



2019 California Annual Review of Energy Efficiency Programs

January 1, 2019 – December 31, 2019

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LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|------------------|---|
| Commission | California Public Utilities Commission |
| DSM | Demand-Side Management |
| DSM Central | DSM Central (project tracking system) |
| DSM Tariff Rider | Schedule S-191 Surcharge to Fund Public Purpose Programs |
| EM&V | Evaluation, Measurement and Verification |
| GWh | Gigawatt hour |
| HVAC | Heating, Ventilation and Air Conditioning |
| IRP | Integrated Resource Plan |
| kWh | Kilowatt-hour |
| kW | Kilowatt |
| LED | Light-emitting diode |
| PAC | Program Administrator Cost |
| PCT | Participant Cost Test |
| RIM | Ratepayer Impact Test |
| TRL | Technical Reference Library (database of measure assumptions) |
| TRC | Total Resource Cost |
| UCT | Utility Cost Test (aka PAC) |
| WSB | Wattsmart Business |

EXECUTIVE SUMMARY

PacifiCorp is a multi-jurisdictional electric utility providing retail service to customers in California, Idaho, Oregon, Utah, Washington, and Wyoming. PacifiCorp d/b/a Pacific Power (“company”) serves approximately 45,000 customers in Shasta, Modoc, Del Norte, and Siskiyou counties in northern California.

The company offers two energy efficiency programs to customers in California. *Home Energy Savings* is offered to residential customers and Wattsmart Business is offered to commercial, industrial and irrigation customers. Costs associated with the energy efficiency programs are recovered through Schedule S-191, Surcharge to Fund Public Purpose Programs, hereafter referred to as Demand Side Management (“DSM”) Tariff Rider. In 2017, PacifiCorp filed an application (Application 17-09-010) with the California Public Utilities Commission (“Commission”) requesting authorization to continue offering its programs through 2020. The Commission issued Decision 18-11-033 on December 6, 2018 approving the company’s application to continue administering the two programs through 2020 and approving the company’s request to reduce the DSM Tariff Rider.

The company, on behalf of its customers, invested \$2.3 million in energy efficiency information and resource acquisitions to achieve the reported savings during January 1, 2019 through December 31, 2019. The investment yielded approximately 7.9 gigawatt-hours (“GWh”) in first year energy savings¹ and approximately 1,412 gross kilowatts (“kW”) of capacity reduction from energy efficiency savings.²

This report provides details on program results, activities, expenditures, and the current status of the DSM Tariff Rider for the period of January 1, 2019 through December 31, 2019. Program results are summarized in Table 1 below.

Table 1
Overall Portfolio Level Metrics

| 2019 Total Portfolio Performance | | |
|--|----|-----------|
| Investment | \$ | 2,322,691 |
| kWh-first year Savings (gross at generation) | | 7,872,518 |
| kWh-first year Savings (net at generation) | | 6,340,349 |
| kW of capacity reduction (gross at generation) | | 1,412 |
| kW of capacity reduction (net at generation) | | 1,137 |
| Portfolio Total Resource Cost (TRC) - PacifiCorp Model with greenhouse gas adder | | 1.59 |

¹ The values at generation represent gross ex-ante savings and include line losses between the customer site and the generation source. The company’s assumed line losses by sector are 11.4% for residential, 11.1% for commercial, 9.9% for industrial and 11.4% for irrigation. These values are based on the company’s 2009 Transmission and Distribution Loss Study by Management Applications Consulting, Inc. published in November 2011.

² See Planning Section for explanation on how the capacity contribution savings values are calculated.

Since the late 1970s, the company has provided customers with information on no-cost, low-cost energy efficiency practices through bill inserts and general company communication and outreach. During the reporting period, no-cost and low-cost energy efficiency tips or information regarding energy efficiency programs were included in customers' bills and through newsletters. Energy saving information is also available on the company's website.

Additionally, working with its third-party program delivery administrators,³ the company collaborated with retailers, contractors and vendors to support the company's energy efficiency programs in California. Table 2 shows the number of participating retailers, contractors and vendors by measure type.

Table 2
Energy Efficiency Infrastructure

| Sector | Type | No. |
|---|---|------------|
| Residential | Upstream/midstream Lighting Retailers | 6 |
| | Downstream Retailers | 3 |
| | HVAC Trade Allies | 17 |
| | Plumbing Trade Allies | 13 |
| | Weatherization Trade Allies | 3 |
| Commercial and Industrial/ Agricultural | Lighting Trade Allies | 15 |
| | HVAC Trade Allies | 7 |
| | Motor Trade Allies | 5 |
| | Irrigation Trade Allies | 1 |
| | Small Business Contractors | 5 |
| | Instant Incentive Lighting Distributors | 9 |

³ See program-specific section for background information on third-party administrators.

REGULATORY ACTIVITIES

Energy efficiency programs are funded through a Commission-approved DSM Tariff Rider.

On September 15, 2017, the company filed Application 17-09-010 requesting authorization to continue offering its energy efficiency programs through 2020. The Commission issued Decision 18-11-033 on December 6, 2018, approving the company's Application to continue administering its programs through 2020.

Decision 18-11-033 included an order authorizing PacifiCorp to re-calculate the DSM Tariff Rider reduction needed and file a Tier 1 advice letter to implement the updated tariff. Advice 576-E was filed on December 13, 2018, in compliance with Ordering Paragraph 2 of the Decision. The updated amount to be collected through the DSM Tariff Rider annually in 2019 and 2020 is \$920,000 and the reduction (approximately \$3.0 million annually) was effective January 1, 2019.

Decision 18-11-033 included an order to file an Annual Budget Advice Letter for 2020 by the first business day of September 2019. PacifiCorp met with stakeholders to discuss drafts prior to filing its 2020 Annual Budget Advice Letter on September 3, 2019. Energy Division staff suspended the filing (588-E) to allow time for Energy Division staff review. PacifiCorp responded to a formal data request, responded to questions via email, and met to collaborate with Energy Division staff several times in 2019.

Following the approved process for making program changes, PacifiCorp provided details of its planned 2020 *Home Energy Savings* and Wattsmart Business program changes for Energy Division review on October 27, 2019. The comments on the Annual Budget Advice Letter also applied to the program changes.

As of the end of 2019, PacifiCorp was seeking further clarification from Energy Division staff prior to submitting Annual Budget Advice Letter substitute pages and re-initiating the program change process.

The discussions with Energy Division staff in 2019 also touched on a filing PacifiCorp plans to make regarding funding for programs after 2020. These discussions will continue in 2020.

Following the approved process for making program changes, PacifiCorp provided details of its planned 2019 *Home Energy Savings* and Wattsmart Business program changes for Energy Division review on June 5, 2019. After resolving Energy Division staff comments, the changes were announced on pacificpower.net and were effective 45 days later on August 26, 2019.

The company filed its 2018 Annual Review of Energy Efficiency Programs with the Commission on March 15, 2019.

The DSM balancing account is the mechanism used for managing the DSM Tariff Rider revenues and actual DSM-incurred expenditures. The balancing account summary for 2019 is summarized in Table 3 below.

Table 3
DSM Balancing Account

| Month | Expenditures | S-191 Revenue | Cash Basis Accumulative Balance | Net Cost Accrual | Accrual Basis Accumulative Balance |
|-------------------|---------------------|---------------------|---------------------------------------|--------------------|--|
| 18-Dec | | | \$ (3,204,639) | \$ (30,599) | \$ (2,922,817) |
| 19-Jan | \$ 235,942 | \$ (360,268) | \$ (3,328,965) | \$ (2,703) | \$ (3,049,847) |
| 19-Feb | \$ 200,376 | \$ (119,763) | \$ (3,248,352) | \$ (31,114) | \$ (3,000,347) |
| 19-Mar | \$ 161,106 | \$ 46,028 | \$ (3,041,218) | \$ 152,197 | \$ (2,641,017) |
| 19-Apr | \$ 181,692 | \$ (40,044) | \$ (2,899,570) | \$ (88,515) | \$ (2,587,885) |
| 19-May | \$ 151,895 | \$ (60,291) | \$ (2,807,967) | \$ (4,267) | \$ (2,500,548) |
| 19-Jun | \$ 67,432 | \$ (52,261) | \$ (2,792,796) | \$ 32,757 | \$ (2,452,620) |
| 19-Jul | \$ 167,629 | \$ (70,585) | \$ (2,695,752) | \$ 49,032 | \$ (2,306,544) |
| 19-Aug | \$ 102,329 | \$ (80,412) | \$ (2,673,835) | \$ 67,809 | \$ (2,216,818) |
| 19-Sep | \$ 94,829 | \$ (80,493) | \$ (2,659,500) | \$ 42,939 | \$ (2,159,544) |
| 19-Oct | \$ 392,229 | \$ (65,843) | \$ (2,333,114) | \$ 165,127 | \$ (1,668,031) |
| 19-Nov | \$ 548,528 | \$ (50,382) | \$ (1,834,968) | \$ (336,401) | \$ (1,506,287) |
| 19-Dec | \$ 38,473 | \$ (62,011) | \$ (1,858,506) | \$ 62,560 | \$ (1,467,265) |
| 2019 Total | \$ 2,342,458 | \$ (996,326) | | \$ 109,420* | |

*December 2019 accrual

Column Explanations:

Expenditures: Monthly expenditures for approved energy efficiency programs.

S-191 Revenue: Revenue collected through the DSM Tariff Rider.

Cash Basis Accumulative Balance: Current balance of the account; a running total of account activities, excluding the accrued cost. A positive balance means cumulative expenditures exceeds cumulative revenue; a negative balance means cumulative revenue exceeds cumulative expenditures.

Net Cost Accrual: Two accrual entries are made each month for expenditures of energy efficiency programs. One estimates the incurred cost not yet processed, and the other reverses the estimate from the previous month. The amount shown here is the net of the two entries. This accounting principle was applied to the balancing account but would not be included when calculating the carrying charges.

Accrual Basis Accumulative Balance: Current balance of the account including accrued costs. A positive balance means cumulative expenditures exceeds cumulative revenue; a negative balance means cumulative revenue exceeds cumulative expenditures.

