
Retail Store Website	2.00	-	2.00	-	2.00	-	-	2.00	-	-	-	2.00	-
Other	3.00	3.00	-	-	-	3.00	-	3.00	-	3.00	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_MEANS Number of reflector bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY REFLECTOR OR FLOOD BULBS [RL1] / SELECTED ANY TECHNOLOGY [RL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total CFL Reflector	1.09	0.93	1.08	1.65	1.00	1.20	1.68 I	1.09	0.37	1.17	0.82	1.74 KM	0.37
NET Home Depot/Lowe's / Other Large Home Improvement	0.57	0.46	0.46	1.28 BC	0.40	0.77	0.64 I	0.63	0.15	0.68	0.33	0.91 KM	0.15
Home Depot or Lowe's	4.54	3.21	3.62	17.76 BC	2.93	6.92 E	2.85	5.54	1.66	5.90	2.25	5.66 K	1.66
Other Large Home Improvement Store	1.42	1.00	0.00	3.50	0.00	1.89	1.89	-	0.00	-	1.00	3.50	0.00
Costco or Sam's Club	8.26	4.79	14.23	7.58	13.32	4.04	5.67	10.94	4.00	7.60	9.08	9.69	4.00
Wal-Mart or Target	3.33	3.76	1.79	6.00 C	2.59	4.12	3.12	3.46	-	5.10 L	0.88	2.04	-
Small Hardware Store	2.35	0.90	4.64	2.00	2.87	1.92	12.00 H	2.07	-	4.00	1.50	2.00	-
NET Convenience Store/Grocery Store	0.00	0.01	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.02	0.00
Convenience Store	4.00	4.00	-	-	-	4.00	4.00	-	-	-	-	4.00	-
Grocery Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Discount Store	3.44	1.71	4.00	7.21	2.69	8.00 E	3.21	4.00	-	-	1.00	4.65	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	4.00	-	4.00	-	-	4.00	4.00	-	-	4.00	-	-	-
NET Online Purchase / Retail Store Website	0.08	0.08	0.11	0.00	0.08	0.08	0.04	0.07	0.17	0.01	0.19	0.07	0.17
Online Purchase from Online Retailer	4.43	5.07	5.54	0.00	4.63	4.22	1.43	4.82	8.00	0.58	8.15	3.90	8.00
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
No Answer	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_TOT Number of reflector bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total Reflector bulbs purchased	25972646 100%	11393237 100%	9567789 100%	5011620 100%	14913119 100%	11059527 100%	4511374 100%	18067764 100%	3393508 100%	11327606 100%	6090798 100%	5160734 100%	3393508 100%
Total LED Reflector	19484619 75%	8990162 79%	6665147 70%	3829310 76%	11279777 76%	8204842 74%	3133569 69%	13251470 73%	3099580 91%	7921735 70%	4838959 79%	3624345 70%	3099580 91%
NET Home Depot/Lowe's / Other Large Home Improvement	7807717 30%	3247311 29%	3319339 35%	1241067 25%	4354627 29%	3453089 31%	1209483 27%	5463749 30%	1134484 33%	3290380 29%	1612747 26%	1770106 34%	1134484 33%
Home Depot or Lowe's	7650210 29%	3156559 28%	3319339 35% D	1174312 23%	4331300 29%	3318910 30%	1200329 27%	5332530 30%	1117352 33%	3232739 29%	1603592 26%	1696527 33%	1117352 33%
Other Large Home Improvement Store	157506 1%	90752 1%	-	66755 1%	23327 *%	134179 1% E	9154 *%	131220 1% G	17132 1%	57641 1%	9154 *%	73579 1% JKM	17132 1%
Costco or Sam's Club	4028389 16%	2060194 18%	941243 10%	1026952 20%	2240170 15%	1788220 16%	796500 18%	2291068 13%	940821 28%	1581222 14%	946199 16%	560147 11%	940821 28% L
Wal-Mart or Target	1187158 5%	516654 5% D	573171 6%	97334 2%	977175 7% F	209983 2%	617911 14% HI	554479 3% I	14768 *% KM	808585 7% KM	156658 3% M	207147 4% M	14768 *%
Small Hardware Store	1132708 4%	723288 6%	300756 3%	108664 2%	524053 4%	608655 6%	44065 1%	975911 5% G	112732 3%	448887 4%	298804 5%	272286 5%	112732 3%
NET Convenience Store/Grocery Store	119816 *%	37982 *%	70627 1%	11207 *%	70627 *%	49189 *%	30927 1%	88889 *%	-	112762 1%	7054 *%	-	-
Convenience Store	86091 *%	15464 *%	70627 1%	-	70627 *%	15464 *%	15464 *%	70627 *%	-	86091 1%	-	-	-
Grocery Store	33726 *%	22518 *%	-	11207 *%	-	33726 *%	15464 *%	18262 *%	-	26671 *%	7054 *%	-	-
Discount Store	427399 2%	106365 1%	19715 *%	301319 6% C	365345 2%	62054 1%	91489 2%	335910 2%	-	303225 3%	91489 2%	32685 1%	-
Lighting and Electronics Store	259518 1%	202333 2%	28980 *%	28205 1%	83205 1%	176312 2%	-	234904 1%	24614 1%	65373 1% K	14109 *%	155422 3% JKM	24614 1%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_TOT Number of reflector bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Drug Store	73608 *%	62400 1%	-	11207 *%	-	73608 1%	-	73608 *%	-	73608 1%	-	-	-
NET Online Purchase / Retail Store Website	3936097 15%	1963090 17%	1270063 13%	702944 14%	2453767 16%	1482330 13%	338158 7%	2758569 15%	839370 25%	1096441 10%	1604591 26% L	395694 8%	839370 25% L
Online Purchase from Online Retailer	3878043 15%	1938657 17%	1236442 13%	702944 14%	2395713 16%	1482330 13%	338158 7%	2723780 15%	816105 24% G	1096441 10%	1604591 26% JL	360905 7%	816105 24% L
Retail Store Website	58054 *%	24433 *%	33621 *%	-	58054 *%	-	-	34789 *%	23265 1% H	-	-	34789 1%	23265 1%
Other	512208 2%	70544 1%	141254 1%	300410 6% B	210807 1%	301401 3%	5035 *%	474383 3% G	32790 1%	141254 1%	107308 2% JM	230857 4%	32790 1%
Total Incandescent/Halogen Reflector	2470639 10%	824439 7%	1324797 14%	321403 6%	1647749 11%	822890 7%	457852 10%	1876931 10% I	135857 4%	1320140 12%	549090 9%	465552 9%	135857 4%
NET Home Depot/Lowe's / Other Large Home Improvement	1321722 5%	266487 2%	958120 10% BD	97116 2%	988810 7%	332912 3%	126252 3%	1068920 6%	126550 4%	696196 6%	207287 3%	291688 6%	126550 4%
Home Depot or Lowe's	1303110 5%	266487 2%	939508 10% BD	97116 2%	970198 7% F	332912 3%	126252 3%	1068920 6%	107938 3%	696196 6%	207287 3%	291688 6%	107938 3%
Other Large Home Improvement Store	18612 *%	-	18612 *%	-	18612 *%	-	-	-	18612 1%	-	-	-	18612 1%
Costco or Sam's Club	174231 1%	17640 *%	124880 1%	31711 1%	147917 1%	26314 *%	38144 1%	136087 1%	-	11207 *%	132165 2%	30859 1%	-
Wal-Mart or Target	348919 1%	147851 1%	103236 1%	97832 2%	202178 1%	146741 1%	184414 4% HI	155199 1% I	9306 *%	173077 2%	114365 2% LM	52171 1% M	9306 *%
Small Hardware Store	317782 1%	217331 2%	100451 1%	-	250554 2%	67229 1%	18928 *%	298854 2%	-	195357 2%	95273 2% L	27153 1%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_TOT Number of reflector bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
NET Convenience Store/Grocery Store	85833 *%	72528 1%	-	13305 *%	2097 *%	83735 1% E	30927 1%	54905 *%	-	83735 1% L	-	2097 *%	-
Convenience Store	15464 *%	15464 *%	-	-	-	15464 *%	15464 *%	-	-	15464 *%	-	-	-
Grocery Store	70369 *%	57064 1%	-	13305 *%	2097 *%	68271 1% E	15464 *%	54905 *%	-	68271 1% L	-	2097 *%	-
Discount Store	1799 *%	-	-	1799 *%	1799 *%	-	1799 *%	-	-	-	-	1799 *%	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	11207 *%	-	-	11207 *%	-	11207 *%	-	11207 *%	-	11207 *%	-	-	-
NET Online Purchase / Retail Store Website	146746 1%	40202 *%	38110 *%	68433 1%	54394 *%	92352 1%	57388 1%	89358 *%	-	86960 1%	-	59785 1%	-
Online Purchase from Online Retailer	136390 1%	40202 *%	27755 *%	68433 1%	44038 *%	92352 1%	57388 1%	79002 *%	-	86960 1%	-	49429 1%	-
Retail Store Website	10356 *%	-	10356 *%	-	10356 *%	-	-	10356 *%	-	-	-	10356 *%	-
Other	62400 *%	62400 1%	-	-	-	62400 1%	-	62400 *%	-	62400 1%	-	-	-
Total CFL Reflector	4017388 15%	1578636 14%	1577844 16%	860908 17%	1985593 13%	2031795 18%	919953 20% I	2939363 16% I	158072 5%	2085731 18% M	702749 12%	1070837 21% M	158072 5%
NET Home Depot/Lowe's / Other Large Home Improvement	2108950 8%	775567 7%	664558 7%	668825 13%	801613 5%	1307337 12%	351534 8% I	1691559 9% I	65857 2%	1206374 11%	277951 5%	558768 11% KM	65857 2%
Home Depot or Lowe's	2082171 8%	766412 7%	664558 7%	651201 13%	801613 5%	1280558 12%	324755 7% I	1691559 9% I	65857 2%	1206374 11%	268797 4% M	541144 10% KM	65857 2%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_TOT Number of reflector bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Other Large Home Improvement Store	26778 *%	9154 *%	-	17624 *%	-	26778 *%	26778 1%	-	-	-	9154 *%	17624 *%	-
Costco or Sam's Club	1084725 4%	334083 3%	608354 6%	142287 3%	795616 5%	289109 3%	345512 8% I	721447 4% I	17766 1%	540685 5% M	197348 3%	328926 6% M	17766 1%
Wal-Mart or Target	333750 1%	274860 2% CD	43784 *%	15106 *%	134087 1%	199663 2%	116865 3% H	216886 1%	-	254355 2% K	17640 *%	61755 1% K	-
Small Hardware Store	101976 *%	20809 *%	71117 1%	10050 *%	56501 *%	45475 *%	14616 *%	87360 *%	-	56501 *%	38775 1%	6700 *%	-
NET Convenience Store/Grocery Store	15274 *%	15274 *%	-	-	-	15274 *%	15274 *%	-	-	-	-	15274 *%	-
Convenience Store	15274 *%	15274 *%	-	-	-	15274 *%	15274 *%	-	-	-	-	15274 *%	-
Grocery Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Discount Store	60950 *%	15599 *%	20711 *%	24639 *% BC	40808 *%	20142 *%	40238 1%	20711 *%	-	-	5880 *%	55070 1% K	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	12352 *%	-	12352 *%	-	-	12352 *%	12352 *%	-	-	12352 *%	-	-	-
NET Online Purchase / Retail Store Website	299411 1%	142444 1%	156967 2%	-	156967 1%	142444 1%	23562 1%	201400 1%	74449 2%	15464 *%	165155 3%	44344 1%	74449 2%
Online Purchase from Online Retailer	299411 1%	142444 1%	156967 2%	-	156967 1%	142444 1%	23562 1%	201400 1%	74449 2%	15464 *%	165155 3%	44344 1%	74449 2% J
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_LED Number of reflector bulbs purchased

LED

VOLUMETRIC BASE = TOTAL NUMBER OF LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total LED Reflector	19484619 100%	8990162 100%	6665147 100%	3829310 100%	11279777 100%	8204842 100%	3133569 100%	13251470 100%	3099580 100%	7921735 100%	4838959 100%	3624345 100%	3099580 100%
NET Home Depot/Lowe's / Other Large Home Improvement	7807717 40%	3247311 36%	3319339 50%	1241067 32%	4354627 39%	3453089 42%	1209483 39%	5463749 41%	1134484 37%	3290380 42%	1612747 33%	1770106 49%	1134484 37%
Home Depot or Lowe's	7650210 39%	3156559 35%	3319339 50% BD	1174312 31%	4331300 38%	3318910 40%	1200329 38%	5332530 40%	1117352 36%	3232739 41%	1603592 33%	1696527 47% K	1117352 36%
Other Large Home Improvement Store	157506 1%	90752 1%	-	66755 2%	23327 *%	134179 2% E	9154 *%	131220 1% G	17132 1%	57641 1%	9154 *%	73579 2% JKM	17132 1%
Costco or Sam's Club	4028389 21%	2060194 23%	941243 14%	1026952 27%	2240170 20%	1788220 22%	796500 25%	2291068 17%	940821 30%	1581222 20%	946199 20%	560147 15%	940821 30%
Wal-Mart or Target	1187158 6%	516654 6% D	573171 9% D	97334 3%	977175 9% F	209983 3%	617911 20% HI	554479 4% I	14768 *%	808585 10% KM	156658 3% M	207147 6% M	14768 *%
Small Hardware Store	1132708 6%	723288 8%	300756 5%	108664 3%	524053 5%	608655 7%	44065 1%	975911 7% G	112732 4%	448887 6%	298804 6%	272286 8%	112732 4%
NET Convenience Store/Grocery Store	119816 1%	37982 *%	70627 1%	11207 *%	70627 1%	49189 1%	30927 1%	88889 1%	-	112762 1%	7054 *%	-	-
Convenience Store	86091 *%	15464 *%	70627 1%	-	70627 1%	15464 *%	15464 *%	70627 1%	-	86091 1%	-	-	-
Grocery Store	33726 *%	22518 *%	-	11207 *%	-	33726 *%	15464 *%	18262 *%	-	26671 *%	7054 *%	-	-
Discount Store	427399 2%	106365 1%	19715 *%	301319 8% C	365345 3%	62054 1%	91489 3%	335910 3%	-	303225 4%	91489 2%	32685 1%	-
Lighting and Electronics Store	259518 1%	202333 2%	28980 *%	28205 1%	83205 1%	176312 2%	-	234904 2%	24614 1%	65373 1% K	14109 *%	155422 4% JKM	24614 1%
Drug Store	73608 *%	62400 1%	-	11207 *%	-	73608 1%	-	73608 1%	-	73608 1%	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_LED Number of reflector bulbs purchased

LED

VOLUMETRIC BASE = TOTAL NUMBER OF LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	
NET Online Purchase / Retail Store Website	3936097 20%	1963090 22%	1270063 19%	702944 18%	2453767 22%	1482330 18%	338158 11%	2758569 21%	839370 27%	1096441 14%	1604591 33% L	395694 11%	839370 27%
Online Purchase from Online Retailer	3878043 20%	1938657 22%	1236442 19%	702944 18%	2395713 21%	1482330 18%	338158 11%	2723780 21%	816105 26%	1096441 14%	1604591 33% L	360905 10%	816105 26% L
Retail Store Website	58054 *%	24433 *%	33621 1%	-	58054 1%	-	-	34789 *%	23265 1% H	-	-	34789 1%	23265 1%
Other	512208 3%	70544 1%	141254 2%	300410 8% B	210807 2%	301401 4%	5035 *%	474383 4% G	32790 1%	141254 2%	107308 2% JM	230857 6%	32790 1%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_IH Number of reflector bulbs purchased

Incandescent/Halogen

VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total Incandescent/Halogen Reflector	2470639 100%	824439 100%	1324797 100%	321403 100%	1647749 100%	822890 100%	457852 100%	1876931 100%	135857 100%	1320140 100%	549090 100%	465552 100%	135857 100%
NET Home Depot/Lowe's / Other Large Home Improvement	1321722 53%	266487 32%	958120 72%	97116 30%	988810 60%	332912 40%	126252 28%	1068920 57%	126550 93%	696196 53%	207287 38%	291688 63%	126550 93%
Home Depot or Lowe's	1303110 53%	266487 32%	939508 71% B	97116 30%	970198 59%	332912 40%	126252 28%	1068920 57%	107938 79%	696196 53%	207287 38%	291688 63%	107938 79%
Other Large Home Improvement Store	18612 1%	-	18612 1%	-	18612 1%	-	-	-	18612 14%	-	-	-	18612 14%
Costco or Sam's Club	174231 7%	17640 2%	124880 9%	31711 10%	147917 9%	26314 3%	38144 8%	136087 7%	-	11207 1%	132165 24%	30859 7%	-
Wal-Mart or Target	348919 14%	147851 18% C	103236 8%	97832 30% C	202178 12%	146741 18%	184414 40% HI	155199 8%	9306 7%	173077 13%	114365 21% LM	52171 11%	9306 7%
Small Hardware Store	317782 13%	217331 26%	100451 8%	-	250554 15%	67229 8%	18928 4%	298854 16%	-	195357 15%	95273 17% L	27153 6%	-
NET Convenience Store/Grocery Store	85833 3%	72528 9%	-	13305 4%	2097 *%	83735 10% E	30927 7%	54905 3%	-	83735 6% L	-	2097 *%	-
Convenience Store	15464 1%	15464 2%	-	-	-	15464 2%	15464 3%	-	-	15464 1%	-	-	-
Grocery Store	70369 3%	57064 7%	-	13305 4%	2097 *%	68271 8% E	15464 3%	54905 3%	-	68271 5% L	-	2097 *%	-
Discount Store	1799 *%	-	-	1799 1%	1799 *%	-	1799 *%	-	-	-	-	1799 *%	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	11207 *%	-	-	11207 3%	-	11207 1%	-	11207 1%	-	11207 1%	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_IH Number of reflector bulbs purchased

Incandescent/Halogen

VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
NET Online Purchase / Retail Store Website	146746 6%	40202 5%	38110 3%	68433 21%	54394 3%	92352 11%	57388 13%	89358 5%	-	86960 7%	-	59785 13%	-
Online Purchase from Online Retailer	136390 6%	40202 5%	27755 2%	68433 21%	44038 3%	92352 11%	57388 13%	79002 4%	-	86960 7%	-	49429 11%	-
Retail Store Website	10356 *%	-	10356 1%	-	10356 1%	-	-	10356 1%	-	-	-	10356 2%	-
Other	62400 3%	62400 8%	-	-	-	62400 8%	-	62400 3%	-	62400 5%	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_CFL Number of reflector bulbs purchased

CFL

VOLUMETRIC BASE = TOTAL NUMBER OF CFL REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total CFL Reflector	4017388 100%	1578636 100%	1577844 100%	860908 100%	1985593 100%	2031795 100%	919953 100%	2939363 100%	158072 100%	2085731 100%	702749 100%	1070837 100%	158072 100%
NET Home Depot/Lowe's / Other Large Home Improvement	2108950 52%	775567 49%	664558 42%	668825 78%	801613 40%	1307337 64%	351534 38%	1691559 58%	65857 42%	1206374 58%	277951 40%	558768 52%	65857 42%
Home Depot or Lowe's	2082171 52%	766412 49%	664558 42%	651201 76%	801613 40%	1280558 63%	324755 35%	1691559 58%	65857 42%	1206374 58%	268797 38%	541144 51%	65857 42%
Other Large Home Improvement Store	26778 1%	9154 1%	-	17624 2%	-	26778 1%	26778 3%	-	-	-	9154 1%	17624 2%	-
Costco or Sam's Club	1084725 27%	334083 21%	608354 39%	142287 17%	795616 40%	289109 14%	345512 38% I	721447 25%	17766 11%	540685 26% M	197348 28%	328926 31%	17766 11%
Wal-Mart or Target	333750 8%	274860 17% CD	43784 3% D	15106 2%	134087 7%	199663 10%	116865 13%	216886 7%	-	254355 12% K	17640 3%	61755 6%	-
Small Hardware Store	101976 3%	20809 1%	71117 5%	10050 1%	56501 3%	45475 2%	14616 2%	87360 3%	-	56501 3%	38775 6%	6700 1%	-
NET Convenience Store/Grocery Store	15274 *%	15274 1%	-	-	-	15274 1%	15274 2%	-	-	-	-	15274 1%	-
Convenience Store	15274 *%	15274 1%	-	-	-	15274 1%	15274 2%	-	-	-	-	15274 1%	-
Grocery Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Discount Store	60950 2%	15599 1%	20711 1%	24639 3% BC	40808 2%	20142 1%	40238 4%	20711 1%	-	-	5880 1%	55070 5% K	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	12352 *%	-	12352 1%	-	-	12352 1%	12352 1%	-	-	12352 1%	-	-	-
NET Online Purchase / Retail Store Website	299411 7%	142444 9%	156967 10%	-	156967 8%	142444 7%	23562 3%	201400 7%	74449 47%	15464 1%	165155 24%	44344 4%	74449 47%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL4_CFL Number of reflector bulbs purchased

CFL

VOLUMETRIC BASE = TOTAL NUMBER OF CFL REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	
Online Purchase from Online Retailer	299411 7%	142444 9%	156967 10%	-	156967 8%	142444 7%	23562 3%	201400 7%	74449 47% GH	15464 1%	165155 24%	44344 4%	74449 47% JL
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL5 How many of the LED reflector bulbs you purchased are currently installed at your home (either indoors or outdoors)?

