2019 Annual Report to the Oregon Public Utility Commission & Energy Trust Board of Directors

ENERGY TRUST OF OREGON
APRIL 15, 2020

UPDATED NOVEMBER 30, 2022

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From the executive director

I hope this letter finds you healthy and in good spirits during these challenging times. Looking back on 2019, Energy Trust's activities and results demonstrate the continued value of energy efficiency and renewable energy for Oregon's residents, businesses and utilities, as well as for the state's economy and environment. Amid changing market conditions, our dynamic portfolio of offers supported community and customer goals, generated small business activity and helped the state meet its long-term energy and greenhouse gas reduction goals. We also met our annual goals for saving electricity and natural gas and far surpassed our goal for renewable energy generation, all while maintaining low costs and earning high customer satisfaction reviews.

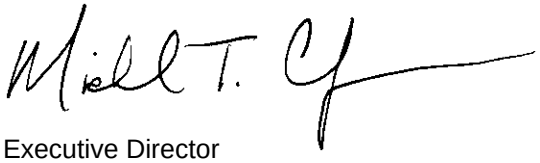
As we close the books on 2019, we are faced with uncertainty surrounding the COVID-19 pandemic, which has challenged modern life—from healthcare and business to education and civic institutions—on an unprecedented scale. As we assess the impact of the pandemic, we realize the benefits of our investments on behalf of utility customers are needed now more than ever. Energy efficiency and renewable energy help utility customers stretch their dollars further, keep costs down for businesses and improve the comfort of our homes. In a situation such as the one we find ourselves in today, these benefits are critical. To ensure they continue, we are exploring new approaches to helping customers adopt new energy saving technologies and strategies, and we are shifting our focus to low- and no-cost solutions to ensure people and businesses can continue to save energy, even during challenging economic times.

Our 2020-2024 Strategic Plan positions the organization to do just that, starting by developing new partners to reach low- and moderate-income households, rural Oregonians and communities of color. To support this work, Energy Trust has formed a Diversity Advisory Council and added a diversity, equity and inclusion leader to our senior management team. Our outreach efforts have already yielded new participants and uncovered valuable lessons that will inform this work for years to come.

Another focus area of the 2020-2024 Strategic Plan is making our dollars go further by partnering on projects that deliver benefits beyond energy saving and generation. This report highlights the power of that approach, starting with an innovative manufactured home replacement pilot that replaced 26 aging homes with energy-efficient models in 2019. The pilot, a collaboration with Oregon Housing and Community Services and many nonprofit partners, not only saves energy but transforms the lives of residents by giving them healthier, more comfortable living spaces. This and other co-funding opportunities show we can achieve more when we work together.

Thank you to all who contributed to our 2019 achievements, including all of our customers, the Oregon Public Utility Commission, Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas, Avista, Northwest Energy Efficiency Alliance, Oregon Department of Energy, Oregon Housing and Community Services, trade ally contractors, cities, counties, and community organizations. With your help, Energy Trust will continue working toward our vision of clean, affordable energy for everyone.

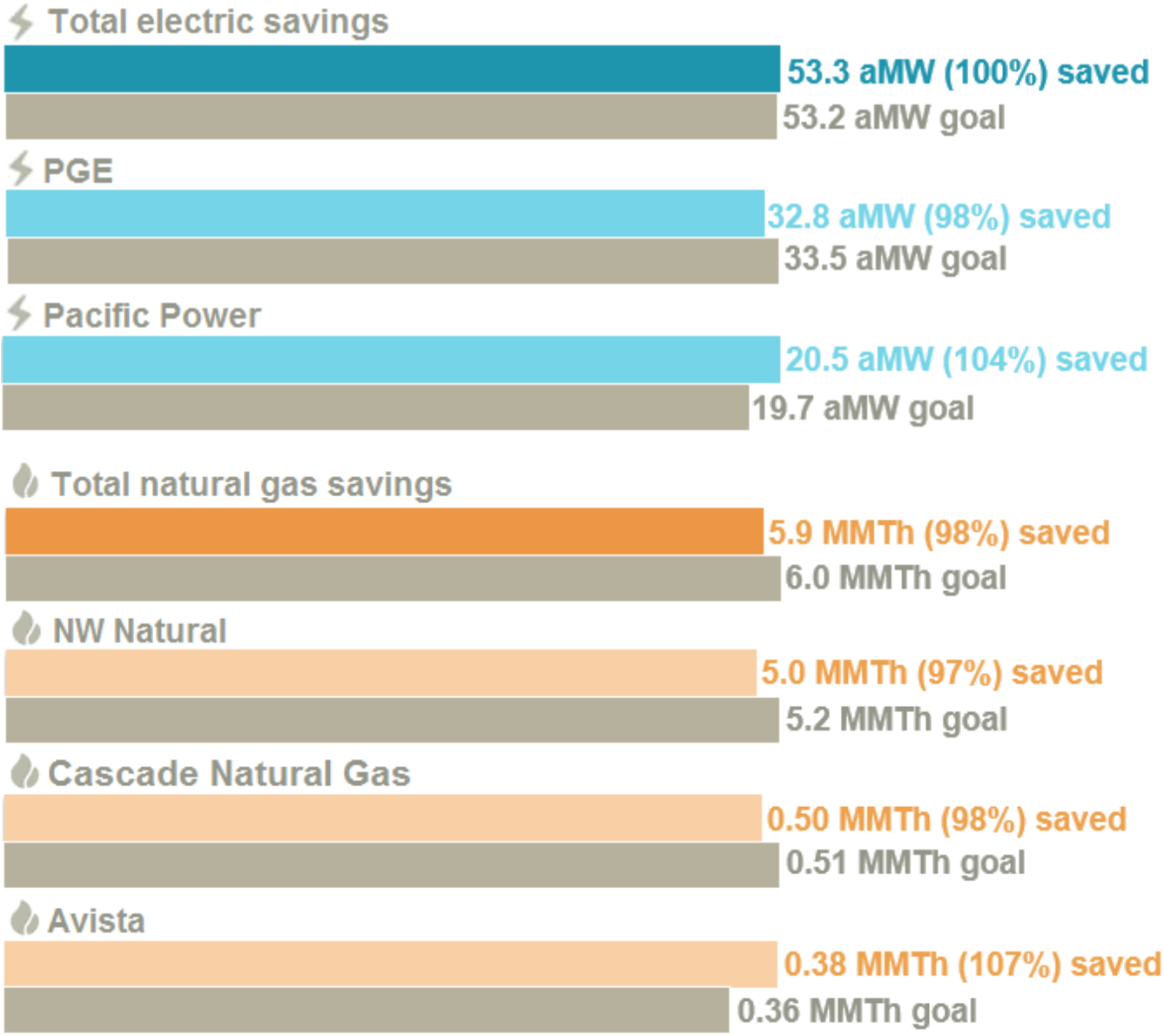
Michael Colgrove



Executive Director

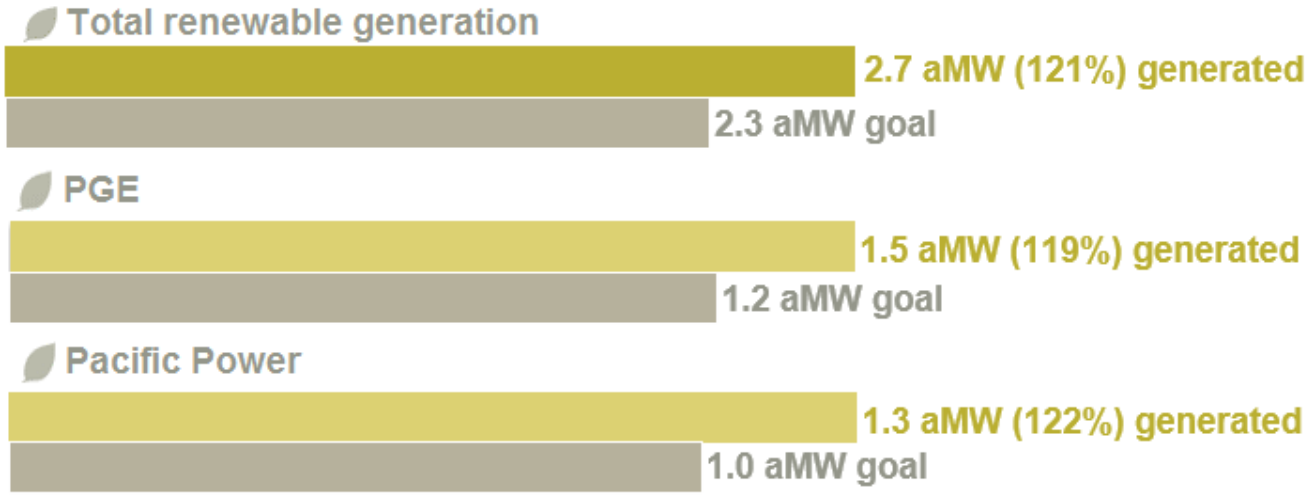
I Results at a glance[1,2]

Savings

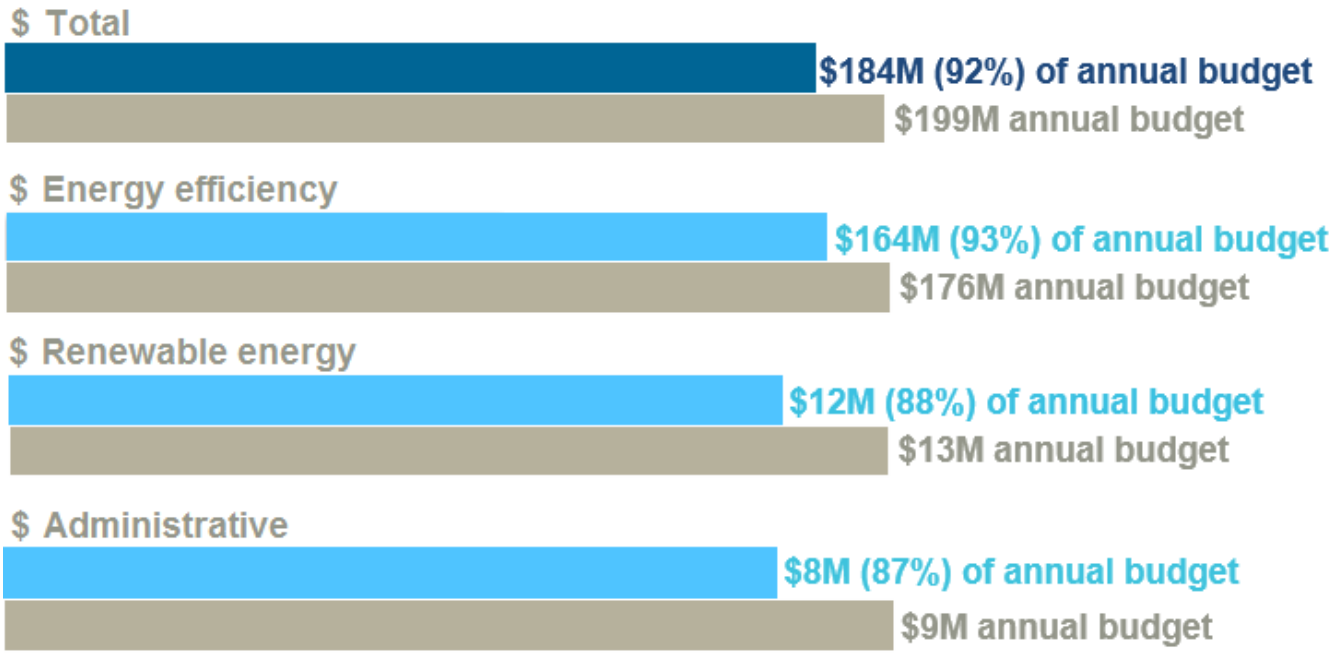


[1] This document reports net savings. Net savings are adjusted gross savings based on results of current and past evaluations. As determined in consultation with OPUC and stakeholders in 2019, Energy Trust will report savings in gross terms in 2020 and going forward.
[2] Note that aMW indicates average megawatts, MMTh indicates million therms and MM is million.

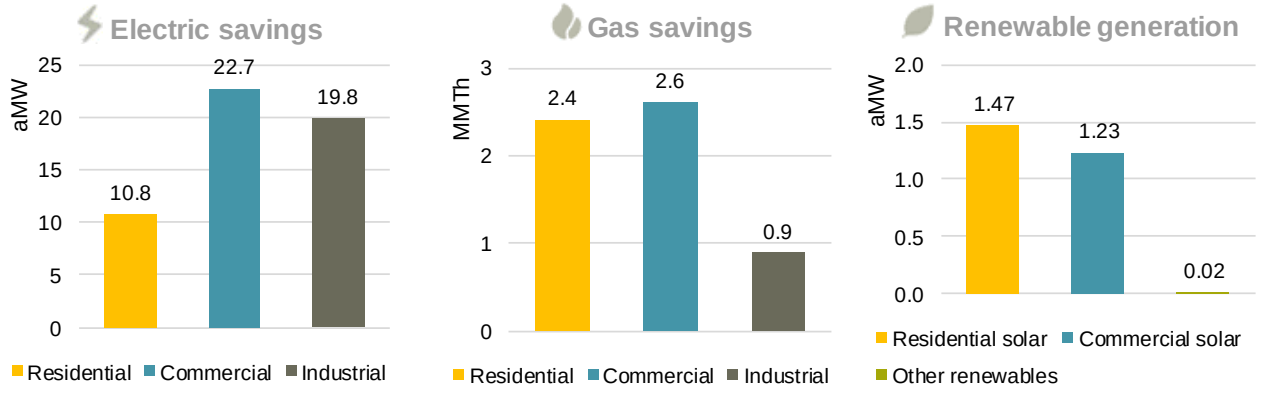
Generation



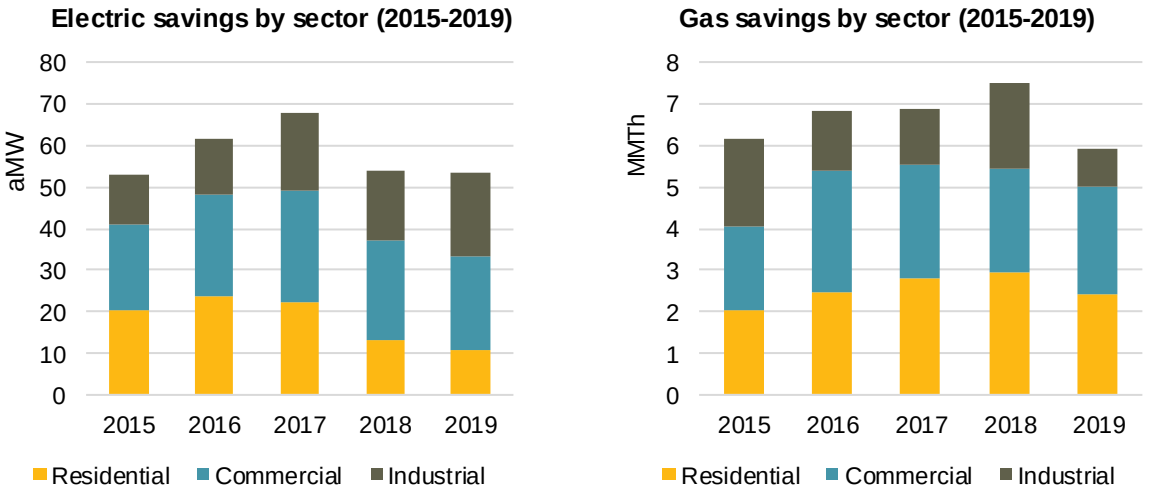
Expenditures

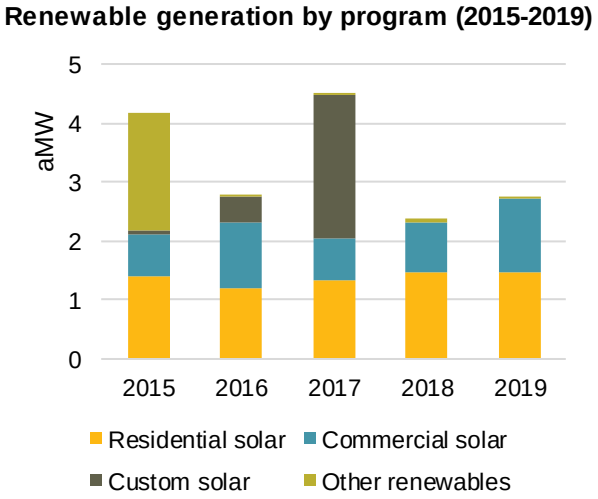


2019 savings and generation by sector

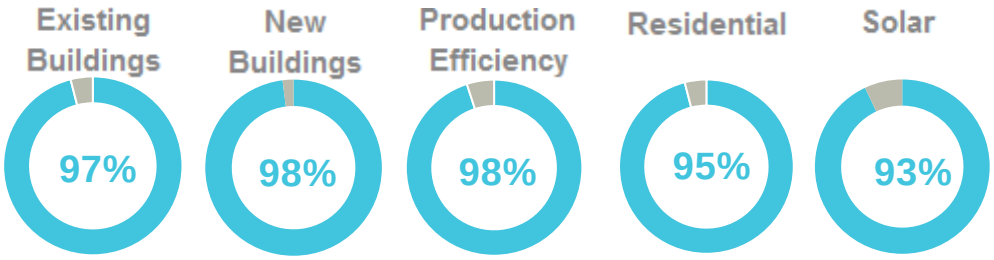


Savings and generation by sector over time

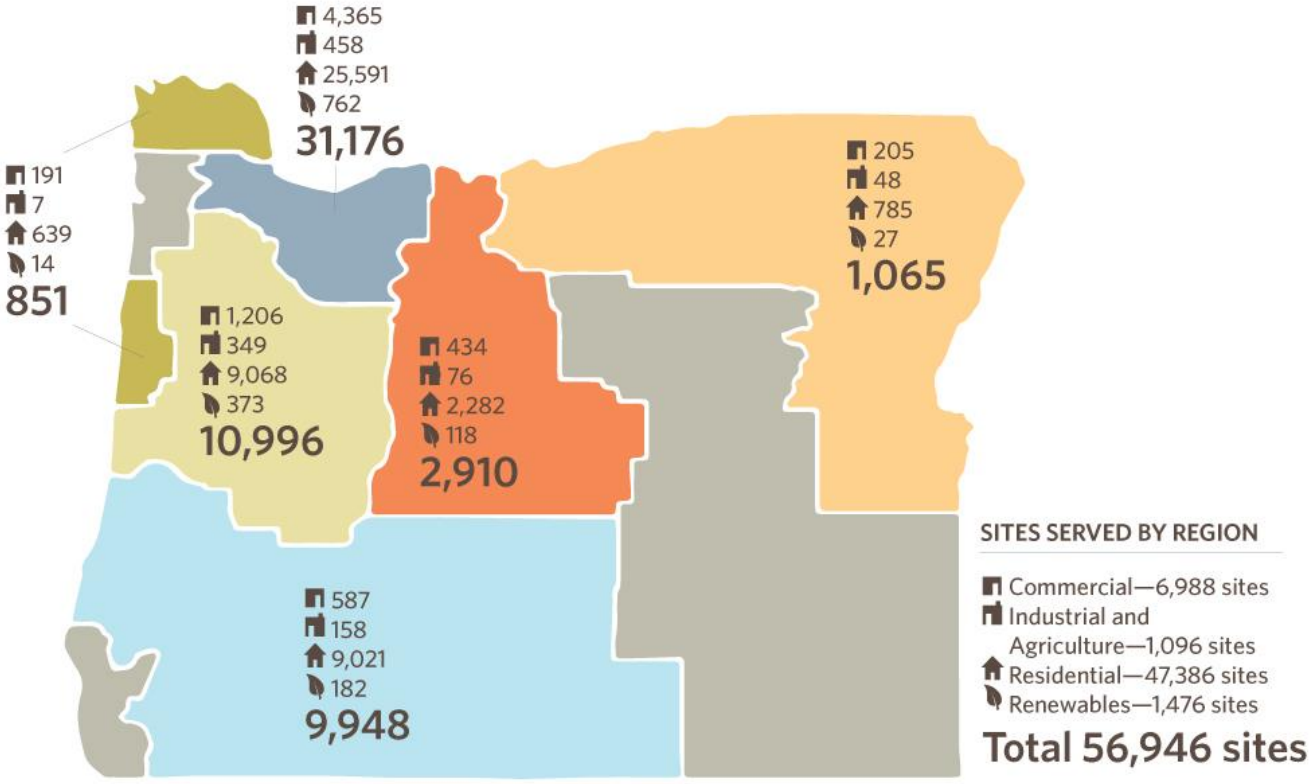




Customer satisfaction[3]



Sites served by region[4]



[3] Energy Trust surveyed 1,587 residential customers and 533 non-residential customers in Oregon who received an incentive or discount from Energy Trust in 2019. New Buildings survey results are based on 90 project owners or representatives surveyed in 2017 and 2018.
[4] This document reports on Energy Trust services to Oregon customers of Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas and Avista. Areas in gray are not served by these utilities.

II Executive summary

A. Annual results[5,6]

- **Energy Trust met its annual electric and natural gas savings goals (coming within the accepted range of +/- 5 percentage points) while sustaining low costs.**
    - Electric efficiency improvements completed in 2019 **saved 53.3 average megawatts** of electricity, about 1% more than the 2019 goal of 53.2 aMW, at a levelized cost[7] of 3.0 cents per kilowatt hour, a slight increase from 2018. Electric savings were bolstered by commercial and residential lighting, new construction and commercial and industrial Strategic Energy Management (SEM).
    - Natural gas efficiency improvements completed in 2019 **saved 5.9 million therms** of natural gas,[8] about 2% below the 2019 goal of 6.0 million therms, at a levelized cost of 39.0 cents per therm, up from 26.4 cents per therm in 2018. Fewer custom industrial projects than in previous years resulted in fewer than expected savings.
    - Energy Trust exceeded goals in Pacific Power and Avista territories and came within the accepted range in Portland General Electric, NW Natural and Cascade Natural Gas territories at 98%, 97% and 98%, respectively.
    - Market transformation through Northwest Energy Efficiency Alliance **resulted in 11%** of Energy Trust's electric savings and achieved 99% of Energy Trust's 2019 NEEA goal.
- **The renewable energy sector exceeded its annual renewable electric generation goal for both PGE and Pacific Power territories.**
    - Total renewable energy systems installed in 2019 will **generate 2.72 aMW** of electricity, 21% more than the 2019 goal.
- Savings and generation achieved in 2019 represent more than **300,000 tons of carbon dioxide** kept out of the atmosphere, the equivalent of removing 64,200 cars from Oregon roads for a year.
- **Energy Trust achieved every 2019 OPUC performance measure**, including:

53.3
AVERAGE MEGAWATTS SAVED

5.9
MILLION ANNUAL THERMS SAVED

2.72
AVERAGE MEGAWATTS GENERATED

300,000
TONS OF CO_2 AVOIDED

[5] This document reports net savings, which are adjusted gross savings based on results of current and past evaluations. As determined in consultation with OPUC and stakeholders in 2019, Energy Trust will report savings in gross terms in 2020 and going forward.
[6] This report includes the best available energy savings data as of the date of submission. Energy savings reported here for periods prior to January 1, 2018, may be different than previously reported as a result of applying updated evaluation factors to Energy Trust savings and generation in Oregon through the annual true up process. Previous true up reports are available online at www.energytrust.org/reports.
[7] Levelized cost is Energy Trust's total cost to save or generate each unit of energy over the life of the measure (which ranges from one to 20 years or more).
[8] Gas savings do not include NW Natural results in Washington. These results are available online at www.energytrust.org/reports.

- **Maintaining low administrative and program support costs** at 6.2% of annual revenue, below both the 2019 budget of 7.4% and the OPUC performance measure of 8%.
- **Keeping staffing costs at 7.2% on a three-year rolling average**, below the OPUC performance measure of 7.25% on a three-year rolling average.
- **Receiving consistently high customer satisfaction ratings** of 96% overall and 98% for interactions with program representatives.

