



# Exhibit 10

2018 Annual Report

Northwest Energy Efficiency  
Alliance  
(NEEA)





## 2018 Annual Report for Puget Sound Energy

### INTRODUCTION

The Northwest Energy Efficiency Alliance (NEEA or "the alliance") is a nonprofit organization working in collaboration with Puget Sound Energy and more than 140 other Northwest utilities and energy efficiency organizations to accelerate the innovation and adoption of efficient products, services and practices throughout the region. With funding and engagement from Puget Sound Energy and these other entities, the alliance intervenes in the market to create lasting change by removing barriers and leveraging opportunities to accelerate the adoption of cost-effective energy efficiency.

NEEA's vision is energy efficiency as a cornerstone of a vibrant and sustainable Northwest. Two interdependent strategic goals guide alliance efforts to achieve this vision:

- **Strategic Goal 1:** Fill the energy efficiency pipeline with new products, services and practices
- **Strategic Goal 2:** Create market conditions that will accelerate and sustain the market adoption of emerging energy efficiency products, services, and practices.

This report summarizes the alliance's 2018 market transformation activities and outcomes on behalf of Puget Sound Energy. In December 2018, after a two-year collaborative outreach process, NEEA's Board voted unanimously to approve the 2020-2024 Strategic and Business Plans. These plans allow the alliance to sustain a portfolio of initiatives and support functions to transform the market for energy efficiency in the Northwest. For additional information about NEEA's programs or to read NEEA's 2020-2024 Strategic and Business Plans, visit: [neea.org](http://neea.org).

### ELECTRIC MARKET TRANSFORMATION

#### Goal 1: Fill the energy efficiency pipeline

To ensure the continued availability of energy-efficient products, services and practices to Northwest consumers, the alliance identifies emerging energy efficiency opportunities and works with manufacturers and the market to test and validate product performance and energy savings. These efforts are coordinated through the Regional Emerging Technology Advisory Committee (RETAC), which is facilitated by NEEA staff. Puget Sound Energy is a member of RETAC.

#### 2018 EMERGING TECHNOLOGY HIGHLIGHTS

**Filling the Pipeline** – In 2018, NEEA staff scanned the market to identify promising new energy-efficient products, services and practices, prioritizing smart thermostats, occupancy sensors with controls, task/ambient HVAC and whole building integrated design. Staff conducted research, testing and vetting of several promising opportunities, including:

1. Combination Space and Water Heating units with CO<sub>2</sub> refrigerant (eight demonstration projects)
2. Commissioning of pivot irrigation equipment (possible tool development to help growers understand design and operational challenges)
3. Inverter-Driven Packaged Heat Pumps (evaluating products for testing)
4. Mini-Split Ductless Heat Pumps (multizone building simulation to estimate performance)
5. Smart Thermostats (convening region to develop research strategy)
6. Ultra-High Definition TVs (assembling standard dynamic and high dynamic video clips for energy performance testing)
7. Very High Efficiency Dedicated Outside Air Supply systems for commercial buildings (nine pilot projects installed, four complete with reports and draft case studies)

**Increasing Pipeline Visibility** – In 2018, the alliance continued to populate and maintain the region’s first shared emerging technology database. The database, which is housed on [ConduitNW.org](http://ConduitNW.org), increases regional visibility into emerging technology activities across organizations and reduces development costs by avoiding redundancies. In 2018, more than 70 regional emerging technology projects and products were added to the database.

**Conducting Research** – In 2018, the alliance commissioned and published two emerging technology research reports on [neea.org](http://neea.org):

1. [Heat Pump Clothes Dryers in the Pacific Northwest – Abridged Field & Lab Study Report](#)
2. [Secondary Glazing System Moisture Transfer Analysis and Validation](#)

## Goal 2: Creating market conditions for energy efficiency

The alliance identifies and removes market barriers to energy efficiency across the region for the benefit of Northwest customers. NEEA’s 2015-2019 Business Plan focuses its market transformation efforts on four strategic markets: Consumer Products, Residential New Construction, Commercial New Construction, and Commercial and Industrial Lighting.

### CONSUMER PRODUCTS

**Consumer Products Regional Strategic Market Plan** – The Consumer Products Regional Strategic Market Plan was created by regional energy efficiency experts in a process that was co-led by Puget Sound Energy and facilitated by NEEA staff. This strategic market plan is intended as a resource for the entire region to align on longer-term goals in specific markets and maximize cost-effective, long-term energy efficiency opportunities to benefit utility customers. In January 2018, the Steering Committee directed NEEA staff to convene a group of regional stakeholders, including Puget Sound Energy, to explore barriers, opportunities and next steps for Smart Thermostats. This effort resulted in an RTF-approved research plan to help better understand the energy-savings potential of Smart Thermostats and to prevent the current RTF Smart Thermostat measure from expiring in 2019. Funding for the research is coming from interested utilities across the region in a process that is being co-led by Puget Sound Energy staff. The Steering Committee meets quarterly.