BASE = 1 OR MORE LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2822857 100%	1258885 100%	1106027 100%	457944 100%	1511285 100%	1311572 100%	362330 100%	2072524 100%	388003 100%	1313417 100%	666899 100%	454538 100%	388003 100%
Unweighted Total	396	155	155	86	220	176	77	257	62	94	110	130	62
None	57354 2%	30978 2%	21760 2%	4615 1%	54836 4% F	2518 *%	2518 1%	41908 2%	12928 3%	28103 2%	7635 1%	8687 2%	12928 3%
[NET] 1 or more	2723325 96%	1215403 97%	1054594 95%	453329 99%	1437146 95%	1286179 98%	349440 96%	1998810 96%	375075 97%	1271189 97%	639739 96%	437323 96%	375075 97%
1	412932 15%	203584 16%	145800 13%	63548 14%	171552 11%	241380 18% E	44689 12%	327327 16%	40916 11%	264599 20% KL	73942 11%	33475 7%	40916 11%
2	694689 25%	320398 25%	286347 26%	87945 19%	323649 21%	371040 28%	74787 21%	543521 26%	76382 20%	327907 25%	184164 28%	106237 23%	76382 20%
3-5	589007 21%	252592 20%	240517 22%	95898 21%	316227 21%	272780 21%	54326 15%	443349 21%	91332 24%	214781 16%	142300 21%	140594 31% JK	91332 24%
6-9	575505 20%	244281 19%	221638 20%	109585 24%	328771 22%	246734 19%	81018 22%	429090 21%	65396 17%	270981 21%	155732 23%	83395 18%	65396 17%
10-19	319780 11%	122970 10%	143749 13%	53061 12%	219877 15% F	99903 8%	82149 23% H	170881 8%	66750 17%	153857 12%	53607 8%	45566 10%	66750 17%
20 or more	131413 5%	71577 6%	16544 1%	43292 9% C	77071 5%	54342 4%	12470 3%	84644 4%	34299 9%	39064 3%	29994 4%	28055 6%	34299 9%
Don't Know	42178 1%	12505 1%	29674 3%	-	19303 1%	22875 2%	10372 3%	31806 2%	-	14125 1%	19525 3%	8528 2%	-
Mean	5.80	5.68	5.25	7.42	6.25	5.28	7.62	5.17	7.46 H	5.15	5.64	6.47	7.46

Comparison Groups: BCD/EF/GHI/JKLM

Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)

Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL6_1 Of the remaining LED reflector bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)?

BASE = LED REFLECTOR BULBS YET TO BE INSTALLED / QUANTITY CURRENTLY INSTALLED PROVIDED [RL5] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	967199 100%	531521 100%	304053 100%	131625 100%	479140 100%	488059 100%	140684 100%	743717 100%	82798 100%	428721 100%	294248 100%	161432 100%	82798 100%
Unweighted Total	136	66	46	24	75	61	26	96	14	30	48	44	14
None	101175 10%	49201 9%	39940 13%	12034 9%	57463 12%	43712 9%	25125 18%	51030 7%	25020 30% H	24112 6%	33974 12%	18068 11%	25020 30% J
[NET] 1 or more	866024 90%	482319 91%	264113 87%	119591 91%	421677 88%	444347 91%	115559 82%	692686 93% I	57778 70%	404609 94% M	260274 88%	143363 89%	57778 70%
1	123405 13%	69752 13%	32481 11%	21173 16%	29208 6%	94197 19% E	18145 13%	100337 13%	4923 6%	65116 15%	37674 13%	15693 10%	4923 6%
2	195280 20%	73408 14%	81492 27%	40379 31%	119145 25%	76134 16%	19166 14%	159542 21%	16572 20%	76927 18%	62212 21%	39569 25%	16572 20%
3	37400 4%	18050 3%	19350 6%	-	37400 8%	-	5225 4%	32175 4%	-	28103 7%	5225 2%	4072 3%	-
4	89662 9%	67504 13%	16418 5%	5741 4%	38432 8%	51230 10%	12311 9%	69055 9%	8296 10%	34778 8%	37322 13%	9266 6%	8296 10%
5 or more	136853 14%	86250 16%	39396 13%	11207 9%	79502 17%	57351 12%	7070 5%	120207 16%	9576 12%	74089 17%	31754 11%	21435 13%	9576 12%
Don't Know	283423 29%	167355 31%	74977 25%	41091 31%	117989 25%	165434 34%	53642 38%	211370 28%	18412 22%	125596 29%	86087 29%	53329 33%	18412 22%
Mean	2.92	3.31	2.60	2.12	3.29	2.51	2.00	3.17	2.07	2.93	3.15	2.96	2.07

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL5/RL6-1 Sum of LED reflector bulbs currently installed or planned for installation within the next year.

BASE = 1 OR MORE LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2822857 100%	1258885 100%	1106027 100%	457944 100%	1511285 100%	1311572 100%	362330 100%	2072524 100%	388003 100%	1313417 100%	666899 100%	454538 100%	388003 100%
Unweighted Total	396	155	155	86	220	176	77	257	62	94	110	130	62
None	20563 1%	12928 1%	7635 1%	-	20563 1%	-	-	7635 *%	12928 3%	-	7635 1%	-	12928 3%
[NET] 1 or more	2518870 89%	1078602 86%	1023416 93%	416853 91%	1372733 91%	1146137 87%	308688 85%	1853519 89%	356663 92%	1187821 90%	573177 86%	401209 88%	356663 92%
1	266561 9%	109706 9%	123675 11%	33180 7%	142396 9%	124165 9%	29225 8%	206266 10%	31070 8%	156652 12%	50689 8%	28150 6%	31070 8%
2	523036 19%	178743 14%	251292 23% B	93002 20%	268758 18%	254278 19%	44031 12%	397701 19%	81305 21%	241983 18%	122525 18%	77224 17%	81305 21%
3-5	638532 23%	298536 24%	260786 24%	79210 17%	312420 21%	326112 25%	46920 13%	526697 25% G	64915 17%	296464 23%	155263 23%	121890 27%	64915 17%
6-9	526536 19%	233016 19%	193692 18%	99828 22%	289986 19%	236549 18%	85400 24%	375761 18%	65375 17%	239691 18%	131918 20%	89552 20%	65375 17%
10-19	421807 15%	183673 15%	169792 15%	68341 15%	274467 18%	147340 11%	90642 25% H	251466 12%	79700 21%	213968 16%	75152 11%	52988 12%	79700 21%
20 or more	142398 5%	74927 6%	24178 2%	43292 9% C	84706 6%	57692 4%	12470 3%	95629 5%	34299 9%	39064 3%	37629 6%	31406 7%	34299 9%
Don't Know	283423 10%	167355 13%	74977 7%	41091 9%	117989 8%	165434 13%	53642 15% I	211370 10%	18412 5%	125596 10%	86087 13% M	53329 12%	18412 5%
Mean	6.77	7.09	5.80	8.34	7.15	6.31	8.87	6.18	7.98	6.20	6.76	7.34	7.98

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RL5/RL6-2 Installation Rate (Percentage of LED reflector bulbs purchased that are currently installed or planned for installation.)

BASE = 1 OR MORE LED REFLECTOR BULBS PURCHASED [RL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2822857 100%	1258885 100%	1106027 100%	457944 100%	1511285 100%	1311572 100%	362330 100%	2072524 100%	388003 100%	1313417 100%	666899 100%	454538 100%	388003 100%
Unweighted Total	396	155	155	86	220	176	77	257	62	94	110	130	62
100%	2325824 82%	991609 79%	943447 85%	390768 85%	1289419 85%	1036405 79%	264200 73%	1717053 83%	344572 89% G	1098958 84%	517927 78%	364368 80%	344572 89% K
51-99%	123375 4%	57774 5%	46955 4%	18646 4%	60670 4%	62705 5%	27806 8%	95569 5%	-	73400 6%	30190 5%	19786 4%	-
0-50%	90234 3%	42147 3%	40649 4%	7439 2%	43207 3%	47027 4%	16682 5%	48533 2%	25020 6%	15464 1%	32695 5%	17056 4%	25020 6%
Don't Know	283423 10%	167355 13%	74977 7%	41091 9%	117989 8%	165434 13%	53642 15% I	211370 10%	18412 5%	125596 10%	86087 13% M	53329 12%	18412 5%
Mean	96.16	96.03	95.35	98.48	96.19	96.11	95.21	96.57	94.87	97.67	94.55	95.18	94.87

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL1 Of the [LP4] light bulbs you've purchased between January 1, 2019 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any candelabra bulbs?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Yes	2676655 22%	1152550 21%	1155634 23%	363549 23%	1561705 24%	1114950 20%	473021 23%	1956637 22%	246998 25%	1359483 20%	646287 22%	423888 28% JK	246998 25%
No	7879421 65%	3713551 66%	3109599 63%	1051618 66%	4154772 63%	3724649 68%	1271087 61%	5951728 66%	656606 66%	4477440 67% L	1870725 63%	874650 58%	656606 66%
Don't know	1570380 13%	721711 13%	665027 13%	168177 11%	897552 14%	672827 12%	332576 16% I	1150285 13%	87520 9%	832670 12%	453196 15% M	196994 13%	87520 9%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL1-LP5 Of the [LP5] light bulbs you've purchased after March 2020 (after shelter-in-place orders took effect due to COVID-19), did you buy any candelabra bulbs?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter				
										Low	Medium	High	Net Meter
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	
TOTAL	464382 100%	252718 100%	154224 100%	57440 100%	256428 100%	207954 100%	114040 100%	337392 100%	12949 100%	255442 100%	152639 100%	43351 100%	12949 100%
Unweighted Total	57	26	19	12	32	25	17	37	3	17	25	12	3
Yes Post-COVID ONLY	60035 13%	40352 16%	16787 11%	2895 5%	47987 19%	12047 6%	20806 18%	39228 12%	- 100% GH	28904 11%	28236 18%	2895 7%	- 100% JKL
No	373072 80%	190382 75%	131041 85%	51650 90%	185098 72%	187975 90%	70032 61%	290091 86%	12949 100% GH	211613 83%	123185 81%	25325 58%	12949 100% JKL
Don't know	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL2-1 What type of candelabra bulbs were they?

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2676655 100%	1152550 100%	1155634 100%	363549 100%	1561705 100%	1114950 100%	473021 100%	1956637 100%	246998 100%	1359483 100%	646287 100%	423888 100%	246998 100%
Unweighted Total	364	142	156	65	215	149	91	234	39	102	105	118	39
LED	1666133 62%	745492 65%	679184 59%	236534 65%	928912 59%	737221 66%	268993 57%	1200412 61%	196728 80% GH	779666 57%	412463 64%	277276 65%	196728 80% JK
Incandescent/ Halogen	781436 29%	254732 22%	393231 34% B	133472 37% B	479861 31%	301575 27%	158763 34%	572404 29%	50269 20%	364080 27%	204302 32%	162785 38% JM	50269 20%
CFL	212620 8%	82770 7%	104017 9%	25832 7%	132304 8%	80316 7%	32311 7%	167381 9%	12928 5%	125250 9%	38263 6%	36178 9%	12928 5%
Don't know	198632 7%	112215 10% D	77391 7%	9026 2%	125359 8%	73273 7%	48966 10%	149665 8%	-	153097 11% L	41172 6% L	4363 1%	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL2-2 What type of candelabra bulbs were they?

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2676655	1152550	1155634	363549	1561705	1114950	473021	1956637	246998	1359483	646287	423888	246998
TOTAL RESPONDING	2478024 100%	1040335 100%	1078243 100%	354523 100%	1436347 100%	1041677 100%	424054 100%	1806972 100%	246998 100%	1206386 100%	605115 100%	419525 100%	246998 100%
Unweighted Total	345	132	148	64	203	142	84	222	39	91	99	116	39
LED	1666133 67%	745492 72%	679184 63%	236534 67%	928912 65%	737221 71%	268993 63%	1200412 66%	196728 80%	779666 65%	412463 68%	277276 66%	196728 80%
Incandescent/ Halogen	781436 32%	254732 24%	393231 36% B	133472 38%	479861 33%	301575 29%	158763 37% I	572404 32%	50269 20%	364080 30%	204302 34%	162785 39% M	50269 20%
CFL	212620 9%	82770 8%	104017 10%	25832 7%	132304 9%	80316 8%	32311 8%	167381 9%	12928 5%	125250 10%	38263 6%	36178 9%	12928 5%
Don't know	198632	112215	77391	9026	125359	73273	48966	149665	-	153097	41172	4363	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL3-1 Where did you purchase these candelabra bulbs?

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2478024 100%	1040335 100%	1078243 100%	354523 100%	1436347 100%	1041677 100%	424054 100%	1806972 100%	246998 100%	1206386 100%	605115 100%	419525 100%	246998 100%
Unweighted Total	345	132	148	64	203	142	84	222	39	91	99	116	39
[NET] Large Home Improvement	1179795 48%	375916 36%	628387 58% B	175492 50%	762973 53% F	416822 40%	198821 47%	858879 48%	122094 49%	520441 43%	289741 48%	247518 59% J	122094 49%
Home Depot or Lowe's	1159153 47%	364789 35%	626362 58% B	168001 47%	752280 52% F	406872 39%	196796 46%	840262 47%	122094 49%	520441 43%	278091 46%	238526 57% J	122094 49%
Other Large Home Improvement Store	20642 1%	11127 1%	2025 *%	7491 2%	10692 1%	9950 1%	2025 *%	18617 1%	-	-	11650 2%	8992 2%	-
Wal-Mart or Target	482094 19%	130029 12%	268373 25% B	83692 24%	321142 22%	160952 15%	151314 36% HI	312908 17%	17872 7%	244998 20% M	155931 26% LM	63293 15%	17872 7%
[NET] Retail Store Website	455333 18%	251912 24% CD	152217 14%	46280 13%	213950 15%	241383 23%	52147 12%	328505 18%	74681 30% G	187940 16%	122057 20%	70655 17%	74681 30% J
Online Purchase from Online Retailer	446180 18%	251912 24% CD	143065 13%	46280 13%	213950 15%	232230 22%	52147 12%	319352 18%	74681 30% G	187940 16%	112905 19%	70655 17%	74681 30% J
Retail Store Website	9152 *%	-	9152 1%	-	-	9152 1%	-	9152 1%	-	-	9152 2%	-	-
Costco or Sam's Club	276837 11%	122870 12%	103643 10%	50324 14%	187600 13%	89237 9%	38206 9%	196976 11%	41656 17%	126302 10%	58323 10%	50557 12%	41656 17%
Small Hardware Store	227558 9%	180665 17% CD	40969 4%	5924 2%	77981 5%	149576 14% E	36864 9%	185772 10% I	4923 2%	121431 10% M	53813 9% M	47391 11% M	4923 2%
Discount Store	94172 4%	37008 4%	45243 4%	11921 3%	54792 4%	39380 4%	33106 8% H	48138 3%	12928 5%	38077 3%	35094 6%	8073 2%	12928 5%
[NET] Grocery Store	80794 3%	26846 3%	42741 4%	11207 3%	33819 2%	46975 5%	3819 1%	76975 4%	-	53948 4%	19677 3%	7169 2%	-
Grocery Store	62850 3%	23027 2%	28615 3%	11207 3%	19694 1%	43156 4%	-	62850 3%	-	39823 3%	19677 3%	3350 1%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL3-1 Where did you purchase these candelabra bulbs?

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Convenience Store	17944 1%	3819 *%	14125 1%	-	14125 1%	3819 *%	3819 1%	14125 1%	-	14125 1%	-	3819 1%	-
Lighting and Electronics Store	19865 1%	-	15270 1%	4595 1%	19865 1%	-	-	19865 1%	-	-	19865 3%	-	-
Drug Store	14125 1%	-	14125 1%	-	14125 1%	-	-	14125 1%	-	14125 1%	-	-	-
Other [SPECIFY NAME OF STORE]	83225 3%	41600 4%	22978 2%	18646 5%	21760 2%	61464 6% E	1218 *%	74568 4% G	7439 3%	66933 6%	8853 1%	-	7439 3%
Don't know	33358 1%	25723 2%	7635 1%	-	7635 1%	25723 2%	-	28435 2%	4923 2%	20800 2%	7635 1%	-	4923 2%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL3-2 Where did you purchase these candelabra bulbs?

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2478024	1040335	1078243	354523	1436347	1041677	424054	1806972	246998	1206386	605115	419525	246998
TOTAL RESPONDING	2444666 100%	1014612 100%	1070608 100%	354523 100%	1428712 100%	1015954 100%	424054 100%	1778537 100%	242075 100%	1185586 100%	597480 100%	419525 100%	242075 100%
Unweighted Total	342	130	147	64	202	140	84	220	38	90	98	116	38
[NET] Large Home Improvement	1179795 48%	375916 37%	628387 59% B	175492 50%	762973 53% F	416822 41%	198821 47%	858879 48%	122094 50%	520441 44%	289741 48%	247518 59% J	122094 50%
Home Depot or Lowe's	1159153 47%	364789 36%	626362 59% B	168001 47%	752280 53% F	406872 40%	196796 46%	840262 47%	122094 50%	520441 44%	278091 47%	238526 57% J	122094 50%
Other Large Home Improvement Store	20642 1%	11127 1%	2025 *%	7491 2%	10692 1%	9950 1%	2025 *%	18617 1%	-	-	11650 2%	8992 2%	-
Wal-Mart or Target	482094 20%	130029 13%	268373 25% B	83692 24%	321142 22%	160952 16%	151314 36% HI	312908 18%	17872 7%	244998 21% M	155931 26% LM	63293 15%	17872 7%
[NET] Retail Store Website	455333 19%	251912 25% CD	152217 14%	46280 13%	213950 15%	241383 24% E	52147 12%	328505 18%	74681 31% G	187940 16%	122057 20%	70655 17%	74681 31% J
Online Purchase from Online Retailer	446180 18%	251912 25% CD	143065 13%	46280 13%	213950 15%	232230 23%	52147 12%	319352 18%	74681 31% G	187940 16%	112905 19%	70655 17%	74681 31% J
Retail Store Website	9152 *%	-	9152 1%	-	-	9152 1%	-	9152 1%	-	-	9152 2%	-	-
Costco or Sam's Club	276837 11%	122870 12%	103643 10%	50324 14%	187600 13%	89237 9%	38206 9%	196976 11%	41656 17%	126302 11%	58323 10%	50557 12%	41656 17%
Small Hardware Store	227558 9%	180665 18% CD	40969 4%	5924 2%	77981 5%	149576 15% E	36864 9%	185772 10% I	4923 2%	121431 10% M	53813 9%	47391 11% M	4923 2%
Discount Store	94172 4%	37008 4%	45243 4%	11921 3%	54792 4%	39380 4%	33106 8% H	48138 3%	12928 5%	38077 3%	35094 6%	8073 2%	12928 5%
[NET] Grocery Store	80794 3%	26846 3%	42741 4%	11207 3%	33819 2%	46975 5%	3819 1%	76975 4%	-	53948 5%	19677 3%	7169 2%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL3-2 Where did you purchase these candelabra bulbs?

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Grocery Store	62850 3%	23027 2%	28615 3%	11207 3%	19694 1%	43156 4%	-	62850 4%	-	39823 3%	19677 3%	3350 1%	-
Convenience Store	17944 1%	3819 *%	14125 1%	-	14125 1%	3819 *%	3819 1%	14125 1%	-	14125 1%	-	3819 1%	-
Lighting and Electronics Store	19865 1%	-	15270 1%	4595 1%	19865 1%	-	-	19865 1%	-	-	19865 3%	-	-
Drug Store	14125 1%	-	14125 1%	-	14125 1%	-	-	14125 1%	-	14125 1%	-	-	-
Other [SPECIFY NAME OF STORE]	83225 3%	41600 4%	22978 2%	18646 5%	21760 2%	61464 6% E	1218 *% E	74568 4% G	7439 3%	66933 6%	8853 1%	-	7439 3%
Don't know	33358	25723	7635	-	7635	25723	-	28435	4923	20800	7635	-	4923