96%
CUSTOMERS SATISFIED OVERALL

B. Notable activities and trends

- **Energy Trust's immediate response to low midyear savings forecasts resulted in meeting or exceeding savings goals in all utility territories at year end**. Successful efforts—including boiler bonuses for customers of all three gas utilities, lighting bonuses for commercial customers, increased gas incentives and lighting and custom bonuses for industrial customers, and promotions for residential heat pump water heaters, lighting purchased in stores, smart thermostats and Energy Saver Kits—**demonstrate how the Energy Trust portfolio can adapt to market conditions**.
- Energy Trust **served nearly 10,000 more residential sites** in 2019 compared with 2018. The increase was driven by thermostat installations, EPS new construction and distribution of Energy Saver Kits. Outreach efforts in Southern and Eastern Oregon also helped increase the number of residential sites served in those regions.
- The organization **launched several new offers to expand participation** and **promote new energy-saving approaches**:
  - **Savings Within Reach incentives were extended** to small multifamily customers and increased for residential customers to make efficiency improvements more affordable for moderate-income households.
  - The commercial sector launched **incentives for emergency generator block heaters and central air conditioning** for small multifamily properties and for Existing Buildings and Existing Multifamily customers who install efficient pool and spa equipment.
  - The industrial sector developed and launched incentives for **energy-efficient cannabis dehumidifiers and municipal water leak detection and repair**.
  - To **better serve small industrial customers**, the Production Efficiency program offered a simplified first-year SEM approach and streamlined the technical study process for custom projects.
- **Residential lighting purchased in stores continued to drive savings**, helped by a bonus starting in quarter three that supported shortfalls in other areas.
  - **Savings from residential lighting were expected to decline markedly in 2020** due to Energy Trust's success in helping

SERVED NEARLY 10,000 MORE RESIDENTIAL SITES

customers increase their adoption of LEDs and transform Oregon's residential lighting market.
    - **All eligible residential lighting offers will be offered in 2020** following the U.S. Department of Energy's delay in implementing lighting standards defined by the Energy Independence and Security Act of 2007, which called for phasing out inefficient bulbs.
- Energy Trust **increased participation in Eastern Oregon through an offer to install tubular LEDs (TLEDs) at small commercial and industrial businesses** at no cost to customers. This attracted 71 customers with significantly more expected to sign on in 2020. An accompanying public relations campaign to increase awareness of and participation in Energy Trust programs resulted in positive coverage about Energy Trust and its customers in Eastern Oregon media.
- **The commercial and industrial sectors completed a five-year lighting savings strategy** to mitigate future projected savings decreases as some lighting applications achieve market saturation. The strategy led to pilot projects—including one testing the effectiveness of smart lights to regulate lighting use—and will inform a 2020 bid process for a combined commercial and industrial lighting contract for 2021 delivery.
- Energy Trust expanded **efforts to make solar power more accessible for more Oregonians**, including offering larger incentives for low- and moderate-income households and awarding innovation grants to community-based organizations working on solar projects that will benefit underserved communities.
- The organization **engaged with more manufactured home parks as part of a pilot to replace aging, inefficient manufactured homes** with high-efficiency ones that improve the quality of life for residents and achieve energy savings. Energy Trust helped replace 26 homes in 2019, and staff participated in a "welcome home" event for residents at the Oak Leaf park in Portland's Cully neighborhood, the first complete community project under the pilot.
- The Existing Buildings program increased outreach to eligible school districts in 2019, resulting in 216 gas and electric projects spread across 55 districts. Staff worked with the Oregon Department of Energy and the OPUC to improve the process by which K-12 public schools receive both Energy Trust and ODOE funding, resulting in **more funding for schools, significantly reduced administrative costs for Energy Trust, ODOE and schools, and double the electric savings at qualifying districts**.
- **Energy Trust exceeded goals in its 2015-2019 Strategic Plan**. Through 2019, Energy Trust achieved 121% of the strategic plan's electric savings goal, 138% of the gas savings goal and 165% of the renewable energy generation goal. For more details, see Appendix 3.
- In accordance with the OPUC grant agreement, **Energy Trust completed its next five-year strategic plan.** Development of the 2020-2024 Strategic Plan involved revisiting the organization's vision and purpose statements and

OFFERED NO-COST LIGHTING UPGRADES FOR COMMERCIAL AND INDUSTRIAL CUSTOMERS

DOUBLED THE ELECTRIC SAVINGS AT QUALIFYING SCHOOL DISTRICTS

engaging with stakeholders and the public. Energy Trust received a robust number of comments on the draft plan, which staff referenced when revising the plan prior to its adoption by the board in October.

  - The plan positions the organization to **successfully navigate a dynamic market by concentrating on five areas**: meeting annual energy goals and serving all customers with a focus on underserved customers; supporting utilities as they evolve services to meet changing customer needs; informing policymakers and implementers; advancing investments that deliver multiple benefits; and adapting internal operations to respond to changing needs and opportunities.

EXPANDED OUTREACH ACROSS OREGON

- Staff began work on a **request for proposals (RFP) to rebid program management and delivery contracts** for Existing Buildings and Existing Multifamily programs and commercial and industrial lighting offers in 2020. Consolidating the RFP for these offerings will enable better alignment of program strategies starting in 2021 and improve administrative efficiencies across programs.
  - The RFP will build on **findings from an Existing Multifamily program assessment** that identified opportunities to serve customers while addressing cost-effectiveness challenges. A key outcome is that going forward, Existing Multifamily will no longer be a stand-alone program. **Multifamily customers will be served under the Existing Buildings program starting in 2021**.
- Staff developed a plan to implement targeted load management efforts in Cottage Grove and Creswell for NW Natural and in the Medford area (Phoenix) for Pacific Power. Targeted load management approaches aim to change how and when customers use energy, focusing on **reducing demand during periods of peak energy use and helping utilities avoid disruptive infrastructure upgrades**. In 2019, Energy Trust conducted interim process evaluations and added software capabilities to identify project sites.
  - Energy Trust staff worked with NW Natural planning and marketing staff to **define project goals and create resource assessment models** that establish a baseline for this work.
  - For Pacific Power, Energy Trust staff developed a **resource potential assessment and increased marketing efforts** in the area ahead of increasing incentives in 2020. Staff also worked with Pacific Power planning and marketing staff.
  - These efforts **build off lessons from Energy Trust's first targeted load management pilot** with Pacific Power, conducted in 2018 in the North Santiam Canyon area. The pilot increased participation in existing energy efficiency programs and achieved significant winter and summer electricity peak demand reductions in the targeted area.

TAPPED TO HELP LAUNCH OREGON COMMUNITY SOLAR PROGRAM

- Energy Trust **held its July board meeting in Pendleton** at the Confederated Tribes of the Umatilla Indian Reservation's Tamástslikt Cultural Institute. Board members and staff met representatives of the tribes and learned about work completed with Energy Trust's support. Board and staff

members also visited customers and hosted a community reception about Energy Trust's draft strategic plan. The meeting and reception received strong community engagement and positive coverage from several Eastern Oregon media outlets.

- Energy Trust was awarded a subcontract with Energy Solutions to **administer part of the Oregon Community Solar Program**. Energy Trust's role is to advise on program design and lead project certification, customer service and consumer protection activities.

C. Updates requested by the OPUC

This section provides information requested by the OPUC in comments on Energy Trust's 2019 budget and 2019-2020 action plan, plus other information requested by OPUC staff. Appendices 9 and 10 include more information on solar + storage systems.

COMPLETED A MULTIFAMILY PROGRAM ASSESSMENT

Residential and Existing Multifamily pilot and measure development, and Existing Multifamily program assessment activities:

- Staff completed an assessment of the Existing Multifamily program that **identified opportunities for improvements and expanding customer engagement and future offerings while addressing cost-effectiveness challenges**. In 2020, staff will leverage these findings to inform the rebid of contracted multifamily services, which will be folded into the Existing Buildings program contract. Existing Multifamily will no longer be a stand-alone program starting in 2021.
- Energy Trust finalized a framework and delivery model to **support co-funding of low-income energy-saving improvements** delivered by community action agencies. The model leverages funding from Oregon Housing and Community Services and was approved by the OPUC. This will position Energy Trust to help more low-income households save energy with services delivered by community action agencies that are best positioned to engage customers.
- **Energy Trust began co-funding weatherization upgrades with the community action agency serving Washington County** and completed 62 improvements in 26 homes in 2019, including installation of new energy-efficient windows, insulation, heating system upgrades and other HVAC improvements. This saved more than 109,000 kilowatt hours. Energy Trust contributed more than $90,000 in incentives.
- **The Savings Within Reach program, which offers larger incentives to moderate-income households, was extended to small multifamily customers**. Incentives were also added for central air conditioning for small multifamily properties and for Existing Multifamily customers installing efficient pool and spa equipment.
- **As energy efficiency standards for new home construction are raised, Energy Trust developed incentives** for net-zero homes that generate

DEVELOPED INCENTIVES FOR NEW NET ZERO HOMES

enough solar energy to offset their annual electricity use and for energy smart homes with appliances and equipment that interact with the grid.

Operational efficiencies focused on reducing transaction costs:

- Staff developed and launched 19 **automated online DocuSign workflows** in 2019 that allow customers to electronically sign and submit program applications, replacing or supplementing internal and customer-facing paper applications and approvals. Staff processed 701 transactions across all active DocuSign workflows. The average transaction completion time was 7.6 days in 2019, a **78% decrease from the pre-DocuSign average completion time of 33 days**.
- Staff added a **corrections function to software that tracks projects and savings to automate corrections** such as payment reversals, measure reversals and check reissues. This cuts down on staff time spent making corrections manually, improves tracking of corrections and will help prevent errors in the future by identifying and addressing common sources of errors. The streamlined process reduced staff time needed to process corrections by more than 60%, saving nearly 500 hours of staff time in its initial months of use.

CREATED A DIVERSITY ADVISORY COUNCIL

Diversity, equity and inclusion initiative progress:

- Energy Trust **launched a Diversity Advisory Council** with support from its foundational Diversity Advisory Council members. The council added its first five members, held two public meetings and began recruiting for six additional members. With some key differences reflected in its charter, the Diversity Advisory Council largely serves in a similar role as the Conservation Advisory Council and Renewable Energy Advisory Council, which bring together expert stakeholders to provide counsel and insight to the board and staff about topics key to Energy Trust's success.
- The organization **hired its first diversity, equity and inclusion lead, a full-time senior management position**, in quarter four. The diversity, equity and inclusion lead will liaise with the Diversity Advisory Council; manage the internal staff diversity, equity and inclusion committee; and help Energy Trust incorporate diversity, equity and inclusion considerations into all aspects of its work.
- **Details about progress toward diversity, equity and inclusion goals** are in Appendix 1: Progress toward diversity, equity and inclusion goals.

POSITIONED THE ORGANIZATION TO BETTER RESPOND TO CHANGE

Organizational development initiative activities:

- Staff began **implementing recommendations from a 2018 organizational review report on how to better serve customers and quickly respond to new opportunities** amid industry, technological and demographic changes.
  - A decision-making team was created and began testing more efficient and effective decision-making tools, while an innovation team was created to develop a systematic approach to generating and supporting new ideas.
  - Marketing staff and operations analysts who were previously embedded in programs were made into their own separate teams to better apply limited staff resources across the organization.

- The chief financial officer position was transitioned to a director of finance to better align the position with others in the nonprofit sector.
- Staff developed and rolled out updated organizational values that highlight transparency, collaboration and listening to all perspectives.
- A survey was created to monitor staff perception throughout this process and baseline survey results were gathered in 2019.

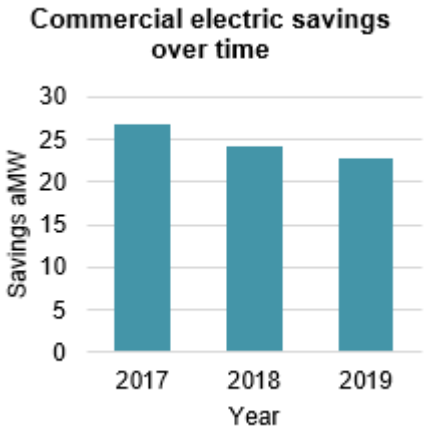
Budget tools implementation update:

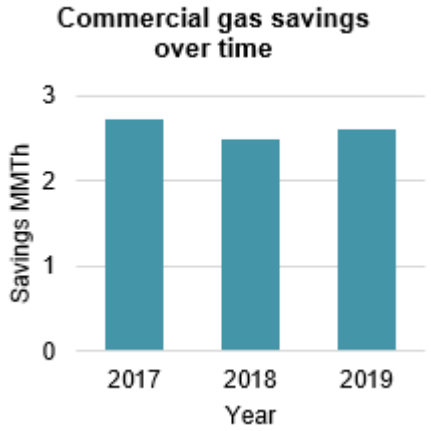
- Staff completed a competitive bid process and **selected a new budgeting software vendor**, Prophix, that will enable faster, more complex analysis and improve forecasting over a multiyear period. The software is expected to be ready in mid-2020 to be used in developing the 2021 budget.

III Program and operations activity

A. Commercial sector highlights

The commercial sector is comprised of three programs: Existing Buildings, Existing Multifamily and New Buildings, delivered by Program Management Contractors ICF International, TRC (formerly Lockheed Martin) and CLEAResult, respectively. The Existing Buildings program offers incentives for energy-efficient improvements in existing commercial buildings of all sizes. The Existing Multifamily program serves existing multifamily structures with two or more dwelling units, including market-rate housing, affordable housing, assisted living facilities, campus housing facilities, homeowners' associations and individual unit owners. The New Buildings program supports design and construction of high-performance commercial buildings and major renovations of all sizes and building types.





- The commercial sector **met its annual gas savings goal and came close to its annual electric savings goal**.
  - The sector met or exceeded goals for NW Natural and PGE territories fell short for Pacific Power, Cascade Natural Gas and Avista territories.
- **Electric savings were driven by** lighting projects, new construction in the multifamily, office and warehouse sectors and the performance of Strategic Energy Management (SEM) participants. Project delays due to labor shortages and tariffs accounted for the shortfall.
  - Fewer customers than expected completed standard Existing Buildings projects in PGE and Pacific Power territories. Increasing participation will be an area of focus in 2020.
- **Gas savings were driven by** custom projects and multifamily projects in NW Natural territory, while a large project delay accounted for the savings shortfall in Cascade Natural Gas territory.
- **Various market conditions made it more challenging for commercial customers to complete projects**, including higher construction costs, labor

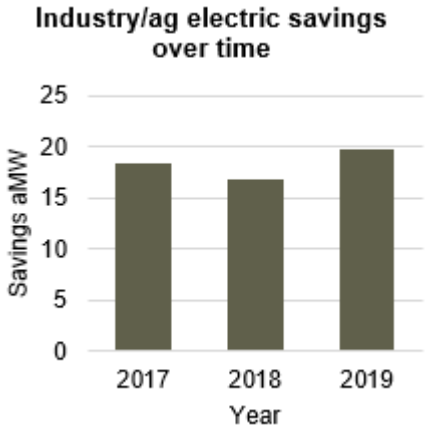
shortages and few remaining multifamily project opportunities following Energy Trust's success serving the existing multifamily market.

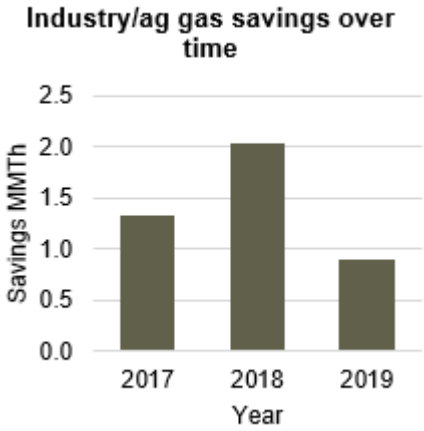
- **Staff initiated several efforts to drive savings above midyear forecasts**, including a gas boiler bonuses and lighting bonuses, both of which resulted in significant savings.
- Staff **developed new incentives to diversify savings sources** and expand participation across the sector:
    - Incentives for **emergency generator block heaters**, which serve as a backup generator to keep essential business operations running during a power outage, were offered to Existing Buildings, Existing Multifamily and Production Efficiency customers. Incentives are paid to distributors and retailers, passing the benefits on to both consumers and contractors to reduce barriers to participation and lower delivery costs.
    - Incentives for **central air conditioning** for small multifamily property owners and incentives for efficient pool and spa equipment were offered to Existing Buildings and Existing Multifamily customers.
- Existing Buildings updated several SEM energy savings models to reflect current building operations, which showed **significantly higher savings than previously modeled, particularly for customers who were the most engaged**. These sorts of modeling updates will happen more frequently going forward.
- Savings Within Reach, which are larger incentives for moderate-income households, was **extended to moderate-income multifamily rental property owners** for heat pumps, ductless heat pumps, heat pump water heaters and insulation.
- Energy Trust **increased outreach to Spanish-speaking customers** with the addition of native Spanish speakers for Existing Buildings outreach and the first New Buildings event offered in Spanish, a cross-program collaboration with other Energy Trust programs.
- New Buildings staff worked with the OPUC to understand potential changes to offerings and how savings and cost-effectiveness are calculated under **Oregon's new building code**, which took effect in October 2019.
- **Savings from NEEA activities comprised 7.4%** of the sector's 2019 results. Savings were from building code and equipment standards improvements, work with distributors and manufacturers to encourage stocking of efficient commercial lighting, efforts to support commissioning of new and existing commercial buildings and work on commercial desktop ENERGY STAR® specifications.

UPDATED ENERGY SAVINGS MODELS FOR SEM CUSTOMERS

B. Industry and agriculture sector highlights

Production Efficiency provides energy-efficiency solutions for all sizes and types of eligible industrial, agricultural, municipal water and wastewater customers. The program provides services and incentives through three primary delivery tracks: standard, custom and energy performance management. Production Efficiency is designed and managed in-house by Energy Trust staff and is delivered to customers through the support of Program Delivery Contractors and other market actors.





- The industrial sector **met its annual electric savings goal and fell short of its annual gas savings goal**.
    - The sector met or exceeded goals for Pacific Power, PGE, Cascade Natural and Avista territories. It fell short in NW Natural territory due to lower than expected custom savings.
- **Electric savings were driven by** strong performances in standard and Strategic Energy Management (SEM) offerings and by a megaproject (defined as a large commercial or industrial project receiving more than $500,000 in incentives) that ended the year above goal. The program had a healthy mix of projects contributing electric savings, with about a third coming from custom projects, a third from lighting and the rest from standard projects, SEM and the megaproject.
- **Gas savings were driven by increased outreach** in Central Oregon and increased gas incentives. While overall savings were down compared with 2018 due to the lack of a large custom project, the mix of savings was similar, with nearly two-thirds of savings coming from custom projects, a third from standard projects and the rest from SEM.
- **Bonuses for lighting and custom projects** starting in quarter three for PGE territory increased savings. Previous forecasts were down due to the tight construction labor market, increased equipment costs due to tariffs and fewer cannabis lighting projects due to the freeze in new Oregon Liquor Control Commission licenses.
- The sector **developed and launched new incentives for** municipal water leak detection and repair and cannabis dehumidifiers, which were promoted to customers who previously received cannabis lighting incentives.
- Production Efficiency offered a **streamlined technical study process for smaller custom projects**, helping to significantly reduce study costs and complete projects faster.
- **SEM savings exceeded goals in all territories** following Energy Trust's decision to move SEM services to the custom Program Delivery Contractor's portfolio.
    - Staff developed a **streamlined first-year SEM approach** and recruited cohorts on the North Coast and in Roseburg.
    - Staff **increased incentives and added a cohort workshop for continuous SEM participants**, who are graduates of first-year SEM

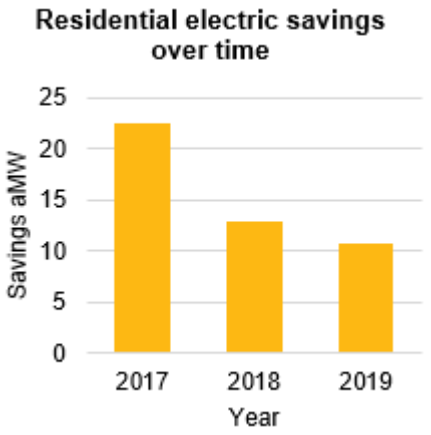
LAUNCHED MID-YEAR LIGHTING BONUSES THAT HELPED DRIVE SAVINGS

that receive ongoing support and performance-based incentives to further reduce energy waste.

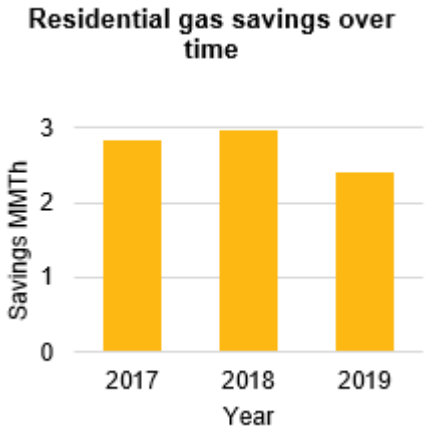
- As custom electric and gas savings become harder to attain following the completion of multiple projects with large industrial customers over many years, the **sector is positioning itself to better reach small customers**, including by offering larger incentives and streamlining its technical study process and SEM approach.
- **Savings from NEEA activities comprised 4%** of the sector's 2019 results in both PGE and Pacific Power territories. Savings were from NEEA's reduced wattage lamp replacement initiative, certification of refrigeration operators in the industrial refrigeration market and an initiative to improve awareness of and establish standards for efficient motors.

C. Residential sector highlights

Energy Trust's residential sector provides energy-efficiency solutions for residential customers of single-family homes, manufactured homes and newly constructed homes. The program is delivered through Program Management Contractor CLEAResult and through two Program Delivery Contractors supporting retail promotions and EPS new construction offerings. Incentives are available for smart thermostats, energy-efficient HVAC and water heating equipment, lighting, appliances, weatherization upgrades and whole home improvements in new construction. The program delivers these efficiency services through several key market channels.



- The residential sector **exceeded its annual electric savings goal and met its annual gas savings goal**.
  - The sector met or exceeded goals for all territories.
- **Electric savings were driven by** lighting purchased in stores, smart thermostats, new construction of energy-efficient homes, and Energy Saver Kits with LEDs, high-performance showerheads and faucet aerators that were promoted through targeted marketing to diverse residents based on their census tracks.
  - **Retail lighting continued to drive significant savings** and supported shortfalls in other areas, boosted by a promotion in quarter three.
- **Gas savings were driven by** new construction of highly efficient homes and related market transformation savings, as well as smart thermostats and Energy Saver Kits.
- **Savings from smart thermostats**—both the initial installation and ongoing optimization technology that adjusts temperatures based on customer preferences to save more energy—grew in 2019, significantly exceeding 2018 savings. Growth was supported by a thermostat optimization initiative that continues to drive gas and electric savings after installation, and by a no-cost thermostat installation offer for electric-heated homes and a low-cost



installation offer in gas-heated homes with air conditioning **in coordination with PGE's demand response efforts.**

- Energy Trust engaged builders to construct more highly efficient homes, with **more than a third of all new homes built in Energy Trust's service territory participating in EPS**, Energy Trust's energy performance scoring offer for new construction. This was an increase in market share compared with 2018 due to Energy Trust's work on recruitment and promoting familiarity among builders with Oregon's 2017 code changes.
    - **Gas and electric savings per home exceeded forecasts** due in part to more builders installing the highest efficiency gas and electric water heating equipment.
    - **EPS savings came at a slightly higher cost than forecasted due to more savings, and associated incentives**, achieved as builders built to higher standards above Oregon's 2017 code changes. This trend will inform forecasting for future years.
    - As home construction standards increased, Energy Trust developed **larger incentives to encourage net zero homes** (which generate enough solar energy to offset the home's annual electric load) and **energy smart homes** (which have appliances and equipment that interact with the grid, enabling participation in utility programs that lower energy use at peak times of the day). These offers were set to launch in 2020.
- Energy Trust transitioned most clothes washer incentives from a customer rebate to a retail rebate, which increased participation and lowered delivery costs. The transition makes **it easier for customers to access savings by getting discounts at participating retailers,** rather than applying online for a cash-back rebate after their purchase.
- A **new incentive for efficient clothes dryers** paid to customers in stores launched in quarter three.
- The program helped customers install more heat pump water heaters in 2019, supported by **larger incentives** and **direct-mail marketing** for customers identified as likely to install their own heater. Energy Trust also helped distributors become more familiar with these products.
- **Heating system gas and electric savings declined** in 2019. The greatest declines were from fewer installations of market-rate heat pumps, market-rate ductless heat pumps and gas furnaces under the Savings Within Reach program, which offers larger incentives to moderate-income households. Market analysis in 2020 will explore reasons for the slowdown.
    - The exception to this trend was **growth in fixed-price heat pump installations in manufactured homes and in rentals**. For fixed-price offers, Energy Trust provides an incentive to trade ally contractors who agree to offer equipment to customers at a reduced price even if the contractor's costs go up. This approached proved successful due to improved engagement with trade allies.

GREW SAVINGS FROM SMART THERMOSTATS

MADE HOME APPLIANCE INCENTIVES EASIER TO REDEEM

- The residential sector developed a **new incentive for central air conditioners in collaboration with utilities and trade allies** that launched in quarter three. Air conditioners now qualify for Energy Trust incentives due to the increasing value of energy savings during the cooling season.
- Staff launched an **extended capacity heat pump pilot in quarter one** to evaluate potential savings and cost-effectiveness, along with a residential Pay for Performance **pilot in quarter two to evaluate a strategy of paying customers larger incentives for achieving higher than average savings**.
- Energy Trust supported Portland nonprofit Community Energy Project to install **100 smart thermostats and 30 heat pump water heaters** at no cost to low- and moderate-income customers and provide 56 no-cost Home Energy Score audits at income-qualified homes in the Portland area. This is the second year the residential sector contracted with Community Energy Project to provide services to underserved customers.
- To drive participation in Eastern Oregon, Energy Trust **designated all customers in a lower-income part of Malheur County as eligible for the larger Savings Within Reach incentives**, resulting in more engagement with local trade allies. Energy Trust also increased heat pump marketing promotions in Pendleton and partnered with a local housing program in Sherman County.
- In 2019, Energy Trust's manufactured home replacement pilot **helped replace 26 aging manufactured homes with energy-efficient models that exceed code and provide energy savings**. Staff is engaged with manufactured home parks across the state, including Umpqua Ranch Cooperating near Glide, Newton Creek Manor in Roseburg, the Lucky 7 park on the Confederated Tribes of the Umatilla Indian Reservation, West-Side Pines Cooperative in Bend, Oak Leaf in Portland and Hazel Glen Court in Independence.
- **Savings from NEEA activities comprised 29%** of the sector's 2019 results in both PGE and Pacific Power territories. Savings were primarily from residential building code improvements, ductless heat pumps, heat pump water heaters and superefficient dryers.

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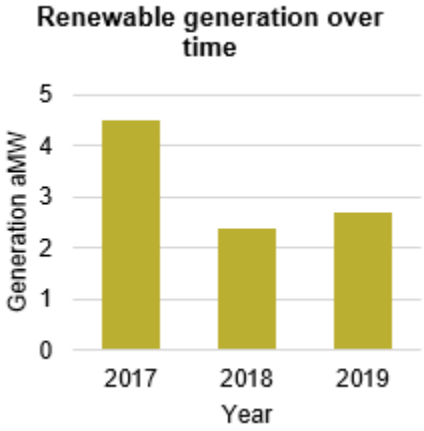
INEFFICIENT MANUFACTURED HOMES REPLACED

D. Renewable energy sector highlights

The renewable energy sector is comprised of two programs delivered in-house by Energy Trust staff: Solar and Other Renewables. The Solar program offers standard incentives for smaller-scale distributed systems for residential, business, public sector and nonprofit customers. In 2019, the program focused on improving equitable access to solar for lower-income customers and expanding innovative applications of solar that provide greater value to communities or the grid. The Other Renewables program supports renewable energy projects up to 20 megawatts in nameplate capacity that generate electricity using biopower, geothermal, hydropower and community-scale, municipally-owned wind technologies. The goal of the program is to support a range of renewable energy technologies and improve market conditions for



their development by providing project development assistance incentives and installation incentives.