**Heat Pump Water Heaters** – In 2018, the Heat Pump Water Heater (HPWH) program focused on increasing emergency replacements through installer and distributor engagement, promoting the value

proposition of HPWHs to Northwest consumers and engaging with national partners. Throughout the year, the program conducted significant outreach to water heater distributors and installers throughout the region and worked with manufacturers and national partners to drive HPWH sales regionally and nationally. Greater national adoption is critical to manufacturers achieving economies of scale, which will reduce product costs for Northwest consumers and build support for an eventual federal standard change. To raise awareness of HPWHs and utility program offerings, the program conducted an eight-week consumer awareness campaign that resulted in nearly 7 million video views and a fourfold increase in traffic to the program website. In 2018, the program provided support for in-person installer trainings in PSE service territory and customized training content. Additionally, the program planned and organized retail HPWH signage featuring Puget Sound Energy's logo and rebate information at Lowe's and The Home Depot locations in Puget Sound Energy territory. In 2018, there were an estimated 1,260 HPWH sales in Puget Sound Energy service territory (12,000 across the region).

**Ductless Heat Pumps** – In 2018, the Ductless Heat Pump (DHP) program continued working in the market to overcome high first cost barriers and focused efforts on identifying and targeting households best suited for single-head DHP systems. These activities included an HVAC installer engagement plan, regional market research and extra-regional engagement to coordinate the development of specifications and educational materials. The program also published its seventh Market Progress and Evaluation Report, which provided insight and recommendations for future program activities and focus areas. To increase engagement with installers in the Puget Sound area, the program hosted three informational seminars in conjunction with Puget Sound Energy program staff. These seminars communicated the significant market opportunity to installers in the Northwest for selling single-head DHP systems. In 2018, 56 installers servicing the greater Puget Sound area requested information about the program. From these inquiries, program staff oriented 12 new installers in Puget Sound Energy territory. Program staff also worked with Puget Sound Energy staff to publish a case study featuring Alpine Ductless, an installer in Puget Sound Energy territory, detailing its approach to keeping DHP prices affordable for customers.

**Retail Product Portfolio** – The Retail Product Portfolio (RPP) program provides incentives to retailers to preferentially stock efficient products with the goal of influencing manufacturers to produce increasingly efficient goods. With a group of five major national retailers, RPP sales represent up to 80 percent of the U.S. market for most products in the portfolio. Program staff have leveraged RPP data to support revised ENERGY STAR specifications and test procedures for air cleaners, soundbars and UHD televisions. These activities represent a significant opportunity to use program data and influence to promote more stringent product specifications, improve efficiency metrics and close testing loopholes. In addition, the granularity of program data allows NEEA staff and other ENERGY STAR Regional Product Portfolio (ESRPP) Program Sponsors to use incentives to target specific product sub-categories (such as top-load washers) that have high potential for efficiency gains.

**Super-Efficient Dryers** – In 2018, the Super-Efficient Dryers (SED) program worked to overcome market barriers to heat pump dryers, including low consumer awareness and product availability. Consumer research conducted early in the year provided insights into customer satisfaction with heat pump dryers and suggested strategies for increasing customer awareness. Later in the year, the program conducted a manufacturer-led digital promotion in partnership with Blomberg, which rolled out across the region including Puget Sound Energy territory (final results will be available Q1 2019). Manufacturer Miele's new heat pump dryer was added to the NEEA Qualified Products List in 2018. With that addition, models at all five performance tiers are now available to Puget Sound Energy

customers. Additionally, the program completed a literature review of clothes washer data, including product performance, attachment rates (i.e., how often washers and dryers are sold in pairs), and consumer preferences for top- versus frontloading products. Research findings will inform the business case for potentially expanding the SED program to include clothes washing machines in 2019.

## **RESIDENTIAL NEW CONSTRUCTION**

**Next Step Homes** –The Next Step Homes program creates a framework for Puget Sound Energy and NEEA to identify the most cost-effective methods for achieving energy savings in residential new construction, and to support local builders and homebuyers. In 2018, Puget Sound Energy established its Residential New Construction Performance Path Program providing builders with multiple ways to reach energy savings performance targets. To support Puget Sound Energy’s program, NEEA staff provided support and training for market actors, including field quality assurance scheduling, program onboarding and support for REM/Rate™, AXIS and other modeling tools. NEEA staff also updated Puget Sound Energy’s savings estimation workbook for the Washington Utilities and Transportation Commission. Thirteen homes were certified through the program and approved for incentives in Puget Sound Energy territory in 2018.