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_MEANS Number of candelabra bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2478024	1040335	1078243	354523	1436347	1041677	424054	1806972	246998	1206386	605115	419525	246998
Unweighted Total	345	132	148	64	203	142	84	222	39	91	99	116	39
Total Candelabra bulbs purchased	5.72	4.79	5.87	8.01 B	5.88	5.51	4.95	5.37	9.68 GH	4.86	5.35	6.43 J	9.68 JKL
Total LED Candelabra	3.95	3.35	3.99	5.57	4.05	3.81	3.02	3.59	8.20 GH	3.26	3.49	4.11	8.20 JKL
NET Home Depot/Lowe's / Other Large Home Improvement	1.47	1.07	1.97 B	1.17	1.76	1.08	1.20	1.54	1.46	1.21	1.41	2.32 JK	1.46
Home Depot or Lowe's	4.45	3.99	4.84	4.02	4.76	3.87	3.77	4.79	3.46	4.29	4.21	5.67	3.46
Other Large Home Improvement Store	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	-	-	2.00	2.00	-
Costco or Sam's Club	6.54	4.87	9.13	6.28	6.98	5.15	5.80	5.61	10.69	6.01	5.14	5.41	10.69
Wal-Mart or Target	3.38	2.97	3.59	3.22	4.14	2.37	3.15	3.48	4.00	3.14	3.61	3.51	4.00
Small Hardware Store	3.02	3.09	2.18	5.39	2.60	3.21	2.54	3.16	-	2.79	3.36	3.11	-
NET Convenience Store/Grocery Store	0.04	0.04	0.05	0.03	0.02	0.08	0.00	0.06	0.00	0.06 L	0.07	0.00	0.00
Convenience Store	2.00	-	2.00	-	2.00	-	-	2.00	-	2.00	-	-	-
Grocery Store	2.15	3.35	2.00	1.00	0.00	2.52	-	2.15	-	1.56	3.35	-	-
Discount Store	3.38	2.70	2.17	25.00 BC	2.26	6.00	2.00	4.13	4.00	1.03	3.29	25.00 JK	4.00
Lighting and Electronics Store	3.25	-	4.00	2.00	3.25	-	-	3.25	-	-	3.25	-	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	1.13	1.12	0.64	2.59 C	0.79	1.60	0.55	0.81	4.46 GH	0.82	0.64	0.78	4.46 JKL
Online Purchase from Online Retailer	7.17	5.43	5.49	19.85 BC	6.12	8.12	4.58	5.28	17.83 H	5.91 K	3.42	6.64 K	17.83 K
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_MEANS Number of candelabra bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Other	4.44	1.00	12.00 D	6.40 B	12.00 F	2.67	-	4.16	7.00	4.16	-	-	7.00
Total Incandescent/Halogen Candelabra	1.29	1.08	1.36	1.72	1.34	1.23	1.69	1.28	0.70	1.14	1.37	1.98 JM	0.70
NET Home Depot/Lowe's / Other Large Home Improvement	0.53	0.39	0.61	0.72	0.60	0.44	0.81	0.47	0.49	0.40	0.54	0.92 J	0.49
Home Depot or Lowe's	3.50	4.27	3.15	3.55	3.31	3.93	4.19	3.24	3.86	3.26	3.16	4.19	3.86
Other Large Home Improvement Store	4.65	3.00	3.00	6.00 C	4.29	6.00	3.00	4.94	-	-	6.00	3.97	-
Costco or Sam's Club	3.17	2.80	2.00	4.00	2.00	3.73	1.59	3.41	-	4.00	-	2.43	-
Wal-Mart or Target	3.48	4.08	3.00	4.23	3.48	3.49	3.81	3.35	2.98	2.68	4.18	4.98 J	2.98
Small Hardware Store	3.22	3.06	4.00	-	4.62 F	2.33	0.00	3.47 G	2.00	4.15 L	2.00	1.71	2.00
NET Convenience Store/Grocery Store	0.02	0.03	0.01	0.03	0.01	0.04	0.00	0.03	0.00	0.02	0.05	0.01	0.00
Convenience Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Grocery Store	1.59	3.03	1.00	1.00	1.00	1.98	-	1.59	-	1.00	4.00	1.00	-
Discount Store	1.80	-	2.05	1.00	2.07	1.50	1.00	2.05	-	1.00	2.00	5.00	-
Lighting and Electronics Store	6.00	-	6.00	-	6.00	-	-	6.00	-	-	6.00	-	-
Drug Store	2.00	-	2.00	-	2.00	-	-	2.00	-	2.00	-	-	-
NET Online Purchase / Retail Store Website	0.11	0.18	0.07	0.00	0.06	0.17	0.00	0.15	0.00	0.10	0.06	0.26	0.00
Online Purchase from Online Retailer	4.48	6.63	2.50	0.00	3.85	4.91	-	4.48	-	6.00	2.00	4.01	-
Retail Store Website	2.00	-	2.00	-	-	2.00	-	2.00	-	-	2.00	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_MEANS Number of candelabra bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY CANDELABRA BULBS [CL1] / SELECTED ANY TECHNOLOGY [CL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total CFL Candelabra	0.48	0.36	0.52	0.73	0.50	0.46	0.24	0.50	0.79	0.47	0.49	0.34	0.79
NET Home Depot/Lowe's / Other Large Home Improvement	0.19	0.06	0.16	0.68 BC	0.10	0.31	0.05	0.25	0.00	0.30	0.09	0.14	0.00
Home Depot or Lowe's	4.98	3.61	3.29	9.28	3.01	7.02	3.04	5.12	-	5.36	6.00	3.01	-
Other Large Home Improvement Store	3.00	-	3.00	-	3.00	-	3.00	-	-	-	-	3.00	-
Costco or Sam's Club	4.90	0.00	6.00	6.00	-	4.90	2.38	6.00	-	6.00	-	2.38	-
Wal-Mart or Target	4.51	2.00	7.64	3.00	4.81	2.00	2.06	5.29	-	2.66	8.16	3.00	-
Small Hardware Store	1.63	1.63	-	-	0.00	4.00	4.00	0.00	-	-	0.00	4.00	-
NET Convenience Store/Grocery Store	0.01	0.02	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.00	0.02	0.02	0.00
Convenience Store	2.00	2.00	-	-	-	2.00	2.00	-	-	-	-	2.00	-
Grocery Store	2.00	2.00	-	-	2.00	-	-	2.00	-	-	2.00	-	-
Discount Store	0.00	-	0.00	-	0.00	-	-	0.00	-	-	-	0.00	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	0.10	0.20	0.03	0.00	0.16	0.01	0.01	0.02	0.79 GH	0.00	0.00	0.10	0.79 JKL
Online Purchase from Online Retailer	8.46	9.49	4.84	-	9.07	4.00	4.00	2.79	15.00 H	-	0.00	4.54 K	15.00 L
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	5.45	-	5.45	-	6.00	2.00	2.00	6.00	-	-	5.45	-	-
No Answer	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_TOT Number of candelabra bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total Candelabra bulbs purchased	14185428 100%	4981443 100%	6332987 100%	2841462 100%	8448454 100%	5736974 100%	2097219 100%	9697663 100%	2390547 100%	5862124 100%	3234396 100%	2698362 100%	2390547 100%
Total LED Candelabra	9787676 69%	3485422 70%	4299224 68%	1973494 69%	5816097 69%	3971580 69%	1280420 61%	6482923 67%	2024333 85%	3927026 67%	2110158 65%	1726160 64%	2024333 85%
NET Home Depot/Lowe's / Other Large Home Improvement	3651320 26%	1112928 22%	2123232 34% D	415160 15%	2521985 30%	1129335 20%	510973 24%	2780678 29% I	359670 15%	1465184 25%	852453 26%	974014 36% M	359670 15%
Home Depot or Lowe's	3629397 26%	1098819 22%	2121208 33% BD	409370 14%	2519961 30% F	1109436 19%	508948 24%	2760778 28% I	359670 15%	1465184 25% M	838344 26% M	966199 36% M	359670 15%
Other Large Home Improvement Store	21924 *%	14109 *%	2025 *%	5790 *%	2025 *%	19899 *%	2025 *%	19899 *%	-	-	14109 *%	7815 *%	-
Costco or Sam's Club	1528095 11%	563001 11%	719551 11%	245544 9%	1237834 15% F	290261 5%	199464 10%	883210 9%	445422 19%	604484 10%	299600 9%	178590 7%	445422 19%
Wal-Mart or Target	648327 5%	115070 2%	383177 6%	150079 5%	452489 5%	195838 3%	203818 10% I	429936 4% I	14573 1%	290390 5% M	270962 8% LM	72402 3%	14573 1%
Small Hardware Store	437525 3%	346997 7% CD	58580 1%	31948 1%	118918 1%	318607 6% E	83990 4%	353536 4%	-	202119 3%	133337 4%	102069 4%	-
NET Convenience Store/Grocery Store	110765 1%	42327 1%	57231 1%	11207 *%	28251 *%	82514 1%	-	110765 1%	-	68438 1%	42327 1%	-	-
Convenience Store	28251 *%	-	28251 *%	-	28251 *%	-	-	28251 *%	-	28251 *%	-	-	-
Grocery Store	82514 1%	42327 1%	28980 *%	11207 *%	-	82514 1%	-	82514 1%	-	40187 1%	42327 1%	-	-
Discount Store	239401 2%	99873 2%	67149 1%	72379 3% C	112104 1%	127296 2%	48160 2%	139528 1%	51713 2%	29852 1%	85458 3% J	72379 3% J	51713 2% J
Lighting and Electronics Store	39731 *%	-	30540 *%	9191 *%	39731 *%	-	-	39731 *%	-	-	39731 1%	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_TOT Number of candelabra bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	2802092 20%	1163625 23%	690259 11%	918670 32%	1135279 13%	1666813 29%	234016 11%	1467192 15%	1100884 46%	988210 17%	386291 12%	326707 12%	1100884 46%
Online Purchase from Online Retailer	2802092 20%	1163625 23% C	690259 11%	918670 32%	1135279 13%	1666813 29%	234016 11%	1467192 15%	1100884 46%	988210 17%	386291 12%	326707 12%	1100884 46%
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	330420 2%	41600 1%	169504 3%	119315 4% BC	169504 2%	160915 3%	-	278349 3%	52071 2%	278349 5%	-	-	52071 2%
Total Incandescent/Halogen Candelabra	3201735 23%	1120121 22%	1471124 23%	610491 21%	1918257 23%	1283478 22%	716952 34% I	2312493 24% I	172291 7%	1370641 23% M	827864 26% M	830939 31% M	172291 7%
NET Home Depot/Lowe's / Other Large Home Improvement	1313591 9%	404138 8%	653352 10%	256101 9%	857763 10%	455828 8%	341867 16%	851696 9%	120028 5%	484008 8%	325127 10%	384427 14% M	120028 5%
Home Depot or Lowe's	1250356 9%	391921 8%	647278 10%	211157 7%	811900 10%	438457 8%	335793 16% I	794536 8%	120028 5%	484008 8%	297555 9%	348765 13% M	120028 5%
Other Large Home Improvement Store	63234 *%	12217 *% C	6074 *%	44944 2% C	45863 1% F	17371 *%	6074 *%	57160 1% G	-	-	27573 1%	35661 1%	-
Costco or Sam's Club	150899 1%	20101 *%	31067 *%	99730 4% BC	31067 *%	119831 2% E	10071 *%	140828 1%	-	89659 2%	-	61239 2%	-
Wal-Mart or Target	1007687 7%	268020 5%	505240 8%	234427 8%	667866 8%	339821 6%	355989 17% I	609281 6% I	42417 2%	392669 7% M	348613 11% M	223988 8% M	42417 2%
Small Hardware Store	265728 2%	209226 4% C	56501 1%	-	148513 2%	117215 2%	-	255882 3% I	9846 *%	202769 3% KLM	28218 1%	24895 1%	9846 *%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_TOT Number of candelabra bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
NET Convenience Store/Grocery Store	56901 *%	31568 1%	14125 *%	11207 *%	14125 *%	42775 1%	-	56901 1%	-	25333 *%	28218 1%	3350 *%	-
Convenience Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Grocery Store	56901 *%	31568 1%	14125 *%	11207 *%	14125 *%	42775 1%	-	56901 1%	-	25333 *%	28218 1%	3350 *%	-
Discount Store	67345 *%	-	58319 1%	9026 *%	40015 *%	27330 *%	9026 *%	58319 1%	-	23151 *%	18305 1%	25889 1%	-
Lighting and Electronics Store	45810 *%	-	45810 1%	-	45810 1%	-	-	45810 *%	-	-	45810 1%	-	-
Drug Store	28251 *%	-	28251 *%	-	28251 *%	-	-	28251 *%	-	28251 *%	-	-	-
NET Online Purchase / Retail Store Website	265526 2%	187068 4%	78458 1%	-	84848 1%	180678 3%	-	265526 3%	-	124801 2%	33574 1%	107150 4%	-
Online Purchase from Online Retailer	247221 2%	187068 4%	60153 1%	-	84848 1%	162373 3%	-	247221 3%	-	124801 2%	15270 *%	107150 4% K	-
Retail Store Website	18305 *%	-	18305 *%	-	-	18305 *%	-	18305 *%	-	-	18305 1%	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Total CFL Candelabra	1196017 8%	375900 8%	562639 9%	257478 9%	714100 8%	481917 8%	99847 5%	902247 9%	193923 8%	564457 10%	296374 9%	141263 5%	193923 8%
NET Home Depot/Lowe's / Other Large Home Improvement	475329 3%	62612 1%	173045 3%	239673 8%	148316 2%	327013 6%	22793 1%	452536 5%	-	363208 6%	54914 2%	57207 2%	-
Home Depot or Lowe's	472292 3%	62612 1%	170008 3%	239673 8%	145279 2%	327013 6%	19756 1%	452536 5% G	-	363208 6%	54914 2%	54170 2%	-
Other Large Home Improvement Store	3037 *%	-	3037 *%	-	3037 *%	-	3037 *%	-	-	-	-	3037 *%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_TOT Number of candelabra bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Costco or Sam's Club	102046 1%	-	86940 1%	15106 1%	-	102046 2%	15106 1%	86940 1%	-	86940 1%	-	15106 1%	-
Wal-Mart or Target	299085 2%	71916 1%	224470 4%	2698 *%	284976 3%	14109 *%	32550 2%	266535 3%	-	114309 2% L	182078 6%	2698 *%	-
Small Hardware Store	15274 *%	15274 *%	-	-	-	15274 *%	15274 1%	-	-	-	-	15274 1%	-
NET Convenience Store/Grocery Store	18774 *%	18774 *%	-	-	11137 *%	7637 *%	7637 *%	11137 *%	-	-	11137 *%	7637 *%	-
Convenience Store	7637 *%	7637 *%	-	-	-	7637 *%	7637 *%	-	-	-	-	7637 *%	-
Grocery Store	11137 *%	11137 *%	-	-	11137 *%	-	-	11137 *%	-	-	11137 *%	-	-
Discount Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	237263 2%	207324 4%	29939 *%	-	223862 3%	13401 *%	4049 *%	39290 *%	193923 8% GH	-	-	43339 2%	193923 8%
Online Purchase from Online Retailer	237263 2%	207324 4%	29939 *%	-	223862 3% F	13401 *%	4049 *%	39290 *%	193923 8% H	-	-	43339 2%	193923 8% L
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	48246 *%	-	48246 1%	-	45810 1%	2436 *%	2436 *%	45810 *%	-	-	48246 1%	-	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_LED Number of candelabra bulbs purchased

LED

VOLUMETRIC BASE = TOTAL NUMBER OF LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total LED Candelabra	9787676 100%	3485422 100%	4299224 100%	1973494 100%	5816097 100%	3971580 100%	1280420 100%	6482923 100%	2024333 100%	3927026 100%	2110158 100%	1726160 100%	2024333 100%
NET Home Depot/Lowe's / Other Large Home Improvement	3651320 37%	1112928 32%	2123232 49% D	415160 21%	2521985 43%	1129335 28%	510973 40%	2780678 43% I	359670 18%	1465184 37% M	852453 40% M	974014 56% M	359670 18%
Home Depot or Lowe's	3629397 37%	1098819 32%	2121208 49% BD	409370 21%	2519961 43% F	1109436 28%	508948 40% I	2760778 43% I	359670 18%	1465184 37% M	838344 40% M	966199 56% JM	359670 18%
Other Large Home Improvement Store	21924 *%	14109 *%	2025 *%	5790 *%	2025 *%	19899 1%	2025 *%	19899 *%	-	-	14109 1%	7815 *%	-
Costco or Sam's Club	1528095 16%	563001 16%	719551 17%	245544 12%	1237834 21% F	290261 7%	199464 16%	883210 14%	445422 22%	604484 15%	299600 14%	178590 10%	445422 22%
Wal-Mart or Target	648327 7%	115070 3%	383177 9%	150079 8%	452489 8%	195838 5%	203818 16% I	429936 7% I	14573 1%	290390 7% M	270962 13% LM	72402 4%	14573 1%
Small Hardware Store	437525 4%	346997 10% CD	58580 1%	31948 2%	118918 2%	318607 8% E	83990 7%	353536 5%	-	202119 5%	133337 6%	102069 6%	-
NET Convenience Store/Grocery Store	110765 1%	42327 1%	57231 1%	11207 1%	28251 *%	82514 2%	-	110765 2%	-	68438 2%	42327 2%	-	-
Convenience Store	28251 *%	-	28251 1%	-	28251 *%	-	-	28251 *%	-	28251 1%	-	-	-
Grocery Store	82514 1%	42327 1%	28980 1%	11207 1%	-	82514 2%	-	82514 1%	-	40187 1%	42327 2%	-	-
Discount Store	239401 2%	99873 3%	67149 2%	72379 4% C	112104 2%	127296 3%	48160 4%	139528 2%	51713 3%	29852 1%	85458 4% JM	72379 4% J	51713 3% J
Lighting and Electronics Store	39731 *%	-	30540 1%	9191 *%	39731 1%	-	-	39731 1%	-	-	39731 2%	-	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_LED Number of candelabra bulbs purchased

LED

VOLUMETRIC BASE = TOTAL NUMBER OF LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
NET Online Purchase / Retail Store Website	2802092 29%	1163625 33%	690259 16%	918670 47%	1135279 20%	1666813 42%	234016 18%	1467192 23%	1100884 54%	988210 25%	386291 18%	326707 19%	1100884 54%
Online Purchase from Online Retailer	2802092 29%	1163625 33%	690259 16%	918670 47%	1135279 20%	1666813 42%	234016 18%	1467192 23%	1100884 54%	988210 25%	386291 18%	326707 19%	1100884 54%
		C											
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	330420 3%	41600 1%	169504 4%	119315 6%	169504 3%	160915 4%	-	278349 4%	52071 3%	278349 7%	-	-	52071 3%
				BC									

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_IH Number of candelabra bulbs purchased

Incandescent/Halogen

VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total Incandescent/Halogen Candelabra	3201735 100%	1120121 100%	1471124 100%	610491 100%	1918257 100%	1283478 100%	716952 100%	2312493 100%	172291 100%	1370641 100%	827864 100%	830939 100%	172291 100%
NET Home Depot/Lowe's / Other Large Home Improvement	1313591 41%	404138 36%	653352 44%	256101 42%	857763 45%	455828 36%	341867 48%	851696 37%	120028 70%	484008 35%	325127 39%	384427 46%	120028 70%
Home Depot or Lowe's	1250356 39%	391921 35%	647278 44%	211157 35%	811900 42%	438457 34%	335793 47%	794536 34%	120028 70%	484008 35%	297555 36%	348765 42%	120028 70%
Other Large Home Improvement Store	63234 2%	12217 1% C	6074 *%	44944 7% C	45863 2% F	17371 1%	6074 1%	57160 2% G	-	-	27573 3%	35661 4%	-
Costco or Sam's Club	150899 5%	20101 2%	31067 2%	99730 16% BC	31067 2%	119831 9% E	10071 1%	140828 6% G	-	89659 7%	-	61239 7%	-
Wal-Mart or Target	1007687 31%	268020 24%	505240 34%	234427 38%	667866 35%	339821 26%	355989 50%	609281 26%	42417 25%	392669 29%	348613 42%	223988 27%	42417 25%
Small Hardware Store	265728 8%	209226 19% C	56501 4%	-	148513 8%	117215 9%	-	255882 11% I	9846 6%	202769 15% KLM	28218 3%	24895 3%	9846 6% L
NET Convenience Store/Grocery Store	56901 2%	31568 3%	14125 1%	11207 2%	14125 1%	42775 3%	-	56901 2%	-	25333 2%	28218 3%	3350 *%	-
Convenience Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Grocery Store	56901 2%	31568 3%	14125 1%	11207 2%	14125 1%	42775 3%	-	56901 2%	-	25333 2%	28218 3%	3350 *%	-
Discount Store	67345 2%	-	58319 4%	9026 1%	40015 2%	27330 2%	9026 1%	58319 3%	-	23151 2%	18305 2%	25889 3%	-
Lighting and Electronics Store	45810 1%	-	45810 3%	-	45810 2%	-	-	45810 2%	-	-	45810 6%	-	-
Drug Store	28251 1%	-	28251 2%	-	28251 1%	-	-	28251 1%	-	28251 2%	-	-	-
NET Online Purchase / Retail Store Website	265526 8%	187068 17%	78458 5%	-	84848 4%	180678 14%	-	265526 11%	-	124801 9%	33574 4%	107150 13%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_IH Number of candelabra bulbs purchased

Incandescent/Halogen

VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Online Purchase from Online Retailer	247221 8%	187068 17%	60153 4%	-	84848 4%	162373 13%	-	247221 11%	-	124801 9%	15270 2%	107150 13% K	-
Retail Store Website	18305 1%	-	18305 1%	-	-	18305 1%	-	18305 1%	-	-	18305 2%	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_CFL Number of candelabra bulbs purchased

CFL

VOLUMETRIC BASE = TOTAL NUMBER OF CFL CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total CFL Candelabra	1196017 100%	375900 100%	562639 100%	257478 100%	714100 100%	481917 100%	99847 100%	902247 100%	193923 100%	564457 100%	296374 100%	141263 100%	193923 100%
NET Home Depot/Lowe's / Other Large Home Improvement	475329 40%	62612 17%	173045 31%	239673 93%	148316 21%	327013 68%	22793 23%	452536 50%	-	363208 64%	54914 19%	57207 40%	-
Home Depot or Lowe's	472292 39%	62612 17%	170008 30%	239673 93%	145279 20%	327013 68% E	19756 20%	452536 50%	-	363208 64%	54914 19%	54170 38%	-
Other Large Home Improvement Store	3037 *%	-	3037 1%	-	3037 *%	-	3037 3%	-	-	-	-	3037 2%	-
Costco or Sam's Club	102046 9%	-	86940 15%	15106 6%	-	102046 21%	15106 15%	86940 10%	-	86940 15%	-	15106 11%	-
Wal-Mart or Target	299085 25%	71916 19%	224470 40%	2698 1%	284976 40%	14109 3%	32550 33%	266535 30%	-	114309 20% L	182078 61%	2698 2%	-
Small Hardware Store	15274 1%	15274 4%	-	-	-	15274 3%	15274 15%	-	-	-	-	15274 11%	-
NET Convenience Store/Grocery Store	18774 2%	18774 5%	-	-	11137 2%	7637 2%	7637 8%	11137 1%	-	-	11137 4%	7637 5%	-
Convenience Store	7637 1%	7637 2%	-	-	-	7637 2%	7637 8%	-	-	-	-	7637 5%	-
Grocery Store	11137 1%	11137 3%	-	-	11137 2%	-	-	11137 1%	-	-	11137 4%	-	-
Discount Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	237263 20%	207324 55%	29939 5%	-	223862 31%	13401 3%	4049 4%	39290 4%	193923 100% H	-	-	43339 31%	193923 100%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL4_CFL Number of candelabra bulbs purchased

CFL

VOLUMETRIC BASE = TOTAL NUMBER OF CFL CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Online Purchase from Online Retailer	237263 20%	207324 55% C	29939 5%	-	223862 31% F	13401 3%	4049 4%	39290 4%	193923 100% H	-	-	43339 31%	193923 100% L
Retail Store Website	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	48246 4%	-	48246 9%	-	45810 6%	2436 1%	2436 2%	45810 5%	-	-	48246 16%	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL5_1 How many of the LED candelabra bulbs you purchased are currently installed at your home (either indoors or outdoors)?