- The renewable energy sector **exceeded its generation goal as a result of more customers installing higher capacity systems**. Increasing efficiency of solar panels enabled customers to install bigger systems without significantly higher costs, leading to additional generation. This was helped by decreases in solar equipment costs and a recovering residential solar market following the expiration of the state's Residential Energy Tax Credit (RETC) in 2018.
- The **residential solar market has not yet fully recovered from the RETC expiration**. Installations were down substantially from 2018, when completions were driven by the expiration. Demand started to pick up midyear, particularly in PGE territory.
- On the commercial solar side, Energy Trust helped install 73 projects at commercial, public and nonprofit sites in PGE territory, **more than in any previous year**. Pacific Power projects also exceeded forecasts with 67 completed projects.
- Staff joined community leaders and officials from PGE and the City of Milwaukie to celebrate the installation a 400-kilowatt solar array spread across 13 buildings at the Waverly Greens Apartments, the **largest solar project at a multifamily housing complex in Oregon**. The project, which received financial support from Energy Trust, aligns with that city's clean energy goals.
- Energy Trust expanded **efforts to make solar more accessible to low- and moderate-income Oregonians** and build awareness around solar opportunities:
    - Energy Trust **launched Solar Within Reach**, a larger incentive for low- and moderate-income households, in quarter four. This offer was developed based on feedback from community-based organizations advising Energy Trust on how to reach underserved customers.
    - Energy Trust awarded eight $10,000 **solar innovation grants to community-based organizations to help them develop solar program models that directly benefit underserved communities**. Recipients include NeighborWorks Umpqua, a nonprofit housing provider in Southern Oregon; the nonprofit Wallowa Resources in rural Eastern Oregon; and the Portland-based African American Alliance for Homeownership. The program expects some of their ideas **could be replicable and scalable** in other communities.
- Energy Trust provided **55 solar development assistance incentives**. These help nonprofits, public entities, new buildings and other projects develop solar feasibility reports specific to their site. Nearly half of the projects also applied for funding through PGE's Renewable Development Fund or Pacific Power's Blue Sky℠ program.

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COMMERCIAL SOLAR PROJECTS INSTALLED

CONNECTED MORE UNDERSERVED HOUSEHOLDS WITH SOLAR

- The solar team **launched early design assistance incentives for new construction projects in coordination with the residential and commercial sectors**. These encourage builders and design teams to include solar trade allies in early design discussions in order to plan for solar panels during construction or to design buildings to be solar ready.
- Energy Trust **introduced Community Solar Development Assistance** for community groups, nonprofits and municipalities interested in participating in the Oregon Community Solar Program. This helps community solar projects that will benefit underserved customers—including low- and moderate-income customers, communities of color, tribes, renters and rural customers—do early design and financial planning that **increases the likelihood of success**.
- Based on strategic planning and input from stakeholders, Energy Trust **devoted more staff time and resources to higher-value applications of distributed solar** that can provide additional benefits such as grid flexibility and resilience. Work included contracting to complete feasibility studies for solar deployed with storage at more than 20 critical facilities across the state.
- The Other Renewables program ended the year significantly below its annual generation goal due to a **single delayed project** with the Three Sisters Irrigation District that is now scheduled to be complete in 2020.
- Energy Trust provided financial incentives to **two hydropower projects that completed construction** in 2019. The Deschutes Valley Water District's Opal Springs hydropower project on the Crooked River will generate 0.11 aMW, while a hydropower facility on the Wallowa Lake Dam will generate 0.02 aMW.
    - Deschutes Valley collaborated with more than a dozen public, private and nonprofit groups to fund the $11 million Opal Springs project. It includes a new fish ladder that allows steelhead, salmon, bull trout and other species to migrate unaided into the upper Crooked River for the first time in decades.
- **Construction progressed on two Energy Trust-supported biogas projects at water resource recovery facilities** in PGE territory: the City of Salem's Willow Lake plant and Clackamas County's Tri-City plant. Once completed, the combined generation of these two facilities is expected to total 1.4 aMW.
- As of 2019, 24 irrigation districts in Oregon have participated in Energy Trust's irrigation modernization initiative, a collaborative effort with Farmers Conservation Alliance to **help districts and farmers invest in modern irrigation infrastructure**. Replacing open irrigation ditches with pipes saves energy, conserves water and enables habitat improvements for fish and wildlife, while the addition of small hydropower systems can generate clean energy. Energy Trust provides technical and financial support that **helps irrigation districts leverage additional funding**, including $10 million in federal funding for piping in the Deschutes Basin and $14 million for the Wallowa Lake Dam from the State of Oregon in the 2019 legislative session.

CONTINUED INVESTMENTS TO MODERNIZE IRRIGATION

An addition $35 million was included in a 2019 federal agricultural appropriations bill.

- In March, Energy Trust joined more than 100 stakeholders including Sen. Jeff Merkley to **recognize irrigation modernization accomplishments in Central Oregon**, including piping of the Tumalo and Three Sisters irrigation districts' canals and construction of the 200-kilowatt Three Sisters Irrigation District Watson micro-hydropower project.

E. Internal operations highlights

Energy Trust's internal operations teams support all program and organizational functions including communications (sharing organizational news, information and milestones, public reporting and public relations); customer service (providing customers with online and phone assistance); general marketing (educating customers and stakeholders through advertising, web content, social media and other marketing efforts); trade and program ally network management (engaging and supporting Energy Trust's network of 2,300 contractors and trade allies statewide); general outreach (providing regional and statewide support to customers, trade allies, partners, utilities and community organizations); IT and business systems (maintaining and improving Energy Trust's technology and business infrastructure); and planning and evaluation (estimating costs and savings of efficiency programs, developing long-range savings forecasts and evaluating effectiveness and impact of offerings).

INCREASED TRAFFIC TO ENERGY TRUST'S WEBSITE NEARLY 15%

- Energy Trust received nearly **515,000 website visits** in 2019 that generated 1.5 million pageviews, up from 448,000 visits and 1.3 million pageviews in 2018. The increase was thanks for several factors, including the success of targeted marketing emails that brought about 10,000 more customers to the site in 2019 compared with 2018. **More than 80% of visitors in 2019 were new to the website**, and the most popular pages for new visitors were the residential incentives page, the residential landing page and the Energy Saver Kit order page.
- Energy Trust received **15,000 calls** to its main hotline in 2019. This was a 10% decrease from 2018, reflecting a shift toward customers accessing online resources and calling Program Management Contractors' call centers.
- Energy Trust processed **81,700 customer projects**, including 71,360 submitted through web applications. This was primarily driven by the Residential program, which saw a large increase in projects thanks to promotions for smart thermostats and Energy Saver Kits.
- The organization garnered 237 news stories about its programs, services and customer benefits in print and broadcast, up from 182 stories in 2018. This had a **media value—what it would have cost to purchase the equivalent advertising space and airtime—of $808,586** as a result of outreach and responses to reporters' inquiries.
- Staff **expanded awareness of Energy Trust programs and services** through events with and work with The Affiliated Tribes of Northwest Indians,

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NEWS STORIES PRODUCED AS A RESULT OF MEDIA OUTREACH

Confederated Tribes of the Umatilla Indian Reservation, Community Energy Project, Sustainable Northwest, Coalition of Communities of Color, Oregon Institute of Technology's Energy-Environment Summit, Oregon Solar Energy Conference, Portland Clean Energy Fund, Muslim Education Trust, Rotary Club of Greater Albany, FISH Food Bank, Oak Leaf manufactured home park, Oregon Native American Chamber, Westside Economic Alliance, Portland Business Alliance, Beaverton Chamber of Commerce, Oregon Water Resources Congress, Snake River Economic Development Alliance, Oregon Leadership Summit, Oregon Coastal Caucus Economic Summit, Association of Oregon Counties, Oregon Citizens' Utility Board, Southern Oregon Regional Economic Development, Swalley Irrigation District, Three Sisters Irrigation District, Wallowa Resources, Illinois Valley Soil and Water Conservation District, Hermiston Hispanic Advisory Committee, Hermiston Farm Fair, Nez Perce Fisheries, and federal, state and local officials.

INCREASED OUTREACH AND SUPPORT TO MINORITY- AND WOMEN-OWNED TRADE ALLIES

- Staff created city reports and started developing county reports that leverage census data, construction permit applications and other data sources to generate **on-demand information on Energy Trust participation and results** for a given city or county. These reports are meant to help city and county leaders plan and gauge Energy Trust's results locally.
- Energy Trust participated **in PGE's advisory committee for its Smart Grid Test Bed**.
- Staff held **trade ally forums** in Bend, Grants Pass, Pendleton and Portland to provide program updates to trade allies, regional economic updates, low- and moderate-income sales tips and technical and equipment trainings.
- Energy Trust attended, sponsored and promoted the Governor's Marketplace conferences and events in Salem, North Bend/Coos Bay, Grants Pass, Ontario, Clackamas and Klamath Falls to **connect with diverse businesses and local and state agencies.**
- Energy Trust **increased its commercial and industrial business development funds** for minority-, women-, and veteran-owned trade allies and trade allies that serve rural customers. This is funding for training and marketing to help trade allies develop their business and promote their affiliation with Energy Trust.
- Energy Trust and the National Association of Minority Contractors-Oregon chapter hosted a resource fair to **connect African American and Latino community members with housing resources**, including Energy Trust incentives. Energy Trust also continued its sponsorship and attendance at the annual Oregon Association of Minority Entrepreneurs' Trade Show.
- Staff **created 1,694 new energy-efficiency measures**, up from 457 in 2018, and revised 151 measures. The increase is related to changes to database structures, Savings Within Reach incentives being extended to multifamily customers and changes to distinguish savings at a more granular level. Measure designs and revisions fluctuate in any given year based on how quickly market conditions are changing.

- Staff completed and posted **four impact evaluations, two process evaluations and three market research studies** to Energy Trust's website.
- Staff conducted a successful disaster recovery drill that proved **all major systems could be back online within four hours** in the event of a significant disaster impacting the on-site data center.

IV Progress to 2019 OPUC performance measures

Each year, the Oregon Public Utility Commission establishes minimum performance measures for Energy Trust in a variety of categories. Minimum savings and generation figures for energy-efficiency programs and renewable energy programs are set at an aggregated level rather than at an individual program or sector level. This allows Energy Trust to pursue different program strategies in the residential, commercial and industrial sectors as market forces and technologies change. Electric and gas efficiency performance targets are set at 85% of Energy Trust goals as defined in annual budgets. The following OPUC minimum performance measures apply to Energy Trust 2019 results.

Category	Measure	Result
Electric efficiency	PGE: • Save at least 28.5 aMW • Levelized cost not to exceed 3.5 cents/kWh Pacific Power: • Save at least 16.8 aMW • Levelized cost not to exceed 3.7 cents/kWh	PGE: ✓ **Exceeded**, with 32.8 aMW saved ✓ **Within requirement**, levelized cost at 3.0 cents/kWh Pacific Power: ✓ **Exceeded**, with 20.5 aMW saved ✓ **Within requirement**, levelized cost at 2.9 cents/kWh
Natural gas efficiency	NW Natural: • Save at least 4.4 million annual therms • Levelized cost not to exceed 44 cents/therm Cascade Natural Gas: • Save at least 0.43 million annual therms • Levelized cost not to exceed 48 cents/therm Avista: • Save at least 0.30 million annual therms • Levelized cost not to exceed 43 cents/therm	NW Natural: ✓ **Exceeded**, with 5 million annual therms saved ✓ **Within requirement**, levelized cost at 39.13 cents/therm Cascade Natural Gas: ✓ **Exceeded**, with 0.5 million annual therms saved ✓ **Within requirement**, levelized cost at 41.34 cents/therm Avista: ✓ **Exceeded**, with 0.38 million annual therms saved ✓ **Within requirement**, levelized cost at 34.3 cents/therm
Renewable energy	• For project and development assistance (part 1), deploy at least $1.63 million in non-solar project development assistance incentives. Maintain a non-solar project development assistance pipeline in excess of 25 projects. Report number of projects served, total dollars spent, and summarize project progress through development stages • For project and market development assistance (part 2), report annual results, including number of projects supported, milestones met and	✓ **In compliance**, paid $1,969,938 and committed $1,658,109 in project development assistance to 28 projects. Additional details in Appendix 4 ✓ **In compliance**, see Appendix 4

	documentation of results from market and technology perspective • Obtain at least 1.7 aMW of installed generation of standard net-metered Solar program projects • For solar projects funded outside of the Solar program's standard, net-metered incentive offer, report sources of funding for projects and the criteria for selection	✓ **Exceeded**, with 2.3 aMW of installed generation from standard solar projects ✓ **In compliance**, program did not dedicate funds for custom solar projects in 2019
Financial integrity	Receive an unmodified financial opinion from an independent auditor on annual financial statements	✓ **In compliance**, with an unmodified financial audit opinion for 2019
Administrative/ program support costs	• Keep administrative/program support costs below 8% of annual revenues (no more than $14,675,399) • Administrative/program support cost growth limited to 10% year-over-year increase (no more than $1,309,717)	✓ **In compliance**, with 2019 administrative and program support costs of 6.24% of annual revenues ($11,420,383) ✓ **In compliance**, with administrative/program support cost growth of 5.66% year-over-year ($574,492)
Staffing expenditures	• Total staffing expenditures not to exceed 7.25% of total organization expenditures calculated on a three-year rolling average for public purpose funded activities in Oregon • Staffing cost growth limited to 10% year-over-year increase	✓ **In compliance**, with a three-year rolling average staffing cost of 7.16% of total organization expenditures for 2016-2019 calculated on a three-year rolling average for public purpose funded activities in Oregon[9] ✓ **In compliance**, with staffing cost growth of 4.35% year-over-year ($566,203)
Customer satisfaction	Demonstrate greater than 85% satisfaction rates for interaction with program representatives and overall satisfaction	✓ **Achieved**, with a 98% satisfaction rate for interaction with program representatives and a 96% overall satisfaction rate. Results for major programs are averaged to determine satisfaction rates. See Appendix 2
Benefit/cost ratios	Report utility system and total resource perspective annually. Report significant mid-year changes as warranted in quarterly reports	✓ **Achieved**, with no mid-year changes, see table below
NEEA and market transformation	Report annually: • Savings and costs • Savings strategies • Show Energy Trust direction to NEEA through committee membership • Summary of Energy Trust direction to NEEA • Summary of NEEA initiatives Energy Trust opts out of and why	✓ **In compliance**, see section 7 below

[9] In 2018, the staffing metric of 7.75% included agency contractor costs. In 2019, the staffing metric of 7.25% excludes agency contractor costs.

Benefit/cost ratios

- Report benefit/cost ratios for larger conservation acquisition programs for both utility system and total resource perspective

2019 Utility Cost and Total Resource Cost by program[10]

Program	Combined Utility Cost Test benefit/cost ratio	Combined Total Resource Cost Test benefit/cost ratio
Residential	1.7	1.6
Existing Buildings, including Multifamily	1.8	1.3
New Buildings	2.4	1.4
Production Efficiency	2.8	1.5

[10] Some benefit/cost ratios were updated in November 2022 after staff identified errors in the original calculations. All programs were cost-effective before and after the update.

V Revenues and expenditures tables[11,12,13]

A. Revenues and expenditures results

- **Overall revenue totaled $183.5 million in 2019**, 1% more than what was budgeted and $4.7 million less than 2018 revenue due to anticipated decreases to gas revenues and electric incremental revenues.
- **2019 expenditures totaled $183.7 million**, of which $99.9 million or 54% was for incentives, compared with $94.3 million or 54% in 2018.
- **In 2019, Energy Trust spent $11.4 million**, or 6.2% of revenue, on administrative and program support costs for public-purpose funded activities in Oregon.[14]
- **2019 electric efficiency expenditures** were 8% below budget.
- **2019 gas efficiency expenditures** were 6% below budget.
- **2019 renewable energy expenditures** were 12% below budget.

B. Revenues[14,16]

Source		Annual actual revenues		Annual budgeted revenues
Portland General Electric	$	39,182,112	$	38,961,842
PGE Incremental	$	53,349,361	$	51,874,804
Pacific Power	$	27,841,153	$	28,848,138
Pacific Power Incremental	$	32,660,113	$	32,112,130
NW Natural	$	20,827,780	$	20,558,144
NW Natural Industrial DSM	$	3,769,658	$	3,769,769
Cascade Natural Gas	$	3,418,970	$	2,915,331
Avista	$	2,091,870	$	2,091,870
Low- and moderate-income grant	$	34,837	$	-
Oregon Community Solar Program	$	282,502	$	355,063
Total	**$**	**183,458,356**	**$**	**181,487,091**

[11] Columns may not total due to rounding.
[12] The gas savings do not include results for NW Natural in Washington. These results are available at www.energytrust.org/reports.
[13] Revenues and expenditures include public purpose revenue, incremental electric revenue from SB 838, and revenue from the low- and moderate-income solar grant and the Oregon Community Solar Program. Incremental revenues are those authorized under SB 838 to support capturing additional cost-effective electric efficiency savings above the amount supported by funding through SB 1149.
[14] The calculation of $11.4 million in administrative and program support costs aligns with Energy Trust's calculation of the OPUC administrative and program support costs performance measure. The number does not align with administration costs in table D because program support costs are not included under administration costs.

C. Expenditures[15,16]

Source		Annual actual expenditures		Annual budgeted expenditures
Portland General Electric	$	95,633,932	$	102,690,592
Pacific Power	$	58,985,886	$	65,732,506
NW Natural	$	20,812,202	$	22,284,492
NW Natural Industrial DSM	$	3,581,285	$	3,766,056
Cascade Natural Gas	$	2,677,969	$	2,738,282
Avista	$	1,804,963	$	1,865,031
Low- and moderate-income grant	$	34,837	$	-
Oregon Community Solar Program	$	174,820	$	244,039
Business development	$	6,252	$	-
Total	**$**	**183,712,146**	**$**	**199,320,998**

[15] In 2019, Energy Trusted invested organization contingency pool funds to explore new business opportunities. Organization contingency pool funds are unrestricted donations and consulting fees and are independent from ratepayer funds.
[16] Energy Trust received a grant from the U.S. Department of Energy to collaborate with the Oregon Department of Energy to increase access to solar energy for low- and moderate-income communities.

D. Expenditures by sector and program[17,18,19]

			Annual actual expenditures		Annual budgeted expenditures	Budget variance
Commercial	Existing Buildings	$	44,157,780	$	51,895,370	15%
	Existing Multifamily	$	8,464,505	$	9,648,109	12%
	New Buildings	$	18,167,065	$	20,167,530	10%
	NEEA Commercial	$	3,676,207	$	3,444,472	-7%
	Commercial total	**$**	**74,465,557**	**$**	**85,155,481**	**13%**
Industrial	Production Efficiency	$	37,698,909	$	39,682,347	5%
	NEEA Industrial	$	143,368	$	128,421	-12%
	Industrial total	**$**	**37,842,277**	**$**	**39,810,767**	**5%**
Residential	Residential	$	46,568,938	$	46,680,476	0%
	NEEA Residential	$	4,697,111	$	4,637,331	-1%
	Residential total	**$**	**51,266,050**	**$**	**51,317,806**	**0%**
	Energy efficiency total	**$**	**163,573,883**	**$**	**176,284,055**	**7%**
Renewables	Solar	$	8,002,338	$	9,116,016	12%
	Other Renewables	$	3,743,826	$	4,263,916	12%
	Renewable generation total	**$**	**11,746,164**	**$**	**13,379,932**	**12%**
Administration	**Administration**	$	8,184,865	$	9,424,512	13%
	Administration total	**$**	**8,184,865**	**$**	**9,424,512**	**13%**
Other	Low and moderate income grant	$	33,456	$	-	N/A
	Oregon Community Solar Program	$	167,525	$	232,499	28%
	Business development	$	6,252	$	-	N/A
	Total expenditures	**$**	**183,712,146**	**$**	**199,320,998**	**8%**

E. Incentives paid

Qtr	PGE efficiency	Pacific Power efficiency	NW Natural efficiency	Cascade Natural Gas efficiency	Avista efficiency	PGE generation	Pacific Power generation	Total
Q1	$ 3,920,613	$ 3,171,264	$ 1,849,998	$ 150,184	$ 113,578	$ 789,880	$ 892,848	$10,888,365
Q2	$10,212,532	$ 6,036,455	$ 2,953,692	$ 390,545	$ 224,498	$ 802,726	$ 998,901	$21,619,349
Q3	$ 7,360,170	$ 5,639,493	$ 2,558,808	$ 270,212	$ 246,215	$ 936,120	$ 794,609	$17,805,626
Q4	$26,809,526	$12,691,353	$ 6,174,483	$ 655,652	$ 440,396	$1,400,765	$1,439,183	$49,611,358
Total	**$48,302,840**	**$27,538,566**	**$13,536,981**	**$1,466,593**	**$1,024,688**	**$3,929,490**	**$4,125,540**	**$99,924,698**

[17] In 2019, Energy Trusted invested organization contingency pool funds to explore new business opportunities. Organization contingency pool funds are unrestricted donations and consulting fees and are independent from ratepayer funds.
[18] Energy Trust received a grant from the U.S. Department of Energy to collaborate with the Oregon Department of Energy to increase access to solar energy for low- and moderate-income communities.
[19] Low- and moderate-income solar grant and Oregon Community Solar Program expenditures do not match grant expenditures in table C. This is because a portion of the expenditures in table D are under administration expenditures.

VI Savings and generation tables[20,21,22,23,24]

A. Savings and generation by fuel

	Annual savings/generation	Annual goal	Percent achieved	Levelized cost
Electric savings	53.3 aMW	53.2 aMW	100%	2.99 ¢ per kWh
Natural gas savings	5,904,179 therms	6,042,831 therms	98%	38.97 ¢ per therm
Electric generation	2.72 aMW	2.25 aMW	121%	3.90 ¢ per kWh

B. Progress toward annual efficiency goals by utility[25]

	Annual savings	Levelized cost	Annual goal	Percent achieved	Annual IRP target	Percent achieved
Portland General Electric	32.82 aMW	3.02 ¢ per kWh	33.48 aMW	98%	34.5 aMW	95%
Pacific Power	20.5 aMW	2.94 ¢ per kWh	19.7 aMW	104%	20.15 aMW	102%
NW Natural	5,020,669 therms	39.13 ¢ per therm	5,170,596 therms	97%	5,194,163 therms	97%
Cascade Natural Gas	498,911 therms	41.34 ¢ per therm	511,553 therms	98%	582,464 therms	86%
Avista	384,599 therms	34.31 ¢ per therm	360,682 therms	107%	294,720 therms	130%

Integrated Resource Plan targets are shown in net savings.

[20] Columns may not total due to rounding.
[21] This document reports net savings. Net savings are adjusted gross savings based on results of current and past evaluations. As determined in consultation with OPUC and stakeholders in 2019, Energy Trust will report savings in gross terms in 2020 and going forward.
[22] Electric savings also include transmission and distribution savings.
[23] The gas savings do not include results for NW Natural in Washington. These results are available at www.energytrust.org/reports.
[24] Energy Trust reports 100% of generation and capacity for renewable energy installations supported by Energy Trust's cash incentives. While some of these projects have additional sources of funding, Energy Trust enabled project completion.
[25] Integrated resource plan for PGE is pending acknowledgement by the OPUC.

C. Electric savings by sector and program[26]

		Annual savings aMW	Annual goal aMW	Percent achieved	Levelized cost per kWh
Commercial	Existing Buildings	13.6	14.2	96%	3.4 ¢
	Existing Multifamily	1.6	1.5	101%	5.2 ¢
	New Buildings	5.9	6.2	95%	2.9 ¢
	NEEA Commercial	1.7	2.4	69%	4.2 ¢
	Commercial total	**22.7**	**24.3**	**93%**	**3.4 ¢**
Industrial	Production Efficiency	19.0	18.8	101%	2.2 ¢
	NEEA Industrial	0.81	0.07	1,159%	0.3 ¢
	Industrial total	**19.8**	**18.9**	**105%**	**2.1 ¢**
Residential	Residential	7.6	6.8	113%	4.4 ¢
	NEEA Residential	3.1	3.2	98%	1.4 ¢
	Residential total	**10.8**	**10.0**	**108%**	**3.6 ¢**
	Total electric savings	**53.3**	**53.2**	**100%**	**3.0 ¢**

D. Natural gas savings by sector and program[27]

		Annual savings thm	Annual goal thm	Percent achieved	Levelized cost per therm
Commercial	Existing Buildings	1,593,036	1,536,231	104%	37.5 ¢
	Existing Multifamily	183,629	145,321	126%	50.8 ¢
	New Buildings	821,413	845,608	97%	24.5 ¢
	Commercial total	**2,598,079**	**2,527,160**	**103%**	**35.1 ¢**
Industrial	Production Efficiency	891,566	1,102,463	81%	30.1 ¢
	Industrial total	**891,566**	**1,102,463**	**81%**	**30.1 ¢**
Residential	Residential	2,414,534	2,413,207	100%	42.2 ¢
	Residential total	**2,414,534**	**2,413,207**	**100%**	**45.7 ¢**
	Total natural gas savings	**5,904,179**	**6,042,831**	**98%**	**39.0 ¢**

E. Renewable electric generation by utility

	Annual generation aMW	Annual goal aMW	Percent achieved YTD
Portland General Electric	1.46	1.22	119%
Pacific Power	1.26	1.03	122%
Total	**2.72**	**2.25**	**121%**

[26] Energy Trust updated its allocation methodology in quarter three to shift a small portion of NEEA savings from commercial to industrial.
[27] Energy Trust allocated budget to NEEA for gas market transformation activities. While there were no associated savings in 2019, savings are expected in subsequent years.