PLANNING PROCESS

Integrated Resource Plan

The company develops a biennial integrated resource plan (“IRP”) as a means of balancing cost, risk, uncertainty, supply reliability/deliverability and long-run public policy goals.⁴ The plan presents a framework of future actions to ensure the company continues to provide reliable, reasonably priced service to customers. Energy efficiency and peak management opportunities are incorporated into the IRP based on their availability, characteristics and costs.

PacifiCorp divides energy efficiency and peak management resources into four general classes:

- **Class 1 DSM—Resources from fully dispatchable or scheduled firm capacity product offerings/programs**—Class 1 DSM programs are those for which capacity savings occur as a result of active company control or advanced scheduling. Once customers agree to participate in a Class 1 DSM program, the timing and persistence of the load reduction is involuntary on their part within the agreed upon limits and parameters of the program. Program examples include residential and small commercial central air conditioner load control programs that are dispatchable, and irrigation load management and interruptible or curtailment programs (which may be dispatchable or scheduled firm, depending on the particular program design or event noticing requirements).
- **Class 2 DSM—Resources from non-dispatchable, firm energy and capacity product offerings/programs**—Class 2 DSM programs are those for which sustainable energy and related capacity savings are achieved through facilitation of technological advancements in equipment, appliances, lighting and structures, or repeatable and predictable voluntary actions on a customer’s part to manage the energy use at their facility or home. Class 2 DSM programs generally provide financial or service incentives to customers to improve the efficiency of existing or new customer-owned facilities through: (1) the installation of more efficient equipment, such as lighting, motors, air conditioners, or appliances; (2) upgrading building efficiency through improved insulation levels, windows, etc.; or (3) behavioral modifications, such as strategic energy management efforts at business facilities and home energy reports for residential customers. The savings endure (are considered firm) over the life of the improvement or customer action. Program examples include comprehensive commercial and industrial new and retrofit energy efficiency programs, comprehensive home improvement retrofit programs, strategic energy management and home energy reports.
- **Class 3 DSM—Resources from price responsive energy and capacity product offerings/programs**—Class 3 DSM programs seek to achieve short-duration (hour by hour) energy and capacity savings from actions taken by customers voluntarily, based on a financial incentive or signal. As a result of their voluntary nature, participation tends to be low and savings are less predictable, making Class 3 DSM resources less suitable to

⁴ Information on the company’s integrated resource planning process can be found at the following web address:
<http://www.pacificcorp.com/es/irp.html>.

incorporate into resource planning, at least until their size and customer behavior profile provide sufficient information for a reliable diversity result (predictable impact) for modeling and planning purposes. Savings typically only endure for the duration of the incentive offering and, in many cases, loads tend to be shifted rather than being avoided. The impacts of Class 3 DSM resources may not be explicitly considered in the resource planning process; however, they are captured naturally in long-term load growth patterns and forecasts. Program examples include time-of-use pricing plans, critical peak pricing plans, and inverted block tariff designs.

- **Class 4 DSM—Non-incented behavioral-based savings achieved through broad energy education and communication efforts**—Class 4 DSM programs promote reductions in energy or capacity usage through broad-based energy education and communication efforts. The program objectives are to help customers better understand how to manage their energy usage through no-cost actions such as conservative thermostat settings and turning off appliances, equipment and lights when not in use. The programs are also used to increase customer awareness of additional actions they might take to save energy and the service and financial tools available to assist them. Class 4 DSM programs help foster an understanding and appreciation of why utilities seek customer participation in Classes 1, 2 and 3 DSM programs. Similar to Class 3 DSM resources, the impacts of Class 4 DSM programs may not be explicitly considered in the resource planning process; however, they are captured naturally in long-term load growth patterns and forecasts. Program examples include company brochures with energy savings tips, customer newsletters focusing on energy efficiency, case studies of customer energy efficiency projects, and public education and awareness programs.

Class 1 and 2 DSM resources are included as resource options in the resource planning process. Class 3 and 4 DSM actions are not considered explicitly in the resource planning process, however, the impacts are captured naturally in long-term load growth patterns and forecasts.

As technical support for the IRP, the company engages a third-party consultant to conduct a DSM Potential Assessment.⁵ The study primarily seeks to develop reliable estimates of the magnitude, timing and cost of DSM resources likely available to PacifiCorp over the 20-year planning horizon of the IRP. The main focus of the Potential Assessment is on resources with sufficient reliability characteristics that are anticipated to be technically feasible and considered achievable during the IRP's 20-year planning horizon. By definition, the estimated achievable technical potential is the energy efficiency potential that may be achievable to acquire during the 20-year planning horizon prior to cost-effectiveness screening.

The achievable technical potential of Class 2 (energy efficiency) resources for California by sector is shown in Table 4. The 2017 Potential Assessment indicated that approximately 2% of the

⁵ PacifiCorp's Demand-side Resource Potential Assessments can be found at <https://www.pacificorp.com/environment/demand-side-management.html>.

achievable technical potential for PacifiCorp’s territory, excluding Oregon,⁶ is available within its California service area.⁷

Table 4
California Energy Efficiency Achievable Technical Potential by Sector⁸

| Sector | Cumulative GWh by 2036 | Percent of Baseline Sales |
|-----------------|------------------------|---------------------------|
| Residential | 97 | 24% |
| Commercial | 55 | 26% |
| Industrial | 7 | 10% |
| Irrigation | 8 | 8% |
| Street Lighting | 1 | 39% |

Demand-side resources vary in their reliability, load reduction and persistence over time. Based on the significant number of measures and resource options reviewed and evaluated in the Potential Assessment, it is impractical to incorporate each as a stand-alone resource in the IRP. To address this issue, Class 2 DSM measures and Class 1 DSM programs are bundled by cost for modeling against competing supply-side resource options reducing the number of discrete resource options the IRP must consider to a more manageable number.

Cost Effectiveness

The company evaluates program implementation cost effectiveness (both prospectively and retrospectively) under a variety of tests to identify the relative impact and/or value (*e.g.*, near-term rate impact, program value to participants, etc.) to customers and the company.

Program cost effectiveness is performed using a company-specific modeling tool, created by a third party consultant. Based on Decision 18-11-033, PacifiCorp’s model⁹ was revised in 2018 to include a greenhouse gas adder for the incremental value of avoided greenhouse gas emissions. The tool is designed to incorporate PacifiCorp data and values such as avoided costs, and generally follows the methodology specified in California’s Standard Practice Manual. PacifiCorp’s modeling tool conducts cost effectiveness analysis on all four tests described in the Standard Practice Manual¹⁰ as well as an additional fifth test.¹¹ The company’s analysis assesses the costs and benefits of DSM resource programs from different stakeholder perspectives, including participants and non-participants. While all states generally use commonly accepted cost

⁶ Oregon energy efficiency potentials assessments are performed by the Energy Trust of Oregon.

⁷ Volume 1, Table 2-1, PacifiCorp Demand-Side Resource Potential Assessment for 2017-2036.

⁸ Volume 2, Tables 4-4, 4-6, 4-8, 4-10, 4-11, PacifiCorp Demand-Side Resource Potential Assessment for 2017-2036.

⁹ In 2017, the company transitioned from California’s E3 Calculator to the PacifiCorp cost effectiveness model. The change in models was a coordinated effort between the company, Commission Staff and its third party consultant, Itron. Additional information regarding PacifiCorp’s transition to its company specific cost effectiveness model can be found in Application No. 17-09-010.

¹⁰ Total Resource Cost test (“TRC”), Program Administrator Cost test (“PAC”), Ratepayer Impact (“RIM”), and Participant Cost Test (“PCT”).

¹¹ PacifiCorp TRC (“PTRC”), total resource costs test with an additional 10% added for the non-quantified environmental and non-energy benefits.

effectiveness tests to evaluate DSM resources, some states require variations in calculating or prioritizing the tests. Where applicable, the company incorporates any state-specific requirements as needed in addition to the general methodology mentioned above.

Estimated Peak Contributions

The reported capacity reduction of 1,412 kW (at generation) for energy efficiency programs during 2019 represents the estimated kW impact of the energy efficiency portfolio during PacifiCorp's system peak period. An energy-to-capacity conversion factor, developed from Class 2 DSM selections in the 2017 IRP, is used to translate 2019 energy savings to estimated demand reduction during the system peak. The use of this factor in the kW calculation assumes that the energy efficiency resources acquired through the company's programs have the same average load profile as those energy efficiency resources selected in the 2017 IRP.

Use of this factor in determining the kW contribution of energy efficiency programs is detailed in Table 5.

Table 5
Estimated Peak Contribution

| Description | Value |
|---|--------------|
| First year Energy Efficiency program kWh savings acquired during 2019 | 7,872,518 |
| Conversion factor: Coincident kW/kWh | 0.00018 |
| Estimated coincident peak kW gross contribution of 2019 Energy Efficiency | 1,412 |

COST EFFECTIVENESS RESULTS

The portfolio was cost effective for both the TRC and PAC when using the PacifiCorp model. Results are shown in Table 6 below.

Table 6
Portfolio Cost Effectiveness

| Cost Effectiveness Test | Portfolio Results | Residential Results | Non-Residential Results |
|-------------------------|-------------------|---------------------|-------------------------|
| PacifiCorp Model - TRC | 1.59 | 0.55 | 1.98 |
| PacifiCorp Model - PAC | 2.61 | 0.72 | 3.65 |

PacifiCorp Model

Based on Decision 18-11-033, PacifiCorp's model was revised in 2018 to include a greenhouse gas adder for the incremental value of avoided greenhouse gas emissions. The portfolio was cost effective resulting in a TRC of 1.59 and PAC of 2.61. Appendix 4 provides additional cost effectiveness results from multiple perspectives.

Net-to-Gross

The company used approved net-to-gross ratios from the Database of Energy Efficiency Resources (DEER 2019) as of August 1, 2019 in the cost effectiveness assessment for the 2019 program year.

ENERGY EFFICIENCY PROGRAMS

The company offers energy efficiency programs to all major customer sectors: residential, commercial, industrial and irrigation. The overall energy efficiency portfolio includes two programs: *Home Energy Savings* – Schedule D-118, and *Non-Residential Energy Efficiency (aka Wattsmart Business)*, Schedule A-140. The *Energy Savings Assistance Program* is funded separately through Schedule S-192 and reported in a separate process with the Commission.¹² Accordingly, its program expenditures and programmatic activities are not provided in the 2019 DSM Annual Review of Energy Efficiency Programs report.