BASE = 1 OR MORE LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1640410 100%	719769 100%	679184 100%	236534 100%	928912 100%	711498 100%	268993 100%	1179612 100%	191805 100%	758866 100%	412463 100%	277276 100%	191805 100%
Unweighted Total	232	90	97	44	134	98	54	149	29	56	70	77	29
None	63563 4%	51343 7% C	1012 *%	11207 5%	15700 2%	47862 7%	19286 7%	44276 4%	-	32008 4%	20603 5%	10952 4%	-
[NET] 1 or more	1541376 94%	652258 91%	658869 97%	225327 95%	877741 94%	663636 93%	246467 92%	1116032 95%	178877 93%	712733 94%	391860 95%	257906 93%	178877 93%
1-2	553215 34%	301797 42% C	166969 25%	79527 34%	272763 29%	280452 39%	138580 52% H	350270 30%	64365 34%	304631 40% L	119677 29%	64542 23%	64365 34%
3-5	491917 30%	186546 26%	245052 36%	60319 26%	283735 31%	208182 29%	47978 18%	408217 35% GI	35723 19%	241093 32%	139240 34%	75861 27%	35723 19%
6-9	313662 19%	123834 17%	135509 20%	54319 23%	192498 21%	121164 17%	40755 15%	234398 20%	38509 20%	90798 12%	97983 24%	86372 31% J	38509 20%
10 or more	182582 11%	40082 6%	111339 16% B	31162 13%	128745 14%	53837 8%	19155 7%	123147 10%	40280 21%	76210 10%	34961 8%	31131 11%	40280 21%
Don't Know	35471 2%	16168 2%	19303 3%	-	35471 4%	-	3240 1%	19303 2%	12928 7%	14125 2%	-	8418 3%	12928 7%
Mean	4.94	3.97	5.70 B	5.73	5.47	4.26	3.45	4.77	8.23 GH	4.38	4.23	5.38 K	8.23 JKL

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL6_1 Of the remaining LED candelabra bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)?

BASE = LED CANDELABRA BULBS YET TO BE INSTALLED / QUANTITY CURRENTLY INSTALLED PROVIDED [CL5] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	421803 100%	176081 100%	165382 100%	75417 100%	262885 100%	158918 100%	107333 100%	258207 100%	56263 100%	186369 100%	112921 100%	66250 100%	56263 100%
Unweighted Total	64	25	26	12	41	23	21	34	9	16	19	20	9
None	87865 21%	26968 15%	43340 26%	17556 23%	77076 29% F	10789 7%	12273 11%	58847 23%	16745 30%	44772 24%	15816 14%	10532 16%	16745 30%
[NET] 1 or more	222744 53%	120142 68%	71450 43%	31152 41%	122931 47%	99814 63%	58736 55%	146157 57%	17851 32%	107374 58%	58653 52%	38866 59%	17851 32%
1	49337 12%	22786 13%	15343 9%	11207 15%	36911 14%	12425 8%	4458 4%	44879 17%	-	39311 21%	6786 6%	3240 5%	-
2	88907 21%	43907 25%	27952 17%	17049 23%	42640 16%	46268 29%	47386 44% H	41521 16%	-	47263 25%	23631 21%	18013 27%	-
3 or more	84500 20%	53450 30% D	28155 17%	2895 4%	43380 17%	41121 26%	6892 6%	59757 23%	17851 32%	20800 11%	28236 25%	17613 27%	17851 32%
Don't Know	111194 26%	28971 16%	50592 31%	26709 35%	62879 24%	48316 30%	36324 34%	53203 21%	21668 39%	34222 18%	38452 34%	16852 25%	21668 39%
Mean	2.36	3.21	1.75	1.23	1.88	3.21	1.72	2.50	2.81	1.97	2.76	2.61	2.81

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL5/CL6-1 Sum of LED candelabra bulbs currently installed or planned for installation within the next year.

BASE = 1 OR MORE LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1640410 100%	719769 100%	679184 100%	236534 100%	928912 100%	711498 100%	268993 100%	1179612 100%	191805 100%	758866 100%	412463 100%	277276 100%	191805 100%
Unweighted Total	232	90	97	44	134	98	54	149	29	56	70	77	29
None	6581 *%	5568 1%	1012 *%	-	6581 1%	-	1012 *%	5568 *%	-	-	5568 1%	1012 *%	-
[NET] 1 or more	1522635 93%	685230 95%	627580 92%	209825 89%	859453 93%	663182 93%	231657 86%	1120840 95%	170138 89%	724643 95%	368443 89%	259411 94%	170138 89%
1-2	499796 30%	283768 39% C	150325 22%	65702 28%	254775 27%	245020 34%	102441 38%	337912 29%	59442 31%	283366 37% KL	93929 23%	63059 23%	59442 31%
3-5	482992 29%	192737 27%	221912 33%	68343 29%	266049 29%	216943 30%	57039 21%	390230 33%	35723 19%	244821 32%	116176 28%	86272 31%	35723 19%
6-9	308507 19%	135255 19%	121194 18%	52058 22%	161959 17%	146548 21%	53022 20%	208970 18%	46514 24%	92144 12%	104606 25% J	65244 24%	46514 24%
10 or more	231341 14%	73469 10%	134149 20%	23723 10%	176670 19% F	54671 8%	19155 7%	183728 16%	28458 15%	104313 14%	53733 13%	44837 16%	28458 15%
Don't Know	111194 7%	28971 4%	50592 7%	26709 11%	62879 7%	48316 7%	36324 14%	53203 5%	21668 11%	34222 5%	38452 9%	16852 6%	21668 11%
Mean	5.19	4.61	5.89	4.98	5.72	4.49	4.17	5.29	5.92	4.88	5.02	5.79	5.92

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CL5/CL6-2 Installation Rate (Percentage of LED candelabra bulbs purchased that are currently installed or planned for installation.)

BASE = 1 OR MORE LED CANDELABRA BULBS PURCHASED [CL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1640410 100%	719769 100%	679184 100%	236534 100%	928912 100%	711498 100%	268993 100%	1179612 100%	191805 100%	758866 100%	412463 100%	277276 100%	191805 100%
Unweighted Total	232	90	97	44	134	98	54	149	29	56	70	77	29
100%	1406657 86%	663830 92% D	562479 83%	180348 76%	766184 82%	640473 90%	202722 75%	1050542 89%	153393 80%	648071 85%	358195 87%	246997 89%	153393 80%
51-99%	94562 6%	7422 1%	65101 10% B	22039 9%	79291 9% F	15271 2%	28935 11%	56321 5%	9306 5%	62594 8%	10247 2%	12415 4%	9306 5%
0-50%	27997 2%	19546 3%	1012 *%	7439 3%	20558 2%	7439 1%	1012 *%	19546 2%	7439 4%	13978 2%	5568 1%	1012 *%	7439 4%
Don't Know	111194 7%	28971 4%	50592 7%	26709 11%	62879 7%	48316 7%	36324 14%	53203 5%	21668 11%	34222 5%	38452 9%	16852 6%	21668 11%
Mean	96.95	98.01	96.67	94.25	95.67	98.62	95.39	97.27	96.92	96.09	97.46	98.60	96.92

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL1 Of the [LP4] light bulbs you've purchased between January 1, 2109 and March 2020 (around the time when shelter-in-place orders took effect due to COVID-19), did you buy any globe bulbs?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Yes	2991168 25%	1270838 23%	1350371 27%	369958 23%	1783926 27% F	1207242 22%	496544 24%	2272542 25%	222082 22%	1541918 23%	789476 27%	437692 29% JM	222082 22%
No	7557308 62%	3614779 65% C	2898572 59%	1034382 65% C	3939876 60%	3617432 66% E	1267320 61%	5613120 62%	676868 68%	4290978 64% KL	1723092 58%	866370 58%	676868 68% KL
Don't know	1577980 13%	702195 13%	681317 14%	179004 11%	890228 13%	687751 12%	312819 15%	1172989 13%	92173 9%	836697 13%	457640 15% M	191470 13%	92173 9%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL1-LP5 Of the [LP5] light bulbs you've purchased after March 2020 (after shelter-in-place orders took effect due to COVID-19), did you buy any globe bulbs?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	464382 100%	252718 100%	154224 100%	57440 100%	256428 100%	207954 100%	114040 100%	337392 100%	12949 100%	255442 100%	152639 100%	43351 100%	12949 100%
Unweighted Total	57	26	19	12	32	25	17	37	3	17	25	12	3
Yes Post-COVID ONLY	115085 25%	59565 24%	45717 30%	9804 17%	97138 38% F	17947 9%	28824 25%	81607 24%	4653 36%	57154 22%	38992 26%	14285 33%	4653 36%
No	284061 61%	151311 60%	102112 66%	30639 53%	116089 45%	167972 81% E	56134 49%	219632 65%	8296 64%	158177 62% L	106549 70% L	11040 25%	8296 64%
Don't know	11207 2%	-	-	11207 20%	-	11207 5%	-	11207 3%	-	11207 4%	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL2-1 What type of globe bulbs were they?

BASE = BOUGHT ANY GLOBE BULBS [CL1] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2991168 100%	1270838 100%	1350371 100%	369958 100%	1783926 100%	1207242 100%	496544 100%	2272542 100%	222082 100%	1541918 100%	789476 100%	437692 100%	222082 100%
Unweighted Total	387	156	168	63	228	159	94	263	30	114	129	114	30
LED	1870844 63%	815287 64%	770787 57%	284770 77% BC	1008571 57%	862273 71% E	276297 56%	1429083 63%	165464 75% G	978248 63%	469458 59%	257674 59%	165464 75%
Incandescent/ Halogen	562574 19%	190934 15%	315478 23%	56162 15%	370738 21%	191835 16%	134738 27% I	410821 18%	17015 8%	297854 19%	143626 18%	104079 24% M	17015 8%
CFL	529320 18%	235182 19%	245667 18%	48472 13%	354327 20%	174994 14%	130008 26% H	359709 16%	39604 18%	252112 16%	147032 19%	90572 21%	39604 18%
Don't know	209137 7%	117368 9% D	89508 7% D	2261 1%	149162 8%	59974 5%	25276 5%	183861 8%	-	119235 8%	65428 8%	24474 6%	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL2-2 What type of globe bulbs were they?

BASE = BOUGHT ANY GLOBE BULBS [CL1] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2991168	1270838	1350371	369958	1783926	1207242	496544	2272542	222082	1541918	789476	437692	222082
TOTAL RESPONDING	2782031 100%	1153471 100%	1260863 100%	367697 100%	1634763 100%	1147268 100%	471268 100%	2088681 100%	222082 100%	1422682 100%	724048 100%	413218 100%	222082 100%
Unweighted Total	360	142	156	62	210	150	86	244	30	106	117	107	30
LED	1870844 67%	815287 71%	770787 61%	284770 77% C	1008571 62%	862273 75% E	276297 59%	1429083 68%	165464 75%	978248 69%	469458 65%	257674 62%	165464 75%
Incandescent/ Halogen	562574 20%	190934 17%	315478 25%	56162 15%	370738 23%	191835 17%	134738 29% I	410821 20% I	17015 8%	297854 21% M	143626 20% M	104079 25% M	17015 8%
CFL	529320 19%	235182 20%	245667 19%	48472 13%	354327 22%	174994 15%	130008 28%	359709 17%	39604 18%	252112 18%	147032 20%	90572 22%	39604 18%
Don't know	209137	117368	89508	2261	149162	59974	25276	183861	-	119235	65428	24474	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL3-1 Where did you purchase these globe bulbs?

BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2782031 100%	1153471 100%	1260863 100%	367697 100%	1634763 100%	1147268 100%	471268 100%	2088681 100%	222082 100%	1422682 100%	724048 100%	413218 100%	222082 100%
Unweighted Total	360	142	156	62	210	150	86	244	30	106	117	107	30
[NET] Large Home Improvement	1418161 51%	458735 40%	739760 59% B	219665 60% B	860751 53%	557411 49%	279316 59%	1037559 50%	101287 46%	705175 50%	345567 48%	266133 64% JKM	101287 46%
Home Depot or Lowe's	1401486 50%	451681 39%	739760 59% B	210045 57% B	856155 52%	545331 48%	279316 59%	1020884 49%	101287 46%	705175 50%	328892 45%	266133 64% JKM	101287 46%
Other Large Home Improvement Store	20025 1%	10405 1%	-	9620 3%	4595 *%	15429 1%	-	20025 1%	-	-	16675 2%	3350 1%	-
Wal-Mart or Target	577630 21%	174574 15%	321514 25% B	81542 22%	380826 23%	196804 17%	118156 25% I	445245 21% I	14229 6%	360969 25% LM	148107 20% M	54324 13%	14229 6%
[NET] Retail Store Website	361666 13%	196700 17%	129506 10%	35460 10%	190757 12%	170909 15%	4387 1%	303996 15% G	53283 24% G	142879 10%	80276 11%	85227 21% JK	53283 24%
Online Purchase from Online Retailer	334337 12%	191131 17% C	107746 9%	35460 10%	163428 10%	170909 15%	4387 1%	276668 13% G	53283 24% G	128754 9%	67073 9%	85227 21% JK	53283 24% JK
Retail Store Website	27329 1%	5568 *%	21760 2%	-	27329 2%	-	-	27329 1%	-	14125 1%	13203 2%	-	-
Costco or Sam's Club	279597 10%	132715 12%	109333 9%	37548 10%	177366 11%	102231 9%	53306 11%	198864 10%	27427 12%	141772 10%	82517 11%	27881 7%	27427 12%
Small Hardware Store	244983 9%	196378 17% CD	32372 3%	16232 4%	74468 5%	170515 15% E	8493 2%	205711 10% G	30779 14% G	108898 8%	73710 10%	31596 8%	30779 14%
Discount Store	120361 4%	85777 7% C	26938 2%	7646 2%	94407 6%	25955 2%	67567 14% H	26938 1%	25856 12% H	43977 3%	42832 6%	7696 2%	25856 12% L
[NET] Grocery Store	102595 4%	19146 2%	67113 5%	16336 4%	52623 3%	49972 4%	11559 2%	86113 4%	4923 2%	68073 5%	22430 3%	7169 2%	4923 2%
Grocery Store	59541 2%	11977 1%	31228 2%	16336 4%	16738 1%	42803 4%	7741 2%	46877 2%	4923 2%	39823 3%	14795 2%	-	4923 2%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL3-1 Where did you purchase these globe bulbs?

BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Convenience Store	43054 2%	7169 1%	35886 3%	-	35886 2%	7169 1%	3819 1%	39236 2%	-	28251 2%	7635 1%	7169 2%	-
Lighting and Electronics Store	20408 1%	4072 *%	-	16336 4%	4072 *%	16336 1%	5128 1%	15280 1%	-	11207 1%	5128 1%	4072 1%	-
Drug Store	6043 *%	-	6043 *%	-	-	6043 1%	-	6043 *%	-	-	-	6043 1%	-
Other [SPECIFY NAME OF STORE]	63716 2%	28087 2%	24422 2%	11207 3%	29248 2%	34469 3%	-	63716 3%	-	25185 2%	38531 5%	-	-
Don't know	8020 *%	-	-	8020 2%	8020 *%	-	-	8020 *%	-	8020 1%	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL3-2 Where did you purchase these globe bulbs?

BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2782031	1153471	1260863	367697	1634763	1147268	471268	2088681	222082	1422682	724048	413218	222082
TOTAL RESPONDING	2774011 100%	1153471 100%	1260863 100%	359676 100%	1626743 100%	1147268 100%	471268 100%	2080660 100%	222082 100%	1414662 100%	724048 100%	413218 100%	222082 100%
Unweighted Total	359	142	156	61	209	150	86	243	30	105	117	107	30
[NET] Large Home Improvement	1418161 51%	458735 40%	739760 59% B	219665 61% B	860751 53%	557411 49%	279316 59%	1037559 50%	101287 46%	705175 50%	345567 48%	266133 64% JKM	101287 46%
Home Depot or Lowe's	1401486 51%	451681 39%	739760 59% B	210045 58% B	856155 53%	545331 48%	279316 59%	1020884 49%	101287 46%	705175 50%	328892 45%	266133 64% JKM	101287 46%
Other Large Home Improvement Store	20025 1%	10405 1%	-	9620 3%	4595 *%	15429 1%	-	20025 1%	-	-	16675 2%	3350 1%	-
Wal-Mart or Target	577630 21%	174574 15%	321514 25% B	81542 23%	380826 23%	196804 17%	118156 25% I	445245 21% I	14229 6%	360969 26% LM	148107 20% M	54324 13%	14229 6%
[NET] Retail Store Website	361666 13%	196700 17%	129506 10%	35460 10%	190757 12%	170909 15%	4387 1%	303996 15% G	53283 24% G	142879 10%	80276 11%	85227 21% JK	53283 24%
Online Purchase from Online Retailer	334337 12%	191131 17% C	107746 9%	35460 10%	163428 10%	170909 15%	4387 1%	276668 13% G	53283 24% G	128754 9%	67073 9%	85227 21% JK	53283 24% JK
Retail Store Website	27329 1%	5568 *%	21760 2%	-	27329 2%	-	-	27329 1%	-	14125 1%	13203 2%	-	-
Costco or Sam's Club	279597 10%	132715 12%	109333 9%	37548 10%	177366 11%	102231 9%	53306 11%	198864 10%	27427 12%	141772 10%	82517 11%	27881 7%	27427 12%
Small Hardware Store	244983 9%	196378 17% CD	32372 3%	16232 5%	74468 5%	170515 15% E	8493 2%	205711 10% G	30779 14% G	108898 8%	73710 10%	31596 8%	30779 14%
Discount Store	120361 4%	85777 7% C	26938 2%	7646 2%	94407 6%	25955 2%	67567 14% H	26938 1%	25856 12% H	43977 3%	42832 6%	7696 2%	25856 12% L
[NET] Grocery Store	102595 4%	19146 2%	67113 5%	16336 5%	52623 3%	49972 4%	11559 2%	86113 4%	4923 2%	68073 5%	22430 3%	7169 2%	4923 2%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL3-2 Where did you purchase these globe bulbs?

BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Grocery Store	59541 2%	11977 1%	31228 2%	16336 5%	16738 1%	42803 4%	7741 2%	46877 2%	4923 2%	39823 3%	14795 2%	-	4923 2%
Convenience Store	43054 2%	7169 1%	35886 3%	-	35886 2%	7169 1%	3819 1%	39236 2%	-	28251 2%	7635 1%	7169 2%	-
Lighting and Electronics Store	20408 1%	4072 *%	-	16336 5%	4072 *%	16336 1%	5128 1%	15280 1%	-	11207 1%	5128 1%	4072 1%	-
Drug Store	6043 *%	-	6043 *%	-	-	6043 1%	-	6043 *%	-	-	-	6043 1%	-
Other [SPECIFY NAME OF STORE]	63716 2%	28087 2%	24422 2%	11207 3%	29248 2%	34469 3%	-	63716 3%	-	25185 2%	38531 5%	-	-
Don't know	8020	-	-	8020	8020	-	-	8020	-	8020	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_MEANS Number of globe bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2782031	1153471	1260863	367697	1634763	1147268	471268	2088681	222082	1422682	724048	413218	222082
Unweighted Total	360	142	156	62	210	150	86	244	30	106	117	107	30
Total Globe bulbs purchased	5.89	5.78	5.97	5.95	6.06	5.65	5.11	5.94	7.07 G	5.51	5.71	6.89 J	7.07
Total LED Globe	3.92	4.03	3.71	4.27	3.77	4.13	2.88	3.95	5.85 G	3.50	3.79	4.52	5.85 JK
NET Home Depot/Lowe's / Other Large Home Improvement	1.77	1.49	1.93	2.10	1.74	1.82	1.89	1.74	1.85	1.68	1.62	2.32	1.85
Home Depot or Lowe's	5.00	5.08	4.99	4.87	4.85	5.22	5.12	4.96	5.12	4.91	4.78	5.49	5.12
Other Large Home Improvement Store	5.23	1.36	-	14.00 B	14.00 F	1.36	-	5.23	-	-	6.73	0.00	-
Costco or Sam's Club	7.41	5.47	10.38 B	5.06	8.43	5.06	5.02	7.81	8.38	8.83 L	5.25	3.34	8.38
Wal-Mart or Target	3.76	3.50	4.09	3.26	3.73	3.83	1.64	4.21 G	10.00 G	2.99	5.50 J	3.11	10.00 JL
Small Hardware Store	2.66	2.67	3.22	2.00	2.90	2.60	10.00 HI	2.68	1.90	1.81	3.57	7.40 J	1.90
NET Convenience Store/Grocery Store	0.03	0.05	0.01	0.03	0.01	0.06	0.02	0.03	0.07	0.01	0.07	0.00	0.07
Convenience Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Grocery Store	2.55	4.77	4.00	0.69	4.00	2.41	1.35	2.93	3.00	1.00	3.57	-	3.00
Discount Store	6.58	7.17	8.00	2.32	8.27	2.69	2.46	8.00 G	18.00 G	2.00	2.49	7.02 K	18.00 K
Lighting and Electronics Store	3.60	3.00	-	3.74	3.00	3.74	1.00	4.47	-	5.00	1.00	3.00	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	0.70	1.01	0.39	0.78	0.51	0.97	0.08	0.77	1.38 G	0.42	0.66	1.35	1.38 J
Online Purchase from Online Retailer	6.65	7.03	5.42	8.04	6.02	7.20	8.42	6.46	7.62	4.69	6.92	10.22	7.62