F. Renewable electric generation by program[28]

	Annual generation aMW	Annual goal aMW	Percent achieved
Solar	2.70	2.02	134%
Other Renewables	0.02	0.24	6%
Total generation	**2.72**	**2.25**	**121%**

G. Incremental utility SB 838 expenditures[29]

Utility	Q4 SB 838 Expenditures	Total Annual SB 838 Expenditures
Portland General Electric	$ 291,760	$ 1,087,741
Pacific Power	$ 352,425	$ 934,517
Total	**$ 644,185**	**$ 2,022,258**

[28] The Other Renewables program ended the year significantly below goal due to a single delayed project with the Three Sisters Irrigation District that is now scheduled to be complete in 2020.
[29] Reflects expenditures by Pacific Power and PGE in support of utility activities described in SB 838. Reports detailing these activities are submitted annually to the OPUC.

VII Northwest Energy Efficiency Alliance activities and results

To deliver low-cost energy for customers, Energy Trust has been working with the Northwest Energy Efficiency Alliance (NEEA) since 2002 to increase the availability and adoption of energy-efficient electric products, equipment and practices. In 2015, natural gas equipment was added.

By pooling resources at a regional level to work with manufacturers, distributors and retailers, NEEA accelerates the development, testing and distribution of new energy-saving equipment and approaches. NEEA identifies and refines new high-efficiency products, services and practices and helps bring them to market. Once products are ready and available, Energy Trust creates and implements programs to support broad market adoption in Oregon.

Utility customers benefit by seeing a greater choice of higher-efficiency products available through contractors and at stores, through improved pricing and quality for efficient products, and through improvements to building codes and equipment standards that will save energy.

NEEA savings noted here are forecasted. Updated savings results will be available late in the second quarter of 2020 through NEEA's annual report.

A. NEEA savings[30,31]

	Annual savings aMW	Annual energy target aMW	Percent achieved	Levelized cost per kWh
Commercial	1.7	2.4	69%	4.0 ¢
Industrial	0.8	0.1	1,159%	0.3 ¢
Residential	3.1	3.2	98%	1.3 ¢
Total	**5.6**	**5.7**	**99%**	**1.7 ¢**

B. NEEA expenditures[32]

		Annual actual expenditures		Annual budgeted expenditures	Budget variance
Commercial	$	3,847,635	$	3,615,420	-6%
Industrial	$	150,053	$	134,794	-11%
Residential	$	4,916,146	$	4,867,479	-1%
Total	**$**	**8,913,834**	**$**	**8,617,694**	**-3%**

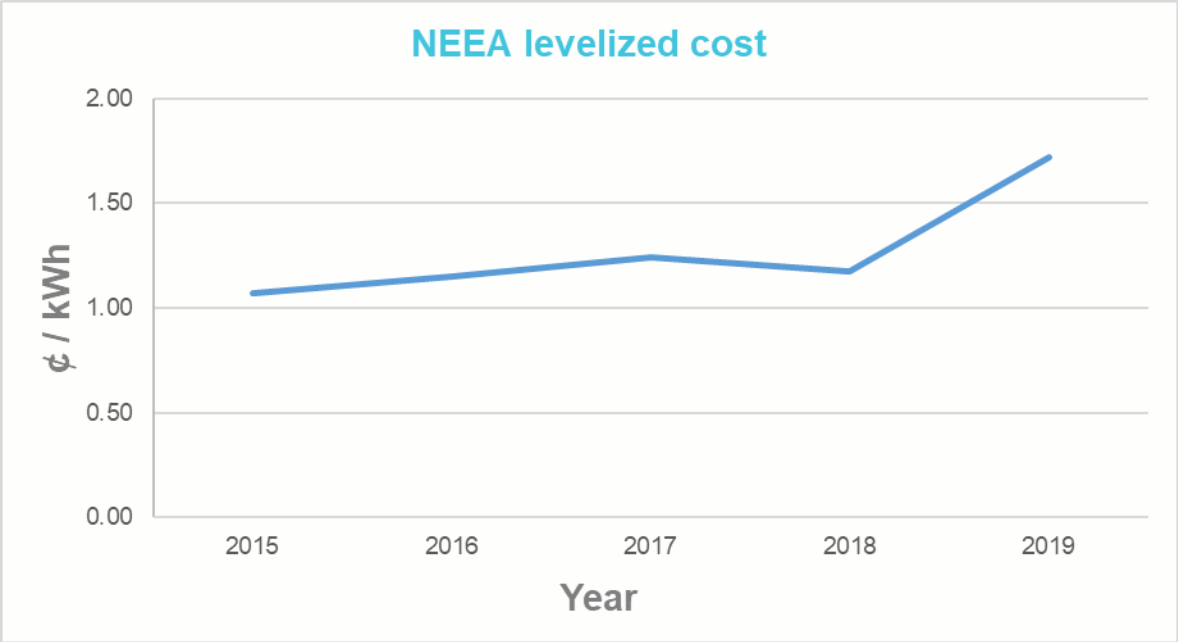
[30] Energy Trust updated its allocation methodology in quarter three to shift a small portion of NEEA savings from commercial to industrial.
[31] Note that levelized costs in Table A do not include gas costs or administrative costs. Elsewhere in the report, levelized costs are calculated using administrative costs.
[32] Gas expenditures are included in Table B but savings aren't expected until later.

C. Status of NEEA goals in Energy Trust's 2015-2019 Strategic Plan

EMERGING EFFICIENCY RESOURCES	Status
NEEA identification of electric market transformation savings of 35 aMW	Achieved
Energy Trust identification of electric market transformation savings beyond NEEA's	Achieved
NEEA gas market transformation progress	Delayed

D. NEEA levelized cost

NEEA costs and savings are not realized in the same year. Savings in 2019 reflect costs from prior years, and costs from 2019 will lead to savings in subsequent years. For this reason, levelized costs are included for the past five years.



E. NEEA electric market transformation long-term goals, strategies and performance metrics

Below are NEEA's long-term goals and strategies, outlined in NEEA's 2015-2019 Business Plan.[33] NEEA facilitates market transformation with the following goals, strategies and performance metrics:

Goal 1: Fill the energy efficiency pipeline with new products, services, practices and approaches.

- Key strategies:
  a. Identify new energy-efficiency opportunities
  b. Assess the potential for newly identified emerging technologies
  c. Prove the viability of emerging technology concepts
- Five-year success metric: Fill the 20-year energy efficiency pipeline with 1,000 aMW of regional potential savings in process and 175 aMW of savings readied for market adoption.

[33] NEEA's 2015-2019 Business Plan is available online at neea.org.

Goal 2: Create market conditions that accelerate and sustain the market adoption of emerging energy-efficiency products, services and practices.

- Key strategies:
  a. Influence market actors to increase availability of energy-efficient products and services
  b. Improve and ensure product quality
  c. Build market knowledge and capability
  d. Identify and develop market resources that capitalize on the compelling value proposition and business case (i.e., non-energy benefits) for an energy-efficient product, service or practice
  e. Increase product awareness
  f. Develop strategies to address price and first-cost issues
  g. Influence and support the successful implementation of more stringent building codes and appliance standards
- Five-year success metric: In all of the markets in which NEEA works, including Oregon, NEEA programs are to result in substantive and measurable change in market conditions, resulting in energy savings.

More information on NEEA's market transformation strategies, processes and performance metrics is available in NEEA's 2015-2019 Business Plan and recent annual or quarterly reports.[34]

F. NEEA gas market transformation progress indicators

Progress indicator	Status
2015: Complete scanning research and concept opportunity assessment for two technologies	Achieved
2016: Complete concept opportunity assessment for three technologies	Achieved
2017: Complete market and product assessment for one technology; five additional technologies in "Scanning"	Achieved
2018: Complete strategy testing and finalization for one technology	Delayed[35]
2019: At least two technologies ready for scale-up	Delayed

G. Energy Trust membership on NEEA committees and direction to NEEA

Energy Trust provides regular guidance to NEEA through Executive Director Michael Colgrove's service as secretary of the NEEA board of directors, chairman of its strategic planning committee and as a member of its natural gas committee and through Energy Trust staff's participation on NEEA's advisory committees.

Committee	Energy Trust staff member
Regional Portfolio Advisory Committee	Fred Gordon, director of planning and evaluation
Cost-effectiveness and Evaluation Advisory Committee	Phil Degens, evaluation manager Peter Schaffer, planning project manager
Emerging Technology Advisory Committee	Phil Degens, evaluation manager
Natural Gas Advisory Committee	Phil Degens, evaluation manager
Northwest Research Group	Phil Degens, evaluation manager
Residential Sector Advisory Committee	Thad Roth, residential sector lead

[34] NEEA's recent annual and quarterly reports are available online at neea.org.
[35] Market development of gas combined space-water heating systems was slower than anticipated. This was achieved as of 2019.

Commercial Sector Advisory Committee	Oliver Kesting, commercial sector lead
Industrial Sector Advisory Committee	Amanda Potter, industrial sector lead
End Use Load Research Steering Committee	Michael Colgrove, executive director
End Use Load Research Working Group	Sarah Castor, senior evaluation project manager Erika Kociolek, senior evaluation project manager

Energy Trust staff provided the following direction to NEEA through committees:

- Facilitated a discussion between NEEA and Energy Trust staff on proposed future activities for commercialization of ductless heat pumps, leading to changes to the NEEA business plan that recognize the importance of cost-effectiveness.
- Provided review and guidance on cost-effectiveness inputs and evaluation results of various NEEA measures and activities, including natural gas avoided costs and ductless heat pump evaluation results.
- Provided feedback on NEEA initiatives including the retail products portfolio, ductless heat pumps, heat pump water heaters, residential new construction and new manufactured homes.
- Provided guidance on program implementation to ensure effectiveness while preventing overlap and confusion in the market.
- Participated in the design of a revised NEEA advisory committee structure to reduce convening costs and streamline the decision-making process.
- Supported residential recruiting for the End Use Load Research project with customers who received Energy Trust incentives for heat pump water heaters or ductless heat pumps, two of the targeted end uses for that study.

H. Energy Trust opts out of select NEEA efforts

Energy Trust opts out of industrial technical training, one of NEEA's infrastructure offerings for member utilities. Energy Trust provides training in comprehensive Strategic Energy Management through the Production Efficiency program. Opting out of NEEA's industrial technical training means that Energy Trust does not fund that effort and does not work with NEEA to plan and coordinate these efforts in Energy Trust territory.

APPENDIX 1: Progress toward diversity, equity and inclusion goals

Energy Trust developed 10 diversity, equity and inclusion goals to improve and enhance offerings for underserved customers. Goals were finalized at the end of 2018, using baseline data through 2017 unless otherwise noted. Progress reports will be provided in quarter two and annual reports for 2019 and 2020. This appendix reflects activities and progress made from January 2019 to December 2019. Organizational and cross-sector activities included:

- **Energy Trust launched a Diversity Advisory Council** with support of foundational Diversity Advisory Council members. The council added its first five members, held two public meetings and began recruiting for six additional members. Diversity Advisory Council members will receive stipends to reduce barriers to participation. The Diversity Advisory Council serves in a similar function to the Conservation Advisory Council and Renewable Energy Advisory Council, which bring together expert stakeholders to provide counsel and insight to the board and staff about topics key to Energy Trust's success.
- **The organization hired its first diversity, equity and inclusion lead, a full-time senior management position**, in quarter four. The lead will liaise with the Diversity Advisory Council; manage the internal staff diversity, equity and inclusion committee; and help Energy Trust incorporate diversity, equity and inclusion considerations into all aspects of its work.
- **The commercial and industrial sectors increased efforts to reach rural customers in Eastern Oregon**, where participation rates have been historically low. Staff worked across programs to launch a no-cost tube LED lighting promotion for commercial and industrial customers. Staff also launched a targeted marketing and incentive outreach campaign to customers in Eastern and Southern Oregon. Both efforts were launched in quarter three.
- **Energy Trust supported a project to develop a national Standardized Equity Measurement in the Clean Energy Industry** in collaboration with Vermont Energy Investment Corporation, Efficiency for Everyone and the Urban Institute. As part of this project, the project team created three reports: a detailed workplan describing how to create a set of equity measurement tools for clean energy practitioners, a report summarizing a literature review of approaches to equity assessment in fields like housing and education, and a similar report providing an overview of equity assessment to-date in the clean energy industry. The purpose of this project was to provide initial direction to and background for a team of authors selected to create a standardized national metric for the measurement and assessment of equitable outcomes in the clean energy industry. The project team has begun working with the University of Michigan School for Environment and Sustainability, which agreed to raise funding to support the creation of these standards, hire a project manager to oversee development of these standards and to ultimately house the standards once they are complete.

Key

Goal achieved 	On track (high confidence) 	On track (low confidence) 	Off track 

1. Increase customer participation in energy efficiency programs for all underserved populations by 20% by the end of 2020.

1A: Increase residential participation rate by 20% in communities of color by the end of 2020.

Baseline	Progress in 2019	2020 Target	Status
50,000 total participants from communities of color through 2017 (24% participation from communities of color through 2017)	60,014 total participants (9,829 new participants since 2017)	66,128 total participants from communities of color through 2020 (32% participation from communities of color through 2020) *This goal was increased after the original goal of 60,593 (29% participation)*	On track (high confidence) 

- **Helped replace 26 aging manufactured homes with energy-efficient models** that exceed code as part of a manufactured home replacement pilot. Staff are engaged with manufactured home parks across the state, including Umpqua Ranch Cooperating near Glide, Newton Creek Manor in Roseburg, Lucky 7 park on the Confederated Tribes of the Umatilla Indian Reservation, West-Side Pines Cooperative in Bend, Oak Leaf in Portland and Hazel Glen Court in Independence.
- **Supported Portland nonprofit Community Energy Project (CEP)** for delivery of Energy Trust offerings. Community Energy Project reached its contract goals of installing 30 heat pump water heaters and 100 smart thermostats at no cost to income-qualified customers, conducting 20 weatherization workshops and providing 56 free Home Energy Scores and assessments for income-qualified customers in 2019.
- **Received approval from the OPUC for co-funding low-income residential weatherization offerings administered by Oregon Housing and Community Services** (OHCS) via a network of community action agencies and Energy Trust's Residential program. This co-funding allows community action agencies and Energy Trust to serve additional low-income customers.
- **Began co-funding weatherization upgrades with the community action agency serving Washington County** and completed 62 HVAC and weatherization improvements in 26 homes in 2019, including installation of new energy-efficient windows, insulation, heating system upgrades and other HVAC improvements. Energy Trust contributed over $90,000 of incentives for the projects.

    - One lesson learned from this work is that Energy Trust and OHCS define multifamily properties differently, specifically duplexes and townhomes, which are currently excluded from co-funding as a result.
- **Increased incentives available to rental property owners** to align with Savings Within Reach enhanced incentives for low- and moderate-income customers and conducted outreach to property management companies and trade allies regarding these incentive changes. Increased incentives are now available for heat pumps, ductless heat pumps, heat pump water heaters and insulation. In addition, Energy Trust launched a limited-time ductless heat pump promotion for rental properties. Energy Trust provided nearly $400,000 for 631 heating system and insulation projects at rental properties.
- **Launched two initiatives to engage Eastern Oregon customers** and test marketing strategies to identify effective participation drivers.
    - In Pendleton, launched a fixed-cost heat pump promotion for manufactured and single-family homes. Marketing strategies included ads in local newspapers and radio.
    - Based on an income analysis of Malheur County residents, the Residential program expanded Savings Within Reach eligibility to include all eligible customers in the county by removing income verification. Marketing focused on customers who speak Spanish.
    - Initiatives were delivered through partnerships with select trade ally contractors in the area, including Eastern Oregon Heating and Cooling in Pendleton and Stan's Heating in Ontario.
    - Overall, participation in HVAC measures declined compared with the prior year, consistent with statewide trends. However, customized program offers and lead-generating marketing tactics helped Eastern Oregon Heating and Cooling increase its project count by 50% compared with 2018 and Stan's Heating project count by 600% over 2018.
- **Partnered with Portland nonprofit Verde to develop a ductless heat pump direct installation program** that will launch in 2020. The program will leverage funding from Energy Trust and Verde to reduce income-qualified customer's ductless heat pump installation cost to $1,000 or less. This compares to standard ductless heap pump costs of $4,000 to $4,800 and a standard Energy Trust incentive of $500. The offering will include customer education to ensure participants get the most out of their new heating systems. It will also support community building through volunteerism to construct community spaces such as parks and gardens. In exchange for participant's volunteer hours, Verde will pay up to $1,200 toward the cost of their new heat pump system.
    - Through the joint development of this program plan, Energy Trust learned extensive efforts may be required for two organizations to sufficiently understand the methods, goals, capabilities and values of one another. This deeper level of understanding is crucial to successful planning for a project this complex.

1B: Increase participation in Existing Buildings program for small and medium business customers and business customers in very rural areas by 20% by the end of 2020.

Baseline	Progress in 2019	2020 Target	Status

1,200 participating small/medium businesses per year on average (7% cumulative participation rate for small/medium business through 2017)	1,033 participating small/medium businesses in 2019	1,500 small/medium businesses per year on average in 2019 and 2020 (9% cumulative participation rate for small/medium businesses through 2020)	Off track, with opportunities to improve 2020 participation 
50 participating very rural businesses (5% cumulative participation rate for very rural businesses through 2017)	29 new participating small/medium businesses in 2019	120 additional participating very rural businesses 2019 and 2020 (7% cumulative participation rate for very rural businesses through 2020)	Off track, with opportunities to improve 2020 participation 

- **Engaged more than 4,000 small and medium business customers in 2019**, including with Spanish-speaking owners and managers. While the majority of outreach took place in quarters two and three, this did not lead to the expected increase in projects completed at small and medium businesses by the end of 2019.
- **Hosted a "smarter restaurants" event in East Portland at the Asian Pacific American Network of Oregon space** in October. Sixty-five attendees representing at least 25 restaurants met with leading restaurant consultants and community-based organizations during the event. Spanish language translation was provided.
- **As a result of recruitment efforts contractors, enrolled seven new diverse trade ally contractors**, including two certified emerging small businesses, one certified minority-owned small business, three Hispanic-owned businesses that were self-identified and one rural contractor.
- **Learned lessons to inform 2020 program efforts** include:
    - Energy Trust's limited suite of offerings for small business customers is an impediment to increasing participation among these customers, especially in rural areas served by only one investor-owned utility. Staff is exploring new ways to serve small and medium businesses, such as small systems and operations offerings, new measures or expanded requirements for direct installation of refrigeration, radiant heaters, vent hoods and other equipment.
    - Long-term relationships are crucial to build awareness of Energy Trust and energy-efficiency options with community partners, diverse business owners and contractors. Staff deepened relationships with these actors in 2019 but that did not result in immediate projects or savings.

1C: Increase customer participation in Production Efficiency for small and medium businesses in rural territories by 20% by the end of 2020.

Baseline	Progress in 2019	2020 Target	Status
413 total small/medium sites served through 2017	619 small/medium sites served through 2019	495 total small/medium sites served through 2020	Goal achieved 

- **Met its two-year goal and will continue efforts to increase participation** of rural, small and medium businesses in 2020
    - Of the participating rural, small and medium businesses in 2019, **half upgraded to energy-efficient lighting, a third invested in standard upgrades and the remainder completed custom projects or studies**.
    - Many participating rural, small and medium businesses were from the **manufacturing, indoor agriculture, wood product manufacturing and winery sectors**.
    - In 2019, **46% of participants were in the Willamette Valley, 24% were in Southern Oregon and 21% were in the Portland metro and Hood River areas**. Few customers participated in Central Oregon, Eastern Oregon and the North Coast.
- **Learned lessons to inform 2020 program efforts**, including:
    - Direct mail marketing to specific market types is not a key driver of participation.
    - The program should **recruit more diverse trade allies** to participate in the standard industrial and lighting track, and efforts are planned for 2020.
    - Direct Program Delivery Contractor **outreach promoting custom projects was effective in creating positive customer experiences but did not result in immediate technical studies or projects**. This outreach is more resource intensive than typical.

2. Increase customer participation in renewable energy programs for all underserved populations by 20% by the end of 2020.

2A: Increase solar projects in low-income, rural and racially diverse communities by 20%.

Baseline	Progress in 2019	2020 Target	Status
32% of 2017 residential solar projects were sited in low-income, rural and racially diverse communities	32% of 2019 residential solar projects were sited in low-income, rural and racially diverse communities	38% of 2020 residential solar projects sited in low-income, rural and racially diverse communities	Off track, with opportunities to improve 2020 participation 

- The **residential solar market contracted by almost 30% from the 2017 baseline** because the expiration of the statewide Residential Energy Tax Credit in 2018 made it more expensive for customers to install solar in 2019.
- In quarter four, **launched a new Solar Within Reach offer to provide enhanced incentives** for low- and moderate-income customers, similar to the residential Savings Within Reach. This offer is expected to increase participation from low- and moderate-income customers in 2020.
    - Lessons learned: Early results show the higher-than-standard incentive will be helpful in achieving our goals, but the solar purchase and decision-making process takes time. Therefore, the results will lag behind introduction of the incentive in the market.
- Collaborated with Spark Northwest to **plan for Solarize campaigns and promote Solar Within Reach** in targeted communities in 2020.
- **Awarded $81,600 in solar innovation grants to community-based organizations** to develop community-centered program models that help low- and moderate-income customers benefit from solar technology. Grant recipients made progress during 2019 with installations expected in 2020. Highlights include a solar project on a low-income multifamily building in Enterprise and a community organization in Corvallis working to install solar on 20 Habitat for Humanity homes.
    - Lessons learned: One of the innovation grantees learned that energy education needs to come before a decision to install solar. We are working with this grantee to add that component to their work.
    - In addition, Habitat for Humanity homes are located all over the state, not just in our DEI-designated locations. Some of our incentives will help low and moderate-income families but not show up in our installation metric.
- Thirty-five percent of commercial, nonprofit and public sector solar projects in 2020 were sited in **low-income, rural and racially diverse communities**, up 17% from 2017.

3. Increase participation in the Trade Ally Network by minority- and women-owned business by 50% each by the end of 2020.

Baseline	Progress in 2019	2020 Target	Status
25 total minority-owned businesses enrolled as of 2017	7 new minority-owned businesses added in 2019 (54% to goal)	38 total minority-owned businesses enrolled as of 2020 (increase by 13)	On track (low confidence) 
15 total women-owned businesses enrolled as of 2017	3 new women-owned business added so far in 2019 (38% to goal)	23 total women-owned businesses enrolled as of 2020 (increase by 8)	Off track, with opportunities for improvement 

- **Launched cross-program monthly working group** to align efforts and share learnings from Energy Trust outreach staff working to reach trade allies and customers. Energy Trust is working to be intentional in its outreach to ensure mutual benefits for businesses and the organization. Throughout 2019, several outreach events were attended to raise awareness.

- **Increased memberships with trade organizations** to spread awareness of Energy Trust's Trade Ally Network and offerings, including the Oregon chapter of the National Association of Minority Contractors, Oregon Tradeswomen and LatinoBuilt.
- **Co-hosted the inaugural community resource fair with** the National Association of Minority Contractors to increase awareness of Energy Trust's offerings and Trade Ally Network to members of the African American and Latino communities. Energy Trust and National Association of Minority Contractors plan to offer the event again in 2020.
- **Sponsored and tabled at the Oregon Association of Minority Entrepreneurs' trade show** to connect with diverse businesses and customers and provide information about offerings and the benefits of joining the Trade Ally Network.
- **Sponsored and tabled at Oregon Tradeswomen's Career Fair** to support and encourage school kids to consider careers in the trades and energy efficiency.
- **Attended and tabled at the Governor's Marketplace** events in Salem, North Bend, Grants Pass, Ontario, Klamath Falls and Milwaukie to educate rural and local businesses about offerings and the benefits of joining the Trade Ally Network.
- **Developed reports to identify geographic gaps in trade ally service areas to guide recruitment strategy** and help staff leverage the Oregon Certification Office for Business Inclusion and Diversity database of certified minority- and women-owned businesses.
- **Learnings included:**
    - A key learning was the need to provide additional support for minority- and women-owned businesses to help them see the benefits of getting into efficiency. Several businesses reached either did not perform work that aligns with efficiency or would need support to incorporate efficiency measures into their businesses. Additional measures and efforts are needed to ensure more participation and increased enrollment from minority- and women-owned businesses into Energy Trust's trade ally network.

4. Increase the number of projects completed by minority- and women-owned trade allies by 15% by the end of 2020.

Baseline	Progress in 2019	2020 Target	Status
1,150 projects completed by minority-and women-owned businesses in 2017	Achieved 1,678 projects completed by minority- and women-owned businesses in 2019 (includes 821 minority-owned businesses and 1,388 women-owned businesses)	1,323 projects completed by minority- and women-owned businesses per year in 2019 and 2020 (increase by a total of 173 per year)	Goal achieved for 2019 

- **Began work to make tracking and reporting projects easier and more efficient** in late 2019, including updates to Energy Trust's customer relationship management software. These improvements will continue in 2020.
- **Leveraged new targeted program offers to drive more projects from minority- and women-owned businesses.** One example is increased incentives to help residents of manufactured homes install ductless and ducted heat pumps.
- **Improved tracking of minority and women-owned firms** helped expand Energy Trust's awareness of ownership status of businesses that were already enrolled in our network. Prior to these tracking mechanisms being put in place ownership status was identified primarily at the time a business enrolled.
- **Key lessons learned:**
    - Targeted offers provide value for allies in our network. They support direct customer leads which helps customer participation and savings acquisition.

5. Increase the number of contracts executed with minority- and women-owned businesses by 15% by the end of 2020.

Baseline	Progress in 2019	2020 Target	Status
48 contracts with businesses identified as diverse from 2016-2018	76 active contracts with businesses identified as diverse in 2019	104 contracts with businesses identified as diverse in 2019 and 2020	On track (high confidence) 

- **Trained staff on contract systems and process for tracking and reporting contracts** with businesses identified as diverse.
- **Expanded communications and outreach regarding request for proposals and request for information** opportunities to a wider audience, including new connections with additional organizations.

6. Increase overall market awareness and understanding of underserved populations through the engagement and deepening of relationships with 50 culturally specific/culturally responsive organizations by the end of 2020.