Program, sector and portfolio level results for 2019 are provided in Table 7.

Table 7¹³
California Results January 1, 2019 – December 31, 2019

| | kWh Savings (at site) | kWh Savings (at generation) | Investment |
|---------------------------------|--------------------------|--------------------------------|---------------------|
| <i>Home Energy Savings</i> | 692,897 | 770,427 | \$ 639,325 |
| Total Residential | 692,897 | 770,427 | \$ 639,325 |
| WSB Commercial | 5,419,527 | 6,023,425 | \$ 1,284,806 |
| WSB Industrial | 545,785 | 599,910 | \$ 90,478 |
| WSB Irrigation | 429,643 | 478,755 | \$ 156,353 |
| Total Wattsmart Business | 6,394,955 | 7,102,091 | \$ 1,531,637 |
| Portfolio - EM&V | | | \$ 75,327 |
| Portfolio - DSM Central | | | \$ 71,745 |
| Portfolio - TRL | | | \$ 4,658 |
| Total Energy Efficiency | 7,087,852 | 7,872,518 | \$ 2,322,691 |

Decision 18-11-033 included an order to submit an Annual Budget Advice Letter (“ABAL”) starting in September 2019 that includes a breakdown of expenses, including at minimum the following categories: incentive payments, program evaluations, and administrative expenses. PacifiCorp provided this breakdown in the Annual Budget Advice Letter filed in September 2019 and is provided in tables 8-9 below.

¹² See Docket A.15-02-001 et al.

¹³ Gross savings.

Table 8
2019 Portfolio Level Forecast Expenditures - Breakdown by Cost Category

| Cost Category Description | 2019 Expenditures | % of Total |
|---|---------------------|-------------|
| Administrative Costs | \$ 145,534 | 6% |
| Direct Implementation - Incentives | \$ 1,036,608 | 45% |
| Direct Implementation - Non-Incentives | \$ 1,053,411 | 45% |
| IOU's administered marketing, education, and outreach | \$ 27,578 | 1% |
| EM&V | \$ 59,560 | 3% |
| Total | \$ 2,322,691 | 100% |

Table 9
2019 Program Level Forecast Expenditures - Breakdown by Cost Category

| Cost Category Description | 2019 Home Energy Savings Expenditures (a) | 2019 Wattsmart Business Expenditures (b) | 2019 Total Portfolio Expenditures (c) | 2019 Total Expenditures (a+b+c) | % of Total |
|---|---|--|---------------------------------------|---------------------------------|-------------|
| Administrative Costs | \$ 26,010 | \$ 52,561 | | \$ 78,570 | 3% |
| Direct Implementation - Incentives | \$ 240,392 | \$ 802,067 | | \$ 1,042,459 | 45% |
| Direct Implementation - Non-Incentives | \$ 371,163 | \$ 650,813 | \$ 76,402 | \$ 1,098,378 | 47% |
| IOU's administered marketing, education, and outreach | \$ 1,760 | \$ 26,197 | | \$ 27,957 | 1% |
| EM&V | \$ - | \$ - | \$ 75,327 | \$ 75,327 | 3% |
| Total | \$ 639,325 | \$ 1,531,637 | \$ 151,729 | \$ 2,322,691 | 100% |

Overall Portfolio Level Metrics Reporting

Decision 18-11-033 included an order to conform to 'Overall Portfolio Level' metrics requirements as prescribed in Decision 18-05-041.

1. Capturing Energy Savings – Tables 10, Table 11 and Table 12 summarize first year annual and lifecycle ex-ante (pre-evaluation) electric and demand savings (gross and net) for 2019.

Table 10
First Year Annual Savings Gross and Net Savings¹⁴

| Program | First Year Gross kWh Savings at Site | First Year Net kWh Savings at Site | First Year Gross kWh Savings at Gen | First Year Net kWh Savings at Gen |
|----------------------------|--------------------------------------|------------------------------------|-------------------------------------|-----------------------------------|
| <i>Home Energy Savings</i> | 692,897 | 413,655 | 770,427 | 451,225 |
| Wattsmart Business | 6,394,955 | 5,553,753 | 7,102,091 | 5,889,124 |
| Total | 7,087,852 | 5,967,408 | 7,872,518 | 6,340,349 |

Table 11¹⁵
Lifecycle kWh Savings Gross and Net Savings

| Program | First Year Gross kWh Savings at Site | First Year Net kWh Savings at Site | First Year Gross kWh Savings at Gen | First Year Net kWh Savings at Gen |
|----------------------------|--------------------------------------|------------------------------------|-------------------------------------|-----------------------------------|
| <i>Home Energy Savings</i> | 9,999,843 | 5,856,724 | 11,118,758 | 6,512,052 |
| Wattsmart Business | 84,266,172 | 70,379,107 | 93,584,085 | 78,161,428 |
| Total | 94,266,014 | 76,235,831 | 104,702,843 | 84,673,479 |

Table 12
Lifecycle kW Savings Gross and Net Savings¹⁶

| Program | Lifecycle Gross kW Savings at Site | Lifecycle Net kW Savings at Site | Lifecycle Gross kW Savings at Gen | Lifecycle Net kW Savings at Gen |
|----------------------------|------------------------------------|----------------------------------|-----------------------------------|---------------------------------|
| <i>Home Energy Savings</i> | 124 | 73 | 138 | 81 |
| Wattsmart Business | 1,147 | 958 | 1,274 | 1,064 |
| Total | 1,271 | 1,031 | 1,412 | 1,145 |

- Disadvantaged Communities – The company does not have businesses or homes in disadvantaged communities, as identified by CalEPA pursuant to Health and Safety Code Section 39711.¹⁷ Please see SB 535 Disadvantaged Communities map below in tables 13-14 Disadvantaged Communities identified in red.

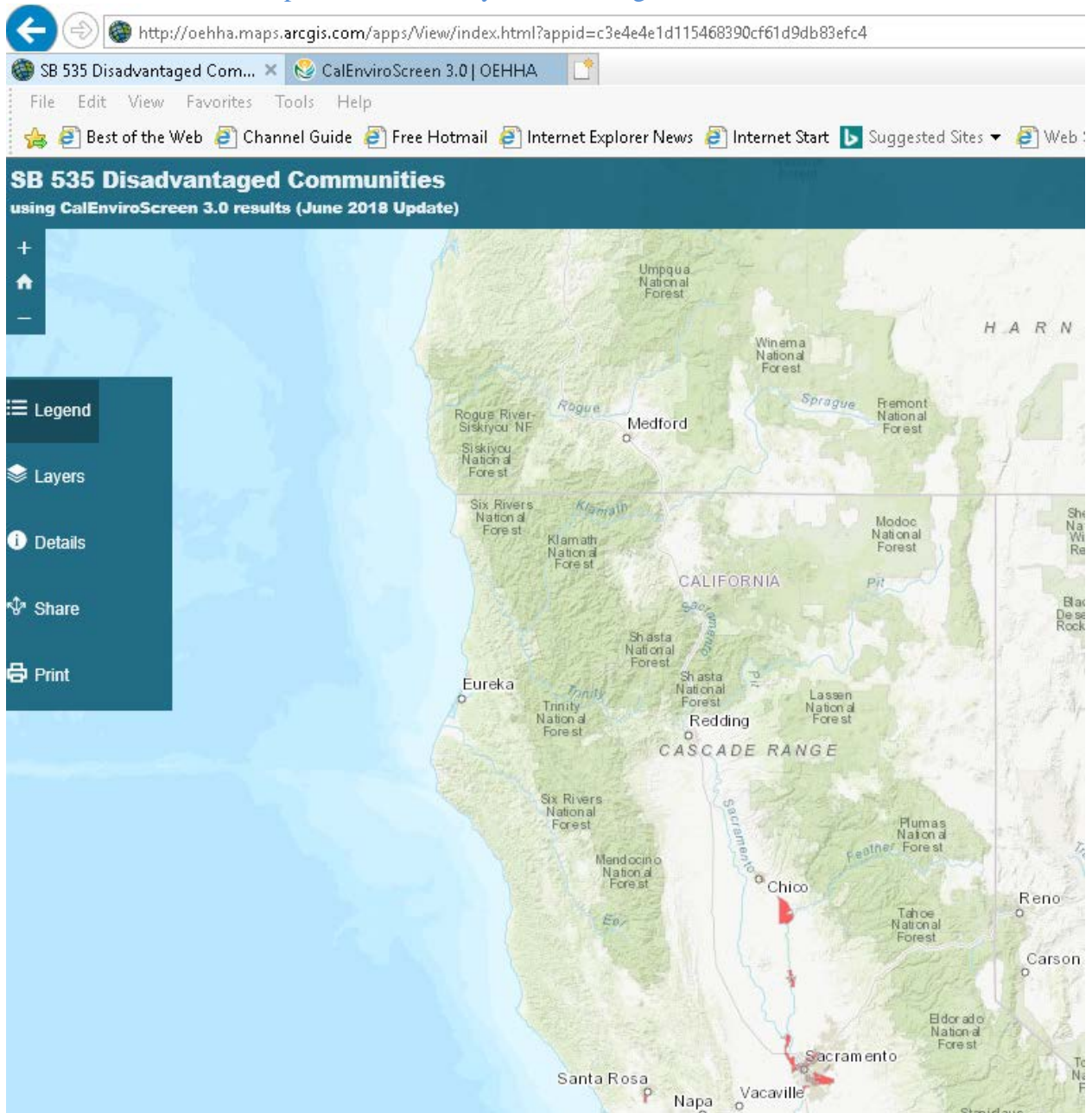
¹⁴ Net savings include realization rates and NTG ratios.

¹⁵ Lifecycle savings is without discount rate.

¹⁶ kW savings are not additive over the measure life since it is time independent and therefore lifecycle impacts are reported consistent with first year kW savings. Totals may be off due to rounding.