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_MEANS Number of globe bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Retail Store Website	0.84	2.00	0.00	-	0.84	-	-	0.84	-	-	0.84	-	-
Other	3.58	7.00 C	1.09	3.00	0.00	4.37	-	3.58	-	3.00	3.79	-	-
Total Incandescent/Halogen Globe	0.96	0.69	1.36 BD	0.43	1.25 F	0.55	0.95	1.01	0.51	0.94	1.03	1.15	0.51
NET Home Depot/Lowe's / Other Large Home Improvement	0.51	0.20	0.85 B	0.33	0.65	0.32	0.39	0.54	0.45	0.48	0.56	0.58	0.45
Home Depot or Lowe's	5.28	3.57	6.45	2.56	6.43	3.33	2.77	5.98	8.23 G	5.69	5.80	3.53	8.23 L
Other Large Home Improvement Store	8.00	-	-	8.00	-	8.00	-	8.00	-	-	8.00	-	-
Costco or Sam's Club	4.84	7.62	1.51	2.00	7.62	1.60	4.86	4.83	-	7.64	0.00	4.25	-
Wal-Mart or Target	2.50	2.50	2.60	2.00	2.82	1.88	2.03	2.66	3.00	1.98	4.00	2.90	3.00
Small Hardware Store	3.78	3.98	3.50	-	3.95	3.00	6.00 H	3.37	-	-	3.95	3.38	-
NET Convenience Store/Grocery Store	0.06	0.00	0.14 B	0.00	0.08	0.04	0.00	0.08	0.00	0.12	0.00	0.00	0.00
Convenience Store	0.45	0.00	0.50	-	0.50	0.00	-	0.45	-	0.50	-	0.00	-
Grocery Store	5.47	-	5.47	-	8.00	3.00	-	5.47	-	5.47	-	-	-
Discount Store	5.18	4.57	6.75	1.00	5.68	1.00	3.86	6.75	-	4.49	6.26	-	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	0.05	0.07	0.05	0.00	0.04	0.07	0.00	0.07	0.00	0.01	0.00	0.30 JK	0.00
Online Purchase from Online Retailer	5.59	7.24	4.00	-	4.88	6.10	-	5.59	-	-	-	5.59	-
Retail Store Website	1.00	-	1.00	-	1.00	-	-	1.00	-	1.00	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_MEANS Number of globe bulbs purchased

Mean number of purchases reported

BASE = BOUGHT ANY GLOBE BULBS [GL1] / SELECTED ANY TECHNOLOGY [GL2] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Total CFL Globe	1.01	1.06	0.89	1.25	1.04	0.97	1.28	0.98	0.70	1.07	0.88	1.21	0.70
NET Home Depot/Lowe's / Other Large Home Improvement	0.39	0.23	0.39	0.87 B	0.39	0.39	0.59	0.35	0.31	0.39	0.30	0.57	0.31
Home Depot or Lowe's	4.83	4.22	4.05	8.25	4.12	6.42	4.48	4.80	7.60	5.43	3.98	4.11	7.60
Other Large Home Improvement Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Costco or Sam's Club	3.77	2.56	3.99	6.90	2.27	5.40	1.06	5.91 G	-	3.43	4.78	1.92	-
Wal-Mart or Target	3.60	4.20	3.16	3.43	3.21	4.52	4.84	3.11	2.00	3.56	3.10	4.88	2.00
Small Hardware Store	4.56	4.56	-	-	4.00	4.63	-	4.56	-	4.00	3.00	7.61	-
NET Convenience Store/Grocery Store	0.01	0.01	0.02	0.00	0.02	0.01	0.02	0.01	0.00	0.00	0.04	0.02	0.00
Convenience Store	1.49	2.00	1.40	-	1.40	2.00	2.00	1.40	-	0.00	4.00	2.00	-
Grocery Store	3.72	2.76	5.00	5.00	4.52	1.86	1.86	5.00	4.00	5.00	1.00	5.00	4.00
Discount Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	4.00	-	4.00	-	-	4.00	-	4.00	-	-	-	4.00	-
NET Online Purchase / Retail Store Website	0.04	0.04	0.06	0.00	0.06	0.02	0.01	0.04	0.12	0.02	0.06	0.06	0.12 J
Online Purchase from Online Retailer	3.11	2.82	3.44	-	2.69	5.47	4.00	3.93	2.00	-	4.86	2.96	2.00
Retail Store Website	2.00	-	2.00	-	2.00	-	-	2.00	-	2.00	-	-	-
Other	14.35	20.00	4.00	-	14.35	-	-	14.35	-	20.00	4.00	-	-
No Answer	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_TOT Number of globe bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total Globe bulbs purchased	16383338 100%	6667522 100%	7527139 100%	2188676 100%	9903726 100%	6479612 100%	2408664 100%	12404948 100%	1569726 100%	7836629 100%	4131571 100%	2845411 100%	1569726 100%
Total LED Globe	10898173 67%	4650985 70%	4678079 62%	1569109 72%	6163028 62%	4735145 73%	1356110 56%	8242691 66%	1299371 83%	4984935 64%	2744794 66%	1869072 66%	1299371 83%
NET Home Depot/Lowe's / Other Large Home Improvement	4929439 30%	1719687 26%	2438613 32%	771139 35%	2838497 29%	2090942 32%	891973 37%	3627652 29%	409814 26%	2392330 31%	1169741 28%	957554 34%	409814 26%
Home Depot or Lowe's	4850993 30%	1705578 26%	2438613 32%	706802 32%	2774160 28%	2076833 32%	891973 37%	3549206 29%	409814 26%	2392330 31%	1091295 26%	957554 34%	409814 26%
Other Large Home Improvement Store	78445 *%	14109 *%	-	64336 3% B	64336 1% F	14109 *%	-	78445 1%	-	-	78445 2%	-	-
Costco or Sam's Club	1536381 9%	528663 8%	874420 12%	133297 6%	1219581 12% F	316800 5%	176762 7%	1129914 9%	229704 15%	1001838 13% KL	228976 6%	75863 3%	229704 15% L
Wal-Mart or Target	1295341 8%	327127 5%	744939 10% B	223275 10%	815235 8%	480106 7%	116064 5%	1132746 9% I	46530 3%	659681 8% LM	502721 12% LM	86408 3%	46530 3%
Small Hardware Store	522152 3%	434583 7% CD	55104 1%	32465 1%	115023 1%	407129 6% E	26124 1%	437552 4%	58476 4%	196996 3%	142724 3%	123957 4%	58476 4%
NET Convenience Store/Grocery Store	78752 *%	57095 1%	10450 *%	11207 1%	10450 *%	68303 1%	10450 *%	53534 *%	14768 1%	11207 *%	52776 1%	-	14768 1%
Convenience Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Grocery Store	78752 *%	57095 1% C	10450 *%	11207 1%	10450 *%	68303 1%	10450 *%	53534 *%	14768 1%	11207 *%	52776 1% J	-	14768 1%
Discount Store	366803 2%	307663 5%	41423 1%	17717 1%	321623 3%	45180 1%	92672 4% H	41423 *%	232708 15% G	29852 *%	50232 1% J	54012 2% J	232708 15% KL
Lighting and Electronics Store	73382 *%	12217 *%	-	61165 3%	12217 *%	61165 1%	5128 *%	68254 1% G	-	56037 1%	5128 *%	12217 *%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_TOT Number of globe bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	1945234 12%	1165187 17%	494826 7%	285221 13%	830403 8%	1114831 17%	36936 2%	1600928 13%	307370 20%	603372 8%	475429 12%	559062 20%	307370 20%
Online Purchase from Online Retailer	1934097 12%	1154050 17%	494826 7%	285221 13% C	819266 8%	1114831 17%	36936 2%	1589791 13% G	307370 20% G	603372 8%	464293 11%	559062 20% J	307370 20% J
Retail Store Website	11137 *%	11137 *%	-	-	11137 *%	-	-	11137 *%	-	-	11137 *%	-	-
Other	150689 1%	98762 1% C	18305 *%	33622 2% C	-	150689 2%	-	150689 1%	-	33622 *%	117067 3% J	-	-
Total Incandescent/Halogen Globe	2674450 16%	793951 12%	1720767 23% BD	159732 7%	2039455 21% F	634995 10%	449207 19%	2110924 17%	114319 7%	1334979 17%	748503 18%	476649 17%	114319 7%
NET Home Depot/Lowe's / Other Large Home Improvement	1418682 9%	229699 3%	1069070 14% B	119913 5%	1055063 11%	363619 6%	181842 8%	1137290 9%	99550 6%	676318 9%	404155 10%	238658 8%	99550 6%
Home Depot or Lowe's	1378483 8%	229699 3%	1069070 14% BD	79715 4%	1055063 11% F	323420 5%	181842 8%	1097091 9%	99550 6%	676318 9%	363957 9%	238658 8%	99550 6%
Other Large Home Improvement Store	40199 *%	-	-	40199 2%	-	40199 1%	-	40199 *%	-	-	40199 1%	-	-
Costco or Sam's Club	154824 1%	131261 2% CD	18527 *%	5035 *%	131261 1% F	23563 *%	43001 2%	111823 1%	-	130350 2% L	-	24473 1%	-
Wal-Mart or Target	404393 2%	171596 3% D	203142 3%	29655 1%	303053 3% F	101340 2%	88971 4% I	300653 2% I	14768 1%	213257 3% M	122159 3%	54208 2% M	14768 1%
Small Hardware Store	141820 1%	88375 1% C	53445 1%	-	121719 1% F	20101 *%	35281 1% H	106539 1%	-	-	105430 3% L	36390 1%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_TOT Number of globe bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
NET Convenience Store/Grocery Store	170598 1%	-	170598 2%	-	127128 1%	43470 1%	-	170598 1%	-	170598 2%	-	-	-
Convenience Store	14125 *%	-	14125 *%	-	14125 *%	-	-	14125 *%	-	14125 *%	-	-	-
Grocery Store	156473 1%	-	156473 2%	-	113003 1%	43470 1%	-	156473 1%	-	156473 2%	-	-	-
Discount Store	247089 2%	94984 1% D	146976 2% D	5128 *%	241961 2% F	5128 *%	100113 4%	146976 1%	-	130330 2%	116759 3%	-	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	137045 1%	78036 1%	59009 1%	-	59270 1%	77775 1%	-	137045 1%	-	14125 *%	-	122919 4% J	-
Online Purchase from Online Retailer	122919 1%	78036 1% C	44883 1%	-	45145 *%	77775 1% E	-	122919 1%	-	-	-	122919 4%	-
Retail Store Website	14125 *%	-	14125 *%	-	14125 *%	-	-	14125 *%	-	14125 *%	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-
Total CFL Globe	2810715 17%	1222586 18%	1128294 15%	459835 21%	1701244 17%	1109471 17%	603346 25%	2051332 17%	156037 10%	1516715 19%	638274 15%	499690 18%	156037 10%
NET Home Depot/Lowe's / Other Large Home Improvement	1076794 7%	269040 4%	488910 6%	318844 15%	633506 6%	443288 7%	279559 12%	728074 6%	69161 4%	556811 7%	215550 5%	235272 8%	69161 4%
Home Depot or Lowe's	1076794 7%	269040 4%	488910 6%	318844 15%	633506 6%	443288 7%	279559 12% HI	728074 6%	69161 4%	556811 7%	215550 5%	235272 8%	69161 4%
Other Large Home Improvement Store	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_TOT Number of globe bulbs purchased

Total

VOLUMETRIC BASE = TOTAL NUMBER OF GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Costco or Sam's Club	306222 2%	103219 2%	108308 1%	94695 4%	95220 1%	211003 3% E	37710 2%	268512 2%	-	89659 1%	185638 4% JL	30925 1%	-
Wal-Mart or Target	627884 4%	295454 4% D	298722 4%	33708 2%	395794 4%	232090 4%	251825 10% HI	366752 3% I	9306 1%	408610 5% KM	102642 2% M	107326 4% M	9306 1%
Small Hardware Store	160855 1%	160855 2%	-	-	16289 *%	144566 2%	-	160855 1%	-	83200 1%	21163 1%	56491 2%	-
NET Convenience Store/Grocery Store	38177 *%	7637 *%	30540 *%	-	30540 *%	7637 *%	7637 *%	30540 *%	-	-	30540 1%	7637 *%	-
Convenience Store	38177 *%	7637 *%	30540 *%	-	30540 *%	7637 *%	7637 *%	30540 *%	-	-	30540 1%	7637 *%	-
Grocery Store	144083 1%	60867 1%	70627 1%	12589 1%	122340 1% F	21743 *%	21743 1%	70627 1%	51713 3% G	70627 1%	9154 *%	12589 *%	51713 3%
Discount Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	24172 *%	-	24172 *%	-	-	24172 *%	-	24172 *%	-	-	-	24172 1%	-
NET Online Purchase / Retail Store Website	122433 1%	45958 1%	76475 1%	-	97460 1%	24973 *%	4872 *%	91704 1%	25856 2%	28251 *%	43047 1%	25279 1%	25856 2%
Online Purchase from Online Retailer	94182 1%	45958 1%	48225 1%	-	69209 1%	24973 *%	4872 *%	63454 1%	25856 2% H	-	43047 1%	25279 1%	25856 2% K
Retail Store Website	28251 *%	-	28251 *%	-	28251 *%	-	-	28251 *%	-	28251 *%	-	-	-
Other	310097 2%	279557 4%	30540 *%	-	310097 3%	-	-	310097 2%	-	279557 4%	30540 1%	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_LED Number of globe bulbs purchased

LED

VOLUMETRIC BASE = TOTAL NUMBER OF LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total LED Globe	10898173 100%	4650985 100%	4678079 100%	1569109 100%	6163028 100%	4735145 100%	1356110 100%	8242691 100%	1299371 100%	4984935 100%	2744794 100%	1869072 100%	1299371 100%
NET Home Depot/Lowe's / Other Large Home Improvement	4929439 45%	1719687 37%	2438613 52%	771139 49%	2838497 46%	2090942 44%	891973 66% I	3627652 44%	409814 32%	2392330 48%	1169741 43%	957554 51%	409814 32%
Home Depot or Lowe's	4850993 45%	1705578 37%	2438613 52% B	706802 45%	2774160 45%	2076833 44%	891973 66% HI	3549206 43%	409814 32%	2392330 48% M	1091295 40%	957554 51% M	409814 32%
Other Large Home Improvement Store	78445 1%	14109 *%	-	64336 4% B	64336 1% F	14109 *%	-	78445 1%	-	-	78445 3%	-	-
Costco or Sam's Club	1536381 14%	528663 11%	874420 19%	133297 8%	1219581 20% F	316800 7%	176762 13%	1129914 14%	229704 18%	1001838 20% KL	228976 8%	75863 4%	229704 18%
Wal-Mart or Target	1295341 12%	327127 7%	744939 16% B	223275 14%	815235 13%	480106 10%	116064 9%	1132746 14% I	46530 4%	659681 13% LM	502721 18% LM	86408 5%	46530 4%
Small Hardware Store	522152 5%	434583 9% CD	55104 1%	32465 2%	115023 2%	407129 9% E	26124 2%	437552 5%	58476 5%	196996 4%	142724 5%	123957 7%	58476 5%
NET Convenience Store/Grocery Store	78752 1%	57095 1%	10450 *%	11207 1%	10450 *%	68303 1%	10450 1%	53534 1%	14768 1%	11207 *%	52776 2%	-	14768 1%
Convenience Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Grocery Store	78752 1%	57095 1% C	10450 *%	11207 1%	10450 *%	68303 1%	10450 1%	53534 1%	14768 1%	11207 *% J	52776 2% J	-	14768 1%
Discount Store	366803 3%	307663 7%	41423 1%	17717 1%	321623 5% F	45180 1%	92672 7% H	41423 1%	232708 18% G	29852 1%	50232 2% J	54012 3% J	232708 18% KL
Lighting and Electronics Store	73382 1%	12217 *%	-	61165 4%	12217 *%	61165 1%	5128 *%	68254 1% G	-	56037 1%	5128 *%	12217 1%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_LED Number of globe bulbs purchased

LED

VOLUMETRIC BASE = TOTAL NUMBER OF LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	1945234 18%	1165187 25%	494826 11%	285221 18%	830403 13%	1114831 24%	36936 3%	1600928 19%	307370 24%	603372 12%	475429 17%	559062 30%	307370 24%
Online Purchase from Online Retailer	1934097 18%	1154050 25%	494826 11%	285221 18% C	819266 13%	1114831 24%	36936 3%	1589791 19% G	307370 24% G	603372 12%	464293 17%	559062 30% J	307370 24% J
Retail Store Website	11137 *%	11137 *%	-	-	11137 *%	-	-	11137 *%	-	-	11137 *%	-	-
Other	150689 1%	98762 2% C	18305 *%	33622 2% C	-	150689 3%	-	150689 2%	-	33622 1%	117067 4% J	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_IH Number of globe bulbs purchased

Incandescent/Halogen

VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total Incandescent/Halogen Globe	2674450 100%	793951 100%	1720767 100%	159732 100%	2039455 100%	634995 100%	449207 100%	2110924 100%	114319 100%	1334979 100%	748503 100%	476649 100%	114319 100%
NET Home Depot/Lowe's / Other Large Home Improvement	1418682 53%	229699 29%	1069070 62%	119913 75%	1055063 52%	363619 57%	181842 40%	1137290 54%	99550 87%	676318 51%	404155 54%	238658 50%	99550 87%
Home Depot or Lowe's	1378483 52%	229699 29%	1069070 62% B	79715 50%	1055063 52%	323420 51%	181842 40%	1097091 52%	99550 87%	676318 51%	363957 49%	238658 50%	99550 87%
Other Large Home Improvement Store	40199 2%	-	-	40199 25%	-	40199 6%	-	40199 2%	-	-	40199 5%	-	-
Costco or Sam's Club	154824 6%	131261 17% CD	18527 1%	5035 3%	131261 6%	23563 4%	43001 10%	111823 5%	-	130350 10%	-	24473 5%	-
Wal-Mart or Target	404393 15%	171596 22%	203142 12%	29655 19%	303053 15%	101340 16%	88971 20%	300653 14%	14768 13%	213257 16%	122159 16%	54208 11%	14768 13%
Small Hardware Store	141820 5%	88375 11% C	53445 3%	-	121719 6% F	20101 3%	35281 8% H	106539 5%	-	-	105430 14% L	36390 8%	-
NET Convenience Store/Grocery Store	170598 6%	-	170598 10%	-	127128 6%	43470 7%	-	170598 8%	-	170598 13%	-	-	-
Convenience Store	14125 1%	-	14125 1%	-	14125 1%	-	-	14125 1%	-	14125 1%	-	-	-
Grocery Store	156473 6%	-	156473 9%	-	113003 6%	43470 7%	-	156473 7%	-	156473 12%	-	-	-
Discount Store	247089 9%	94984 12% D	146976 9%	5128 3%	241961 12% F	5128 1%	100113 22%	146976 7%	-	130330 10%	116759 16%	-	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	-	-	-	-	-	-	-	-	-	-	-	-	-
NET Online Purchase / Retail Store Website	137045 5%	78036 10%	59009 3%	-	59270 3%	77775 12%	-	137045 6%	-	14125 1%	-	122919 26% J	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_IH Number of globe bulbs purchased

Incandescent/Halogen

VOLUMETRIC BASE = TOTAL NUMBER OF INCANDESCENT/HALOGEN GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Online Purchase from Online Retailer	122919 5%	78036 10% C	44883 3%	-	45145 2%	77775 12% E	-	122919 6%	-	-	-	122919 26%	-
Retail Store Website	14125 1%	-	14125 1%	-	14125 1%	-	-	14125 1%	-	14125 1%	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_CFL Number of globe bulbs purchased

CFL

VOLUMETRIC BASE = TOTAL NUMBER OF CFL GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Total CFL Globe	2810715 100%	1222586 100%	1128294 100%	459835 100%	1701244 100%	1109471 100%	603346 100%	2051332 100%	156037 100%	1516715 100%	638274 100%	499690 100%	156037 100%
NET Home Depot/Lowe's / Other Large Home Improvement	1076794 38%	269040 22%	488910 43%	318844 69%	633506 37%	443288 40%	279559 46%	728074 35%	69161 44%	556811 37%	215550 34%	235272 47%	69161 44%
Home Depot or Lowe's	1076794 38%	269040 22%	488910 43% B	318844 69%	633506 37%	443288 40%	279559 46%	728074 35%	69161 44%	556811 37%	215550 34%	235272 47%	69161 44%
Other Large Home Improvement Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Costco or Sam's Club	306222 11%	103219 8%	108308 10%	94695 21%	95220 6%	211003 19% E	37710 6%	268512 13%	-	89659 6%	185638 29% JL	30925 6%	-
Wal-Mart or Target	627884 22%	295454 24% D	298722 26% D	33708 7%	395794 23%	232090 21%	251825 42% HI	366752 18% I	9306 6%	408610 27% M	102642 16% M	107326 21% M	9306 6%
Small Hardware Store	160855 6%	160855 13%	-	-	16289 1%	144566 13%	-	160855 8%	-	83200 5%	21163 3%	56491 11%	-
NET Convenience Store/Grocery Store	38177 1%	7637 1%	30540 3%	-	30540 2%	7637 1%	7637 1%	30540 1%	-	-	30540 5%	7637 2%	-
Convenience Store	38177 1%	7637 1%	30540 3%	-	30540 2%	7637 1%	7637 1%	30540 1%	-	-	30540 5%	7637 2%	-
Grocery Store	144083 5%	60867 5%	70627 6%	12589 3%	122340 7% F	21743 2%	21743 4%	70627 3%	51713 33% G	70627 5%	9154 1%	12589 3%	51713 33%
Discount Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Lighting and Electronics Store	-	-	-	-	-	-	-	-	-	-	-	-	-
Drug Store	24172 1%	-	24172 2%	-	-	24172 2%	-	24172 1%	-	-	-	24172 5%	-
NET Online Purchase / Retail Store Website	122433 4%	45958 4%	76475 7%	-	97460 6%	24973 2%	4872 1%	91704 4%	25856 17%	28251 2%	43047 7%	25279 5%	25856 17%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL4_CFL Number of globe bulbs purchased

CFL

VOLUMETRIC BASE = TOTAL NUMBER OF CFL GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Online Purchase from Online Retailer	94182 3%	45958 4%	48225 4%	-	69209 4%	24973 2%	4872 1%	63454 3% G	25856 17% H	-	43047 7%	25279 5%	25856 17% KL
Retail Store Website	28251 1%	-	28251 3%	-	28251 2%	-	-	28251 1%	-	28251 2%	-	-	-
Other	310097 11%	279557 23%	30540 3%	-	310097 18%	-	-	310097 15%	-	279557 18%	30540 5%	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL5_1 How many of the LED globe bulbs you purchased are currently installed at your home (either indoors or outdoors)?