Baseline	Progress in 2019	2020 Target	Status
80 existing relationships with organizations in 2017	14 new relationships and 30 deeper relationships	25 new relationships and 25 deeper relationships with organizations	On track (high confidence) 

- **Assigned Energy Trust staff to serve as relationship managers with 44 culturally specific or culturally responsive organizations** to develop or deepen relationships and learn about the communities and customers they serve.
- **Reviewed and revised the list of organizations that will be tracked** related to this goal in 2020, identifying nine new relationships to be developed in 2020 and determining that five of the existing 44 relationships would not be tracked in 2020. This brings the total relationships being tracked in 2020 to 48.
- **Facilitated coordination and information sharing among Energy Trust staff relationship managers** through a monthly coordination meeting, an enhanced stakeholder relationship management tracking system, a survey of relationship managers and sharing out of learnings to staff.
- **Explored and established program delivery partnerships** with Portland nonprofits Community Energy Project, African American Alliance for Homeownership and Verde and Ontario nonprofit Euvalcree.
- **Attended events to broaden understanding of community-based organizations and the communities they serve**. Examples included events with African American Alliance for Homeownership, Douglas County Smart Energy Green and Solar Tour and the Affiliated Tribes of the Northwest Indians annual conference.
- **Lessons learned:**
    - Community-based organization are helping us reach and communicate with new customers and communities, but relationship development takes time. Most lessons learned in 2019 related to relationship development. Staff noted that engaging with community-based organizations should be part of a larger, longer-term plan, that we should work to gain a better understanding of the community-based organization's capacity, strengths and weaknesses and recognize the time to coordinate and prioritize work with us. We have learned that some of the key benefits we can bring are staffing resources, capacity, and funding, and that we need to be flexible and willing to explore opportunities that don't immediately demonstrate benefit to us.
    - Most relationships tracked are with organizations that we had a relationship with prior to some degree. Given that relationships take some time to develop, we expect that to be the case ongoing.

7. Increase the diversity in recruitment and hiring of employees by 25% by the end of 2020.

Baseline	Progress in 2019	2020 Target	Status
7.5% of staff identified as people of color at the end of 2017 (8 staff identified as people of color out of 107 total staff)	14.0% of staff identified as people of color at the end of 2019 (15 staff identified as people of color out of 107 total staff)	Increase diversity of staff and applicants to be more reflective of Portland demographics (28% of Portlanders identify as non-white)	Off track, with opportunities for improvement 

27% of new hires in 2017 identified as people of color (4 new hires identified as people of color out of 15 total new staff hired)	46% of new hires identified as people of color (6 new hires identified as people of color out of 13 total new staff hired)	34% of new hires identify as people of color	On track (high confidence) 

- **Partnered with agencies and internship placement programs** that have their own successful recruiting strategies to help attract and retain diverse talent. In the last year, 15% of agency contractors and 50% of interns who worked at Energy Trust identified as people of color. Agency contractors and interns make up a pipeline of qualified applicants for open staff positions.
- **Contracted with Garcia and Associates, an Oregon HR consulting firm focused on diversity and inclusion**, to receive a comprehensive recruiting and retention plan for Energy Trust to operationalize. Work is underway to improve recruiting and onboarding processes to attract and retain diverse staff members.
- **Lessons learned:**
    - Asking applicants to fill out a third-party survey with their demographic information yielded low results. Midyear, we began instead asking applicants within their application (no external link) for their demographic information by using the standard U.S. Equal Employment Opportunity Commission survey disclosure question inquiring about race.

8. Develop systems and support needed to collect, track, analyze and report demographic information related to program participation, program delivery and trade ally network members by the end of 2018.

2018 Target	Status
Data, baseline and participation analysis is used to refine diversity, equity and inclusion goals and track and report progress to achieving those goals	Goal achieved 

- **Following initial development of data, baseline and participation analysis, additional work continued** in 2019 to update data and explore new approaches, including:
    - **Discussed approaches to differential baselines for diverse customers with stakeholders** and Conservation Advisory Council members and presented this topic at the Northwest Power and Conservation Council's 2019 Efficiency Exchange conference.
    - **Invited feedback from community-based organizations on analysis framework**.
    - **Updated diversity, equity and inclusion data and baseline analysis** to include 2018 program activity.
    - **Leveraged reporting capabilities of community-based organization outreach partners**.

    - Expanded data collection and analysis efforts for two primary evaluation activities planned for 2020:
        - Energy Trust's territory-wide 2020 customer insights survey was adapted to include measurement of residential program equity and to over-sample in census tracts with higher concentrations of minority, low-income and rural customers.
        - The organization's Fast Feedback survey of past program participants was expanded for 2020 to include optional demographic questions for business owners (previously Fast Feedback only collected optional demographic information from residential customers).
- **Learned lessons to inform 2020 efforts**, including:
    - Energy Trust continues to make advancements in aligning internal data with third-party data information (e.g., firmographic data) to better understand both participants and non-participants.

9. Based on the Intercultural Effectiveness Scale survey, increase cultural responsiveness of all staff and board of directors by 20% by the end of 2020.

Baseline	Current score	2020 Target	Status
Results of Intercultural Effectiveness Scale survey in 2015 (3.79 out of 5)	3.89 out of 5	More culturally responsive and inclusive organization	On track (low confidence) 

- Energy Trust is using the Intercultural Effectiveness Scale (IES) survey to assess the ability of staff and the board to work with people from different cultures. Staff and board members completed the survey in 2015 and received a score of 3.79 out of 5. In 2019, 90% of staff (including contractors and interns, excluding board members) completed the survey and received a score of 3.89 out of 5. The board will complete the survey in 2020.
- In 2020, Energy Trust will assess areas of strength and opportunities of growth and develop a roadmap to further support the organization in becoming more culturally responsive and inclusive.

10. Increase transparency and community engagement by publishing the Diversity, Equity and Inclusion Operations Plan and progress toward its goals.

2020 Target	Status
Internal and external stakeholders are aware of and informed of Energy Trust's diversity, equity and inclusion activities, goals and progress to goals	On track (high confidence) 

- **Provided updates on goals and activities through twice yearly detailed diversity, equity and inclusion progress reports** to be appended to the quarter two and annual reports to the Oregon Public Utility Commission and Energy Trust's board of directors in 2019 and 2020. These reports are posted on Energy Trust's website at www.energytrust.org/reports.
- **Launched a web page** describing Energy Trust's diversity, equity and inclusion efforts at www.energytrust.org/diversity. The web page includes Energy Trust's materials:
    - Expanding Diversity fact sheet
    - Diversity, Equity and Inclusion Operations Plan
    - Diversity, Equity and Inclusion Goals
    - Diversity, Equity and Inclusion Policy
    - 2018 Diversity, Equity and Inclusion Data and Baseline Analysis
- **Updated Energy Trust staff** about diversity, equity and inclusion goals and activities through presentations, internal newsletters and emails.

APPENDIX 2: Customer satisfaction results

Energy Trust calculated customer satisfaction from short web and telephone surveys with randomly selected 2019 program participants within about two months of project completion. The survey asked residential and non-residential participants in Oregon about satisfaction with their overall experience with Energy Trust. Participants in the Existing Buildings (including Existing Multifamily), Production Efficiency and commercial solar programs were also asked about satisfaction with their interactions with program representatives. Surveys were conducted with 1,587 residential customers and 533 non-residential customers in Oregon who received an incentive or discount from Energy Trust in 2019.

In 2019, the average proportion of program participants satisfied with their overall experience with Energy Trust was 96% and satisfaction with Energy Trust program representatives was 98%.

New Buildings projects often involve numerous market actors (architects, engineers, developers and owners) at different project stages, so it is difficult to reach a project representative who is able to respond to questions about satisfaction. Satisfaction with the New Buildings program is obtained from interviews with program participants as part of a separate evaluation survey. The most recent survey took place in Q1 2018. Ninety New Buildings project owners or representatives that participated in 2017 and 2018 were surveyed about their overall program satisfaction and satisfaction with interactions with program representatives. Of participants surveyed, 98% were satisfied with their overall program experience. Satisfaction with program representatives was 96%.

Table 1: 2019 overall satisfaction

Program	Satisfaction with overall experience
Existing Buildings, including Multifamily	97%
New Buildings*	98%
Production Efficiency	98%
Residential	95%
Solar (residential and commercial)	93%
Unweighted average	**96%**

* New Buildings satisfaction based on survey results of 2017 and 2018 program participants.

Table 2: 2019 satisfaction with program representatives

Program	Satisfaction with program representative
Existing Buildings, including Multifamily	97%
New Buildings*	96%
Production Efficiency	99%
Commercial Solar	100%
Unweighted average	**98%**

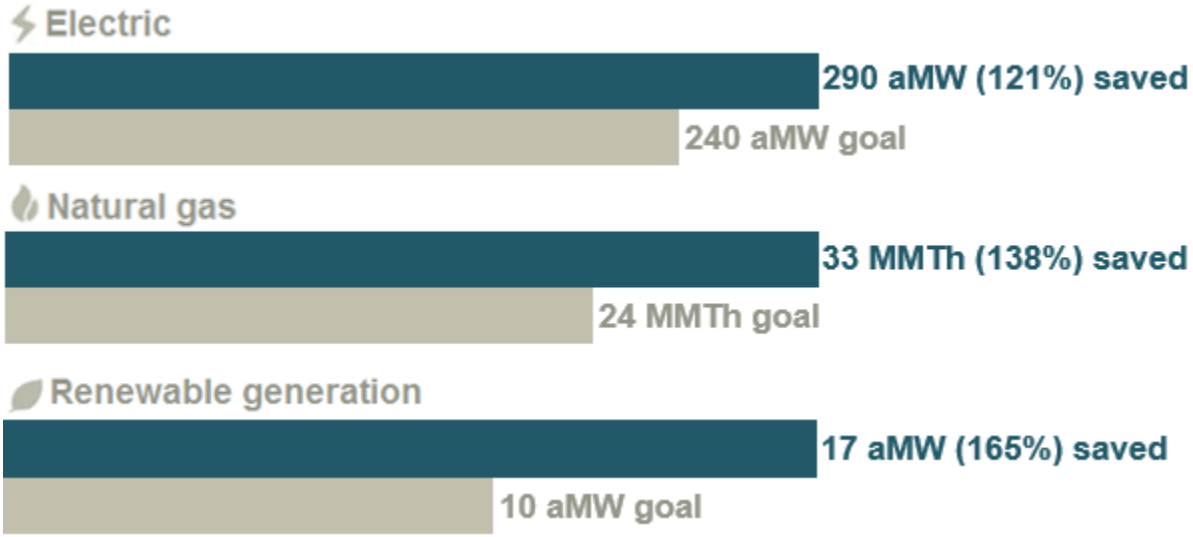
* New Buildings satisfaction based on survey results of 2017 and 2018 program participants.

Note: Energy Trust's customer feedback survey does not ask residential participants about satisfaction with program representatives. Residential participants interact with Energy Trust representatives to a varying degree and many do not interact with a program representative. In general, commercial and industrial participants have more interaction with Energy Trust representatives.

APPENDIX 3: Progress to 2015-2019 Strategic Plan goals; cumulative and total annual results

Progress to 2015-2019 Strategic Plan goals

- Energy Trust achieved **121% of the strategic plan electric savings goal** of 240 average megawatts through 2019.
- Energy Trust achieved **138% of the strategic plan gas savings goal** of 24 million annual therms through 2019.
- Energy Trust achieved **165% of the strategic plan renewable generation goal** of 10 aMW through 2019.



Cumulative and total annual results

- **Total annual savings of 782.5 aMW** have been realized since electric efficiency programs began in 2002, equivalent to powering more than 667,000 Oregon homes. This total includes 25 aMW of savings from self-direct customers.
- **Total annual savings of 71.2 million therms** have been realized since gas efficiency programs began in 2003, equivalent to providing gas heat to more than 140,000 Oregon homes.
- **Total annual renewable energy generation of 131.9 aMW** has been installed since 2002, equivalent to powering nearly 112,500 Oregon homes.
- **The net economic benefits of Energy Trust 2002-2019 expenditures, energy savings and renewable energy generation added $8.3 billion to the local economy**, including $2.6 billion in wages, $442 million in small business income and employment equivalent to 6,700 full-time jobs lasting a decade.
- **Through 2019, air quality improvements stemming from Energy Trust investments have kept more 32.7 million tons of carbon dioxide out of the atmosphere**, equivalent to removing more than 6.9 million cars from Oregon roads for one year.
- **Since 2003, Energy Trust has invested more than $19 million in energy-efficiency projects at more than 1,040 public and private K-12 Oregon schools and facilities** and provided nearly $4 million in funding for 81 solar electric and wind energy systems at 71 public and private K-12 schools. (Previous reports counted multiple buildings on a single school campus as more than one project site.)

- **Energy Trust investments in energy efficiency and solar generation will save utility customers nearly $8.2 billion** on their utility bills over the lifetime of those investments. Participating customers have already saved more than $3.9 billion on their energy bills since 2002.

APPENDIX 4: Renewable resource development targets

A. Purpose of project development assistance

Energy Trust provides project development assistance and installation incentives for projects that will generate renewable electricity from hydropower, biopower, municipally-owned community wind and geothermal resources.

The primary goal of project development assistance is to increase the number of distributed renewable energy generation projects in Oregon by lowering early stage development barriers and financial risk. Through project development assistance, Energy Trust builds a pipeline of projects that have achieved critical pre-construction activities, including technical and financial assessments. Development assistance also prepares proposed project owners to apply for Energy Trust installation incentives and other sources of financial support. The early-stage analyses delivered through development assistance, such as feasibility studies, build and reinforce Energy Trust's awareness of market factors and other considerations important for supporting distributed renewable energy resources while helping individual projects leverage other incentives, construction services and long-term financing.

Applications for project development assistance must be received and approved by Energy Trust prior to the start of the proposed development activity. Project development assistance incentive funds are provided as a reimbursement following completion of the activity and proof of full payment to all contractors. Incentive funding typically equates to 50% of the project activity cost, up to a maximum of $200,000. Project proponents have a significant financial stake in development activities, helping ensure that activities are necessary and fiscally prudent. Common examples of project development activities include feasibility and design studies, feedstock studies, irrigation district modernization assessments, and transmission and interconnection studies.

While project proponents using any eligible technology can apply for project development assistance incentives, staff focus their efforts in two key areas:

1) Electricity generation from the combustion of biogas, which is created by the anaerobic digestion of organic wastes at water resource recovery facilities (also known as wastewater treatment plants) and businesses that manage organic materials (such as food processors).
2) Hydroelectric projects made possible from the modernization of irrigation water delivery infrastructure (canals and laterals) by irrigation districts.

B. Barriers to project development

Energy Trust's project development assistance is designed to address the main barriers to renewable energy project development. Barriers in 2019 remained similar to those in previous years and in some instances increased (e.g., higher capital costs for materials and labor). Helping projects overcome these barriers builds a pipeline of projects that can apply for incentives, complete construction and generate renewable energy.

- **Early stage development capital is scarce.** Renewable energy projects with above-market costs are often regarded as high risk when investing money at the beginning of the project. Investors are reluctant to put funds into projects with unclear potential, especially when a project may have a lengthy return on investment.

Without early stage funding, a project cannot advance to the point where the risk is reduced. By providing early stage funding, Energy Trust builds a pipeline and helps move projects forward, enabling them to attract additional financing and reach commercial operation. On the other hand, early stage assessments may also help inform the market if a project is determined to not be technically or financially viable. Energy Trust helps project owners reach that point with less financial exposure.

- **Project proponents whose primary business is not energy often encounter difficulties navigating the stages of project development.** Energy Trust works with many project proponents (e.g., municipalities, drinking water districts, irrigation districts) that are not professional energy developers. Advancing a project through resource characterization, feasibility assessment, financing, permitting and interconnection can be lengthy and difficult. Project development assistance—both financial and technical—helps project proponents navigate these steps in less time and at a lower cost.

- **Market conditions for distributed renewable generation in Oregon continue to be challenging.** At all stages of the development process, project owners face poor market fundamentals, including low avoided cost rates and greatly diminished state and federal incentives. Utility interconnection appears to be getting harder based on reports from project proponents. Costs for materials, equipment and labor continue to increase. Project development assistance is an essential tool to continue to attract investment in projects in Oregon and to maintain development capacity in the state.

C. Project development assistance activity in 2019

This report details the specific uses of project development assistance in these areas in 2019. Since 2014, Energy Trust has focused on increasing the deployment of project development assistance incentives to build a pipeline of projects that can apply for installation incentive funds.

Summary of project development assistance activity in 2019

Focus areas	Projects supported	Total funds committed*	Total funds spent**
Focus area 1: Biogas	1	$45,100	$0
Focus area 2: Irrigation hydropower	19	$1,532,574	$1,759,081
Outside focus areas	8	$80,435	$210,857
Total	28	$1,658,109	$1,969,938

* Total funds committed only includes dollars committed in 2019.

** Total funds spent includes funds committed in 2019 and in previous years.

The 2019 OPUC performance measures for Energy Trust include metrics related to renewable energy and the focus areas in the above table. The first performance measure states:

> *Deploy at least $1.63 million in non-solar project development assistance incentives. Maintain a non-solar project development assistance pipeline in excess of 25 projects. Energy Trust will report the number of projects served, total funds spent and summarize progress through development stages.*

In 2019, the Other Renewables program deployed $1.97 million in non-solar project development assistance incentives to 28 different projects, exceeding the minimum performance measure. The program committed most

of these funds to irrigation hydropower projects, an investment nearly equivalent to that expended in 2018. The program also experienced a decrease in the level of biogas project development assistance over 2018, reflecting two municipal water resource recovery facility biopower projects moving from design to construction. Compared with recent years, market forces such as flat marginal retail energy costs, inexpensive natural gas, increasing cogeneration operations and maintenance costs, and renewable natural gas incentives are making cogeneration from biogas comparatively less economically attractive. In addition, large municipal facilities are investigating the technical and financial viability of directing some or all their biogas to renewable natural gas and not using it for renewable energy generation. Finally, development assistance outside of the focus areas decreased by about 50%, where funds were expended to advance eight renewable electricity projects, specifically agricultural hydropower, municipal water-supply hydropower, unpowered dam hydro and geothermal.

Not reflected in the above table are a significant number of irrigation hydropower projects supported previously. These hydropower projects are in various stages of development, as irrigation districts advancing through modernization processes, including system improvement planning, permitting, fundraising and design, and installation of pressurized irrigation pipe. As a result, while the total number of projects supported financially in 2019 is slightly less than 2018, staff expect several projects to re-enter the pipeline in future years.

D. Focus area: Electricity generation from the combustion of biogas

Biogas projects supported: 1

Milestones met

- Brewery waste-to-energy feasibility assessment

Oregon's businesses and municipalities are obligated to manage and safely dispose of significant volumes of organic material. As Oregon's population grows, the volume of organic material requiring processing and disposal increases as well. Organic waste material, managed daily by food processors, breweries and municipal water resource recovery facilities, are costly to manage and transport and may pose human health risks. Traditional methods of safely managing these materials include land application and landfilling, and in the case of food waste, conveyance to livestock operations.

With recent technological advancements, these materials can serve as a valuable biogas feedstock. Under controlled conditions (e.g., absence of oxygen, controlled temperature), organic materials can produce biomethane, or biogas, through a process known as anaerobic digestion. Biogas, about 60% methane by volume, is a well-recognized renewable energy resource. Biogas may be combusted to serve on-site thermal energy needs, used as a fuel for combined heat and power systems (cogeneration), or conditioned further and compressed for vehicle fuel or injected into existing natural gas pipelines as renewable natural gas.

Oregon's water resource recovery facilities treat wastewater to standards that are protective of human health and the environment. Treating wastewater is an energy intensive process, often the most significant use of energy for a municipality. The sophistication and scale of the treatment facilities range from simple aerobic treatment ponds to technologically advanced anaerobic treatment systems with nutrient recovery.

These publicly managed and funded water resource recovery facilities are ideal locations for investments in energy efficiency and renewable energy generation (primarily biopower, solar and solar + storage). Key

advantages are their public ownership and permanency, along with their highly skilled staff and typically stable or growing base of ratepayers. In addition, they provide an essential public service, have access to low-cost capital, and have significant on-site heat and electricity demands. Project development assistance for municipal biopower projects is typically used for feasibility studies, regional organic material feedstock studies, pre-design and design studies. Additionally, Energy Trust uses operations, maintenance and technical information gleaned from operating municipal biopower projects to inform future projects.

In 2019, there were 11 cogeneration projects at water resource recovery facilities in Oregon, generating nearly 60,000 megawatt hours of net-metered renewable electricity per year. Energy Trust provided installation incentives for seven of these facilities. Two municipal cogeneration projects that received project development assistance were under construction at water resource recovery facilities and on track for commercial operation in 2020 and 2021. These substantial generation projects—600 kW and 1,176 kW in nameplate capacity—were designed for future expansion as their service territories and biogas production grows.

Energy Trust deploys project development assistance to help municipalities learn about the opportunities for adding or expanding generation and to advance efficiently through pre-construction development processes.

E. Focus area: Irrigation hydropower

Energy Trust supports several types of irrigation hydropower projects, which are categorized by customer type and process used. Staff see technically and financially viable hydropower opportunities among irrigation districts, other agricultural water suppliers such as ditch companies and farms where irrigation water is delivered to an individual user. Energy Trust's irrigation modernization initiative provides a comprehensive structure for irrigation districts and other agricultural water suppliers to assess hydropower potential and identify additional water delivery system improvements and benefits.

Irrigation modernization projects supported: 19

Milestones met

- Feasibility studies
- Compilation and evaluation of information on existing water use and infrastructure
- Evaluation of stakeholder needs
- Evaluation of water and energy conservation potential
- Evaluation of environmental benefits and water quality impacts
- Evaluation of hydroelectric potential
- Evaluation of economic impacts
- Development of system optimization plans

Much of Oregon's agricultural water is delivered to farms by irrigation districts or other water providers using aging, open canal systems, many dug more than 100 years ago, which lose significant quantities of water to seepage and evaporation. These municipal systems are ripe for modernization, which would derive lasting energy and water conservation benefits, and create additional opportunities for agricultural security, rural prosperity, drought resiliency and environmental improvements.

Hydropower projects using irrigation water have been a focus for Energy Trust since 2010. Despite challenging renewable energy market conditions, these types of projects remain viable due to the wide range of non-energy

benefits that modernized irrigation systems can provide, substantial grants from state and federal agencies to offset the cost of piping and the concerted efforts by irrigation district managers and agricultural producers.

Modernizing an irrigation district is complex. A significant modernization milestone is the replacement of open canals with pipes, which saves water by eliminating seepage and evaporation. Irrigation canals use gravity to keep water flowing. Once the open system of canals and laterals are piped, the water in the pipe is pressurized by gravity, allowing irrigators to remove the pumps they formerly needed to lift and convey water from the open conveyances, thereby reducing energy use and maintenance costs. Pressurized water may also enable additional upgrades to more water-efficient on-farm irrigation systems (e.g., high-efficiency center pivot irrigators). Surplus water pressure can be used to generate hydropower, with revenues from the sale of renewable electricity helping to finance project implementation.

The irrigation modernization initiative provides irrigation districts and the farmers they serve a one-stop shop to navigate complex agricultural priorities, regulatory requirements, funding needs and environmental concerns. Within each district, the irrigation modernization initiative identifies short- and long-term irrigation goals, assesses opportunities and risks, identifies potential stakeholder partnerships, evaluates and communicates the associated energy, economic, ecological and social benefits of modernization, secures project financing and facilitates project implementation.

This nationally recognized effort reduces the cost and time required for project planning and implementation, addresses key regulatory and institutional barriers, leverages federal, state and private funding, and reduces costs for agency, environmental and agricultural program deployment. This initiative builds awareness that modern agricultural water management can help mitigate the impacts of long-term drought on agricultural production and regional watersheds and ecosystems. Irrigation modernization is replicable and scalable, designed to achieve significant energy, agricultural and ecosystem benefits in Oregon and other western states.

In 2019, irrigation modernization assessments were underway at 24 Oregon irrigation districts. These assessments identify the renewable energy, energy efficiency, agricultural, water conservation, environmental and economic benefits associated with modernization. They also characterize various potential project implementation approaches. Each irrigation district will choose the implementation approach that is right for their patrons and unique situation. After a district's board selects a preferred approach, then design, permitting and financing will begin, followed by contracting and construction.

Since 2015, the Irrigation Modernization Program has been delivered by Farmers Conservation Alliance, a nonprofit that develops natural resource conservation solutions for rural communities. Farmers Conservation Alliance has worked with individual farmers, irrigation districts, agencies, tribes, nonprofits and foundations to form collaborative relationships that support modern irrigation systems. To date, more than 40 megawatts of hydropower potential has been identified across the 13 irrigation districts where energy generation studies have been completed. The potential is spread across many sites, with site-specific capacities ranging from less than 10 kilowatts to more than 10 megawatts. The potential is not evenly distributed geographically, nor do all districts have the internal capacity or risk tolerance to move projects forward on their own. In addition, not all projects can be initiated immediately; some projects require dozens of miles of large diameter pipe to be installed to create the pressure necessary for hydropower and work may be completed in phases over several years. In addition, early results indicate that modernization has the potential to yield significant energy and non-energy benefits. In the Deschutes Basin, eight irrigation districts participating in the program have the opportunity to conserve 60,000 megawatt-hours of energy from pump elimination.

F. Project development assistance outside of focus areas

Energy Trust supported eight projects outside the two focus areas in 2019. These projects represent a wide variety of distributed renewable energy generation opportunities, including municipal water supply and agriculture water supply hydropower. While all are viable, they fall outside our irrigation hydropower and biogas focus areas. Permitting for these projects is often challenging and upfront development costs can be high. Energy Trust remains open to these opportunities and provides staff support but does not engage in targeted outreach to these types of projects.

Milestones met

- Feasibility studies
- County energy planning support

APPENDIX 5: Gross savings

In Energy Trust's annual and quarterly reports to the OPUC, Energy Trust reports results in net savings. Net savings do not include savings from participants who would have completed an energy-saving action even in the absence of the program (also known as free riders) and do include estimates of savings from participants who completed an energy-saving action because of awareness of the program but didn't receive a program incentive (known as the participant spillover effect). This appendix provides Energy Trust's 2019 energy savings in gross savings, which are energy savings that result from Energy Trust programs, regardless of why customers participated.