¹⁷ <https://www.cpuc.ca.gov/discom/>

Table 13
PacifiCorp Service Territory, Disadvantaged Communities



3. Hard-to-Reach Markets – Data for the small business criteria¹⁸ for Hard-to-Reach reporting is available for 2019. Data is not available for residential and non-residential participants for the other criteria for 2018. The company is revising systems and processes to make this reporting available for 2019. Table 14 below represents the company’s Hard-to-Reach market for 2019. Tables 15-18 represent the company’s hard-to-reach markets by program

¹⁸ Classified as very small (customers whose electric demand is less than 20 kW)

Table 14
Hard-to-Reach Markets

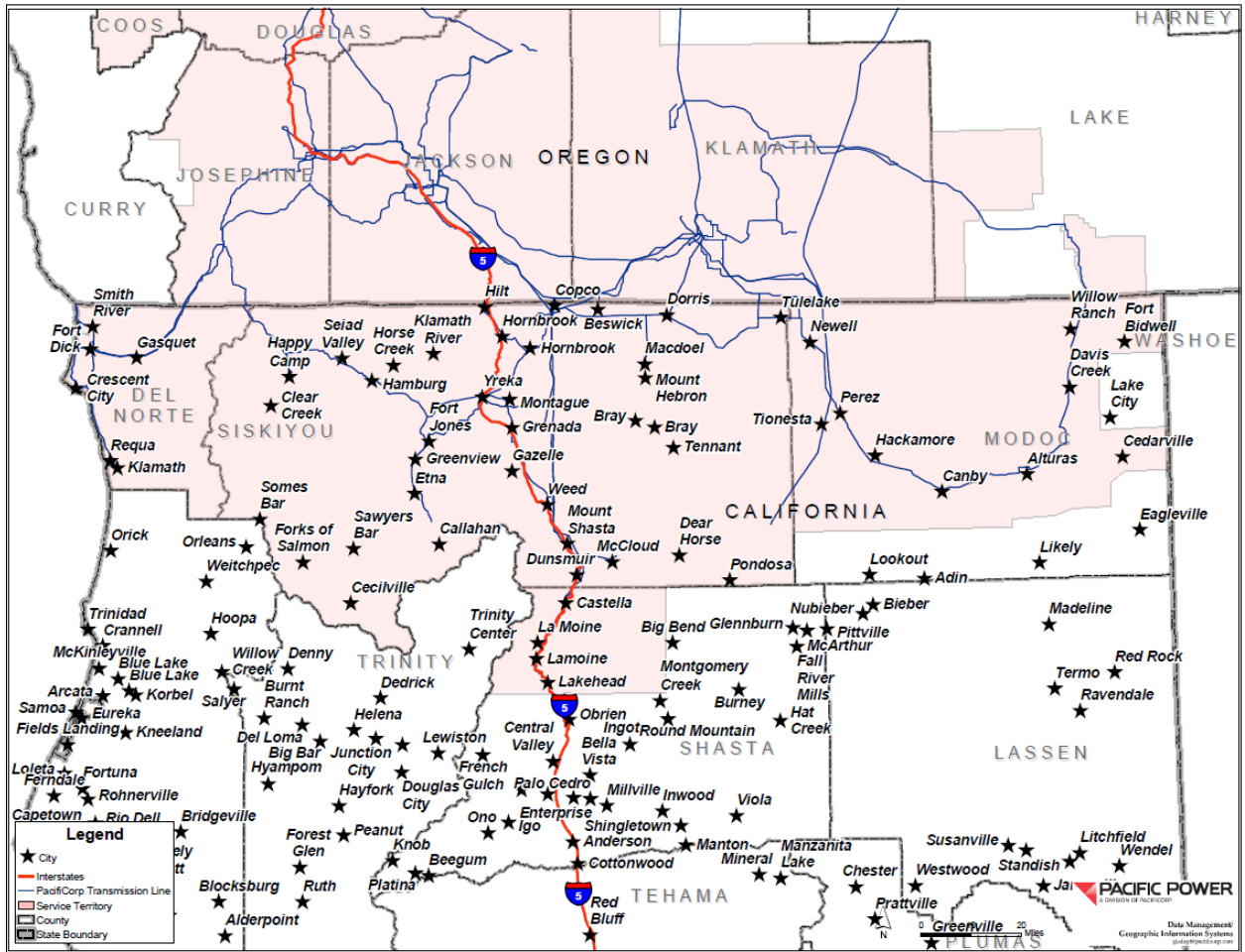


Table 15
Hard-to-Reach Markets – 2019 First Year Annual Gross and Net kWh Savings

| Program | First Year Annual Gross kWh Savings at Site | First Year Annual Net kWh Savings at Site | First Year Annual Gross kWh Savings at Gen | First Year Net Annual kWh Savings at Gen |
|---------------------|---|---|--|--|
| Home Energy Savings | 92,967 | 86,388 | 101,633 | 96,264 |
| Wattsmart Business | 800,288 | 722,306 | 889,465 | 802,793 |
| Total | 893,255 | 808,694 | 991,097 | 899,057 |

Table 16
Hard-to-Reach Markets - 2019 Lifecycle Gross and Net kWh Savings

| Program | Lifecycle Gross kWh Savings at Site | Lifecycle Net kWh Savings at Site | Lifecycle Gross kWh Savings at Gen | Lifecycle Net Annual kWh Savings at Gen |
|---------------------|-------------------------------------|-----------------------------------|------------------------------------|---|
| Home Energy Savings | 1,371,703 | 1,141,488 | 1,528,530 | 1,271,994 |
| Wattsmart Business | 10,620,487 | 8,640,875 | 11,803,928 | 9,603,727 |
| Total | 11,992,190 | 9,782,363 | 13,332,458 | 10,875,722 |

Table 17
Hard-to-Reach Markets - 2019 Gross and Net kW Savings

| Program | Gross kW Savings at Site | Net kW Savings at Site | Gross kW Savings at Gen | Net Annual kW Savings at Gen |
|---------------------|--------------------------|------------------------|-------------------------|------------------------------|
| Home Energy Savings | 17 | 14 | 19 | 15 |
| Wattsmart Business | 144 | 117 | 159 | 130 |
| Total | 160 | 131 | 178 | 145 |

Table 18
Hard-to-Reach Small Business
Installed Measures

| Measure Category | Total kWh/Yr Savings @ Site | Total Incentive | Total Customers | Total Projects |
|------------------|-----------------------------|-------------------|-----------------|----------------|
| Farm & Dairy | 24,470 | \$ 1,030 | 1 | 1 |
| HVAC | 4,617 | \$ 1,250 | 1 | 1 |
| Irrigation | 114,374 | \$ 15,257 | 9 | 9 |
| Lighting | 633,436 | \$ 81,120 | 42 | 53 |
| Refrigeration | 23,331 | \$ 3,500 | 1 | 1 |
| Total | 800,288 | \$ 102,157 | 54 | 65 |

RESIDENTIAL PROGRAMS

Home Energy Savings

The *Home Energy Savings* program uses the company's Wattsmart brand for outreach. The program is designed to provide access to and incentives for more efficient products and services installed or received by customers in new or existing homes, multi-family housing units or manufactured homes.

Program participation by measure category for 2019 is provided in Table 19.

Table 19
Eligible Program Measures

| Measure Category | Total kWh/Yr Savings @ Site | Total Incentive | Measure Quantity |
|------------------|-----------------------------|-------------------|------------------|
| Appliances | 1,622 | \$ 550 | 11 |
| Building Shell | 1,752 | \$ 1,023 | 3,496 (sq ft) |
| Energy Kits | 127,455 | \$ 10,591 | 404 |
| HVAC | 535,052 | \$ 213,180 | 154 |
| Lighting | 15,244 | \$ 2,148 | 1,321 |
| Water Heating | 3,580 | \$ 4,400 | 7 |
| Whole Home | 8,192 | \$ 8,500 | 4 |
| Total | 692,897 | \$ 240,392 | |

Program Management

The program manager who is responsible for the *Home Energy Savings* program in California is also responsible for the *Home Energy Savings* program in Washington. The program manager is responsible for the cost-effectiveness of the program, identifying and contracting with the program administrator through a competitive bid process, establishing and monitoring program performance and compliance, and recommending changes in the terms and conditions set out in the tariff and/or posted on the company's website.

In 2018, the company issued a Request for Proposal to re-procure services for *Home Energy Savings* program in California and Washington. The Request for Proposal also included outsourced portions of Wattsmart Business currently performed by consultants Nexant and Cascade Energy to allow for potential economies of a single contractor delivering for both programs. Selection and contracting was complete in 2019 and Nexant was selected to replace CLEAResult as administrator of the *Home Energy Savings* program. The transition between program administrators occurred over approximately 6 month, primarily during Q2 and Q3 and was designed to minimize disruption to customers, trade allies and participating retailers.

Program Administration

The *Home Energy Savings* program is administered by Nexant (beginning in 2019), who are responsible for the following:

- Retailer and trade ally engagement – Nexant identifies, recruits and supports retailers to increase the sale of energy efficient lighting, appliances and weatherization. Nexant enters into promotion agreements with each lighting manufacturer and retailer for the promotion of discounted lighting equipment. The agreements include specific retail locations, lighting products receiving incentives and not-to-exceed annual budgets. HVAC, plumbing and weatherization trade allies engaged with the program are provided with program materials, training, and regular updates.
- Inspections – Nexant recruits and hires inspectors to verify on an on-going basis the installation of measures. A summary of the inspection process is in Appendix 1.
- Incentive processing and call-center operations – Nexant receives all requests for incentives, determines whether the applications are completed, works directly with customers and trade allies when information is incorrect and/or missing from the application, and processes the application for incentive payment.
- Program specific customer communication and outreach – Nexant conducts some communication and outreach on behalf of the company.

Infrastructure

The company worked with 6 retailers to promote high efficiency light bulbs, fixtures, room air conditioners, and appliances in multiple delivery channels (downstream, midstream and upstream¹⁹). PacifiCorp also worked with 20 trade allies in HVAC and weatherization. Appendix 2 provides a listing of all participating retailers and trade allies.

Program Changes

The program was adaptively managed during 2019 using the approved program change process. The Commission provided for a flexible and market-driven program delivery approach in Application No. 07-07-011.²⁰ As outlined in Appendix J of the application, Schedule D-118 includes the basic program elements, including: customer eligibility, use of a program administrator for delivery, the seasonal nature of selected incentive offers, that current incentive levels may change and the use of a program website.²¹ The program changes were announced on www.pacificpower.net on July 12, 2019 and became effective 45 days later on August 26, 2019.