BASE = 1 OR MORE LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1842023 100%	794487 100%	770787 100%	276750 100%	1000550 100%	841473 100%	276297 100%	1400262 100%	165464 100%	949428 100%	469458 100%	257674 100%	165464 100%
Unweighted Total	238	97	94	47	131	107	52	164	22	70	79	67	22
None	27984 2%	25723 3%	-	2261 1%	2261 *%	25723 3%	2261 1%	20800 1%	4923 3%	20800 2%	2261 *%	-	4923 3%
[NET] 1 or more	1740837 95%	741664 93%	732705 95%	266468 96%	942547 94%	798291 95%	274036 99% H	1310914 94%	155888 94%	892356 94%	447520 95%	245073 95%	155888 94%
1-2	543321 29%	276747 35%	184754 24%	81821 30%	273039 27%	270282 32%	101566 37% I	425183 30% I	16572 10%	298903 31% M	150562 32% M	77284 30% M	16572 10%
3-5	590089 32%	256879 32%	232285 30%	100924 36%	303628 30%	286461 34%	102388 37%	426978 30%	60722 37%	321826 34% L	156332 33% L	51209 20%	60722 37%
6-9	345282 19%	80152 10%	222271 29% B	42859 15%	204757 20%	140524 17%	29444 11%	280681 20%	35157 21%	156579 16%	89924 19%	63622 25%	35157 21%
10 or more	262146 14%	127886 16%	93396 12%	40865 15%	161123 16%	101023 12%	40637 15%	178071 13%	43438 26%	115049 12%	50701 11%	52959 21%	43438 26%
Don't Know	73202 4%	27100 3%	38082 5%	8020 3%	55743 6%	17459 2%	-	68549 5%	4653 3%	36271 4%	19677 4%	12600 5%	4653 3%
Mean	5.08	4.94	5.21	5.15	5.24	4.90	4.40	5.06	6.46 G	4.77	4.61	6.20	6.46 K

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL6 Of the remaining LED globe bulbs you purchased and have not yet installed, how many bulbs do you plan to install at your home within the next year (either indoors or outdoors)?

BASE = LED GLOBE BULBS YET TO BE INSTALLED / QUANTITY CURRENTLY INSTALLED PROVIDED [GL5] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	316300 100%	124369 100%	154650 100%	37281 100%	207799 100%	108501 100%	25234 100%	250711 100%	40355 100%	113642 100%	114081 100%	48222 100%	40355 100%
Unweighted Total	44	15	21	8	29	15	8	31	5	8	19	12	5
None	17028 5%	3350 3%	13678 9%	-	7635 4%	9393 9%	-	17028 7%	-	-	7635 7%	9393 19%	-
[NET] 1 or more	299272 95%	121019 97%	140973 91%	37281 100%	200164 96%	99108 91%	25234 100%	233683 93%	40355 100%	113642 100% L	106446 93%	38829 81%	40355 100% L
1	70781 22%	19983 16%	43676 28%	7122 19%	58702 28%	12079 11%	2612 10%	55240 22%	12928 32%	28251 25%	22327 20%	7275 15%	12928 32%
2	118417 37%	56645 46%	51516 33%	10257 28%	64100 31%	54318 50%	16109 64%	89381 36%	12928 32%	34925 31%	56968 50%	13595 28%	12928 32%
3 or more	110074 35%	44391 36%	45781 30%	19902 53%	77363 37%	32711 30%	6513 26%	89062 36%	14499 36%	50466 44%	27151 24%	17958 37%	14499 36%
Don't Know	-	-	-	-	-	-	-	-	-	-	-	-	-
Mean	2.68	2.88	2.23	3.83 C	2.70	2.64	2.49	2.68	2.77	3.03	2.52	2.14	2.77

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL5/GL6-1 Sum of LED globe bulbs currently installed or planned for installation within the next year.

BASE = 1 OR MORE LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1842023 100%	794487 100%	770787 100%	276750 100%	1000550 100%	841473 100%	276297 100%	1400262 100%	165464 100%	949428 100%	469458 100%	257674 100%	165464 100%
Unweighted Total	238	97	94	47	131	107	52	164	22	70	79	67	22
None	-	-	-	-	-	-	-	-	-	-	-	-	-
[NET] 1 or more	1697847 92%	716419 90%	704678 91%	276750 100% BC	922796 92%	775051 92%	261948 95%	1280011 91%	155888 94%	888640 94%	414288 88%	239030 93%	155888 94%
1-2	467364 25%	224121 28%	163520 21%	79723 29%	207224 21%	260140 31%	89387 32% I	361406 26% I	16572 10%	267860 28% M	129759 28% M	53174 21%	16572 10%
3-5	540022 29%	221105 28%	218762 28%	100154 36%	290818 29%	249203 30%	105373 38%	391777 28%	42871 26%	321826 34%	119644 25%	55681 22%	42871 26%
6-9	381028 21%	139957 18%	190088 25%	50983 18%	248361 25%	132667 16%	26551 10%	301469 22%	53008 32% G	169417 18%	84737 18%	73867 29%	53008 32%
10 or more	309433 17%	131236 17%	132308 17%	45889 17%	176393 18%	133041 16%	40637 15%	225358 16%	43438 26%	129539 14%	80148 17%	56309 22%	43438 26%
Don't Know	144176 8%	78068 10%	66108 9%	-	77754 8%	66422 8%	14349 5%	120252 9%	9576 6%	60787 6%	55170 12%	18643 7%	9576 6%
Mean	5.81	5.77	5.91	5.64	6.07	5.50	4.53	5.88	7.36 G	5.30	5.66	6.97	7.36 J

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GL5/GL6-2 Installation Rate (Percentage of LED globe bulbs purchased that are currently installed or planned for installation.)

BASE = 1 OR MORE LED GLOBE BULBS PURCHASED [GL4] (Jan 2019-Mar 2020)

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1842023 100%	794487 100%	770787 100%	276750 100%	1000550 100%	841473 100%	276297 100%	1400262 100%	165464 100%	949428 100%	469458 100%	257674 100%	165464 100%
Unweighted Total	238	97	94	47	131	107	52	164	22	70	79	67	22
100%	1641705 89%	689029 87%	678188 88%	274489 99% BC	896847 90%	744858 89%	256448 93%	1229370 88%	155888 94%	867840 91%	396757 85%	221220 86%	155888 94%
51-99%	42896 2%	24040 3%	18856 2%	-	16052 2%	26843 3%	3240 1%	39656 3%	-	20800 2%	7635 2%	14460 6%	-
0-50%	13246 1%	3350 *	7635 1%	2261 1%	9896 1%	3350 *	2261 1%	10985 1%	-	-	9896 2%	3350 1%	-
Don't Know	144176 8%	78068 10%	66108 9%	-	77754 8%	66422 8%	14349 5%	120252 9%	9576 6%	60787 6%	55170 12%	18643 7%	9576 6%
Mean	98.73	98.62	98.50	99.59	98.90	98.52	99.39	98.43	100.00	99.20	97.98	97.41	100.00

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Reflector Purchasing Game

Weighted Table

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	8951517 100%	4147339 100%	3596069 100%	1187992 100%	4742464 100%	4209053 100%	1510405 100%	6672805 100%	768307 100%	4960278 100%	2126287 100%	1096645 100%	768307 100%
Unweighted Total	1147	462	469	214	640	507	276	738	133	358	344	312	133
Grocery	2975931 33%	1455743 35% D	1190363 33%	329825 28%	1611418 34%	1364513 32%	520767 34%	2212201 33%	242964 32%	1685345 34%	724631 34%	322992 29%	242964 32%
Discount	3138768 35%	1490513 36%	1156516 32%	471623 40% C	1533459 32%	1605309 38% E	526219 35%	2367911 35%	244638 32%	1928922 39% L	713407 34% L	251801 23%	244638 32% L
Hardware	700694 8%	382064 9%	228514 6%	90116 8%	351835 7%	348859 8%	127853 8% I	550257 8% I	22584 3%	380313 8% M	180447 8% M	117350 11% M	22584 3%
Home Improvement	2136124 24%	819019 20%	1020677 28% B	296428 25%	1245753 26%	890371 21%	335566 22%	1542436 23%	258122 34% GH	965698 19%	507802 24%	404502 37% JK	258122 34% JK

Comparison Groups: BCD/EF/GHI/JKLM

Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)

Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Reflector Purchasing Game

Unweighted Table

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1147 100%	462 100%	469 100%	214 100%	640 100%	507 100%	276 100%	738 100%	133 100%	358 100%	344 100%	312 100%	133 100%
Unweighted Total	1147	462	469	214	640	507	276	738	133	358	344	312	133
Grocery	370 32%	156 34%	153 33%	61 29%	209 33%	161 32%	87 32%	240 33%	43 32%	122 34%	115 33%	90 29%	43 32%
Discount	370 32%	154 33%	135 29%	79 37% C	194 30%	176 35%	93 34%	237 32%	40 30%	138 39% LM	114 33% L	78 25%	40 30%
Hardware	98 9%	48 10% C	33 7%	17 8%	49 8%	49 10%	23 8% I	70 9% I	5 4%	26 7%	31 9% M	36 12% JM	5 4%
Home Improvement	309 27%	104 23%	148 32% B	57 27%	188 29% F	121 24%	73 26%	191 26%	45 34% H	72 20%	84 24%	108 35% JK	45 34% JK

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price1

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	8951517 100%	4147339 100%	3596069 100%	1187992 100%	4742464 100%	4209053 100%	1510405 100%	6672805 100%	768307 100%	4960278 100%	2126287 100%	1096645 100%	768307 100%
Unweighted Total	1147	462	469	214	640	507	276	738	133	358	344	312	133
\$9.15	2975931 33%	1455743 35% D	1190363 33%	329825 28%	1611418 34%	1364513 32%	520767 34%	2212201 33%	242964 32%	1685345 34%	724631 34%	322992 29%	242964 32%
\$1.35	3138768 35%	1490513 36%	1156516 32%	471623 40% C	1533459 32%	1605309 38% E	526219 35%	2367911 35%	244638 32%	1928922 39% L	713407 34% L	251801 23%	244638 32% L
\$6.40	700694 8%	382064 9%	228514 6%	90116 8%	351835 7%	348859 8%	127853 8% I	550257 8% I	22584 3%	380313 8% M	180447 8% M	117350 11% M	22584 3%
\$3.70	2136124 24%	819019 20%	1020677 28% B	296428 25%	1245753 26%	890371 21%	335566 22%	1542436 23%	258122 34% GH	965698 19%	507802 24%	404502 37% JK	258122 34% JK

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price2

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	8951517 100%	4147339 100%	3596069 100%	1187992 100%	4742464 100%	4209053 100%	1510405 100%	6672805 100%	768307 100%	4960278 100%	2126287 100%	1096645 100%	768307 100%
Unweighted Total	1147	462	469	214	640	507	276	738	133	358	344	312	133
\$5.85	2975931 33%	1455743 35% D	1190363 33%	329825 28%	1611418 34%	1364513 32%	520767 34%	2212201 33%	242964 32%	1685345 34%	724631 34%	322992 29%	242964 32%
\$1.20	3138768 35%	1490513 36%	1156516 32%	471623 40% C	1533459 32%	1605309 38% E	526219 35%	2367911 35%	244638 32%	1928922 39% L	713407 34% L	251801 23%	244638 32% L
\$6.00	700694 8%	382064 9%	228514 6%	90116 8%	351835 7%	348859 8%	127853 8% I	550257 8% I	22584 3%	380313 8% M	180447 8% M	117350 11% M	22584 3%
\$4.05	2136124 24%	819019 20%	1020677 28% B	296428 25%	1245753 26%	890371 21%	335566 22%	1542436 23%	258122 34% GH	965698 19%	507802 24%	404502 37% JK	258122 34% JK

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price3

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	8951517 100%	4147339 100%	3596069 100%	1187992 100%	4742464 100%	4209053 100%	1510405 100%	6672805 100%	768307 100%	4960278 100%	2126287 100%	1096645 100%	768307 100%
Unweighted Total	1147	462	469	214	640	507	276	738	133	358	344	312	133
\$0.60	2975931 33%	1455743 35% D	1190363 33%	329825 28%	1611418 34%	1364513 32%	520767 34%	2212201 33%	242964 32%	1685345 34%	724631 34%	322992 29%	242964 32%
\$0.50	3138768 35%	1490513 36%	1156516 32%	471623 40% C	1533459 32%	1605309 38% E	526219 35%	2367911 35%	244638 32%	1928922 39% L	713407 34% L	251801 23%	244638 32% L
\$5.65	700694 8%	382064 9%	228514 6%	90116 8%	351835 7%	348859 8%	127853 8% I	550257 8% I	22584 3%	380313 8% M	180447 8% M	117350 11% M	22584 3%
\$3.80	2136124 24%	819019 20%	1020677 28% B	296428 25%	1245753 26%	890371 21%	335566 22%	1542436 23%	258122 34% GH	965698 19%	507802 24%	404502 37% JK	258122 34% JK

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price4

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	8951517 100%	4147339 100%	3596069 100%	1187992 100%	4742464 100%	4209053 100%	1510405 100%	6672805 100%	768307 100%	4960278 100%	2126287 100%	1096645 100%	768307 100%
Unweighted Total	1147	462	469	214	640	507	276	738	133	358	344	312	133
\$5.85	2975931 33%	1455743 35% D	1190363 33%	329825 28%	1611418 34%	1364513 32%	520767 34%	2212201 33%	242964 32%	1685345 34%	724631 34%	322992 29%	242964 32%
\$1.20	3138768 35%	1490513 36%	1156516 32%	471623 40% C	1533459 32%	1605309 38% E	526219 35%	2367911 35%	244638 32%	1928922 39% L	713407 34% L	251801 23%	244638 32% L
\$6.00	700694 8%	382064 9%	228514 6%	90116 8%	351835 7%	348859 8%	127853 8% I	550257 8% I	22584 3%	380313 8% M	180447 8% M	117350 11% M	22584 3%
\$4.05	2136124 24%	819019 20%	1020677 28% B	296428 25%	1245753 26%	890371 21%	335566 22%	1542436 23%	258122 34% GH	965698 19%	507802 24%	404502 37% JK	258122 34% JK

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Candelabra Purchasing Game

Weighted Table

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2736690 100%	1192902 100%	1172421 100%	366444 100%	1609692 100%	1126997 100%	493827 100%	1995866 100%	246998 100%	1388387 100%	674523 100%	426783 100%	246998 100%
Unweighted Total	371	146	158	66	220	151	93	239	39	104	109	119	39
Discount	1568892 57%	802060 67% CD	573852 49%	188057 51%	843307 52%	725585 64% E	277467 56%	1166521 58%	124903 51%	867145 62% L	400474 59% L	176370 41%	124903 51%
Home Improvement	1167798 43%	390841 33%	598570 51% B	178387 49% B	766386 48% F	401412 36%	216359 44%	829344 42%	122094 49%	521242 38%	274049 41%	250413 59% JK	122094 49%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Candelabra Purchasing Game

Unweighted Table

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	371 100%	146 100%	158 100%	66 100%	220 100%	151 100%	93 100%	239 100%	39 100%	104 100%	109 100%	119 100%	39 100%
Unweighted Total	371	146	158	66	220	151	93	239	39	104	109	119	39
Discount	195 53%	87 60% C	74 47%	33 50%	106 48%	89 59% E	48 52%	128 54%	19 49%	61 59% L	62 57% L	53 45%	19 49%
Home Improvement	176 47%	59 40%	84 53% B	33 50%	114 52% F	62 41%	45 48%	111 46%	20 51%	43 41%	47 43%	66 55% JK	20 51%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price5

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2736690 100%	1192902 100%	1172421 100%	366444 100%	1609692 100%	1126997 100%	493827 100%	1995866 100%	246998 100%	1388387 100%	674523 100%	426783 100%	246998 100%
Unweighted Total	371	146	158	66	220	151	93	239	39	104	109	119	39
\$1.85	1568892 57%	802060 67% CD	573852 49%	188057 51%	843307 52%	725585 64% E	277467 56%	1166521 58%	124903 51%	867145 62% L	400474 59% L	176370 41%	124903 51%
\$3.05	1167798 43%	390841 33%	598570 51% B	178387 49% B	766386 48% F	401412 36%	216359 44%	829344 42%	122094 49%	521242 38%	274049 41%	250413 59% JK	122094 49%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price6

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2736690 100%	1192902 100%	1172421 100%	366444 100%	1609692 100%	1126997 100%	493827 100%	1995866 100%	246998 100%	1388387 100%	674523 100%	426783 100%	246998 100%
Unweighted Total	371	146	158	66	220	151	93	239	39	104	109	119	39
\$0.55	1568892 57%	802060 67% CD	573852 49%	188057 51%	843307 52%	725585 64% E	277467 56%	1166521 58%	124903 51%	867145 62% L	400474 59% L	176370 41%	124903 51%
\$0.95	1167798 43%	390841 33%	598570 51% B	178387 49% B	766386 48% F	401412 36%	216359 44%	829344 42%	122094 49%	521242 38%	274049 41%	250413 59% JK	122094 49%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price7

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2736690 100%	1192902 100%	1172421 100%	366444 100%	1609692 100%	1126997 100%	493827 100%	1995866 100%	246998 100%	1388387 100%	674523 100%	426783 100%	246998 100%
Unweighted Total	371	146	158	66	220	151	93	239	39	104	109	119	39
\$0.25	1568892 57%	802060 67%	573852 49%	188057 51%	843307 52%	725585 64%	277467 56%	1166521 58%	124903 51%	867145 62%	400474 59%	176370 41%	124903 51%
		CD				E				L	L		
\$4.15	1167798 43%	390841 33%	598570 51%	178387 49%	766386 48%	401412 36%	216359 44%	829344 42%	122094 49%	521242 38%	274049 41%	250413 59%	122094 49%
			B	B	F							JK	

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price8

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2736690 100%	1192902 100%	1172421 100%	366444 100%	1609692 100%	1126997 100%	493827 100%	1995866 100%	246998 100%	1388387 100%	674523 100%	426783 100%	246998 100%
Unweighted Total	371	146	158	66	220	151	93	239	39	104	109	119	39
\$0.55	1568892 57%	802060 67% CD	573852 49%	188057 51%	843307 52%	725585 64% E	277467 56%	1166521 58%	124903 51%	867145 62% L	400474 59% L	176370 41%	124903 51%
\$0.95	1167798 43%	390841 33%	598570 51% B	178387 49% B	766386 48% F	401412 36%	216359 44%	829344 42%	122094 49%	521242 38%	274049 41%	250413 59% JK	122094 49%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Globe Purchasing Game

Weighted Table

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3106253 100%	1330403 100%	1396088 100%	379762 100%	1881063 100%	1225189 100%	525369 100%	2354149 100%	226735 100%	1599072 100%	828468 100%	451977 100%	226735 100%
Unweighted Total	403	164	173	66	240	163	99	273	31	118	136	118	31
Discount	1626925 52%	846448 64% CD	622899 45%	157579 41%	968719 51%	658207 54%	225370 43%	1276107 54%	125449 55%	850721 53% L	475847 57% L	174909 39%	125449 55%
Home Improvement	1479327 48%	483955 36%	773189 55% B	222183 59% B	912345 49%	566983 46%	299999 57%	1078042 46%	101287 45%	748351 47%	352621 43%	277068 61% JK	101287 45%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Globe Purchasing Game

Unweighted Table

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	
TOTAL	403	164	173	66	240	163	99	273	31	118	136	118	31
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Unweighted Total	403	164	173	66	240	163	99	273	31	118	136	118	31
Discount	199	101	73	25	114	85	41	142	16	60	77	46	16
	49%	62%	42%	38%	48%	52%	41%	52%	52%	51%	57%	39%	52%
		CD						G		L	L		
Home Improvement	204	63	100	41	126	78	58	131	15	58	59	72	15
	51%	38%	58%	62%	52%	48%	59%	48%	48%	49%	43%	61%	48%
			B	B			H					JK	

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price9

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3106253 100%	1330403 100%	1396088 100%	379762 100%	1881063 100%	1225189 100%	525369 100%	2354149 100%	226735 100%	1599072 100%	828468 100%	451977 100%	226735 100%
Unweighted Total	403	164	173	66	240	163	99	273	31	118	136	118	31
\$1.00	1626925 52%	846448 64%	622899 45%	157579 41%	968719 51%	658207 54%	225370 43%	1276107 54%	125449 55%	850721 53%	475847 57%	174909 39%	125449 55%
		CD								L	L		
\$4.65	1479327 48%	483955 36%	773189 55%	222183 59%	912345 49%	566983 46%	299999 57%	1078042 46%	101287 45%	748351 47%	352621 43%	277068 61%	101287 45%
			B	B								JK	

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price10

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3106253 100%	1330403 100%	1396088 100%	379762 100%	1881063 100%	1225189 100%	525369 100%	2354149 100%	226735 100%	1599072 100%	828468 100%	451977 100%	226735 100%
Unweighted Total	403	164	173	66	240	163	99	273	31	118	136	118	31
\$1.00	1626925 52%	846448 64%	622899 45%	157579 41%	968719 51%	658207 54%	225370 43%	1276107 54%	125449 55%	850721 53%	475847 57%	174909 39%	125449 55%
		CD								L	L		
\$3.25	1479327 48%	483955 36%	773189 55%	222183 59%	912345 49%	566983 46%	299999 57%	1078042 46%	101287 45%	748351 47%	352621 43%	277068 61%	101287 45%
			B	B								JK	

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price11

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3106253 100%	1330403 100%	1396088 100%	379762 100%	1881063 100%	1225189 100%	525369 100%	2354149 100%	226735 100%	1599072 100%	828468 100%	451977 100%	226735 100%
Unweighted Total	403	164	173	66	240	163	99	273	31	118	136	118	31
\$0.50	1626925 52%	846448 64%	622899 45%	157579 41%	968719 51%	658207 54%	225370 43%	1276107 54%	125449 55%	850721 53%	475847 57%	174909 39%	125449 55%
		CD								L	L		
\$2.90	1479327 48%	483955 36%	773189 55%	222183 59%	912345 49%	566983 46%	299999 57%	1078042 46%	101287 45%	748351 47%	352621 43%	277068 61%	101287 45%
			B	B								JK	

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Price12

BASE = ALL RESPONDENTS ASKED

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3106253 100%	1330403 100%	1396088 100%	379762 100%	1881063 100%	1225189 100%	525369 100%	2354149 100%	226735 100%	1599072 100%	828468 100%	451977 100%	226735 100%
Unweighted Total	403	164	173	66	240	163	99	273	31	118	136	118	31
\$1.00	1626925 52%	846448 64%	622899 45%	157579 41%	968719 51%	658207 54%	225370 43%	1276107 54%	125449 55%	850721 53%	475847 57%	174909 39%	125449 55%
		CD								L	L		
\$3.25	1479327 48%	483955 36%	773189 55%	222183 59%	912345 49%	566983 46%	299999 57%	1078042 46%	101287 45%	748351 47%	352621 43%	277068 61%	101287 45%
			B	B								JK	

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RG1A_1 Which bulb would you buy at the following prices?