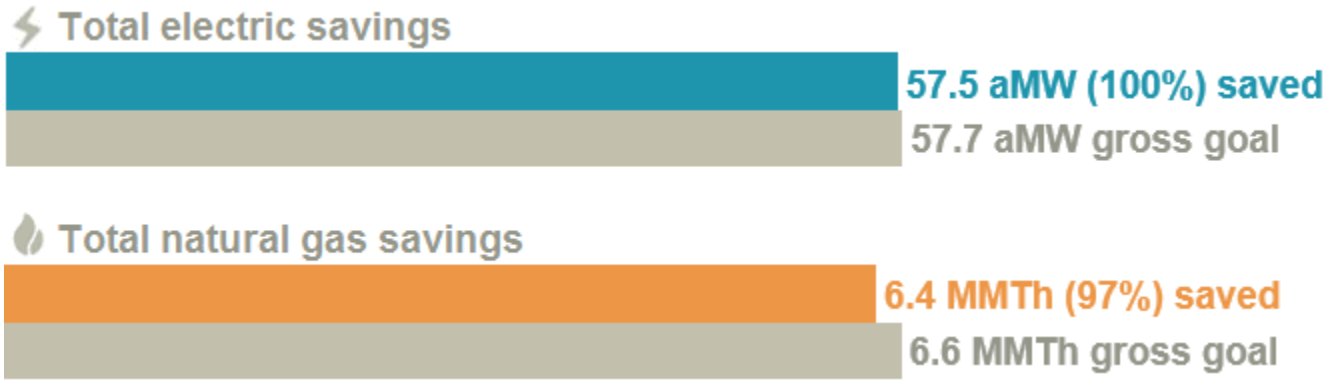
As determined in consultation with the OPUC and stakeholders in 2019, Energy Trust will report savings in gross terms in 2020 and going forward. This is the best representation of Energy Trust's influence because Energy Trust's long-standing presence in the marketplace has become normalized and increasingly programs are designed to account for influence using market baselines. However, Energy Trust will continue to track influence through surveys and market data to determine the appropriate time to exit a market.

Energy Trust's gross energy generation is equal to net renewable energy generation. Because of Energy Trust's mandate to support only renewable projects with above-market costs, these projects are unlikely to move forward without Energy Trust incentives and therefore are not free riders. Based on these factors, Energy Trust claims 100% of generation for all renewable energy projects that receive incentives.

Progress toward gross annual efficiency and generation goals

	Annual savings/ generation (gross)	Annual goal (gross)	Percent Achieved
Electric savings	57.5 aMW	57.7 aMW	100%
Natural gas savings	6,441,641 therms	6,632,525 therms	97%
Electric generation	2.7 aMW	2.3 aMW	121%

2019 gross savings



APPENDIX 6: NW Natural industrial demand-side management activities

Since 2009, Energy Trust has provided service to NW Natural's Schedule 31 and 32 non-transport customers, funded through a special rate adjustment mechanism rather than through the public purpose charge. Program costs and therm savings for these customers in 2019 are included in the body of this annual report as a portion of NW Natural savings and reported separately below.

		Annual savings (therms)		Annual actual expenditures	Levelized cost/therm
Commericial	Existing Buildings	700,050	$	1,361,357	24.4 ¢
	Existing Multifamily	8,897	$	63,098	42.6 ¢
	New Buildings	18,707	$	59,698	29.3 ¢
	Commercial total	**727,654**	**$**	**1,484,153**	**24.9 ¢**
Industrial	Production Efficiency	598,770	$	2,097,132	31.1 ¢
	Industrial total	**598,770**	**$**	**2,097,132**	**31.1 ¢**
	Total	**1,326,424**	**$**	**3,581,285**	**27.9 ¢**

APPENDIX 7: Background, purpose and goals

A. Background

Energy Trust is an independent 501c(3) nonprofit organization funded by and serving Oregon customers of Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas and Avista, and Washington customers of NW Natural. We offer energy efficiency and renewable energy programs and services to every type of customer, including those who own or rent a home or building, product manufacturers, small and large businesses and industries, nonprofit and public organizations, farmers and ranchers.

Our purpose is to help customers and communities reduce costs and realize additional benefits by saving energy and using renewable resources. Since March 2002, we have been entrusted to invest public purpose funds from utility customers and deliver benefits from energy-efficiency improvements and renewable energy generation. We serve customers in coordination with utilities, community and industry organizations, government agencies and two other electric public purpose fund administrators—Oregon Housing and Community Services and the Oregon Department of Energy. Our work helps ensure a more affordable and sustainable energy future for utility customers and contributes to our local and state economy in positive ways.

We provide information, technical expertise and financial assistance to help people modify their energy usage habits, choose high-efficiency products, invest in energy-efficient construction and install renewable energy projects. Our programs and approaches, range of offers tailored to customers, and collaboration with public agencies and community organizations enable us to provide relevant clean energy solutions as technologies and customer needs evolve. With our assistance, participating customers derive a range of benefits—lower energy bills, greater comfort, better indoor air quality, improved productivity and lower carbon emissions.

We believe it is our responsibility to ensure all customers can directly benefit from our services, including people with low and moderate incomes, communities of color and rural communities. In 2019, we developed a Diversity, Equity and Inclusion Operations Plan to better understand where gaps exist so that we can improve and enhance offerings for underserved customers.

As a steward of utility customer dollars, we consistently maintain low administrative and program support costs to ensure the majority of public purpose funds flow back to customers in the form of incentives, services and education. We competitively bid our program management and delivery contracts, ensuring the best prices for the services provided. For most programs, Energy Trust leverages specialized local trade and program ally businesses—many of which employ 20 or fewer staff—that already serve customers in the marketplace. We support and leverage a statewide network of trade ally contractors, allied professionals and participating retailers that are familiar with Energy Trust incentives. By connecting customers directly to this network, Energy Trust helps keep costs low, supports our region’s energy services sector and sustains opportunities in the areas we serve.

We are led by an independent board of directors whose members volunteer their time and expertise. Our work is also shaped by advice from three advisory councils comprised of stakeholders and volunteers. We strive to be inclusive and transparent by holding open meetings and publishing online meeting agendas, notes, independent third-party program evaluations, draft and final budgets and action plans, reports and annual audited financial statements.

We comply with legal requirements and minimum performance measures set forth in our contract with the Oregon Public Utility Commission. Annual goals for electric and natural gas energy savings are developed in consultation with PGE, Pacific Power, NW Natural, Cascade Natural Gas and Avista and built from each utility's Integrated Resource Plan. This collaboration enables Energy Trust to focus on and be accountable for delivering the lowest-cost energy available to meet the needs of every utility customer. In addition, annual renewable energy generation goals are developed using market knowledge obtained through renewable resource assessments.

B. Purpose statement

We help customers and communities reduce costs and realize additional benefits by saving energy and using renewable resources.

C. Vision statement

Clean, affordable energy for everyone.

D. 2015-2019 Strategic Plan goals and strategies

- Save 240 average megawatts of electricity
- Save 24 million annual therms of natural gas
- Install 10 aMW of renewable energy
- Expand participation
- Make energy efficiency more affordable
- Identify new technologies with energy-saving potential
- Continuously improve programs and services
- Provide project development support and incentives for renewable energy projects
- Work more efficiently
- Remain flexible and open to new opportunities

APPENDIX 8: Board of directors; board development guidelines; advisory councils, members and meetings

A. Board of directors

PRESIDENT—Roger Hamilton, Eugene, is a former consultant with Western Grid Group, an organization that promotes transmission access for renewable energy projects across the West. He also consults with The Resource Innovation Group on climate change adaptation and mitigation. He has spent many years in public service as a Klamath County commissioner, an adviser on energy and watersheds to former Gov. John Kitzhaber and an Oregon Public Utility Commissioner. He has also served on the Oregon State Parks Commission, the National Association of Public Utility Commissioners and the board of directors of the Regulatory Assistance Project. *Roger has served as president since February 2018.*

VICE PRESIDENT—Alan Meyer, Salem, is a retired director of energy management for Weyerhaeuser Company, a diversified forest products manufacturing company. In that role, he was responsible for coordinating energy management activities at numerous manufacturing facilities throughout North America. Prior to joining Weyerhaeuser, he was director of energy for Willamette Industries, holding similar responsibilities. He also worked for PacifiCorp as the Oregon large industrial accounts manager. He previously served on the board of directors of Industrial Customers of Northwest Utilities, a nonprofit advocacy organization focused on energy policies. He has also served for more than 20 years on the City of Salem Morningside Neighborhood Association board. *Alan has served as vice president since February 2018.*

SECRETARY—Mark Kendall, Salem, has more than 35 years of experience in energy management and renewable resource development in Oregon. Prior to founding his own consultancy, Kendall Energy, in 2009, he spent 19 years with the Oregon Department of Energy working in commercial and industrial energy management policy, including serving as the governor's appointee to the Northwest Energy Efficiency Alliance board from 2001 to 2006. Before working for the state, he spent 11 years with the Eugene Water and Electric Board. He also served on the Oregon Low Carbon Fuel Standard Advisory Committee and facilitated the 2009 Industrial Greenhouse Gas Reduction subcommittee of the Oregon Global Warming Commission. He received his bachelor's degree from Linfield College with an emphasis in communications and energy management and his master's degree in organizational development from the Leadership Institute of Seattle City University. *Mark has served as secretary since February 2018.*

TREASURER—Susan Brodahl, Portland, is a vice president in the Portland office of Heffernan Insurance Brokers as well as an owner of Heffernan Group. Heffernan Group has more than 400 employees and is ranked in the top tier of all privately held brokerages in the country. Susan believes in a creative approach to insurance using a risk funding model. Susan is a frequent featured speaker at regional and national conventions and has been published in various trade and mainstream journals. She has been awarded the Lifetime Achievement Award from the Painting and Decorating Contractors of America and has an economics degree from Willamette University. *Susan has served as treasurer since February 2018.*

Anne Haworth Root, Medford, is co-owner and general manager of EdenVale Winery and Eden Valley Orchards, a destination winery, historic pear orchard and events center in southeast Medford. A second tasting room, Enoteca, is located in Ashland. An award-winning entrepreneur, Anne developed the concept and helped found the 57 Oregon Wine and Farm Tour, an agritourism coalition of Southern Oregon wineries, historic farms and specialty food and cheese companies. She is a graduate of Southern Oregon University, where she was student body president and chair of the Oregon Student Lobby. She pursued postgraduate studies in the Master of Commerce program at Wollongong University in Australia. *Anne joined the board in December 2011.*

Debbie Kitchin, Portland, is the co-owner of InterWorks LLC, a construction company engaged in commercial tenant improvement and renovation and residential remodeling services. InterWorks is an award-winning contractor specializing in sustainable building practices. Prior to joining the family business in 1996, she served as senior economist for the Northwest Power and Conservation Council for 15 years and was a regional economist for the Bonneville Power Administration for three years. Debbie is vice chair for government relations of the Portland Business Alliance and is a board member for Greater Portland Inc. She is past president of the Central Eastside Industrial Council, a past board member of the Portland Building Owners and Managers Association and a past president of the Portland Commercial Real Estate Women. *Debbie joined the board in April 2004.*

Elee Jenn, Newberg, is principal marketing and business development manager at Energy Performance Engineering LLC in Newberg. She helps building owners construct and maintain high-performance energy efficient facilities through system commissioning and building control services. Many of Energy Performance Engineering's clients are schools, colleges and governments, including Portland Community College in Newberg. An accredited Leadership in Energy and Environmental Design professional, Elee holds a master's in analytical chemistry and a bachelor's in chemistry. *Elee joined the board in October 2018.*

Eric Hayes, Beaverton, is the state organizing coordinator for the International Brotherhood of Electrical Workers. He engages and organizes electrical workers to achieve better wages, pension, insurance and training. With 23 years at IBEW, Eric's multiple roles included recording secretary, vice president and president of Local 48. During this time, Eric served as a trustee of the Edison Pension Trust, Harrison Health Trust and the Apprenticeship Trust. He was also president of the Electrical Minority Workers Caucus Portland Chapter, which promotes minorities and women in IBEW. *Eric joined the board in October 2018.*

Ernesto Fonseca, Portland, is the chief executive officer of Hacienda, an Oregon community development corporation and social enterprise that advances the livability, health and economic progress of underserved communities in the Pacific Northwest. He has dedicated the past 17 years of his career to the development of high quality, affordable housing and social services in Mexico and the United States. Ernesto brings ample experience in community development, housing and energy access from his time working with the Housing Authority of Maricopa County and the City of Avondale, and Arizona State University. He holds a master's in energy performance and climate responsive architecture and a doctorate in environmental design and planning from Arizona State University. *Ernesto joined the board in May 2018.*

Henry Lorenzen, Pendleton, has a resume that spans working as a partner at Corey, Byler, Rew, Lorenzen and Hojem law firm to running his family's 4,000-acre wheat farm. From 2002 to 2018, he served on the Northwest Power and Conservation Council, which develops a regional power plan and fish and wildlife program. He also served on the Oregon State Board of Higher Education, Oregon Fish and Wildlife Commission, Oregon Environmental Quality Commission, and on the boards of Oregon Public Broadcasting and the Oregon Historical Society. Henry's education includes a law degree from Lewis & Clark Law School, a master's in business

administration from Harvard University and a bachelor's in electrical engineering from Oregon State University. He is certified professional electrical engineer. *Henry joined the board in October 2018.*

Lindsey Hardy, Bend, is the program director of the Bend Energy Challenge, a program of The Environmental Center. Before that, she was the outreach director at Sunlight Solar Energy. She sat on the steering committee of the High Desert branch of the Cascadia Green Building Council for three years and planned Central Oregon's Green and Solar Tour. As an AmeriCorps volunteer with the University of Oregon's Resource Assistance for Rural Environments, she oversaw the Solarize Pendleton campaign, helping neighborhoods benefit from efficiency of scale in residential solar installations. She graduated from Ithaca College with a bachelor's in environmental studies. *Lindsey joined the board in May 2015.*

Melissa Cribbins, Coos Bay, is a Coos County Commissioner and attorney. Prior to her election in 2012, she worked for the Coquille Indian Tribe as in-house counsel for six years. Before Melissa became an attorney, she worked for the City of Spokane and Eugene Water and Electric Board in the field of water quality. She is a member of the Oregon State Bar, the Washington State Bar and is active in many organizations in Coos County and statewide. She is a graduate of Portland State University and Gonzaga University. *Melissa joined the board in February 2014.*

Roland Risser, Washington County, has extensive knowledge of residential, commercial and industrial energy efficiency program design, development and implementation, including low-income energy efficiency programs. He retired from the U.S. Department of Energy, where he was director of the Building Technologies Office and then deputy assistant secretary of Renewable Power. His decades of energy experience include multiple leadership positions at Pacific Gas and Electric and serving on national boards for the American Council for an Energy-Efficient Economy and the Consortium for Energy Efficiency. Roland earned a master's in biology from California Polytechnic State University, a bachelor's in biology from the University of California at Irvine and graduated from the Haas School of Business at University of California at Berkeley. *Roland joined the board in October 2018.*

Ex-officio: Oregon Public Utility Commission

Steve Bloom, Salem, was one of three Oregon Public Utility Commissioners and was an active commissioner during his time on the Energy Trust board. He was a water rights lawyer in Pendleton and part-time U.S. magistrate judge. In 2005, he joined the Peace Corps and went to Armenia to work on amending that country's constitution. He was then asked to head a judicial reform program. Upon returning to Oregon, he was counsel to an international wind energy company for four years. He was appointed to the OPUC in 2011. He attended Dartmouth and Stanford and has a bachelor's in English and a J.D. from Willamette College of Law. *Steve served on the board as ex-officio from January 2016 to July 2019.*

Letha Tawney, Portland, is one of three Oregon Public Utility Commissioners and was appointed by Gov. Kate Brown in June 2018. Prior to this, Letha worked for the World Resources Institute as an expert on clean energy development and large customer buying strategies. As the Polsky Chair for Renewable Energy, she led the Institute's work on propelling innovation in business and regulatory models in the power sector. Now Letha represents Oregon on the Electricity and the Critical Infrastructure committees for the National Association of Regulatory Utility Commissioners. She also serves on the Energy Imbalance Market Board of State Regulators, engaging closely on Western electricity market development. Letha has a master's degree in public administration from the Harvard Kennedy School and a bachelor's in business and computer science from George Fox University. *Letha joined the board as ex-officio in October 2019.*

Special board advisor: Oregon Department of Energy

Janine Benner, Salem, joined ODOE in 2017 as assistant director for planning and innovation. In this role, she leads the department's work on clean energy policy development and implementation of energy efficiency programs and services. Janine came to ODOE from the U.S. Department of Energy, where she served as associate assistant secretary in the Office of Energy Efficiency and Renewable Energy, the largest government funder of clean energy research and development. Before that, she served as deputy assistant secretary in the department's Office of Congressional and Intergovernmental Affairs. Janine also spent 12 years working for Rep. Earl Blumenauer, first as an energy and environmental policy adviser and then as deputy chief of staff. She grew up in Portland and has a degree in history from Princeton University. *Janine joined the board as special board adviser in April 2017.*

B. Board development guidelines

Energy Trust's board of directors is a non-stakeholder, volunteer board. It oversees Energy Trust management, provides strategic and policy direction and approves the organization's budget and major expenditures. The board carries out its oversight role collectively and through several committees. The board's bylaws ensure Energy Trust board meetings and other processes are clear, open and accessible to the public.

The Oregon Public Utility Commission grant agreement with Energy Trust calls for the Energy Trust board to include the skills, broad representation and diversity necessary to achieve the nonprofit's mission. As board openings arise, the board has traditionally consulted advisory councils, individuals and collaborating organizations to identify candidates with appropriate experience from throughout the state. In an effort to increase diversity on the board, it added process steps to identify and reach out to community-based organizations with knowledge of underserved customers when the board is recruiting for an open position.

The 2019 board included 13 voting members with background in business, private consulting, government, utilities, trades, nonprofits and higher education. Members come from Bend, Coos Bay, Eugene, Medford, Newberg, Pendleton, Salem and the Portland metropolitan area. The board's OPUC ex-officio member is Commissioner Letha Tawney. Janine Benner, director of the Oregon Department of Energy, has been a special board adviser since April 2017. The ex-officio and special board adviser are not voting members.

All voting board members complete and sign disclosure of economic interest forms each year. The OPUC ex-officio board member and the special adviser from the Oregon Department of Energy do not receive confidential information. Once a year, board and staff members participate in a planning session to review progress and discuss Energy Trust's strategic direction. In 2019, the board Strategic Planning Committee led development of the 2020-2024 Strategic Plan, adopted by the board in October. Board members are supported to undertake ongoing development activities. In addition, board governance and fiduciary responsibility training is provided to new board members in orientation and to all board members in conjunction with the board's annual meetings.

C. Advisory councils, members and meetings

The following lists of advisory council members reflect every member who served during all or part of 2019. A new Diversity Advisory Council was established in 2019 and added members in 2020.

In addition to the council meetings detailed below, Energy Trust held a 2020 Draft Budget Workshop in October for the three councils and the public.

Conservation Advisory Council

Al Spector, Cascade Natural Gas
Anna Kim, Oregon Public Utility Commission
Charlie Grist, Northwest Power and Conservation Council
Danny Grady, City of Portland Bureau of Planning and Sustainability
Dave Moody, Bonneville Power Administration
Holly Braun, NW Natural
Jason Klotz, Portland General Electric
Julia Harper, NEEA
Kari Greer, Pacific Power
Kerry Meade, Northwest Energy Efficiency Council
Lisa McGarity, Avista
Tim Hendricks, Building Owners and Managers Association
Tyler Pepple, Alliance of Western Energy Consumers
Warren Cook, Oregon Department of Energy
Wendy Gerlitz, NW Energy Coalition
Will Gehrke, Citizens' Utility Board of Oregon

2019 meeting dates	Major discussion topics
February 2	Joint meeting with Renewable Energy Advisory Council; 2020-2024 Strategic Plan; diversity, equity and inclusion update; potential impacts of climate change-driven weather on future value of energy savings
February 27	Operating principles overview; preliminary year-end results; approaches to net zero in the residential sector; 2019 measure development preview
April 10	Residential Pay for Performance pilot update; changes to the Strategic Energy Management initiative for industrial customers; 2020-2024 Strategic Plan update; update on transition from net to gross savings in reporting; updated electric and gas avoided costs
May 22	Clean energy advancements in Washington State; draft 2020 organizational goals; commercial and industrial lighting strategy
June 26	Portland Clean Energy Fund; draft 2020-2024 Strategic Plan; Existing Multifamily program assessment
July 31	2020 organizational goals; 2020 budget engagement; cost-effectiveness exceptions requests; Eastern Oregon outreach; potential changes to Pay for Performance in 2020
September 18	Year-end forecast on 2019 efficiency goals; 2020 action plans preview; 2020 program and measure changes; board of director recruitment
November 20	Draft 2020 budget and 2020-2021 Action Plan; Diversity Advisory Council update; Bonneville Power Administration energy efficiency programs; New Buildings program changes in response to state's new building code; residential marketing campaign; Existing Multifamily program assessment

Diversity Advisory Council

Charity Fain, Community Energy Project
Cheryl Roberts, African American Alliance for Homeownership
Kaeti Namba, Native American Youth and Family Center
Kheoshi Owens, Empress Rules
Oswaldo Bernal, OBL Media LLC

2019 meeting dates	Major discussion topics
September 17	Board of directors recruitment; 2018 Customer Insights Study
November 19	Community Solar Development Assistance incentives; Solar Within Reach offerings; Existing Multifamily program assessment; 2020 draft budget update; 2020-2024 Strategic Plan updates; community-based organization engagement in customer surveys; diversity lead staff recruitment

Renewable Energy Advisory Council

Alexia Kelly, Electric Capital Management
Andria Jacob, City of Portland
Anna Kim, Oregon Public Utility Commission
April Snell, Oregon Water Resources Congress
Dick Wanderscheid, Bonneville Environmental Foundation
Erik Anderson, Pacific Power
Frank Vignola, Solar Monitoring, University of Oregon
Jaimes Valdez, City of Portland's Portland Clean Energy Community Benefits Fund
Jason Busch, Pacific Ocean Energy Trust
Josh Halley, Portland General Electric
Kendra Hubbard, Solar Energy Industries Association
Les Perkins, Farmers Irrigation District
Michael O'Brien, Renewable Northwest
Oriana Magnera, Verde
Rebecca Smith, Oregon Department of Energy
Suzanne Leta, SunPower

2019 meeting dates	Major discussion topics
February 2	Joint meeting with Conservation Advisory Council; 2020-2024 Strategic Plan; diversity, equity and inclusion update; potential impacts of climate change-driven weather on future value of energy savings
February 27	Preliminary year-end results; Solar program strategies to support higher-value installations; residential net-zero specification
April 10	Energy Trust's Renewable Energy Certificate policy; Energy Trust's role in Oregon Community Solar; diversity, equity and inclusion baseline data; 2020-2024 Strategic Plan
May 22	Potential incentives for community solar projects; draft 2020 organizational goals
June 26	Feedback on draft 2020-2024 Strategic Plan; draft 2020 organizational goals; above-market cost policy and procedures

September 18	2020 action plan preview; incentives for small community solar projects; diversity, equity and inclusion performance measure; board of director recruitment
October 16	Proposal for Community Solar Development Assistance incentives
November 20	Community Solar Development Assistance incentives; Solar Within Reach incentives for moderate-income families; draft 2020-2021 budget; solar + storage and resilience

APPENDIX 9: Impacts on utility peak demand

This appendix provides an annual update on Energy Trust's impact on utility demand. It describes ongoing and future approaches to work with utilities and other stakeholders to employ distributed energy resources to mitigate peak demand on a systemwide basis for utilities, alleviate local distribution system constraints and lower utility costs for the benefit of ratepayers. This appendix also discusses the impacts energy efficiency and renewable resources have on peak demand and the progress being made on the further development of methods to quantify and value the impact peak demand reductions have on utility transmission, supply and distribution systems.

Specifically, this appendix addresses the following purposes:

- Report Energy Trust's annual program impacts on peak demand for electric and natural gas utilities. This includes expected winter and summer coincident peak capacity contribution estimates from 2019 energy efficiency and solar generation measures.
- Assess data and tools needed to link utility system management objectives to specific Energy Trust actions. These might include actionable information about opportunities to avoid specific system investments; description of methods for linking the areas where investments are needed in demographic and load data for program targeting; and possible enhancements to cost-effectiveness analyses considering capacity and other values to the grid.
- Identify and report on complementary pilots and initiatives that reduce peak demand and meet corresponding grid optimization objectives, developed in coordination with utilities. This includes work with utilities to identify where and how Energy Trust programs reduce demand on critical elements of the power delivery system.

A. Report the value of current program impacts on peak demand

Energy Trust helps customers install energy efficiency and renewable generation measures that not only save energy and offset electric and gas loads but also provide additional benefits to the utility system and to ratepayers. Energy Trust will continue to improve its understanding of how energy efficiency savings and renewable generation provide these additional benefits to utilities. Energy Trust is incorporating this evolving knowledge into avoided cost benefit calculations to estimate the value of impacts of energy efficiency activities on utilities' peak demand.

Peak demand reduction estimates from energy efficiency

For 2019, Energy Trust estimated peak demand reductions from electric and gas energy-efficiency projects by calculating the percent of annual energy savings that occur during the system's peak time periods identified by utilities and documented and approved by the Oregon Public Utility Commission (OPUC) for use in the calculation of Energy Trust avoided costs via OPUC docket UM 1893. To estimate the portion of electric energy savings in those periods, Energy Trust relied on load profiles taken from the Northwest Power and Conservation Council's Seventh Power Plan.[36] For natural gas, Energy Trust calculated both peak-day demand reductions and peak-hour demand reductions by relying on peak factors from two sources: peak-day factors were based on electric analogs taken from the Northwest Power and Conservation Council's Seventh Power Plan for several end-uses, and peak day factors for space heat end-use savings were developed by NW Natural. Energy Trust relied on peak-hour

[36] https://nwcouncil.app.box.com/s/ph0by9u53vygowx42rms5oytojhdmg5x.

factors developed by NW Natural for all end-uses.[37] These factors are used to calculate gas peak reductions by end-use at the measure level.