Changes were intended to:

- Maintain/improve costs effectiveness

¹⁹ To be considered for participation in upstream buy downs, retailer sales coming from Pacific Power customers must be a significant percentage of total sales.

²⁰ Decision No. 08-01-041 dated January 31, 2008.

²¹ <http://www.homenergysavings.net/california/>

- Incorporate current DEER values
- Incorporate direction from Decision 18-11-033 (regarding availability for CFLs)
- Incorporate the impacts of codes & standards
- Clarify and enhance participation requirements by climate zone to align incentives with available savings

Program Activities

Throughout 2019 Nexant built relationships with current Trade Allies, met with potential Trade Allies, and conducted inspections. Nexant outreach coordinators made regular field visits to Trade Allies and retailers. In 2019, Nexant made nine trips to meet with 14 Trade Allies in the California service territory. Across those nine trips, almost 50 visits with Trade Allies occurred. For the upstream/midstream lighting, Nexant performed 24 visits to 7 retail chain's stores and independent stores. For each store visit, the field rep files individual field reports assessing each store's location, records in store activities and store employee training, and leaves behind promotional materials and point of purchase display. To support the New Homes offer, Nexant outreach coordinators visited the active construction sites and met with builders. Nexant also recruited a new manufactured home duct sealing contractor to the Vendor network. To promote energy saving kits, the company and Nexant conducted successful energy saving kit email and bill insert campaigns.

In 2019, 112 California customers took the online Home Energy Advisor survey, an online tool that was a configured version of the platform provided by EnergySavvy²² which was replaced by the successor tool developed by Nexant in 2019.²³ The new survey asks customers about their home characteristics and provides recommended actions to make their home more energy efficient. The survey helps customers learn about incentives for home energy upgrades and get connected with local contractors in the Wattsmart Vendor Network. An online home audit has been available since 2016. A few statistics from 2019 include:

- Almost 60 percent of customers surveyed had electric heating.
- Almost 30 percent of homes use a heat pump.
- Almost 30 percent of homes have central cooling. Almost half of homes did not have any cooling at all.
- 50 percent of customers surveyed had efficient lighting. The other half had a mix of efficient and conventional lighting. Only 6 percent of customers did not have any efficient lighting.
- 85 percent of customers surveyed lived in single family homes.
- Over 50 percent homes were built between the 1970s-2000s.
- The oldest home in the 2019 survey was built in 1889.

²² <https://pacificpower.energysavvy.com/>

²³ <https://survey.wattsmartsavings.net/>

NON-RESIDENTIAL PROGRAM

The commercial, industrial and irrigation energy efficiency program is consolidated into a single *Non-Residential Energy Efficiency* program, Schedule A-140.²⁴ The *Non-Residential Energy Efficiency* program is promoted to the company's customers as Wattsmart Business.

The Wattsmart Business program is intended to maximize the efficient use of electricity for new and existing non-residential loads through the installation of energy efficiency measures and energy management protocols. Qualifying measures are measures which, when implemented in an eligible facility, result in verifiable electric energy efficiency improvements.

Program performance is shown in Table 20.

Table 20
Program Performance by Sector

| Sector | Total kWh/Yr Savings @ Site | Total Incentive | Total Projects |
|--------------|--------------------------------|-------------------|-------------------|
| Commercial | 5,419,527 | \$ 714,244 | 103 |
| Industrial | 545,785 | \$ 29,767 | 5 |
| Irrigation | 429,643 | \$ 58,057 | 19 |
| Total | 6,394,955 | \$ 802,067 | 127 |

Services and incentives offered through the Wattsmart Business program include:

- Typical Upgrades included in Incentive Lists: Incentives for listed lighting, HVAC, irrigation, compressed air and other equipment upgrades that increase electrical energy efficiency and exceed energy code requirements.
- Custom analysis: Offers energy analysis studies, services and incentives for more complex projects.
- Energy Management: Provides expert facility and process analysis and incentives to help lower energy costs by optimizing customer's energy use.
- Enhanced incentives for small businesses: Provides enhanced incentives for lighting upgrades installed by an approved Wattsmart Small Business Contractor at an eligible existing small business customer facility.

²⁴ Program details such as incentive tables and program definitions are available on our website at https://www.pacificpower.net/content/dam/pcorp/documents/en/pacificpower/savings-energy-choices/wattsmart-business/california/CA_wattsmartBusiness_Definitions_Incentive_Tables_Information.pdf

The program brochure is available at

https://www.pacificpower.net/content/dam/pcorp/documents/en/pacificpower/savings-energy-choices/wattsmart-business/california/CA_wattsmartBusiness_Brochure.pdf

- Midstream/Lighting Instant Incentive: Provides instant, point-of-purchase incentives for qualifying lamps sold through participating distributors. Customers who purchased lamps from non-participating suppliers can apply for incentives after purchase.
- Energy Project Manager Co-funding: Available to customers who commit to an annual goal of completing energy projects resulting in at least 1,000,000 kWh/year in energy savings.
- Project Financing: PacifiCorp is teamed with National Energy Improvement Fund, an energy efficiency project financing firm, to provide customers with access to third party financing options for instances where funds for project implementation are not available from within the customer's organization.

Program participation and savings by measure category for 2019 in total is provided in Table 21.

Table 21
Installed Program Measures

| Measure Category | Total kWh/Yr Savings @ Site | Total Incentive | Total Projects |
|-------------------|-----------------------------|-------------------|----------------|
| Building Shell | 45 | \$ 74 | 1 |
| Compressed Air | 10,803 | \$ 1,620 | 1 |
| Energy Management | 406,338 | \$ 8,127 | 3 |
| Farm & Dairy | 24,470 | \$ 1,030 | 1 |
| HVAC | 4,617 | \$ 1,250 | 1 |
| Irrigation | 563,885 | \$ 73,740 | 23 |
| Lighting | 5,310,964 | \$ 705,425 | 93 |
| Motors | 4,222 | \$ 360 | 2 |
| Refrigeration | 69,611 | \$ 10,442 | 2 |
| Total | 6,394,955 | \$ 802,067 | 127 |

Program Management

The program manager overseeing program activity in California is also responsible for delivery of the Wattsmart Business program in Washington. For each state, the program manager is responsible for managing the cost-effectiveness of the program, identifying and contracting with the program administrators through a competitive bid process, program marketing, establishing and monitoring program performance and compliance, and recommending changes in the terms and conditions of the program set out in the tariff and/or posted on the company's website.

In 2018, the company issued a Request for Proposals to re-procure services for the outsourced portion of Wattsmart Business currently performed by Nexant and Cascade Energy as described below. The Request for Proposal also included *Home Energy Savings* to allow for potential economies of a single contractor delivering for both programs. Selection and contracting with Nexant and Cascade Energy was complete in 2019. Nexant is now also delivering the *Home Energy Savings* program, allowing consolidation of some administrative functions and the residential and non-residential trade ally networks.

In December 2018, the company issued a Request for Proposals to potentially outsource the project manager portion of Wattsmart Business as described below. The decision to outsource this work, and selection and contracting with Cascade Energy was complete in 2019. The transition from an in-house project manager working with a pre-contracted network of consultants (including Cascade Energy and others) took place starting in August 2019.

Program Administration

The program includes several delivery channels, including Trade Ally, Small Business Enhanced Incentive Offer, Midstream/Lighting Instant Incentive and Project Manager (managed account) delivery.

Trade Ally

In this channel, the program is primarily marketed through local trade allies who receive support from one of two program administrators. The company contracts with Nexant, Inc. (“Nexant”) and Cascade Energy (“Cascade”) for trade ally coordination, training, application processing and project facilitation services for commercial measures and industrial/agricultural measures, respectively.

Nexant and Cascade are responsible for the following:

- Trade ally engagement – identify, recruit, train, support and assist trade allies to increase sales and installation of energy efficient equipment at qualifying business customer facilities.
- Incentive processing and administrative support – handle incoming inquiries as assigned, process incentive applications, develop and maintain simplified analysis tools and provide program design services, evaluation and regulatory support upon request.
- Direct customer outreach and project facilitation for smaller customer projects.
- Inspections – verify on an on-going basis the installation of measures. A summary of the inspection process is provided in Appendix 1 to this report.

Small Business Enhanced Incentive Offer

In this channel, the program is primarily marketed through local contractors approved specifically for this offer who receive support from the program administrator, Nexant. Nexant is responsible for the following:

- Management of approved contractors – identify, recruit, contract with, train, support, and assist contractors to increase sales and installation of energy efficient lighting equipment at qualifying small business customer facilities.
- Direct customer outreach
- Incentive processing and administrative support – handle incoming inquiries as assigned, process incentive applications, develop and maintain simplified analysis tool and provide program design services, evaluation and regulatory support upon request.
- Inspections – verify on an on-going basis the installation of measures. A summary of the inspection process is provided in Appendix 1 to this report.

Midstream/Lighting Instant Incentive Offer

In this channel, the program is marketed through distributors approved specifically for this offer who receive support from the program administrator, Nexant. The program is also marketed through installation contractors, who also receive support from Nexant. Nexant is responsible for the following:

- Management of approved distributors – identify, recruit, contract with, train, support, and assist distributors to increase sales of energy efficient lighting equipment at qualifying business customer facilities.
- Incentive processing and administrative support – handle incoming inquiries as assigned, process incentive applications, and provide program design services, evaluation and regulatory support upon request.
- Inspections – verify on an on-going basis the installation of measures at eligible customer facilities. A summary of the inspection process is in Appendix 1 to this report.

Project Manager (managed account delivery)

In this channel, Cascade Energy, working with the company’s internal project manager, manages a subset of more complex projects. The team works directly with the customer or through the company’s regional business managers²⁵ to identify projects and provide program services and incentives or refer project leads to the appropriate channel identified above.

Infrastructure

To help increase and improve the supplier and installation contractor infrastructure for typical energy efficient equipment and services, the company supports trade ally networks for lighting, HVAC and motors. This work includes identifying and recruiting trade allies, providing program and technical training and providing sales support on an ongoing basis. In addition, trade ally performance scorecards provide feedback and encourage lighting trade allies to improve.

Participating vendors sign a Wattsmart Business participation agreement and are listed as Wattsmart Business Vendors in the Find a Vendor search tool on the company’s website. In addition to the formal Wattsmart Business vendor networks, other trade allies such as irrigation vendors are identified and supported on an ongoing basis.