Reflector without program

BASE = PLAYED GROCERY GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2975931 100%	1455743 100%	1190363 100%	329825 100%	1611418 100%	1364513 100%	520767 100%	2212201 100%	242964 100%	1685345 100%	724631 100%	322992 100%	242964 100%
Unweighted Total	370	156	153	61	209	161	87	240	43	122	115	90	43
LED Reflector for \$9.15	1843144 62%	884336 61%	744257 63%	214551 65%	1015302 63%	827842 61%	312138 60%	1362112 62%	168895 70%	951914 56%	508135 70% J	214201 66%	168895 70%
Incandescent/Halogen Reflector for \$5.85	1132787 38%	571406 39%	446107 37%	115274 35%	596116 37%	536671 39%	208629 40%	850089 38%	74069 30%	733431 44% K	216496 30%	108790 34%	74069 30%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RG1A_2 Which bulb would you buy at the following prices?

Reflector without program

BASE = PLAYED DISCOUNT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3138768 100%	1490513 100%	1156516 100%	471623 100%	1533459 100%	1605309 100%	526219 100%	2367911 100%	244638 100%	1928922 100%	713407 100%	251801 100%	244638 100%
Unweighted Total	370	154	135	79	194	176	93	237	40	138	114	78	40
LED Reflector for \$1.35	2327328 74%	1132469 76%	837682 72%	352524 75%	1090792 71%	1236537 77%	349456 66%	1793237 76%	184635 75%	1437521 75%	536882 75%	168291 67%	184635 75%
Incandescent/Halogen Reflector for \$1.20	811440 26%	358044 24%	318833 28%	119099 25%	442667 29%	368773 23%	176762 34%	574674 24%	60003 25%	491401 25%	176525 25%	83510 33%	60003 25%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RG1A_3 Which bulb would you buy at the following prices?

Reflector without program

BASE = PLAYED HARDWARE GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	700694 100%	382064 100%	228514 100%	90116 100%	351835 100%	348859 100%	127853 100%	550257 100%	22584 100%	380313 100%	180447 100%	117350 100%	22584 100%
Unweighted Total	98	48	33	17	49	49	23	70	5	26	31	36	5
LED Reflector for \$6.40	602036 86%	347726 91%	188398 82%	65912 73%	299039 85%	302997 87%	100761 79%	478692 87%	22584 100% GH	342820 90%	144119 80%	92514 79%	22584 100% KL
Incandescent/Halogen Reflector for \$6.00	98658 14%	34339 9%	40116 18%	24204 27%	52795 15%	45862 13%	27092 21%	71565 13%	-	37493 10%	36328 20%	24836 21%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RG1A_4 Which bulb would you buy at the following prices?

Reflector without program

BASE = PLAYED HOME IMPROVEMENT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2136124 100%	819019 100%	1020677 100%	296428 100%	1245753 100%	890371 100%	335566 100%	1542436 100%	258122 100%	965698 100%	507802 100%	404502 100%	258122 100%
Unweighted Total	309	104	148	57	188	121	73	191	45	72	84	108	45
LED Reflector for \$3.70	1891416 89%	770247 94% C	846282 83%	274887 93% C	1092853 88%	798563 90%	312331 93%	1359730 88%	219354 85%	877323 91%	438967 86%	355772 88%	219354 85%
Incandescent/Halogen Reflector for \$4.05	244708 11%	48772 6%	174395 17% BD	21541 7%	152901 12%	91807 10%	23235 7%	182705 12%	38768 15%	88375 9%	68835 14%	48730 12%	38768 15%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RG1B_1 Which bulb would you buy at the following prices?

Reflector with program

BASE = PLAYED GROCERY GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2975931 100%	1455743 100%	1190363 100%	329825 100%	1611418 100%	1364513 100%	520767 100%	2212201 100%	242964 100%	1685345 100%	724631 100%	322992 100%	242964 100%
Unweighted Total	370	156	153	61	209	161	87	240	43	122	115	90	43
LED Reflector for \$0.60	2535985 85%	1182957 81%	1034909 87%	318119 96% BC	1366994 85%	1168992 86%	409694 79%	1900988 86%	225303 93% G	1358489 81%	645042 89% J	307152 95% J	225303 93% J
Incandescent/Halogen Reflector for \$5.85	439946 15%	272785 19% D	155454 13% D	11706 4%	244424 15%	195522 14%	111073 21% I	311213 14%	17661 7%	326856 19% KLM	79589 11%	15840 5%	17661 7%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RG1B_2 Which bulb would you buy at the following prices?

Reflector with program

BASE = PLAYED DISCOUNT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	3138768 100%	1490513 100%	1156516 100%	471623 100%	1533459 100%	1605309 100%	526219 100%	2367911 100%	244638 100%	1928922 100%	713407 100%	251801 100%	244638 100%
Unweighted Total	370	154	135	79	194	176	93	237	40	138	114	78	40
LED Reflector for \$0.50	2635761 84%	1344064 90% CD	909022 79%	362559 77%	1300671 85%	1335091 83%	459195 87%	1975070 83%	201497 82%	1618134 84%	604915 85%	211215 84%	201497 82%
Incandescent/Halogen Reflector for \$1.20	503007 16%	146449 10%	247493 21% B	109064 23% B	232788 15%	270219 17%	67024 13%	392842 17%	43141 18%	310788 16%	108492 15%	40586 16%	43141 18%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RG1B_3 Which bulb would you buy at the following prices?

Reflector with program

BASE = PLAYED HARDWARE GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	700694 100%	382064 100%	228514 100%	90116 100%	351835 100%	348859 100%	127853 100%	550257 100%	22584 100%	380313 100%	180447 100%	117350 100%	22584 100%
Unweighted Total	98	48	33	17	49	49	23	70	5	26	31	36	5
LED Reflector for \$5.65	593421 85%	325765 85%	201211 88%	66445 74%	281477 80%	311944 89%	79856 62%	490981 89% G	22584 100% GH	312968 82%	152287 84%	105583 90%	22584 100% JKL
Incandescent/Halogen Reflector for \$6.00	107273 15%	56300 15%	27303 12%	23671 26%	70358 20%	36915 11%	47997 38% H	59276 11%	-	67345 18%	28160 16%	11768 10%	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

RG1B_4 Which bulb would you buy at the following prices?

Reflector with program

BASE = PLAYED HOME IMPROVEMENT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	2136124 100%	819019 100%	1020677 100%	296428 100%	1245753 100%	890371 100%	335566 100%	1542436 100%	258122 100%	965698 100%	507802 100%	404502 100%	258122 100%
Unweighted Total	309	104	148	57	188	121	73	191	45	72	84	108	45
LED Reflector for \$3.80	1791691 84%	712003 87%	824705 81%	254983 86%	1056591 85%	735100 83%	276140 82%	1296197 84%	219354 85%	809124 84%	431912 85%	331300 82%	219354 85%
Incandescent/Halogen Reflector for \$4.05	344433 16%	107016 13%	195971 19%	41446 14%	189162 15%	155271 17%	59426 18%	246239 16%	38768 15%	156574 16%	75890 15%	73202 18%	38768 15%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CG1A_1 Which bulb would you buy at the following prices?

Candelabra without program

BASE = PLAYED DISCOUNT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1568892 100%	802060 100%	573852 100%	188057 100%	843307 100%	725585 100%	277467 100%	1166521 100%	124903 100%	867145 100%	400474 100%	176370 100%	124903 100%
Unweighted Total	195	87	74	33	106	89	48	128	19	61	62	53	19
LED Candelabra for \$1.85	1112598 71%	611600 76%	369798 64%	126277 67%	585290 69%	527308 73%	142548 51%	863018 74% G	107031 86% G	577348 67%	302473 76%	125746 71%	107031 86%
Incandescent/Halogen Candelabra for \$0.55	456294 29%	190460 24%	204054 36%	61780 33%	258017 31%	198277 27%	134919 49% HI	303503 26%	17872 14%	289797 33%	98000 24%	50624 29%	17872 14%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CG1A_2 Which bulb would you buy at the following prices?

Candelabra without program

BASE = PLAYED HOME IMPROVEMENT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1167798 100%	390841 100%	598570 100%	178387 100%	766386 100%	401412 100%	216359 100%	829344 100%	122094 100%	521242 100%	274049 100%	250413 100%	122094 100%
Unweighted Total	176	59	84	33	114	62	45	111	20	43	47	66	20
LED Candelabra for \$3.05	813101 70%	282968 72%	427911 71%	102223 57%	547205 71%	265897 66%	105040 49%	604156 73% G	103905 85% G	366571 70%	197115 72%	145510 58%	103905 85% L
Incandescent/Halogen Candelabra for \$0.95	354697 30%	107873 28%	170659 29%	76164 43%	219181 29%	135516 34%	111320 51% HI	225188 27%	18189 15%	154670 30%	76934 28%	104903 42% M	18189 15%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CG1B_1 Which bulb would you buy at the following prices?

Candelabra with program

BASE = PLAYED DISCOUNT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1568892 100%	802060 100%	573852 100%	188057 100%	843307 100%	725585 100%	277467 100%	1166521 100%	124903 100%	867145 100%	400474 100%	176370 100%	124903 100%
Unweighted Total	195	87	74	33	106	89	48	128	19	61	62	53	19
LED Candelabra for \$0.25	1409813 90%	716577 89%	508576 89%	179737 96%	743262 88%	666551 92%	220813 80%	1069020 92%	119980 96% G	768463 89%	358581 90%	162789 92%	119980 96%
Incandescent/Halogen Candelabra for \$0.55	159078 10%	85483 11%	65276 11%	8320 4%	100045 12%	59034 8%	56654 20% I	97501 8%	4923 4%	98682 11%	41893 10%	13581 8%	4923 4%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

CG1B_2 Which bulb would you buy at the following prices?

Candelabra with program

BASE = PLAYED DISCOUNT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1167798 100%	390841 100%	598570 100%	178387 100%	766386 100%	401412 100%	216359 100%	829344 100%	122094 100%	521242 100%	274049 100%	250413 100%	122094 100%
Unweighted Total	176	59	84	33	114	62	45	111	20	43	47	66	20
LED Candelabra for \$4.15	737937 63%	269191 69% D	385702 64%	83044 47%	491220 64%	246718 61%	88245 41%	545787 66% G	103905 85% GH	343420 66%	147040 54%	143572 57%	103905 85% KL
Incandescent/Halogen Candelabra for \$0.95	429861 37%	121650 31%	212867 36%	95343 53% B	275166 36%	154695 39%	128114 59% HI	283557 34% I	18189 15%	177821 34%	127009 46% M	106842 43% M	18189 15%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GG1A_1 Which bulb would you buy at the following prices?

Globe without program

BASE = PLAYED DISCOUNT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1626925 100%	846448 100%	622899 100%	157579 100%	968719 100%	658207 100%	225370 100%	1276107 100%	125449 100%	850721 100%	475847 100%	174909 100%	125449 100%
Unweighted Total	199	101	73	25	114	85	41	142	16	60	77	46	16
LED Globe for \$1.00	1335479 82%	738719 87% C	454787 73%	141973 90% C	751756 78%	583723 89% E	163472 73%	1051482 82%	120526 96% GH	681047 80%	377212 79%	156695 90%	120526 96% JK
Incandescent/Halogen Globe for \$1.00	291446 18%	107729 13%	168112 27% BD	15605 10%	216963 22% F	74483 11%	61898 27% I	224625 18% I	4923 4%	169674 20% M	98635 21% M	18215 10%	4923 4%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GG1A_2 Which bulb would you buy at the following prices?

Globe without program

BASE = PLAYED HOME IMPROVEMENT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1479327 100%	483955 100%	773189 100%	222183 100%	912345 100%	566983 100%	299999 100%	1078042 100%	101287 100%	748351 100%	352621 100%	277068 100%	101287 100%
Unweighted Total	204	63	100	41	126	78	58	131	15	58	59	72	15
LED Globe for \$4.65	1015748 69%	327990 68%	522914 68%	164844 74%	628426 69%	387322 68%	156886 52%	796344 74% G	62519 62%	521874 70%	241075 68%	190280 69%	62519 62%
Incandescent/Halogen Globe for \$3.25	463579 31%	155966 32%	250275 32%	57339 26%	283919 31%	179661 32%	143113 48% H	281698 26%	38768 38%	226477 30%	111546 32%	86788 31%	38768 38%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GG1B_1 Which bulb would you buy at the following prices?

Globe with program

BASE = PLAYED DISCOUNT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1626925 100%	846448 100%	622899 100%	157579 100%	968719 100%	658207 100%	225370 100%	1276107 100%	125449 100%	850721 100%	475847 100%	174909 100%	125449 100%
Unweighted Total	199	101	73	25	114	85	41	142	16	60	77	46	16
LED Globe for \$0.50	1376508 85%	754349 89% C	469360 75%	152800 97% C	794907 82%	581601 88%	193898 86%	1067007 84%	115603 92%	730026 86%	380482 80%	150398 86%	115603 92%
Incandescent/Halogen Globe for \$1.00	250417 15%	92099 11%	153539 25% BD	4779 3%	173812 18%	76606 12%	31471 14%	209100 16%	9846 8%	120695 14%	95365 20%	24511 14%	9846 8%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

GG1B_2 Which bulb would you buy at the following prices?

Globe with program

BASE = PLAYED HOME IMPROVEMENT GAME

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	1479327 100%	483955 100%	773189 100%	222183 100%	912345 100%	566983 100%	299999 100%	1078042 100%	101287 100%	748351 100%	352621 100%	277068 100%	101287 100%
Unweighted Total	204	63	100	41	126	78	58	131	15	58	59	72	15
LED Globe for \$2.90	1243822 84%	425336 88%	614632 79%	203853 92% C	746122 82%	497700 88%	254068 85%	910490 84%	79264 78%	636402 85%	293752 83%	234404 85%	79264 78%
Incandescent/Halogen Globe for \$3.25	235506 16%	58620 12%	158557 21% D	18330 8%	166222 18%	69283 12%	45931 15%	167552 16%	22023 22%	111949 15%	58869 17%	42664 15%	22023 22%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LSP1-1 Thinking of all the light bulbs installed in your home, about what percent of your sockets have LED bulbs in them?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
None of them	360291 3%	126238 2%	186191 4%	47863 3%	201931 3%	158360 3%	66586 3%	271682 3%	22023 2%	242793 4% L	71179 2%	24297 2%	22023 2%
1% - 25%	1714571 14%	664864 12%	775084 16% B	274623 17% B	961487 15%	753085 14%	265574 13%	1360369 15% I	88628 9%	1017006 15% M	416139 14% M	192798 13%	88628 9%
26% - 50%	1822037 15%	984196 18% C	632530 13%	205311 13%	964949 15%	857089 16%	390408 19% H	1263507 14%	168122 17%	968152 15%	454570 15%	231193 15%	168122 17%
51% - 75%	2436757 20%	1099107 20%	1015953 21%	301310 19%	1400787 21%	1035970 19%	337517 16%	1931240 21% G	168000 17%	1383393 21%	616983 21%	268382 18%	168000 17%
76% - 99%	3356852 28%	1528031 27%	1376447 28%	452374 29%	1723309 26%	1633544 30%	461411 22%	2557922 28% G	337520 34% G	1720832 26%	797457 27%	501045 34% JK	337520 34% J
All of them	2078479 17%	1021647 18%	802046 16%	250134 16%	1135450 17%	943029 17%	441897 21% H	1434405 16%	202177 20%	1113635 17%	508789 17%	253877 17%	202177 20%
Don't know	357468 3%	163730 3%	142009 3%	51729 3%	226118 3%	131350 2%	113290 5% HI	239524 3% I	4653 *%	223783 3% M	105092 4% M	23940 2%	4653 *%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LSP1-2 Thinking of all the light bulbs installed in your home, about what percent of your sockets have LED bulbs in them?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456	5587812	4930260	1583344	6614030	5512426	2076683	9058650	991123	6669593	2970208	1495532	991123
TOTAL RESPONDING	11768988 100%	5424083 100%	4788251 100%	1531615 100%	6387912 100%	5381076 100%	1963393 100%	8819126 100%	986470 100%	6445810 100%	2865116 100%	1471592 100%	986470 100%
Unweighted Total	1506	611	617	275	847	659	354	987	165	468	464	409	165
None of them	360291 3%	126238 2%	186191 4%	47863 3%	201931 3%	158360 3%	66586 3%	271682 3%	22023 2%	242793 4% L	71179 2%	24297 2%	22023 2%
1% - 25%	1714571 15%	664864 12%	775084 16% B	274623 18% B	961487 15%	753085 14%	265574 14%	1360369 15% I	88628 9%	1017006 16% M	416139 15% M	192798 13%	88628 9%
26% - 50%	1822037 15%	984196 18% C	632530 13%	205311 13%	964949 15%	857089 16%	390408 20% H	1263507 14%	168122 17%	968152 15%	454570 16%	231193 16%	168122 17%
51% - 75%	2436757 21%	1099107 20%	1015953 21%	301310 20%	1400787 22%	1035970 19%	337517 17%	1931240 22%	168000 17%	1383393 21%	616983 22%	268382 18%	168000 17%
76% - 99%	3356852 29%	1528031 28%	1376447 29%	452374 30%	1723309 27%	1633544 30%	461411 24%	2557922 29%	337520 34% G	1720832 27%	797457 28%	501045 34% JK	337520 34%
All of them	2078479 18%	1021647 19%	802046 17%	250134 16%	1135450 18%	943029 18%	441897 23% H	1434405 16%	202177 20%	1113635 17%	508789 18%	253877 17%	202177 20%
Don't know	357468	163730	142009	51729	226118	131350	113290	239524	4653	223783	105092	23940	4653

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM1 Do you or members of your household own your home or do you rent it?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Own/Buying	7739115 64%	3703690 66%	3039584 62%	986265 62%	4334091 66%	3405023 62%	850795 41%	5932920 65% G	955400 96% GH	3617742 54%	2109347 71% J	1056626 71% J	955400 96% JKL
Rent/Lease	4259852 35%	1810946 32%	1849092 38% B	584350 37%	2221314 34%	2038538 37%	1197029 58% HI	3027100 33% I	35723 4%	2982656 45% KLM	833132 28% M	408341 27% M	35723 4%
Occupied without payment of rent	65576 1%	42446 1%	17102 *%	6028 *%	7584 *%	57992 1% E	12459 1%	53117 1%	-	35290 1%	14795 *%	15491 1%	-
Other [SPECIFY]	50855 *%	24851 *%	19303 *%	6701 *%	39982 1%	10873 *%	10520 1%	40336 *%	-	33905 1%	7054 *%	9896 1%	-
Don't know	11058 *%	5880 *%	5178 *%	-	11058 *%	-	5880 *%	5178 *%	-	-	5880 *%	5178 *%	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM2 How many full bathrooms do you have at your home?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
0	15464 *%	15464 *%	-	-	-	15464 *%	15464 1%	-	-	15464 *%	-	-	-
1	2987834 25%	1334284 24%	1265494 26%	388057 25%	1439011 22%	1548823 28% E	687558 33% HI	2278820 25% I	21456 2%	2363086 35% KLM	474867 16% LM	128424 9% M	21456 2%
2	6461013 53%	3005066 54%	2629560 53%	801347 51%	3742097 57% F	2718916 49%	1117617 54%	4799541 53%	543854 55%	3362649 50%	1789436 60% JL	765073 51%	543854 55%
3	2094179 17%	1010741 18%	801911 16%	281527 18%	1155763 17%	938417 17%	181701 9%	1584820 17% G	327658 33% GH	768586 12%	591879 20% J	406057 27% JK	327658 33% JK
4 or more	539526 4%	214835 4%	227105 5%	97585 6%	261095 4%	278431 5%	58503 3%	382868 4%	98155 10% GH	144981 2%	114026 4%	182365 12% JK	98155 10% JK
Prefer not to answer	28440 *%	7422 *%	6190 *%	14827 1%	16064 *%	12376 *%	15840 1%	12600 *%	-	14827 *%	-	13613 1%	-
Mean	2.03	2.02	2.01	2.07	2.05	2.00	1.81	2.02 G	2.54 GH	1.81	2.12 J	2.48 JK	2.54 JK

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM3 How many bedrooms do you have at your home?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
0	414153 3%	168465 3%	186999 4%	58689 4%	194277 3%	219876 4%	53505 3% I	355996 4% I	4653 *% KLM	334596 5% KLM	48852 2%	26053 2%	4653 *%
1	1068897 9%	486562 9%	437567 9%	144768 9%	459081 7%	609816 11% E	299679 14% H	769218 8%	-	942645 14% KL	104835 4% L	21416 1%	-
2	3001489 25%	1224844 22%	1284934 26%	471594 30% B	1518631 23%	1482858 27%	533638 26% I	2418110 27% I	49741 5%	2109701 32% KLM	682624 23% LM	159423 11% M	49741 5%
3	4054616 33%	1972453 35% D	1669013 34% D	408227 26%	2317464 35%	1737152 32%	702950 34%	3054404 34%	297262 30%	2092678 31%	1153591 39% JM	511085 34%	297262 30%
4	2814048 23%	1373982 25%	1070253 22%	369813 23%	1690993 26% F	1123056 20%	378042 18%	1959572 22%	476434 48% GH	1049523 16%	742996 25% J	545095 36% JK	476434 48% JKL
5 or more	738912 6%	339157 6%	275304 6%	124452 8%	402594 6%	336318 6%	87129 4%	488750 5%	163034 16% GH	119723 2%	237309 8% J	218847 15% JK	163034 16% JK
Prefer not to answer	34340 *%	22348 *%	6190 *%	5802 *%	30990 *%	3350 *%	21740 1%	12600 *%	-	20728 *%	-	13613 1%	-
Mean	2.83	2.89	2.78	2.80	2.93 F	2.72	2.65	2.77	3.75 GH	2.44	3.07 J	3.50 JK	3.75 JKL