Energy Trust's electric efficiency programs resulted in the following peak demand reduction estimates for 2019.

Table 1. 2019 Net electric system efficiency peak demand reduction estimates (MW) at generator

Utility	Summer MW	Winter MW	Total aMW Saved
PGE	37.8	42.0	32.8
Pacific Power	22.2	27.6	20.5
Total	**60.0**	**69.6**	**53.3**

For gas measures, Energy Trust calculated peak-day and peak-hour natural gas savings, presented in the table below.

Table 2. 2019 Net natural gas system efficiency peak demand reduction estimates (therms)

Utility	Peak-day therms	Peak-hour therms	Total therms Saved
Northwest Natural	62,394	4,304	5,019,618
Cascade Natural Gas	5,632	389	498,517
Avista	4,603	333	384,599
Total	**72,628**	**5,026**	**5,902,734**

The above 2019 tables do not include Northwest Energy Efficiency Alliance activities. Energy Trust does not disaggregate market transformation savings into end-use profiles that would allow us to quantify peak demand savings.

Peak demand reduction estimates from solar electric generation

Energy Trust estimated 2019 average peak demand contributions from residential and non-residential solar electric projects. Energy Trust estimated average generation from installed solar projects for multiple locations throughout Energy Trust territory during peak hours by using monthly generation profiles for representative project types based on variation caused by shading, tilt, orientation and geographic location. Actual peak contributions for each project varies based on time of day and weather. **Table 3** shows the average solar generation over the peak

[37] Northwest Natural peak factors can be found in Chapter 4 of Northwest Natural's 2018 IRP on pages 4.7 and 4.8. Available online at https://www.nwnatural.com/uploadedFiles/NW%20Natural%202018%20IRP.pdf.

period identified by each utility for each season. The figures below show the average daily solar generation profile shape by season and utility.

Table 3. 2019 solar electric generation peak demand reduction estimates (MW)

Utility	Summer MW	Winter MW	Total Generation (MWh)
PGE	2.65	1.15	12,765
Pacific Power	2.95	0.65	11,041
Total	**5.60**	**1.80**	**23,806**

Figure 1: Average hourly summer solar generation profile from all 2019 solar installations in Portland General Electric territory

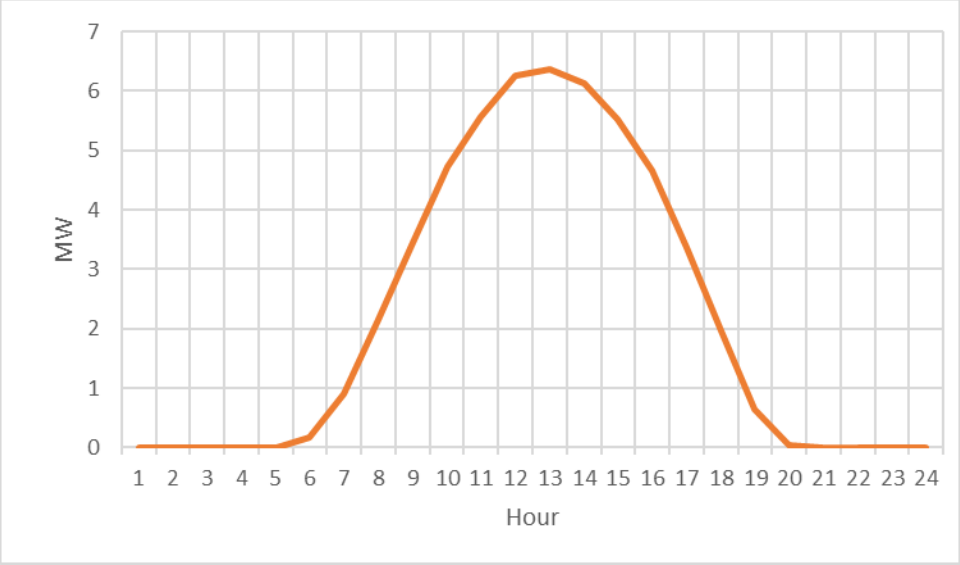


Figure 2: Average hourly winter solar generation profile from all 2019 solar installations in Portland General Electric territory

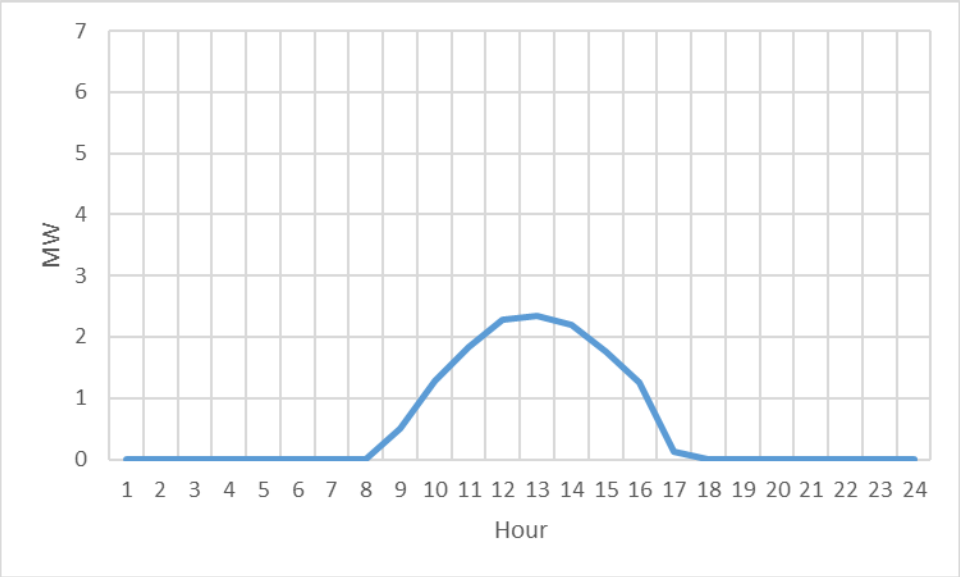


Figure 3: Average hourly summer solar generation profile from all 2019 solar installations in Pacific Power territory

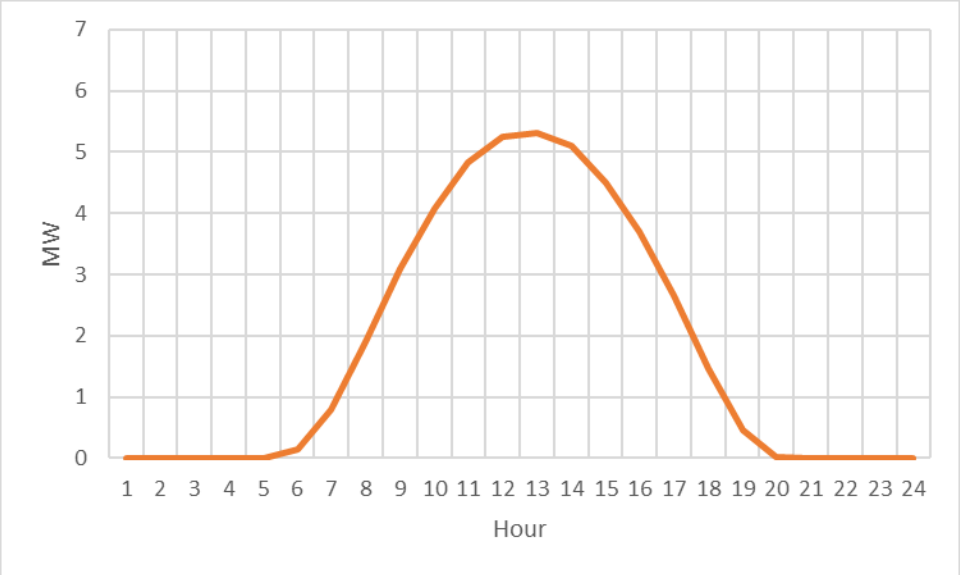
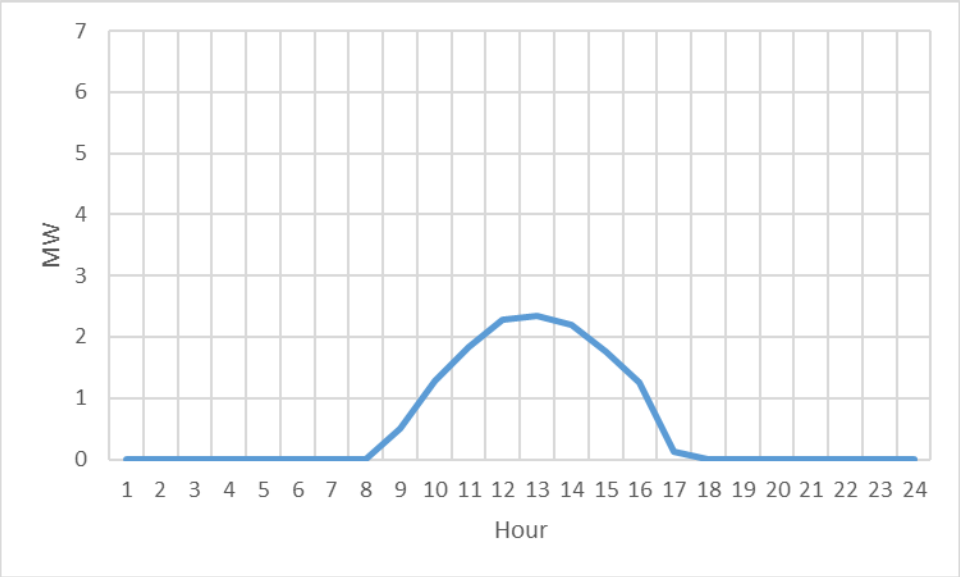


Figure 4: Average hourly winter solar generation profile from all 2019 solar installations in Pacific Power territory



The above 2019 tables and figures exclude demand reduction estimates from renewable energy generation projects other than solar electric projects. Energy Trust has not incorporated these impacts into reporting because there are a relatively small number of projects with high degrees of production variability. More work is required to estimate the demand contributions of these projects and Energy Trust will consider doing so in future reporting.

B. Data and tools needed to link utility grid objectives to specific Energy Trust actions

Energy Trust began to work with Kevala Analytics as part of a U.S. Department of Energy grant to share past renewable energy and energy efficiency project information to facilitate planning for the interconnection and integration of distributed energy resources such as energy efficiency, solar and solar plus storage. In 2020, Energy Trust will continue that work under a contract in order to continue to explore the ability of the tool to provide transparency into localized grid constraints, areas of increased interconnection cost and the impacts on the distribution grid of delivering distributed energy resources. Energy Trust will coordinate with stakeholders as appropriate and all results will be shared with the OPUC, PGE and Pacific Power.

Beginning in September 2018, Energy Trust and PGE partnered to deliver direct installation of smart thermostats in PGE territory. Customers receiving direct install smart thermostats are required to be automatically enrolled in PGE's Smart Thermostat Demand Response program. In 2019, the direct install offering led approximately 4,200 smart thermostats being installed in homes in PGE territory. PGE uses advanced metering infrastructure (AMI) technology throughout its system, with AMI producing 15-minute interval readings collected on meters for homes and businesses. AMI data's availability, paired with Energy Trust program data, provided a unique and rich dataset that can be used to fill gaps about our understanding of a smart thermostat's energy efficiency and demand response impacts throughout each hour of the year. In 2019, Energy Trust contracted with the Cadmus Group Inc. to develop a savings profile for smart thermostats. Energy Trust will work with the RTF to operationalize smart thermostat savings shapes when they are completed in 2021.

The Northwest Energy Efficiency Alliance (NEEA) and regional stakeholders began the End-Use Load Research (EULR) project in 2019 to help gather meter data for load profile development. The region has not conducted large-scale studies on how different types of residential and commercial customers use electricity on a daily basis for almost 30 years. The Home Energy Metering Study and the Commercial Energy Metering Study aim to address deficiencies for a number of end-use profiles. The EULR study is a key component of Energy Trust's strategy to update end use and whole home load shape estimations. This study design was informed by a collaborative planning effort conducted by NEEA's partners, including Energy Trust. The main objective of this study is to develop a robust characterization of energy consumption of key heating and cooling measures to support planning and implementation to pursue clean energy goals and support utility information needs. Key benefits include:

- An updated framework to assess the contributions energy efficiency technologies make to reducing utility peak demand
- Better understanding of how to integrate renewable energy into the grid, increasing reliability as the deployment of distributed generation and new end use technologies increases over time
- Prioritized data by end use for application in a range of utility functions including demand response, load forecasting and resource planning

C. Energy Trust activities that help meet grid objectives in coordination with utilities

Energy-efficiency programs have the potential to help electric and natural gas utilities address demand-related challenges. Energy Trust can provide further benefit to utility systems by increasing the saturation of energy-efficient, demand response-capable equipment (such as internet connected thermostats and heat pump water heaters with built in Wi-Fi), providing additional options for utilities when considering potential demand response programs. Utility demand response programs can use this equipment as a resource in reacting to peak demand events. Through targeted load management pilot designs, Energy Trust is exploring offering additional incentives for measures and services that contribute to coincident peak demand reduction. Additionally, Energy Trust's well-established program marketing and outreach efforts, sales channels, contractor connections and customer relationships may prove valuable to utilities in marketing combined efficiency and demand management equipment and service packages.

Energy Trust is working on the following grid optimization related efforts.

Coordination with Portland General Electric

Energy Trust acts as a representative on PGE's advisory committee for its Smart Grid Test Bed Demand Response pilot. In this role, Energy Trust provided advice on the design of the test bed and feedback on the written pilot proposal PGE submitted to the OPUC. While awaiting the OPUC's decision on the proposal, Energy Trust is helping PGE further prepare for the test bed through the development of coordinated marketing arrangements and joint measures as described below.

In 2019, Energy Trust worked with PGE to help expand the customer base of smart thermostats that could be enrolled in PGE's demand response program. One of the primary points of coordination with PGE is the residential thermostat direct install program where Energy Trust and PGE co-fund the installation of qualified smart thermostats in targeted locations with the intention of reaching respective energy efficiency and demand

response objectives. In 2019, Energy Trust worked with PGE to launch a pilot aiming to install smart thermostats in small- to medium-sized businesses and evaluate the energy and demand curtailment impacts of smart thermostats in these businesses.

Grid harmonization in new home construction

In 2019, Energy Trust completed a research effort to understand opportunities for Energy Trust residential new construction programs to deliver benefits to the grid. This exploration revealed that in the future, distributed energy resources (DERs) will deliver significant value for residential customers and utilities. The research suggested that program and installation costs of DERs could be reduced if DERs were considered and adopted during the construction of a home as opposed to being retrofitted into the home at a future date. DERs identified during this research included demand response enablement, solar or solar readiness, electric vehicle charging, battery storage and others. In 2020, Energy Trust plans to work with stakeholders to begin integrating existing and new emerging DER technologies into the Energy Performance Score (EPS) program design.

Targeted load management pilots with utilities

Energy Trust collaborated with Pacific Power to implement a targeted load management pilot in the North Santiam Canyon from July 2017 through December 2018. The goal of that pilot was to test the quick deployment of energy efficiency in a targeted area. The targeted area has 180 projects completed, compared with 170 projects within the baseline period, representing a 6% increase in participation in the targeted area. In addition, all the projects implemented saved 6,451,932 kWh representing 878 kW of summer peak demand reduction and 901 kW of gross winter peak reduction. In 2019, Energy Trust collaborated with Pacific Power to launch a second targeted load management pilot in the Phoenix area. This pilot builds off the learnings of the North Santiam Canyon by increasing the flexibility of Energy Trust's energy efficiency and solar program offerings and delivery strategies and testing the efficacy of additional tactics to achieve demand reduction objectives. One example is integrating and promoting pilot measures that have the potential to achieve greater peak savings and provide increased incentives up to the maximum incentive allowed under current avoided costs to achieve pilot goals. The implementation phase of the pilot began in June 2019 and will continue through December 2020.

In 2019, Energy Trust and NW Natural continued development of a three-phased pilot project to determine a value per peak therm that NW Natural can use to vet energy efficiency against other supply side resources to address future location specific constraints. NW Natural filed the pilot proposal with the OPUC as an amendment to their 2018 Integrated Resource Plan (IRP) in the spring of 2019. The proposal includes pilot design, a research hypothesis, key research questions and the overall objectives of the pilot. The team initially planned to launch in Silverton in August 2020 but changed gears and launched in the Creswell and Cottage Grove areas in September 2019 after discovering a lack of available data in Silverton. The project is currently in Phase 1, promoting increased marketing and outreach to the area to determine impacts. Phase 1 is set to run through July 2020. Phase 2 (August 2020 to July 2021) will focus on providing increased incentives up to our current cost-effectiveness caps. Phase 3 (August 2021 to July 2022) is pending OPUC approval and aims to look at applying a localized avoided cost value for the project area.

Quantifying peak natural gas savings with NW Natural

Energy Trust continued working with NW Natural to improve our avoided cost methodology as part of OPUC AR 621 to incorporate the supply and distribution capacity values associated with peak savings. In 2019, Energy Trust began using peak hour values for avoided natural gas distribution costs, aligning more closely with utility system planners. In 2020, Energy Trust hopes to continue to advance our understanding of peak hour coincident

factors for natural gas and improve the list of end-uses and peak hour factors used to assess natural gas end-use coincidence during a peak hour.

APPENDIX 10: Higher-value solar applications

In 2019, as an addition to standard program offerings, the Solar program focused on activities to improve equitable access to solar for lower-income customers and to support innovative applications of solar that provide greater value to communities or the grid. For 2018, OPUC staff requested through public budget comments that Energy Trust track certain metrics to provide greater visibility to progress on this work:

Track and report in the 2018 annual report the number of solar systems that received Energy Trust incentives and also had a battery storage system, advanced interconnection and communication devices, or would be considered moderate-income.

Since this remains an area of interest, this appendix addresses that request and provides additional context on potential benefits of higher-value applications of solar, market barriers and recent trends.

A. Advanced solar systems

Solar systems with battery storage and advanced interconnection can provide greater benefits to customers and the grid compared with conventional solar. Energy Trust defines advanced solar systems as those that integrate photovoltaics with advanced inverters, advanced storage and/or complimentary flexible loads.

There are tradeoffs that must be considered in how advanced solar systems prioritize customer and grid benefits, because accessing certain benefits can have a negative effect on the systems' ability to deliver other benefits. For example, customers may experience less solar production when allowing their system to provide other grid services. Additional benefits of advanced solar systems can be captured through a simple or passive approach, such as market-based price signals or pre-programming the equipment with specific ride-through windows, or a more complex or active approach, including the system actively monitoring site load to mitigate peak or responding to utility signals to provide demand response.

One customer benefit that has been a driver for adoption of solar with advanced battery energy storage systems—or solar + storage—is energy resilience. Municipal and public safety customers are especially interested in installing solar + storage systems to provide resilient power during outages required to mitigate wildfire risk or following a major disaster like a Cascadia subduction zone earthquake.

In 2019, Energy Trust completed market research to better understand customer drivers, market barriers and potential benefits for solar + storage. Key findings included:

- **Upfront costs are a barrier.** While the decision to install solar or solar + storage is not primarily a financial one, upfront costs can be a barrier, especially for low- to moderate-income customers. Additionally, without a time-of-use or similar rate structure that allows battery storage to provide ongoing value and be used to decrease customers' monthly energy bills, battery storage systems do not provide customers with a payback.
- **Energy resilience is not commonly understood.** Resilience was frequently mentioned in the literature review and in interviews with solar trade ally contractors. However, customers in focus groups did not mention the concept by name. Instead they indicated a desire to have more control over their energy, while some liked the idea of backup power for critical services such as well pumps.

- **More information is needed.** Customers expressed confusion as to how solar + storage systems operate and what they can and cannot power during an outage. Customers also had questions about the environmental impact of battery storage. Solar trade ally contractors indicated they do not bring up storage unless asked and sometimes steer customers away from the technology.
- **Solar can promote energy awareness.** Customers indicated installing solar often creates a "positive feedback loop," spurring greater awareness of their energy use. Several customers reported trying to use energy during off-peak hours more often, interest in adding storage if they have not already and/or switching to electric vehicles.

In 2020, Energy Trust's Solar program will undertake the following strategies and initiatives to address market barriers and further support market drivers for increasing adoption of solar + storage:

- Provide technical and sales training to solar trade ally contractors about solar + storage system capabilities, design and installation so they can more effectively communicate the value to customers.
- Provide educational workshops for customers on the current technology and any tax credits, state rebates or other incentives available to lower their upfront costs.
- Raise customer awareness broadly of solar + storage technology and connect customers with solar trade ally contractors who can provide custom quotes.

Advanced inverter adoption

California and Hawaii were driven to adopt advanced inverter requirements prior to the Institute of Electrical and Electronics Engineers (IEEE) updating its Standard 1547 in 2018 due to the volume of solar installations being interconnected to their utility grids. As a result of these two high volume and influential markets requiring advanced inverter capabilities, most solar inverters installed today have advanced capabilities that include grid-support functions, such as voltage or frequency ride-through.[38] Currently, Oregon Administrative Rules don't acknowledge the update within the state's Net Metering Rules[39] and Small Generator Interconnection Rules.[40] The updated IEEE 1547-2018[35] standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces identifies how to take advantage of advanced inverter functionality.[41]

The Solar program collects inverter manufacturer and model data for each system installed and has identified models capable of advanced functions that can be remotely enabled and programmed via an internet connection to take advantage of those capabilities. Table 1 summarizes adoption of these inverter models compared with full program volume. Other models may also have latent advanced functions, so this is likely a conservative estimate.

[38] An overview of advanced inverter functionality from the National Renewable Energy Lab is at www.nrel.gov/docs/fy15osti/62612.pdf.
[39] Oregon Net Metering Rules are at https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=4053.
[40] Oregon Small Generator Interconnection rules are at https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=223929.
[41] Making the Grid Smarter - Primer on Adopting the New IEEE Standard 1547-2018 for Distributed Energy Resources is at https://irecusa.org/publications/making-the-grid-smarter-state-primer-on-adopting-the-new-ieee-standard-1547-2018-for-distributed-energyresources/.

Table 1. Energy Trust solar installations with advanced inverters

Year installed	Installation with advanced inverters[42]	Total solar installations	% of total
2008	0	253	0%
2009	14	475	3%
2010	81	1,198	7%
2011	181	1,329	14%
2012	348	1,242	28%
2013	173	881	20%
2014	247	1,291	19%
2015	448	1,801	25%
2016	508	1,749	29%
2017	758	1,795	42%
2018	1,129	1,785	63%
2019	1,130	1,357	83%
Total	**5,017**	**15,156**	**33%**

Solar with advanced battery storage adoption

The Solar program has seen growing customer interest for pairing battery storage with a solar system.[43] However, solar + storage installations—along with the residential solar market as a whole—contracted in 2019 following the expiration of the state's Residential Energy Tax Credit. Storage adds significant cost to a solar system and upfront costs remain a barrier for many customers. Table 2 summarizes solar + storage installations in the program through 2019. Since 2016, an increasing number of solar + storage applications have specified equipment that could be categorized as "advanced battery energy storage systems," capable of providing additional benefits to the customer and the utility grid beyond backup power during an outage. Between 2016 and the end of 2019, there have been 110 solar + storage installations completed, totaling 1.75 MWh and 0.751 MW based on the documentation provided.

Table 2. Energy Trust solar + storage adoption

Year installed	Installation with battery storage	Total solar installations	% of total
2008	4	253	1.6%
2009	2	475	0.4%
2010	6	1,198	0.5%
2011	4	1,329	0.3%
2012	8	1,242	0.6%
2013	2	881	0.2%
2014	6	1,291	0.5%
2015	2	1,801	0.1%

[42] Table 1 counts only installations that have advanced inverters that are capable of being remotely updated and programmed to provide grid services. Other installations may have inverters that can be updated manually.

[43] Energy Trust does not have a storage incentive offering. However, customers who choose to install an integrated solar + storage system are eligible for a standard solar incentive as well as the federal Investment Tax Credit (ITC).

2016	10	1,749	0.6%
2017	42	1,795	2.3%
2018	65	1,785	3.6%
2019	37	1,357	2.7%
Total	**188**	**15,156**	**1.2%**

B. Solar for low- and moderate-income customers

Despite cost declines and increased availability, solar remains out of reach for many households, particularly those with low and moderate incomes. From 2017 through early 2019, Energy Trust convened a low- and moderate-income solar work group that included public entities, community-based organizations and industry representatives. The group developed strategies to address market barriers and work toward a more equitable distribution of solar projects. In 2019, the Solar program implemented feedback from workgroups to develop three new offerings to support projects for low- and moderate-income customers: solar innovation grants, Solar Within Reach and Community Solar Development Assistance (which is separate from the Oregon Community Solar Program).

The Solar program awarded $81,600 in solar innovation grants to community-based organizations to develop community-centric program models that help low- and moderate-income customers benefit from solar technology. Grant recipients made progress in 2019 toward installations expected in 2020. Highlights include a solar project on a low-income multifamily building in Enterprise and a community organization in Corvallis working to install solar on up to 20 Habitat for Humanity homes.

In quarter four, the program released an income-qualified incentive for moderate-income homeowners called Solar Within Reach. This offer addresses additional barriers and above-market costs for moderate-income homeowners who may have less ability to use tax incentives, have higher financing costs and/or less access to competitive trade ally options. The program received its first Solar Within Reach applications in late 2019 and installations are expected in 2020.