The current searchable list of the trade allies who have applied and been approved as participating Wattsmart Business vendors is available on the company website²⁶ and included as Appendix 3 to this report. In most cases, customers are not required to select a vendor from these lists to receive an incentive.²⁷

²⁵ Regional business managers are responsible for directly working with California commercial and industrial customers (managed accounts).

²⁶ Searchable participating vendor lists are available from the company website. Direct link to the “Find a Vendor” search tool: <https://pacificpower.tradeally.com/>

²⁷ For the Wattsmart Small Business enhanced incentives, customers are required to choose one of the approved contractors for this offer.

The total number of participating trade allies is currently 18. The counts of participating trade allies by technology are shown in Table 22.

Table 22
Participating Trade Allies²⁸

| Lighting Trade Allies | HVAC Trade Allies | Motors Trade Allies | Irrigation Trade Allies | Small Business - Approved Contractors | Lighting Instant Incentive Distributors |
|-----------------------|-------------------|---------------------|-------------------------|---------------------------------------|---|
| 15 | 7 | 5 | 1 | 5 | 9 |

Program Changes

The program was updated in 2019 using the approved program change process.²⁹ The program changes were announced on www.pacificpower.net³⁰ on July 12, 2019 and became effective 45 days later on August 26, 2019.

These changes are intended to

- Improve program cost-effectiveness and reduce program delivery costs by
 - a. Adopting a non-residential lighting dual baseline savings and cost calculation methodology for lighting retrofits and small business lighting
 - b. Removing measures that have low participation and/or are no longer very cost-effective
 - c. Streamlining program participation processes for customers and trade allies
- Restructure and align lighting retrofit incentives to reflect the continuing market shift to LED lighting technology
- Add new measures to the incentive tables, update some existing measures based on current market analysis
- Improve the enhanced incentives for small businesses by adding many LED measures (and removing the fluorescent measures)
- Make other minor administrative changes

²⁸ Some trade allies may participate in more than one technology. The count of unique participating firms is less than the total count provided above.

²⁹ The Wattsmart Business program is administered through a process that allows for program changes after any stakeholder comments are addressed. After consultation with Commission staff on the program changes, they are posted to the program website and become effective 45 days thereafter. This program change process was requested in Advice Letter 518-E and approved on April 30, 2015.

³⁰ <https://www.pacificpower.net/savings-energy-choices/business/wattsmart-efficiency-incentives-california.html>

Program Activities

Vendor Trainings - Two Wattsmart Business Vendor Network events were held in April 2019 in Yreka and Crescent City. Vendors learned about 2019 program updates and attended a hands on advanced network lighting controls session on the advancements in lighting technologies.

eLearning Platform - The eLearning Platform added new courses in 2019 on advanced exterior dimming and commercial HVAC technology, that latter focused on ductless heat pumps and smart thermostats. These courses cover available incentives, measure requirements, and resources for applying.

Targeted Small Business Campaign – The Small Business Lighting Vendor campaign, which is focused on hard-to-reach small business customers, built on the successes of 2018 with the recruitment of two new Small Business Lighting Vendors. Approved Wattsmart Small Business Vendors who signed a Non-Disclosure agreement (in addition to the vendor participation agreement already on file) are provided with refined customer lists (containing business name, address, phone number only) to more effectively connect with customers eligible for the small business enhanced incentives. Prior to providing the lists, postcards are mailed to each customer on the list to introduce them to the program and let them know a contractor will be contacting them. The intent of this initiative is to improve the efficiency of approved vendor’s sales processes and boost small business participation. Sixty customers were contacted as part of the targeted campaign. Of those contacted, contractors performed 15 assessments and completed 4 projects in 2019. This initiative also includes additional opportunities for co-branded marketing materials and Pacific Power Wattsmart Business Vendor co-branded shirts to help promote vendor credibility with small business customers.

COMMUNICATIONS, OUTREACH AND EDUCATION

The company uses earned media, customer communications, paid media, and program-specific media to communicate the value of energy efficiency, provide information regarding low-cost, no-cost energy efficiency measures and to educate customers on the availability of technical assistance, services and incentives. The overall goal is to engage customers to reduce their energy usage through behavioral changes as well as changes in equipment, appliances, and structures.

Customer Communications

As part of the company's regular communications to its customers, newsletters are delivered to residential customers that promote energy efficiency tips, programs and incentives. Outer envelopes that feature energy efficiency messages are consistently used. The company also uses its website and social media, such as Twitter and Facebook, to communicate and engage customers on DSM offers and incentives.

Program Specific Communications

Wattsmart Business

Customer communications and outreach to support energy efficiency for businesses included print and radio advertising, digital search, direct mail, email, and content on the company's website.



Collateral material for Wattsmart Business was used for direct customer contact by the company's project managers, regional business managers, and its trade allies.

During 2019, communications encouraged energy efficient LED lighting upgrades with control strategies and focused on the money saving features of these technologies. Targeted direct mail was aimed at small business customers to generate interest in lighting upgrades and incentives. Direct mail was also used in the spring and fall to target irrigation customers and to encourage energy-saving retrofits.

In 2019, the program garnered 347,006 media impressions. A breakdown of impressions by media type are shown in Table 23.

Table 23

Wattsmart Business Communication Impressions

| Communications Channel | 2019 |
|----------------------------|----------------|
| Radio | 283,500 |
| Newspaper | 56,274 |
| Digital Search | 2,735 |
| Irrigation Direct Mail | 1,383 |
| Small Business Direct Mail | 64 |
| Emails | 3,050 |
| Total | 347,006 |

EVALUATIONS

Evaluations are performed by independent external evaluators to validate energy and demand savings derived from the company's energy efficiency programs. The company adopts industry best practices with regards to principles of operation, methodologies, evaluation methods, definitions of terms, and protocols including those outlined in the National Action Plan for Energy Efficiency Program Impact Evaluation and the California Evaluation Framework guides.

A component of the overall evaluation efforts is aimed at the reasonable verification of installations of energy efficient measures and associated documentation through review of documentation, surveys and/or ongoing onsite inspections.

Verification of the potential to achieve savings involves regular inspection and commissioning of equipment. The company engages in programmatic verification activities, including inspections, quality assurance reviews, and tracking checks and balances as part of routine program implementation and may rely upon these practices in the verification of installation information for the purposes of savings verifications in advance of more formal impact evaluation results. A summary of the inspection process is included in Appendix 1.

Evaluation, measurement and verification tasks are segregated within the company to ensure they are performed and managed by personnel who are not directly responsible for program management.

Information on evaluation activities completed or in progress during 2019 are summarized in Table 24 below. All completed evaluations reports are available at <https://www.pacificorp.com/environment/demand-side-management.html>

Table 24
Program Evaluations

| Program | Years Evaluated | Evaluator | Progress Status |
|---------------------|-----------------|-----------|-----------------|
| Wattsmart Business | 2018 – 2019 | Cadmus | In progress |
| Home Energy Savings | 2017 – 2018 | ADM | In progress |



Appendix 1

California Measure Installation Verifications

California Measure Installation Verifications

Home Energy Savings

Site inspections by Program Administrator staff for the following retrofit and/or new homes measures. Inspections are performed on ≥ 5 percent of single family homes, ≥ 5 percent of manufactured homes, 100 percent of multifamily projects, and 20 percent of new homes projects.

- Air sealing (measure ended on August 25, 2019)
- Duct sealing
- Duct sealing and insulation
- Ductless heat pumps
- Central Air Conditioning Best Practice Installation and Sizing
- Heat Pumps
- Heat pump water heaters
- Insulation
- Whole Homes Performance Path (WHPP)

No site inspections are conducted for the following measures. However, all post-purchase incented measures undergo a quality assurance review prior to the issuance of the customer/dealer incentive and recording of savings (e.g. proof of purchase receipt review) and eligible equipment review. Additionally, customer account and customer address are checked to ensure the Company does not double pay for the same measure or double count measure savings.

- Central air conditioners
- Clothes washers
- Evaporative coolers
- Heat pump clothes dryers
- Hybrid clothes dryers
- Refrigerators (measure ended on August 25, 2019)
- Windows

No site inspections are conducted for the following measures, which are delivered via an upstream, manufacturer buy-down model. Promotion agreement contracts are signed with manufacturers and retailers to set incentive levels, final product prices, and limits to the total number of units that can be purchased per customer. Program Administrator verifies measures for product eligibility and correct pricing. Pricing is also verified by Program Administrator field visits to retail locations.

- LED bulbs
- Light fixtures
- Room air conditioners

Customer eligibility for Wattsmart Starter Kits is verified using the customer's account number and last name and cross-verifying with the current customer database.

Wattsmart Business

Lighting projects

- Retrofits - 100 percent post-site inspections by program administrator of all projects with incentives over a specified dollar amount. Project cost documentation reviewed for all projects.
- New construction - 100 percent post-installation site inspections by program administrator of all projects with incentives over a specified dollar amount.
- A percent of post-site inspections by program administrator of projects with incentives under a specified dollar amount.
- Small Business Lighting - Post-site inspections by program administrator for a minimum of a specified percentage of projects.
- Midmarket/Instant Incentive - Third party program administrator will conduct regular spot checks on a sampling of approved projects after incentive processing. Inspections will include both phone and on-site inspections. All projects with customer incentives over a specified incentive threshold will receive an on-site inspection. A minimum percent of all remaining projects will be selected for phone inspections or on-site inspections.

Non-lighting projects (typical upgrades where savings reported based on Unit Energy Savings values)

- 100 percent of applications with incentives that exceeds a specified amount will be post-inspected, either in person or via telephone interview, by program administrator.
- A minimum of a specified percent of remaining non-lighting applications will be post-inspected, either in person or via telephone interview, by program administrator.

Non-lighting projects (typical upgrades/listed measures where savings is determined using a simplified analysis tool)

- 100 percent of applications with savings that exceeds a specified amount will be inspected, either in person or via telephone interview, by program administrator.
- A minimum of a specified percent of remaining non-lighting applications will be inspected, either in person or via telephone interview, by program administrator.