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM4-1 What is the highest level of education you have completed?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Elementary (grades 1-8)	84628 1%	39504 1%	37104 1%	8020 1%	39212 1%	45416 1%	27352 1%	57276 1%	-	67058 1%	9152 *%	8418 1%	-
Some high school (grades 9-12)	132623 1%	54128 1%	68342 1%	10153 1%	112608 2% F	20015 *%	45278 2%	82692 1%	4653 *%	86206 1%	25423 1%	16341 1%	4653 *%
High school graduate	741974 6%	264118 5%	410524 8% BD	67332 4%	600880 9% F	141094 3%	206597 10% HI	521418 6% I	13959 1%	410773 6% M	202260 7% M	114983 8% M	13959 1%
Some college/trade/vocational school	2928859 24%	1262455 23%	1263207 26%	398273 25%	1853790 28% F	1075069 20%	754003 36% HI	1945413 21%	229442 23%	1462651 22%	871874 29% J	364891 24%	229442 23%
College graduate	4522126 37%	2013304 36%	1897467 38%	606702 38%	2453097 37%	2069028 38%	643477 31%	3490465 39% G	388183 39%	2474562 37%	1084840 37%	574541 38%	388183 39%
Postgraduate degree	3654153 30%	1948736 35% C	1213342 25%	476612 30%	1507721 23%	2146432 39% E	374943 18%	2924326 32% G	354885 36% G	2136544 32% K	749475 25%	413249 28%	354885 36% KL
Don't know	62094 1%	5568 *%	40274 1%	16251 1%	46722 1%	15372 *%	25033 1%	37061 *%	-	31800 *%	27184 1%	3110 *%	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM4-2 What is the highest level of education you have completed?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456	5587812	4930260	1583344	6614030	5512426	2076683	9058650	991123	6669593	2970208	1495532	991123
TOTAL RESPONDING	12064362 100%	5582244 100%	4889986 100%	1567093 100%	6567308 100%	5497054 100%	2051650 100%	9021589 100%	991123 100%	6637793 100%	2943024 100%	1492422 100%	991123 100%
Unweighted Total	1540	627	629	281	869	671	368	1006	166	481	476	417	166
Elementary (grades 1-8)	84628 1%	39504 1%	37104 1%	8020 1%	39212 1%	45416 1%	27352 1%	57276 1%	-	67058 1%	9152 *%	8418 1%	-
Some high school (grades 9-12)	132623 1%	54128 1%	68342 1%	10153 1%	112608 2% F	20015 *%	45278 2%	82692 1%	4653 *%	86206 1%	25423 1%	16341 1%	4653 *%
High school graduate	741974 6%	264118 5%	410524 8% BD	67332 4%	600880 9% F	141094 3%	206597 10% HI	521418 6% I	13959 1%	410773 6% M	202260 7% M	114983 8% M	13959 1%
Some college/trade/vocational school	2928859 24%	1262455 23%	1263207 26%	398273 25%	1853790 28% F	1075069 20%	754003 37% HI	1945413 22%	229442 23%	1462651 22%	871874 30% J	364891 24%	229442 23%
College graduate	4522126 37%	2013304 36%	1897467 39%	606702 39%	2453097 37%	2069028 38%	643477 31%	3490465 39% G	388183 39%	2474562 37%	1084840 37%	574541 38%	388183 39%
Postgraduate degree	3654153 30%	1948736 35% C	1213342 25%	476612 30%	1507721 23%	2146432 39% E	374943 18%	2924326 32% G	354885 36% G	2136544 32% K	749475 25%	413249 28%	354885 36% KL
Don't know	62094	5568	40274	16251	46722	15372	25033	37061	-	31800	27184	3110	-

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM5-1 What was your annual household income from all sources in 2019, before taxes?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Less than \$10,000 per year (\$7.5K)	265366 2%	116818 2%	95180 2%	37904 2%	166798 3%	98568 2%	131317 6% H	134049 1%	-	189876 3%	38132 1%	37358 2%	-
\$10,000 - \$19,999 (\$15K)	503410 4%	199541 4%	252711 5%	51158 3%	314810 5%	188601 3%	242754 12% HI	252360 3% I	8296 1%	342481 5% LM	109503 4% M	43130 3% M	8296 1%
\$20,000 - \$24,999 (\$22.5K)	348036 3%	158811 3%	125830 3%	63394 4%	224710 3%	123326 2%	158119 8% HI	168692 2%	21225 2%	170881 3%	93679 3%	62251 4%	21225 2%
\$25,000 - \$49,999 (\$37.5K)	1515558 12%	573810 10%	673495 14% B	258677 16% B	990021 15% F	525536 10%	512556 25% HI	945526 10% I	57476 6%	917699 14% M	391194 13% M	149188 10% M	57476 6%
\$50,000 - \$74,999 (\$62.5K)	1566355 13%	675346 12%	710904 14%	180105 11%	1047127 16% F	519228 9%	317569 15% I	1157724 13%	91062 9%	879081 13% L	456642 15% LM	139570 9%	91062 9%
\$75,000 - \$99,999 (\$87.5K)	1355238 11%	563110 10%	627158 13%	164969 10%	864075 13% F	491163 9%	202297 10%	1035243 11%	117697 12%	767224 12%	307861 10%	162456 11%	117697 12%
\$100,000 - \$149,999 (\$125K)	1929746 16%	797437 14%	886176 18%	246132 16%	1039954 16%	889792 16%	135236 7%	1592123 18% G	202387 20% G	1011085 15%	485965 16%	230308 15%	202387 20%
\$150,000 - \$174,999 (\$167.5K)	844537 7%	505148 9% CD	265300 5%	74089 5%	314194 5%	530343 10% E	70770 3%	677529 7% G	96238 10% G	501578 8%	162402 5%	84319 6%	96238 10%
\$175,000 - \$199,999 (\$187.5K)	576333 5%	341069 6% C	163381 3%	71884 5%	218647 3%	357686 6% E	56426 3%	466051 5%	53856 5%	239381 4%	191696 6% J	91400 6%	53856 5%
\$200,000 - \$249,999 (\$225K)	589118 5%	284831 5%	221715 4%	82572 5%	187525 3%	401592 7% E	35751 2%	506541 6% G	46826 5%	342425 5%	104400 4%	95466 6% K	46826 5%
\$250,000 or more (\$275K)	986880 8%	670150 12% C	184430 4%	132300 8% C	280409 4%	706471 13% E	32696 2%	769619 8% G	184565 19% GH	419162 6%	227634 8%	155519 10% J	184565 19% JKL

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM5-1 What was your annual household income from all sources in 2019, before taxes?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Prefer not to answer	1645879 14%	701742 13%	723980 15%	220158 14%	965760 15%	680120 12%	181193 9%	1353193 15% G	111494 11%	888720 13%	401099 14%	244566 16%	111494 11%
Mean	113.10	126.29 CD	99.46	109.66	94.21	135.18 E	64.01	121.02 G	149.56 GH	106.30	110.61	124.03 JK	149.56 JKL
Median	87.50	125.00	87.50	87.50	87.50	125.00	37.50	125.00	125.00	87.50	87.50	125.00	125.00

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM5-2 What was your annual household income from all sources in 2019, before taxes?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL RESPONDING	10480577 100%	4886070 100%	4206281 100%	1363186 100%	5648270 100%	4832306 100%	1895490 100%	7705457 100%	879629 100%	5780873 100%	2569109 100%	1250966 100%	879629 100%
Unweighted Total	1327	538	537	249	747	580	330	854	143	417	414	353	143
Less than \$10,000 per year (\$7.5K)	265366 3%	116818 2%	95180 2%	37904 3%	166798 3%	98568 2%	131317 7% H	134049 2%	-	189876 3%	38132 1%	37358 3%	-
\$10,000 - \$19,999 (\$15K)	503410 5%	199541 4%	252711 6%	51158 4%	314810 6%	188601 4%	242754 13% HI	252360 3% I	8296 1%	342481 6% M	109503 4% M	43130 3% M	8296 1%
\$20,000 - \$24,999 (\$22.5K)	348036 3%	158811 3%	125830 3%	63394 5%	224710 4%	123326 3%	158119 8% HI	168692 2%	21225 2%	170881 3%	93679 4%	62251 5%	21225 2%
\$25,000 - \$49,999 (\$37.5K)	1515558 14%	573810 12%	673495 16% B	258677 19% B	990021 18% F	525536 11%	512556 27% HI	945526 12% I	57476 7%	917699 16% M	391194 15% M	149188 12% M	57476 7%
\$50,000 - \$74,999 (\$62.5K)	1566355 15%	675346 14%	710904 17%	180105 13%	1047127 19% F	519228 11%	317569 17% I	1157724 15%	91062 10%	879081 15%	456642 18% LM	139570 11%	91062 10%
\$75,000 - \$99,999 (\$87.5K)	1355238 13%	563110 12%	627158 15%	164969 12%	864075 15% F	491163 10%	202297 11%	1035243 13%	117697 13%	767224 13%	307861 12%	162456 13%	117697 13%
\$100,000 - \$149,999 (\$125K)	1929746 18%	797437 16%	886176 21% B	246132 18%	1039954 18%	889792 18%	135236 7%	1592123 21% G	202387 23% G	1011085 17%	485965 19%	230308 18%	202387 23%
\$150,000 - \$174,999 (\$167.5K)	844537 8%	505148 10% CD	265300 6%	74089 5%	314194 6%	530343 11% E	70770 4%	677529 9% G	96238 11% G	501578 9%	162402 6%	84319 7%	96238 11%
\$175,000 - \$199,999 (\$187.5K)	576333 5%	341069 7% C	163381 4%	71884 5%	218647 4%	357686 7% E	56426 3%	466051 6% G	53856 6%	239381 4%	191696 7% J	91400 7% J	53856 6%
\$200,000 - \$249,999 (\$225K)	589118 6%	284831 6%	221715 5%	82572 6%	187525 3%	401592 8% E	35751 2%	506541 7% G	46826 5%	342425 6%	104400 4%	95466 8% K	46826 5%
\$250,000 or more (\$275K)	986880 9%	670150 14% C	184430 4%	132300 10% C	280409 5%	706471 15% E	32696 2%	769619 10% G	184565 21% GH	419162 7%	227634 9%	155519 12% J	184565 21% JKL

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM5-2 What was your annual household income from all sources in 2019, before taxes?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Prefer not to answer	1645879	701742	723980	220158	965760	680120	181193	1353193	111494	888720	401099	244566	111494
Mean	113.10	126.29	99.46	109.66	94.21	135.18	64.01	121.02	149.56	106.30	110.61	124.03	149.56
		CD				E		G	GH			JK	JKL
Median	87.50	125.00	87.50	87.50	87.50	125.00	37.50	125.00	125.00	87.50	87.50	125.00	125.00

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

DEM6 Would you like to be entered into the drawing for an incentive card?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Yes	11741820 97%	5399276 97%	4807272 98%	1510233 95%	6419081 97%	5322739 97%	2046785 99% H	8730879 96%	964156 97%	6458466 97%	2857697 96%	1461501 98%	964156 97%
No	310823 3%	177874 3%	87103 2%	45846 3%	145847 2%	164976 3%	19269 1%	268230 3% G	23324 2%	171668 3%	92462 3%	23369 2%	23324 2%
Don't know	73813 1%	10662 *%	35886 1%	27265 2%	49102 1%	24711 *%	10629 1%	59540 1%	3643 *%	39458 1%	20049 1%	10662 1%	3643 *%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LANGUAGE Do you prefer to conduct the survey in English or Spanish?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
English	11914767 98%	5504944 99%	4834547 98%	1550237 98%	6448929 98%	5465838 99% E	1964257 95%	8972315 99% G	978195 99% G	6515249 98%	2938696 99%	1482628 99%	978195 99%
Spanish	211689 2%	82868 1%	95713 2%	33107 2%	165101 2% F	46588 1%	112426 5% HI	86335 1%	12928 1%	154344 2%	31512 1%	12904 1%	12928 1%

Comparison Groups: BCD/EF/GHI/JKLM
 Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
 Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Stratum

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
1	417925 3%	417925 7%	-	-	417925 6%	-	417925 20%	-	-	417925 6%	-	-	-
2	217565 2%	217565 4%	-	-	217565 3%	-	217565 10%	-	-	-	217565 7%	-	-
3	123107 1%	123107 2%	-	-	123107 2%	-	123107 6%	-	-	-	-	123107 8%	-
4	810715 7%	810715 15%	-	-	810715 12%	-	-	810715 9%	-	810715 12%	-	-	-
5	339664 3%	339664 6%	-	-	339664 5%	-	-	339664 4%	-	-	339664 11%	-	-
6	179177 1%	179177 3%	-	-	179177 3%	-	-	179177 2%	-	-	-	179177 12%	-
7	297349 2%	297349 5%	-	-	297349 4%	-	-	-	297349 30%	-	-	-	297349 30%
8	355666 3%	340202 6%	-	-	-	355666 6%	355666 17%	-	-	355666 5%	-	-	-
9	164778 1%	155624 3% C	9154 *%	-	-	164778 3%	164778 8%	-	-	-	164778 6%	-	-
10	64916 1%	64916 1%	-	-	-	64916 1%	64916 3%	-	-	-	-	64916 4%	-
11	1560008 13%	1560008 28%	-	-	-	1560008 28%	-	1560008 17%	-	1560008 23%	-	-	-
12	627846 5%	627846 11%	-	-	-	627846 11%	-	627846 7%	-	-	627846 21%	-	-
13	281415 2%	281415 5%	-	-	-	281415 5%	-	281415 3%	-	-	-	281415 19%	-
14	177222 1%	172299 3%	-	-	-	177222 3%	-	-	177222 18%	-	-	-	177222 18%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Stratum

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
15	164322 1%	-	164322 3%	-	164322 2%	-	164322 8%	-	-	164322 2%	-	-	-
16	73147 1%	-	73147 1%	-	73147 1%	-	73147 4%	-	-	-	73147 2%	-	-
17	30370 *%	-	30370 1%	-	30370 *%	-	30370 1%	-	-	-	-	30370 2%	-
18	1878673 15%	-	1878673 38%	-	1878673 28%	-	-	1878673 21%	-	1878673 28%	-	-	-
19	893289 7%	-	893289 18%	-	893289 14%	-	-	893289 10%	-	-	893289 30%	-	-
20	497075 4%	-	497075 10%	-	497075 8%	-	-	497075 5%	-	-	-	497075 33%	-
21	288489 2%	-	283836 6%	-	288489 4%	-	-	-	288489 29%	-	-	-	288489 29%
22	61758 1%	-	61758 1%	-	-	61758 1%	61758 3%	-	-	61758 1%	-	-	-
23	25578 *%	-	25578 1%	-	-	25578 *%	25578 1%	-	-	-	25578 1%	-	-
24	10320 *%	-	10320 *%	-	-	10320 *%	10320 *%	-	-	-	-	10320 1%	-
25	579598 5%	-	579598 12%	-	-	579598 11%	-	579598 6%	-	579598 9%	-	-	-
26	256264 2%	-	256264 5%	-	-	256264 5%	-	256264 3%	-	-	256264 9%	-	-
27	126902 1%	-	126902 3%	-	-	126902 2%	-	126902 1%	-	-	-	126902 8%	-
28	39974 *%	-	39974 1%	-	-	39974 1%	-	-	39974 4%	-	-	-	39974 4%
29	58018 *%	-	-	58018 4%	58018 1%	-	58018 3%	-	-	58018 1%	-	-	-
30	29394 *%	-	-	29394 2%	29394 *%	-	29394 1%	-	-	-	29394 1%	-	-

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Stratum

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
31	11693 *%	-	-	11693 1%	11693 *%	-	11693 1%	-	-	-	-	11693 1%	-
32	136347 1%	-	-	136347 9%	136347 2%	-	-	136347 2%	-	136347 2%	-	-	-
33	59741 *%	-	-	59741 4%	59741 1%	-	-	59741 1%	-	-	59741 2%	-	-
34	31461 *%	-	-	31461 2%	31461 *%	-	-	31461 *%	-	-	-	31461 2%	-
35	76509 1%	-	-	76509 5%	76509 1%	-	-	-	76509 8%	-	-	-	76509 8%
36	153436 1%	-	-	153436 10%	-	153436 3%	153436 7%	-	-	153436 2%	-	-	-
37	76924 1%	-	-	76924 5%	-	76924 1%	76924 4%	-	-	-	76924 3%	-	-
38	37766 *%	-	-	37766 2%	-	37766 1%	37766 2%	-	-	-	-	37766 3%	-
39	493127 4%	-	-	493127 31%	-	493127 9%	-	493127 5%	-	493127 7%	-	-	-
40	206018 2%	-	-	206018 13%	-	206018 4%	-	206018 2%	-	-	206018 7%	-	-
41	101330 1%	-	-	101330 6%	-	101330 2%	-	101330 1%	-	-	-	101330 7%	-
42	111580 1%	-	-	111580 7%	-	111580 2%	-	-	111580 11%	-	-	-	111580 11%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
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California Home Lighting Survey

Banner 1

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	2076683 100%	9058650 100%	991123 100%	6669593 100%	2970208 100%	1495532 100%	991123 100%
Unweighted Total	1550	628	635	284	876	674	373	1011	166	484	481	419	166
Electricity Provider / PGE	5587812 46%	5587812 100%	-	-	2385502 36%	3202310 58% E	1319339 64% HI	3798825 42%	469648 47%	3128850 47%	1340699 45%	648615 43%	469648 47%
Electricity Provider / SCE	4930260 41%	-	4930260 100%	-	3820712 58% F	1109548 20%	374649 18%	4231801 47% GI	323810 33% G	2684351 40%	1257432 42% M	664667 44% M	323810 33%
Electricity Provider / SDGE	1583344 13%	-	-	1583344 100%	403163 6%	1180181 21% E	367231 18% H	1028024 11%	188089 19% H	840928 13%	372077 13%	182250 12%	188089 19% L
Climate Zone / Inland/Desert	6614030 55%	2385502 43% D	3820712 77% BD	403163 25%	6614030 100%	-	1125541 54%	4826142 53%	662347 67% GH	3466000 52%	1612800 54%	872883 58% J	662347 67% JKL
Climate Zone / Mild	5512426 45%	3202310 57% C	1109548 23%	1180181 75% BC	-	5512426 100%	951142 46% I	4232508 47% I	328776 33%	3203593 48% LM	1357408 46% M	622649 42% M	328776 33%
Participataion Status / Participant	2076683 17%	1319339 24% C	374649 8%	367231 23% C	1125541 17%	951142 17%	2076683 100%	-	-	1211125 18%	587386 20%	278172 19%	-
Participataion Status / Non-Participant	9058650 75%	3798825 68%	4231801 86% BD	1028024 65%	4826142 73%	4232508 77%	-	9058650 100%	-	5458468 82%	2382822 80%	1217360 81%	-
Participataion Status / Net Meter	991123 8%	469648 8%	323810 7%	188089 12% C	662347 10% F	328776 6%	-	-	991123 100%	-	-	-	991123 100%
Energy Usage Class / Low	6669593 55%	3128850 56%	2684351 54%	840928 53%	3466000 52%	3203593 58% E	1211125 58%	5458468 60%	-	6669593 100%	-	-	-
Energy Usage Class / Medium	2970208 24%	1340699 24%	1257432 26%	372077 23%	1612800 24%	1357408 25%	587386 28%	2382822 26%	-	-	2970208 100%	-	-
Energy Usage Class / High	1495532 12%	648615 12%	664667 13%	182250 12%	872883 13%	622649 11%	278172 13%	1217360 13%	-	-	-	1495532 100%	-

Comparison Groups: BCD/EF/GHI/JKLM

Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)

Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

Banner 1

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Energy Usage Class / Net Meter	991123 8%	469648 8%	323810 7%	188089 12% C	662347 10% F	328776 6%	-	-	991123 100%	-	-	-	991123 100%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.

California Home Lighting Survey

LPI Have you heard of LED light bulbs?

BASE = ALL RESPONDENTS

	Electricity Provider				Climate Zone		Participation Status			Energy Usage Class			
	Total	PGE	SCE	SDGE	Inland/ Desert	Mild	Parti- cipant	Non- Parti- cipant	Net Meter	Low	Medium	High	Net Meter
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
TOTAL	12126456 100%	5587812 100%	4930260 100%	1583344 100%	6614030 100%	5512426 100%	1992072 100%	9058650 100%	1075734 100%	6583612 100%	2944662 100%	1588941 100%	1009241 100%
Unweighted Total	1569	634	643	289	892	677	373	1019	177	488	481	429	171
Yes	11971264 99%	5534504 99%	4855445 98%	1556276 98%	6479797 98%	5491467 100% E	1992072 100% HI	8988069 99% I	991123 92%	6558066 100% L	2944662 100% L	1477414 93%	991123 98% L
[NET] No/Don't know	155192 1%	53308 1%	74815 2%	27068 2%	134233 2% F	20959 *%	-	70581 1%	84611 8% H	25546 *%	-	111527 7% JM	18118 2%
No	83346 1%	39827 1%	34609 1%	8911 1%	75271 1% F	8076 *%	-	30374 *%	52972 5% H	13232 *%	-	57068 4% J	13046 1%
Don't Know	71846 1%	13481 *%	40206 1%	18158 1%	58962 1%	12883 *%	-	40206 *%	31639 3% H	12314 *%	-	54459 3% JM	5072 1%

Comparison Groups: BCD/EF/GHI/JKLM
Independent T-Test for Means (equal variances), Independent Z-Test for Percentages (unpooled proportions)
Uppercase letters indicate significance at the 90% level.



ABOUT DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter, and greener.