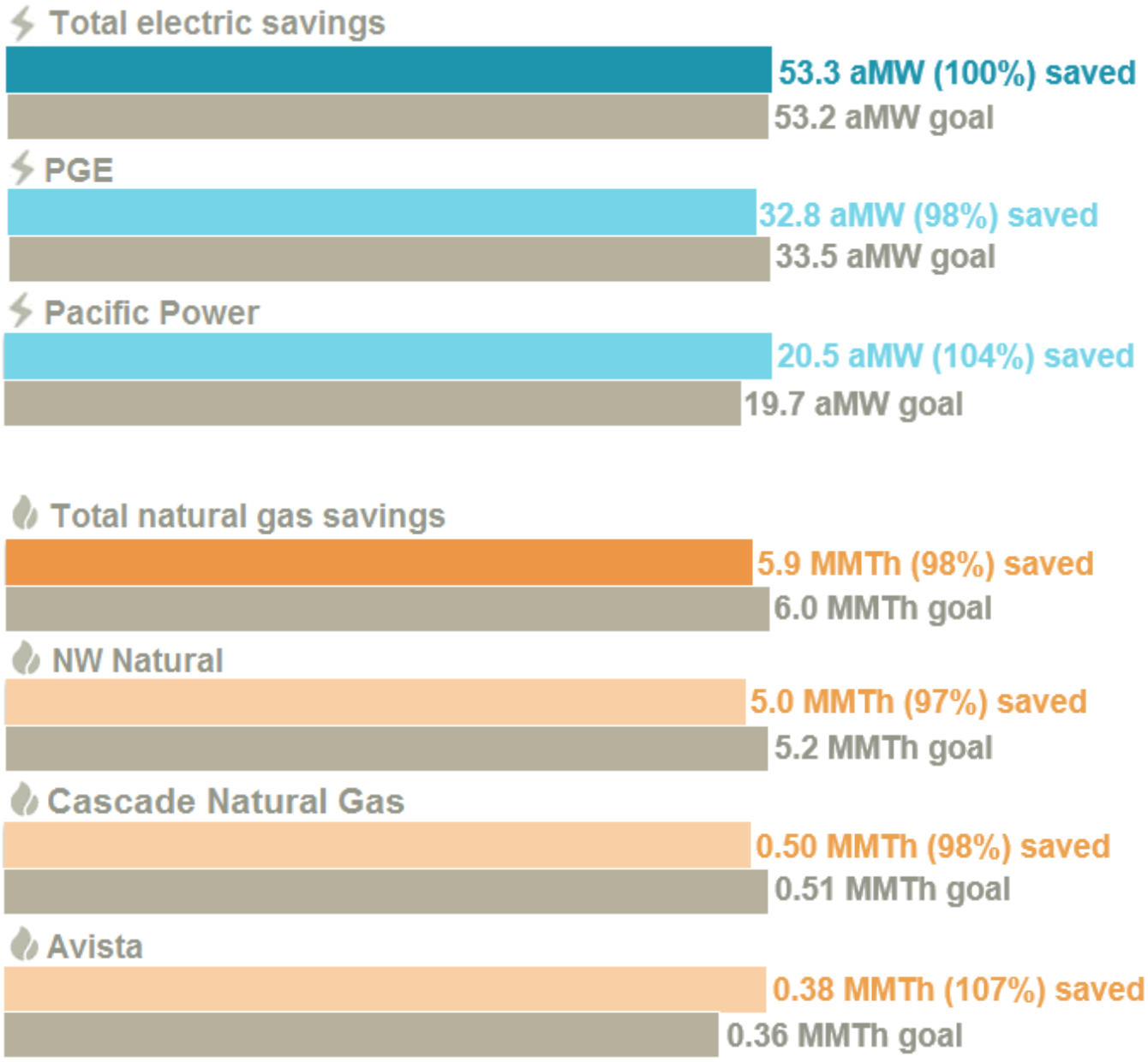
Also in quarter four, the program launched development assistance incentives for small or public and nonprofit projects applying to the Oregon Community Solar Program. To qualify for the development assistance, applicants must show how the project will bring additional benefits to low-income or other underserved customers. The program had received four enrollments for development funds as of early 2020.

The Solar program will report results from these low- and moderate-income offerings as installations begin in 2020.

APPENDIX 11: Quarter four results tables

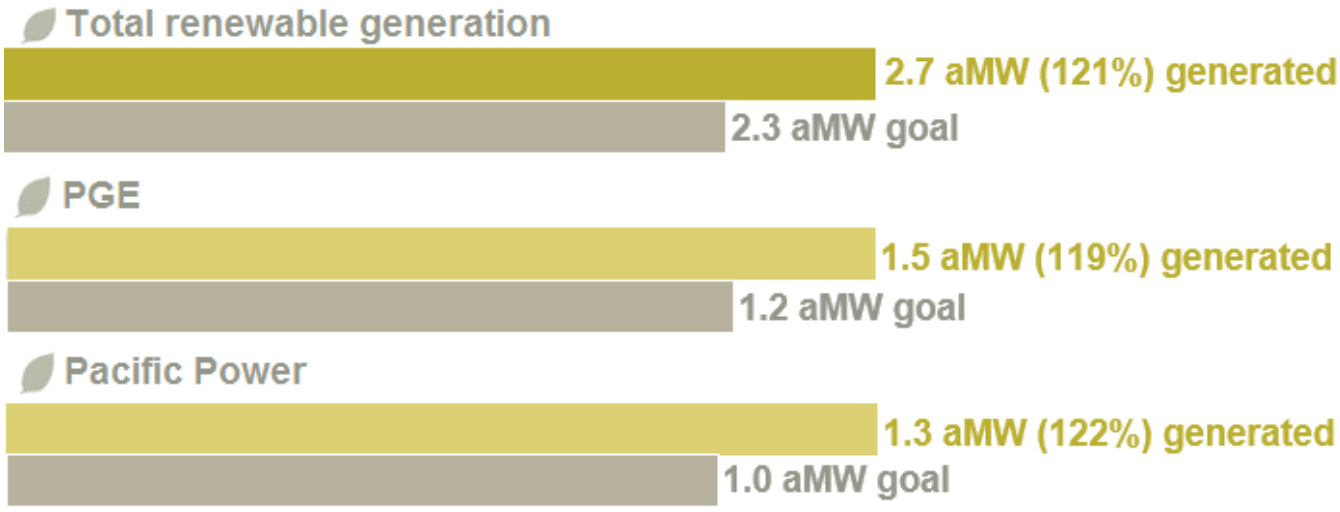
I Q4 2019 activity at a glance[44]

Savings

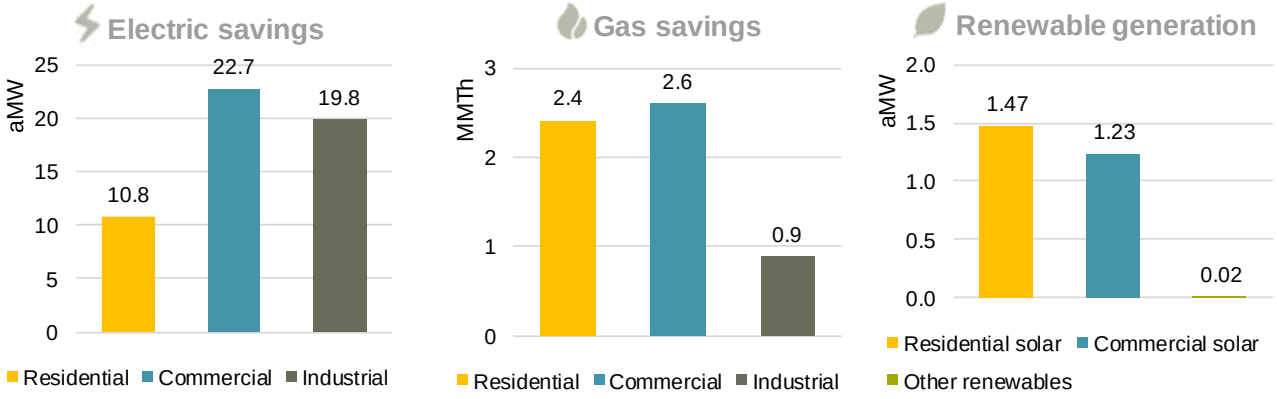


[44] This document reports net savings, which are adjusted gross savings based on results of current and past evaluations. Note that aMW indicates average megawatts, MMTh indicates million annual therms and MM is million.

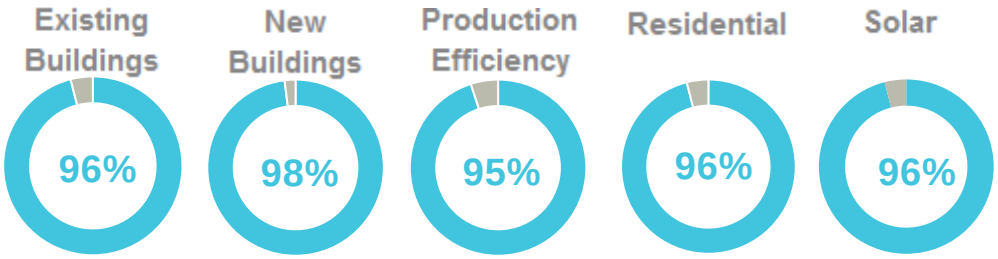
Generation



2019 savings and generation by sector (year-to-date)

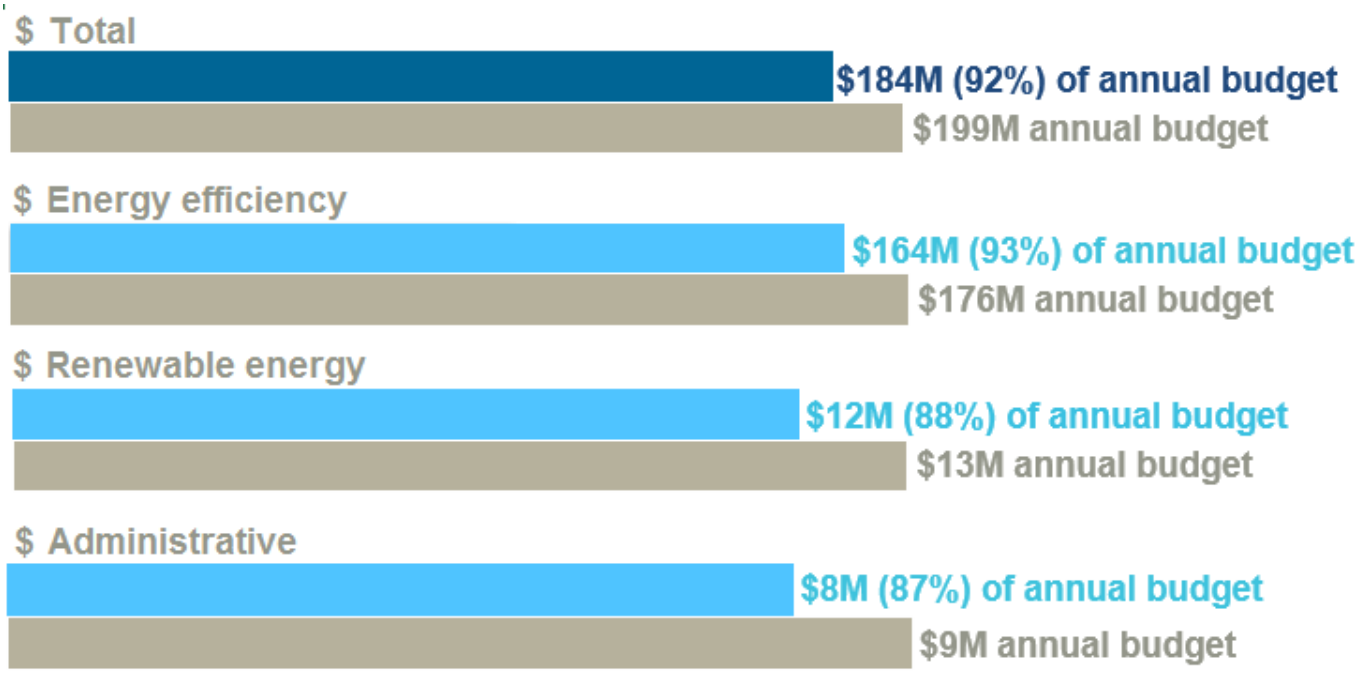


Customer satisfaction[45]

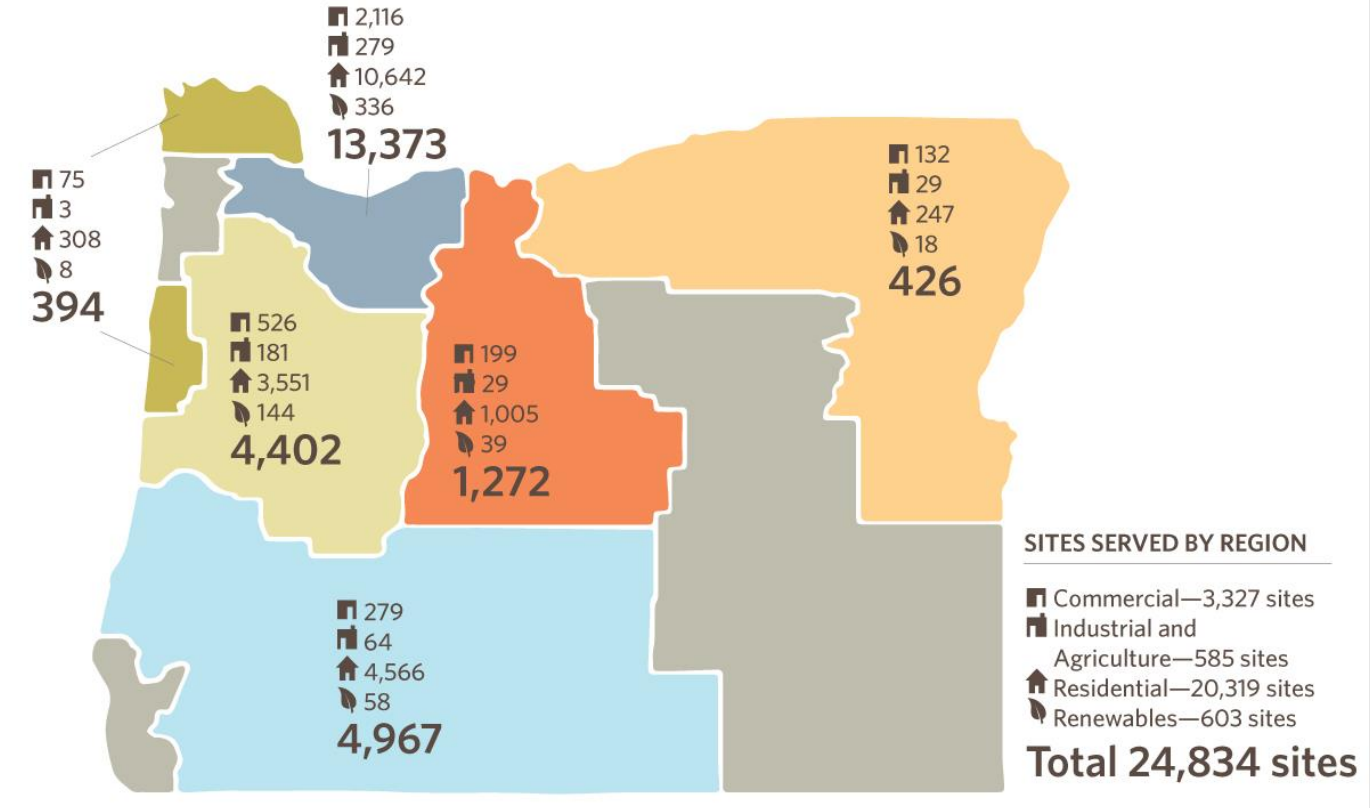


[45] From December 2019 to March 2020, Energy Trust delivered a short web and telephone survey to 389 randomly selected participants in five Oregon programs who completed projects between October and December 2019 and received an incentive or discount from Energy Trust.

Expenditures



Sites served by region in Q4[46]



[46] This document reports on Energy Trust services to Oregon customers of Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas and Avista. Areas in gray are not served by these utilities.

II Revenues and expenditures tables[47]

A. Revenues[48, 49]

Source		Q4 actual revenues		Q4 budgeted revenues
Portland General Electric	$	9,365,832	$	8,940,951
PGE Incremental	$	12,026,928	$	13,030,391
Pacific Power	$	6,541,284	$	6,733,810
Pacific Power Incremental	$	7,529,879	$	7,263,790
NW Natural	$	3,865,545	$	3,471,781
NW Natural Industrial DSM	$	1,500,000	$	1,500,000
Cascade Natural Gas	$	917,793	$	853,946
Avista	$	522,968	$	522,968
Low- and moderate-income grant	$	(3,332)	$	-
Oregon Community Solar Program	$	107,362	$	121,248
Total	**$**	**42,374,257**	**$**	**42,438,885**

B. Expenditures[50]

Source		Q4 actual expenditures		Q4 budgeted expenditures
Portland General Electric	$	39,817,364	$	39,310,271
Pacific Power	$	20,376,549	$	24,134,737
NW Natural	$	7,167,316	$	8,312,358
NW Natural Industrial DSM	$	1,912,745	$	1,791,504
Cascade Natural Gas	$	974,005	$	1,172,641
Avista	$	592,454	$	601,787
Low- and moderate-income grant	$	(3,332)	$	-
Oregon Community Solar Program	$	65,777	$	100,733
Business development	$	-	$	-
Total	**$**	**70,902,877**	**$**	**75,424,029**

[47] Columns may not total due to rounding.
[48] Revenues include public purpose revenue, including incremental electric revenue from SB 838, and revenue from the low- and moderate-income solar grant and the Oregon Community Solar Program. Incremental revenues are those authorized under SB 838 to support capturing additional cost-effective electric efficiency savings above the amount supported by funding through SB 1149.
[49] Low- and moderate-income grant revenue and expenditures were adjusted down in end of year corrections.
[50] Energy Trust received a grant from the U.S. Department of Energy to collaborate with the Oregon Department of Energy to increase access to solar energy for low- and moderate-income communities.

C. Expenditures by sector and program[51]

			Q4 actual expenditures		Q4 budgeted expenditures
Commercial	Existing Buildings	$	18,919,083	$	21,923,380
	Existing Multifamily	$	2,627,775	$	3,007,317
	New Buildings	$	7,114,377	$	7,658,508
	NEEA Commercial	$	765,085	$	846,443
	Commercial total	**$**	**29,426,320**	**$**	**33,435,648**
Industrial	Production Efficiency	$	17,847,586	$	16,909,541
	NEEA Industrial	$	67,375	$	31,034
	Industrial total	**$**	**17,914,961**	**$**	**16,940,575**
Residential	Residential	$	16,484,542	$	16,380,475
	NEEA Residential	$	1,272,870	$	1,242,210
	Residential total	**$**	**17,757,412**	**$**	**17,622,685**
	Energy efficiency total	**$**	**65,098,693**	**$**	**67,998,908**
Renewables	Solar	$	2,523,318	$	3,363,078
	Other Renewables	$	1,212,761	$	1,651,812
	Renewable generation total	**$**	**3,736,080**	**$**	**5,014,890**
Administration	Administration	$	2,006,713	$	2,312,897
	Administration total	**$**	**2,006,713**	**$**	**2,312,897**
Other	Low and moderate income grant	$	(2,568)	$	-
	Oregon Community Solar Program	$	-	$	-
	Business development	$	63,960	$	97,333
	Total expenditures	**$**	**70,902,877**	**$**	**75,424,029**

D. Incentives paid

Qtr	PGE efficiency	Pacific Power efficiency	NW Natural efficiency	Cascade Natural Gas efficiency	Avista efficiency	PGE generation	Pacific Power generation	Total
Q1	$ 3,920,613	$ 3,171,264	$ 1,849,998	$ 150,184	$ 113,578	$ 789,880	$ 892,848	$10,888,365
Q2	$10,212,532	$ 6,036,455	$ 2,953,692	$ 390,545	$ 224,498	$ 802,726	$ 998,901	$21,619,349
Q3	$ 7,360,170	$ 5,639,493	$ 2,558,808	$ 270,212	$ 246,215	$ 936,120	$ 794,609	$17,805,626
Q4	$26,809,526	$12,691,353	$ 6,174,483	$ 655,652	$ 440,396	$1,400,765	$1,439,183	$49,611,358
Total	**$48,302,840**	**$27,538,566**	**$13,536,981**	**$1,466,593**	**$1,024,688**	**$3,929,490**	**$4,125,540**	**$99,924,698**

[51] Energy Trust received a grant from the U.S. Department of Energy to collaborate with the Oregon Department of Energy to increase access to solar energy for low- and moderate-income communities.

III Savings and generation tables[52,53,54]

A. Savings and generation by fuel

	Q4 savings/generation	YTD savings/generation	Annual goal	Percent achieved YTD
Electric savings	31.5 aMW	53.3 aMW	53.2 aMW	100%
Natural gas savings	3.3 million therms	5.9 million therms	6.0 million therms	98%
Electric generation	1.01 aMW	2.72 aMW	2.25 aMW	121%

B. Progress toward annual efficiency goals by utility[55]

	Q4 savings	YTD savings	Annual goal	Percent achieved YTD	Annual IRP target	Percent achieved YTD
Portland General Electric	20.7 aMW	32.8 aMW	33.5 aMW	98%	34.5 aMW	95%
Pacific Power	10.8 aMW	20.5 aMW	19.7 aMW	104%	20.15 aMW	102%
NW Natural	2,879,359 therms	5,020,669 therms	5,170,596 therms	97%	5,194,163 therms	97%
Cascade Natural Gas	238,410 therms	498,911 therms	511,553 therms	98%	582,464 therms	86%
Avista	168,581 therms	384,599 therms	360,682 therms	107%	294,720 therms	130%

Integrated Resource Plan targets are shown in net savings.

[52] Columns may not total due to rounding.
[53] Electric savings also include transmission and distribution savings.
[54] The gas savings do not include results for NW Natural in Washington. These results are available in a separate report on activities for NW Natural in Washington at www.energytrust.org/reports.
[55] Integrated resource plan for PGE is pending acknowledgement by the OPUC.

C. Electric savings by sector and program[56]

		Q4 savings aMW	YTD savings aMW	Annual goal aMW	Percent achieved YTD
Commercial	Existing Buildings	8.0	13.6	14.2	96%
	Existing Multifamily	0.6	1.6	1.5	101%
	New Buildings	3.5	5.9	6.2	95%
	NEEA Commercial	1.0	1.7	2.4	69%
	Commercial total	**13.1**	**22.7**	**24.3**	**93%**
Industrial	Production Efficiency	13.1	19.0	18.8	101%
	NEEA Industrial	0.56	0.81	0.07	1,159%
	Industrial total	**13.6**	**19.8**	**18.9**	**105%**
Residential	Residential	3.0	7.6	6.8	113%
	NEEA Residential	1.9	3.1	3.2	98%
	Residential total	**4.8**	**10.8**	**10.0**	**108%**
	Total electric savings	**31.5**	**53.3**	**53.2**	**100%**

D. Natural gas savings by sector and program

		Q4 savings therms	YTD savings therms	Annual goal therms	Percent achieved YTD
Commercial	Existing Buildings	1,048,726	1,593,036	1,536,231	104%
	Existing Multifamily	58,384	183,629	145,321	126%
	New Buildings	512,837	821,413	845,608	97%
	Commercial total	**1,619,947**	**2,598,079**	**2,527,160**	**103%**
Industrial	Production Efficiency	541,415	891,566	1,102,463	81%
	Industrial total	**541,415**	**891,566**	**1,102,463**	**81%**
Residential	Residential	1,124,987	2,414,534	2,413,207	100%
	Residential total	**1,124,987**	**2,414,534**	**2,413,207**	**100%**
	Total natural gas savings	**3,286,350**	**5,904,179**	**6,042,831**	**98%**

E. Renewable energy generation by utility

	Q4 generation aMW	YTD generation aMW	Annual goal aMW	Percent achieved YTD
Portland General Electric	0.59	1.46	1.22	119%
Pacific Power	0.42	1.26	1.03	122%
Total	**1.01**	**2.72**	**2.25**	**121%**

[56] Energy Trust updated its allocation methodology in quarter three to shift a small portion of NEEA savings from commercial to industrial.

F. Renewable energy generation by program

	Q4 generation aMW	YTD generation aMW	Annual goal aMW	Percent achieved YTD
Solar	0.99	2.70	2.02	134%
Other Renewables	0.02	0.02	0.00	6%
Total generation	**1.01**	**2.72**	**2.25**	**121%**

G. Incremental utility SB 838 expenditures[57]

Utility	2019 Q4 SB 838 Expenditures	Annual SB 838 Expenditures
Portland General Electric	$ 291,760	$ 1,087,741
Pacific Power	$ 352,425	$ 934,517
Total	**$ 644,185**	**$ 2,022,258**

[57] Reflects expenditures by Pacific Power and PGE in support of utility activities described in SB 838. Reports detailing these activities are submitted annually to the OPUC.

APPENDIX 12: 2019 energy efficiency results for SB 1149 and SB 838 funds

A. Energy efficiency results for SB 1149 funds

2019 SB 1149 electric efficiency results	PGE savings aMW	Pacific Power savings aMW	Total savings aMW	Expenses	Mil $/aMW
Commercial	4.66	2.71	7.38	$ 21,484,511	$ 2.91
Industrial	7.76	5.37	13.13	$ 21,164,049	$ 1.61
Residential	1.75	1.65	3.41	$ 10,131,218	$ 2.97
Total	**14.17**	**9.74**	**23.91**	**$ 52,779,779**	**$ 2.21**

B. Energy efficiency results for SB 838 funds

2019 SB 838 electric efficiency results	PGE savings aMW	Pacific Power savings aMW	Total savings aMW	Expenses	Mil $/aMW
Commercial	10.43	4.91	15.35	$ 46,830,832	$ 3.05
Industrial	3.82	2.88	6.70	$ 15,534,406	$ 2.32
Residential	4.39	2.97	7.36	$ 27,180,193	$ 3.69
Total	**18.64**	**10.77**	**29.41**	**$ 89,545,431**	**$ 3.04**

C. Incremental utility SB 838 expenditures[58]

2019 SB 838 utility expenditures	Q1	Q2	Q3	Q4	Total
Portland General Electric	$ 245,278	$ 307,584	$ 243,119	$ 291,760	$ 1,087,741
Pacific Power	$ 169,014	$ 226,735	$ 186,343	$ 352,425	$ 934,517
Total	**$ 414,292**	**$ 534,319**	**$ 429,461**	**$ 644,185**	**$ 2,022,258**

[58] PGE expenditures for Q2 are different than previously reported due to updated information from PGE.