Non-lighting projects (custom measures)

- 100 percent pre/post-installation inspections, invoice reconciled to inspection results. On-site pre/post inspections are required for projects with savings over a specified threshold. For projects with savings below the threshold, inspection information may be collected by phone or email.
- No pre-inspection for new construction.
- Inspections are conducted by third party energy engineering firms for the in-house project manager/consultant delivery channel.

- Inspections are conducted by program administrator for projects delivered by outsourced program delivery teams.



Appendix 2

Home Energy Savings Retailers

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Table 1¹
Participating Upstream/Midstream Lighting Retailers and Redemptions

The Company worked with nine lighting retailers in 2019 to promote efficient lighting. Table 1 lists the retailer and the type of redemption(s) provided.

| Retailer | City | State | LEDs | Fixtures |
|--------------------------------|---------------|--------------|-------------|-----------------|
| Ace Hardware #1134 | Mt Shasta | CA | x | x |
| Ace Hardware #7646 | Crescent City | CA | x | x |
| Ace Hardware #8207 | Yreka | CA | x | x |
| Eller's Fort Dick Market | Crescent City | CA | x | |
| Home Depot #8524 | Crescent City | CA | x | x |
| True Value Hardware - Dunsmuir | Dunsmuir | CA | x | |
| Wal-Mart #1630 | Yreka | CA | x | x |
| Wal-Mart #1910 | Crescent City | CA | x | x |
| Solano's Home Improvement | Weed | CA | x | |

Table 2
Participating Upstream/Midstream Retailers and Redemptions

Table 2 provides the list of 2019 participating Upstream/Midstream retailers and the product types that were redeemed at each location.

| Retailer | City | State | Room Air Conditioners |
|---|-------------|--------------|------------------------------|
| There were no participating upstream/midstream retailers in 2019. | | | |

¹ To be considered as a participating retailer for discounted lighting products, the retailer's sales coming from Pacific Power customers must be a significant majority of their total sales.

**Table 3
Downstream Retailers**

One participating retailer provided redemptions for downstream clothes washers, heat pump water heaters, attic insulation, and wall insulation.

| Participating Retailers (Retailers who are actively enrolled in the program) | City | State | Clothes Washer | Clothes Dryer | Evaporative Cooler - Tier 2 | Heat Pump Water Heater, Self-installed | Insulation-Attic | Insulation-Wall |
|---|---------------|-------|----------------|---------------|-----------------------------|--|------------------|-----------------|
| Home Depot #8524 | Crescent City | CA | x | | | x | x | x |

**Table 4
HVAC Trade Ally**

The Company worked with 17 HVAC Trade Allies in 2019. Some Trade Allies are located outside Pacific Power’s service territory. However, the customer resides with the service territory. Thirteen HVAC Trade Allies submitted projects in 2019.

| Trade Ally (Trade ally may be located outside of the territory) | City | State | Electric System to Heat Pump Conversion - Tier 1 | Electric System to Heat Pump Conversion - Tier 2 | Evaporative Cooler - Tier 2 | Heat Pump to Heat Pump Upgrade - Tier 1 | Heat Pump to Heat Pump Upgrade - Tier 2 | Heat Pump, Multi-Head, Ductless | Heat Pump, Single-Head, Ductless | New Homes Ductless Heat Pump |
|--|---------------|-------|--|--|-----------------------------|---|---|---------------------------------|----------------------------------|------------------------------|
| All Trade Services | Mount Shasta | CA | | | | | | x | x | |
| Chimney Kraft | Crescent City | CA | x | | | | | | x | x |
| Coastal Heating & Air Conditioning | Brookings | OR | | | | | | x | x | |
| Downey Heating & Cooling | Fort Jones | CA | | x | | | x | x | x | |
| Dressler Heating and AC | Yreka | CA | | | | | | x | x | |
| First Service Plumbing and Heating LLC | Crescent City | CA | | | | x | | x | | |
| Frank's Heating and Refrigeration | Crescent City | CA | x | x | | | | x | x | |
| Harbor View Windows Heating and Air | Brookings | OR | | | | | | x | | |
| Mike Brown Heating and AC | Yreka | CA | | | | | x | | | |
| Moore Heating & Air | Crescent City | CA | x | | | | | x | x | |
| Mountain Air Heating & Cooling Inc. | Yreka | CA | | | | | | x | x | |
| Ray-Mac Mechanical, Inc. | Mount Shasta | CA | | | | | | x | x | |
| SVM Plumbing, Heating & Air | Yreka | CA | | | | | | x | x | |

Table 5
Plumbing Trade Ally

The Company worked with 13 plumbing Trade Allies in to promote efficient plumbing technologies 2019. Table 5 lists one plumbing Trade Ally that submitted projects in 2019.

| Trade Ally Name (Trade ally may be located outside of the territory) | City | State | Heat Pump Water Heaters |
|---|--------------|-------|----------------------------|
| All Trade Services | Mount Shasta | CA | x |

Table 6
Weatherization Trade Ally

In 2019, the Company worked with three weatherization Trade Allies to promote efficient weatherization. Table 6 lists one weatherization Trade Allies who completed weatherization projects in 2019. Some Trade Allies are located outside Pacific Power’s service territory, however, the customer resides with the service territory.

| Trade Ally Name (Trade Ally may be located outside of the territory) | City | State | Insulation-Attic | Insulation-Wall | Duct Sealing |
|---|-------------|-------|------------------|-----------------|--------------|
| Indoor Airman | Grants Pass | OR | | | x |

Table 7
Applications by Customer City and Measure Category

| Customer City | % of All Applications | % of Appliance Applications | % of HVAC Applications | % of Manufactured Homes Applications | % of Kits Applications |
|---------------|-----------------------|-----------------------------|------------------------|--------------------------------------|------------------------|
| ALTURAS | 4.39% | 13.33 % | 0.00% | 0.00% | 6.44% |
| CALLAHAN | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| CASTELLA | 0.47% | 0.00% | 0.00% | 0.00% | 0.74% |
| CEDARVILLE | 0.16% | 0.00% | 0.00% | 0.00% | 0.25% |
| Crescent City | 27.12% | 20.00% | 32.99% | 10.00% | 25.00% |
| DORRIS | 1.41% | 0.00% | 0.00% | 0.00% | 2.23% |
| DUNSMUIR | 2.51% | 0.00% | 2.06% | 0.00% | 2.97% |
| ETNA | 3.13% | 0.00% | 5.15% | 0.00% | 3.22% |
| FORT DICK | 0.47% | 0.00% | 0.00% | 0.00% | 0.74% |
| FORT JONES | 2.98% | 0.00% | 4.64% | 0.00% | 2.48% |
| GASQUET | 2.98% | 6.67% | 6.19% | 10.00% | 1.49% |
| GAZELLE | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| GREENVIEW | 0.94% | 13.33% | 1.03% | 0.00% | 0.50% |
| GRENADA | 0.63% | 0.00% | 0.00% | 0.00% | 0.74% |
| HAPPY CAMP | 0.78% | 0.00% | 0.70% | 0.00% | 1.24% |
| HORNBROOK | 1.88% | 0.00% | 0.52% | 0.00% | 2.48% |
| HORSE CREEK | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| KLAMATH | 0.63% | 0.00% | 0.00% | 0.00% | 0.99% |
| KLAMATH RIVER | 0.31% | 0.00% | 0.00% | 0.00% | 0.50% |
| LAKEHEAD | 0.16% | 0.00% | 0.00% | 0.00% | 0.25% |
| MACDOEL | 0.47% | 0.00% | 0.00% | 0.00% | 0.74% |
| MCCLOUD | 1.25% | 0.00% | 0.00% | 0.00% | 1.98% |
| MONTAGUE | 5.64% | 6.67% | 6.70% | 0.00% | 5.45% |
| MOUNT SHASTA | 8.93% | 13.33% | 3.09% | 0.00% | 11.63% |
| SCOTT BAR | 0.16% | 0.00% | 0.00% | 0.00% | 0.25% |
| SEIAD VALLEY | 0.16% | 0.00% | 0.00% | 0.00% | 0.25% |
| SMITH RIVER | 3.13% | 13.33% | 5.15% | 0.00% | 0.99% |
| TULELAKE | 1.72% | 0.00% | 0.00% | 0.00% | 2.72% |
| Weed | 6.90% | 0.00% | 2.58% | 0.00% | 9.65% |
| YREKA | 20.69% | 13.33% | 31.44% | 80.00% | 14.11% |



Appendix 3

Wattsmart Business Vendors

Wattsmart Business Vendor List

Current as of 1/30/2019



Website: <https://www.pacificpower.net/savings-energy-choices.html>

Search at Thu Jan 30 2020 2:25:59 PM

Search Criteria:

Sector: Business
Specialties: Appliances, Building envelope, Compressed air, Controls - HVAC, Controls - Lighting, Farm and dairy, Food service, HVAC - evaporative, HVAC - unitary, Irrigation, Lighting, Lighting instant incentives, Motors and VFDs, Office equipment, Other Specialty, Small business lighting

Company Name:
Address, City or Zip Code:
Radius: 0
Business Types: ""
Service Locations: ["a0R2E00000JR8hUUAT"]

Search Result: 18 record(s) found

The following is a list of contractors, distributors, manufacturers and other vendors participating in Pacific Power's Wattsmart® Vendor Network displayed in random order (unless sorted by the user) based on the search criteria selected. This listing is provided solely as a convenience to our customers. Pacific Power does not warrant or guarantee the work performed by these participating vendors. You are solely responsible for any contract with a participating vendor and the performance of any vendor you have chosen.

| # | Name | Contact | Specialties |
|---|--|--|--|
| 1 | McCombs Electric Inc. 285 Baldpate Drive Alturas, CA 96101 | Dane McCombs (530) 640-0067 dam24@frontiemet.net | Controls - Lighting Irrigation Lighting contractor Motors and VFDs Small business lighting |
| 2 | All Trade Services, Inc. 614 South Mount Shasta Blvd Mount Shasta, CA 96067 http://www.alltradeservices.com | Jake Pritchard (530) 918-5547 admin@alltradeservices.com | HVAC HVAC - evaporative HVAC - unitary Lighting Lighting contractor New Construction Other Specialty Plumbing Small business lighting |
| 3 | LED SUPPLY CO 12340 W Cedar Dr Lakewood, CO 80228 https://www.ledsupplyco.com/ | Ian Skolnick orders@ledsupplyco.com | Lighting contractor Lighting instant incentives |
| 4 | American Wholesale Lighting 1725 Rutan Dr Livermore, CA 94551 http://www.awlighting.com | Rianto Lie (510) 252-1088 rlie@awlighting.com | Lighting contractor Lighting instant incentives |
| 5 | Leidos Engineering, LLC. 301 Plainfield Rd. Suite 310 Syracuse, NY 13212 https://energy.leidos.com/ | Christopher Piechuta (855) 926-7543 amplify@leidos.com | Appliances Compressed air Controls - Lighting Food service HVAC - evaporative HVAC - unitary Lighting contractor Motors and VFDs Office equipment Other Specialty |
| 6 | Dressler Heating and AC | Warren Dressler | Controls - HVAC |

| # | Name | Contact | Specialties |
|----|--|--|--|
| | PO Box 436 Yreka, CA 96067 | (530) 459-3962 bajadressler@yahoo.com | HVAC HVAC - evaporative HVAC - unitary Plumbing |
| 7 | ngi 5409 south bank rd crescent city, CA 95531 | neal neal goodman (707) 954-7247 ngi.light@yahoo.com | Lighting contractor Lighting instant incentives Small business lighting |
| 8 | Mint LED 1045 Andover Park East Seattle, WA 98188 http://www.mintled.com | Justin Canter (509) 954-7498 justin@mintled.com | Controls - HVAC Controls - Lighting HVAC - evaporative HVAC - unitary Lighting contractor Motors and VFDs |
| 9 | Big Dog Electric PO Box 535 Alturas, CA 96101 | Aaron Teuscher (530) 640-1915 bigdodgelectric2017@gmail.com | Lighting Lighting contractor Lighting instant incentives Small business lighting |
| 10 | Transformative Wave 1012 Central Ave S Kent, WA 98032 http://transformativewave.com/ | Joe Schmutzler (253) 867-2333 joe.s@twavetech.com | Controls - HVAC HVAC - unitary Motors and VFDs |
| 11 | Ray-Mac Mechanical, Inc. 901 N Mt. Shasta Blvd Mt. Shasta, CA 96067 http://raymacmechanical.com | David McDowell (530) 926-5228 dmcdowell@raymacmechanical.com | Controls - HVAC HVAC HVAC - evaporative HVAC - unitary Plumbing |
| 12 | Online Store, LLC 1000 Westinghouse Drive STE 1 New Stanton, PA 15672 http://www.Lightup.com | Kerry H (724) 925-5645 keary.hoffman@onlinestores.com | Lighting contractor Lighting instant incentives |
| 13 | eledlights | Landon Landon | Lighting contractor |

| # | Name | Contact | Specialties |
|----|--|---|--|
| | 7835 Wilkerson Court San Diego, CA 92111 https://www.eledlights.com/ | (215) 607-6830 lights@eledlights.com | Lighting instant incentives |
| 14 | Bulbs 243 Stafford St Worcester, MA 1603 https://www.bulbs.com/contactus.aspx | Bulbs Bulbs customerservice@bulbs.com | Lighting contractor Lighting instant incentives |
| 15 | BidEnergy Inc. 1628 JFK Blvd, Ste 2100 Philadelphia, PA 19103 http://bidenergy.com | Timothy Mayo (215) 732-4480 tim.mayo@bidenergy.com | Appliances Building envelope Controls - Lighting Food service HVAC - evaporative HVAC - unitary Lighting contractor Motors and VFDs Office equipment |
| 16 | EMC 2890 Vicksburg Lane N Plymouth, MN 55447 | Jolene Fenn-Jensen (952) 542-7968 aaron@rebatebus.com | Lighting contractor Other Specialty |
| 17 | ShineRetrofits 1550 Larimer St Denver, CO 80202 https://www.shineretrofits.com/ | Shine Retrofits (877) 643-4534 sales@shineretrofits.com | Lighting contractor Lighting instant incentives |
| 18 | LED Concepts, USA 2936 Churn Creek Road Redding, CA 96002 http://www.ledconceptsusa.com | Jeff Dennis (530) 708-0220 jeff@ledconceptsusa.com | Lighting contractor Lighting instant incentives Small Business Lighting |



Appendix 4

California Cost Effectiveness

Memorandum

To: Nicole Karpavich and Alesha Pino, PacifiCorp
From: David Basak, Navigant
Date: March 2, 2020
Re: Cost-Effectiveness Results for the Portfolio and Sector Level - California

Navigant estimated the cost-effectiveness for the overall energy efficiency portfolio and component sectors, based on 2019 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall energy efficiency portfolio and the two sector components. The portfolio passes the cost-effectiveness for all cost tests except the RIM test. The memo consists of the following tables.

Table 1 - Utility Inputs
Table 2 – Portfolio Level Costs 2019
Table 3 - Benefit/Cost Ratios by Portfolio Type
Table 4 – 2019 Total Portfolio Cost-Effectiveness Results
Table 5 – 2019 C&I Energy Efficiency Portfolio Cost-Effectiveness Results
Table 6 – 2019 Residential Energy Efficiency Portfolio Cost-Effectiveness Results

Table 1 - Utility Inputs

| Parameter | Value |
|---|-------------|
| Discount Rate | 6.57% |
| Residential Line Loss | 11.43% |
| Commercial Line Loss | 11.14% |
| Industrial Line Loss | 9.92% |
| Irrigation Line Loss | 11.43% |
| Residential Energy Rate ¹ (\$/kWh) | \$0.1285 |
| Commercial Energy Rate ¹ (\$/kWh) | \$0.1492 |
| Industrial Energy Rate ¹ (\$/kWh) | \$0.1123 |
| Irrigation Energy Rate ¹ (\$/kWh) | \$0.1526 |
| Energy-to-Capacity Conversion Factor | 0.000174387 |
| Inflation Rate | 2.20% |

¹ Future rates determined using a 2.20% annual escalator.

Table 2 – Portfolio Level Costs 2019

| Portfolio Level Expense | Cost |
|-------------------------|------------------|
| Portfolio - EM&V | \$75,327 |
| Portfolio - DSM Central | \$71,745 |
| Portfolio - TRL | \$4,658 |
| Total Costs | \$151,729 |

Table 3 - Benefit/Cost Ratios by Portfolio Type

| Program Year | PTRC | TRC | UCT | RIM | PCT |
|----------------------|------|------|------|------|------|
| Total Portfolio | 1.75 | 1.59 | 2.61 | 0.54 | 3.70 |
| C&I Programs | 2.18 | 1.98 | 3.65 | 0.57 | 4.29 |
| Residential Programs | 0.61 | 0.55 | 0.72 | 0.37 | 1.72 |

Table 4 – 2019 Total Portfolio Cost-Effectiveness Results

| Cost-Effectiveness Test | Levelized \$/kWh | Levelized \$/kW | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|--|------------------|-----------------|--------------|--------------|----------------|--------------------|
| Total Resource Cost Test (PTRC) + Conservation Adder | \$0.0673 | \$385.75 | \$3,801,453 | \$6,657,841 | \$2,856,388 | 1.75 |
| Total Resource Cost Test (TRC) No Adder | \$0.0673 | \$385.75 | \$3,801,453 | \$6,052,583 | \$2,251,130 | 1.59 |
| Utility Cost Test (UCT) | \$0.0411 | \$235.69 | \$2,322,691 | \$6,052,583 | \$3,729,892 | 2.61 |
| Rate Impact Test (RIM) | | | \$11,182,850 | \$6,052,583 | -\$5,130,267 | 0.54 |
| Participant Cost Test (PCT) | | | \$3,098,092 | \$11,457,453 | \$8,359,360 | 3.70 |
| Lifecycle Revenue Impacts (\$/kWh) | | | | | \$0.0000250438 | |
| Discounted Participant Payback (years) | | | | | | 2.51 |

Table 5 – 2019 C&I Energy Efficiency Portfolio Cost-Effectiveness Results

| Cost-Effectiveness Test | Levelized \$/kWh | Levelized \$/kW | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|--|------------------|-----------------|-------------|--------------|----------------|--------------------|
| Total Resource Cost Test (PTRC) + Conservation Adder | \$0.0541 | \$310.00 | \$2,822,481 | \$6,154,860 | \$3,332,379 | 2.18 |
| Total Resource Cost Test (TRC) No Adder | \$0.0541 | \$310.00 | \$2,822,481 | \$5,595,327 | \$2,772,846 | 1.98 |
| Utility Cost Test (UCT) | \$0.0293 | \$168.22 | \$1,531,637 | \$5,595,327 | \$4,063,690 | 3.65 |
| Rate Impact Test (RIM) | | | \$9,799,107 | \$5,595,327 | -\$4,203,780 | 0.57 |
| Participant Cost Test (PCT) | | | \$2,381,330 | \$10,222,891 | \$7,841,561 | 4.29 |
| Lifecycle Revenue Impacts (\$/kWh) | | | | | \$0.0000508510 | |
| Discounted Participant Payback (years) | | | | | | 2.03 |

Table 6 – 2019 Residential Energy Efficiency Portfolio Cost-Effectiveness Results

| Cost-Effectiveness Test | Levelized \$/kWh | Levelized \$/kW | Costs | Benefits | Net Benefits | Benefit/Cost Ratio |
|--|------------------|-----------------|-------------|-------------|----------------|--------------------|
| Total Resource Cost Test (PTRC) + Conservation Adder | \$0.1924 | \$1,103.10 | \$827,243 | \$502,981 | -\$324,262 | 0.61 |
| Total Resource Cost Test (TRC) No Adder | \$0.1924 | \$1,103.10 | \$827,243 | \$457,255 | -\$369,987 | 0.55 |
| Utility Cost Test (UCT) | \$0.1487 | \$852.52 | \$639,325 | \$457,255 | -\$182,069 | 0.72 |
| Rate Impact Test (RIM) | | | \$1,232,013 | \$457,255 | -\$774,758 | 0.37 |
| Participant Cost Test (PCT) | | | \$716,762 | \$1,234,561 | \$517,799 | 1.72 |
| Lifecycle Revenue Impacts (\$/kWh) | | | | | \$0.0000063410 | |
| Discounted Participant Payback (years) | | | | | | 10.91 |