**Manufactured Homes** – In 2018, the program focused on overcoming market barriers to the adoption of the Northwest Energy Efficient Manufactured Homes Plus (NEEM+) specification, including factory adoption of the higher tiered specification and customer/retailer awareness. To increase awareness of NEEM+, the program rebranded NEEM 2.0 as NEEM+ based on homebuyer research and following outreach to the supply chain and utility stakeholders, including with Puget Sound Energy. Program staff supported Puget Sound Energy’s NEEM+ incentive launch by providing market potential and feedback on marketing and retailer outreach strategies in coordination with the NEEM third party implementer, Northwest Energy Works (NEW). NEW provided Puget Sound Energy with contact information and introductions to key manufactured home retailers in its service area. To introduce NEEM+ to the market, the program partnered with Kit Homes to upgrade more than 40 of its homes to NEEM+ during Q4. Based in Idaho, Kit works with several authorized retailers in Washington State. In addition to helping Kit refine its manufacturing process, this upgrade will result in greater retailer awareness of NEEM+ and opportunities to engage homebuyers for future testimonials and billing data.

## **COMMERCIAL NEW CONSTRUCTION**

**Commercial Code Enhancement** – The Commercial Code Enhancement (CCE) program provides utilities, including Puget Sound Energy, with greater insight and influence into the code change process while supporting long-term utility program planning. Working with the Washington utilities and key code stakeholders, in 2018 the program finalized both a State Coordination Plan and a Scanning Report for Washington. The State Coordination Plan characterizes the current code landscape and identifies opportunities to work with code stakeholders and utilities in preparing for future code cycles. The Scanning Report, created with the University of Washington Integrated Design Lab, identifies measures to be considered in future code cycles and is intended to help Washington utilities align their commercial new construction programs with future code. Throughout the year, program staff met with utility stakeholders, including Puget Sound Energy, to discuss two CCE supported proposals for the current Washington Code cycle and review emerging code ideas for future consideration. One of these proposals is the Total System Performance Ratio (TSPR) HVAC modeling tool, currently under consideration for adoption into the 2018 Washington Commercial Code. TSPR provides a methodology

to model whole-system efficiency for commercial HVAC systems, rather than individual components, which would level the playing field for efficient technologies, promote more efficient design approaches and help buildings save more energy. Washington utilities have expressed interest in using the TSPR tool to offer commercial HVAC system-level incentives and have provided feedback on additional developments needed for utility programs.

## **COMMERCIAL LIGHTING**

**Commercial and Industrial Lighting Regional Strategic Market Planning** – In 2018, the region completed the second review and update of the Commercial and Industrial Lighting Regional Strategic Market Plan. This strategic market plan is intended as a resource for the entire region to align on longer-term goals in specific markets and maximize cost-effective, long-term energy efficiency opportunities to benefit utility customers. The second review of the plan resulted in prioritization of two key focus areas: 1) increase adoption of advanced lighting control systems, specifically luminaire level lighting controls and 2) inform program planning for commodity lamps. In support of the first strategy, the Lighting Program Manager Work Group, which includes staff from Puget Sound Energy, identified what programs can do to address barriers and what customers and market partners need to support adoption of advanced lighting control systems. Top needs centered around access to marketing materials and broad dissemination of training. New brandable materials catering to specific audiences of schools, offices and hospitals were provided to utilities, including Puget Sound Energy, in Q4. NEEA staff also coordinated controls training efforts in partnership with the Lighting Design Lab, which launched a new one-day workshop on networked lighting controls.

In support of the second strategy, informing program planning for commodity lamps, the Lighting Data User Group, a regional group of lighting experts led by Puget Sound Energy, released a Pricing Data Dashboard. The dashboard uses web scraping technology to collect real-time LED lamp price data from Platt, Grainger and Home Depot. The Lighting Project Manager Work Group is now building on this work to create a unified market data dashboard that combines sales and pricing data to inform program manager decision making.

**Luminaire Level Lighting Controls** – Luminaire Level Lighting Controls (LLLCs) combine LEDs with integrated controls and sensors to offer improved building performance and occupant comfort while increasing energy savings. In 2018, the alliance worked in the market to grow the availability of qualified products while increasing installer awareness and capabilities. To support market delivery capabilities for LLLCs, the program launched installer focused training in collaboration with the Lighting Design Lab. To further assist in the promotion and awareness of LLLCs in the Puget Sound area, the program developed co-branded flyers available for use by Puget Sound Energy, targeted at office, health care and educational facilities. Additionally, in partnership with the U.S. Department of Energy's Next Generation Lighting System initiative, the program continued to work with manufacturers to improve usability and ease of product set up. Incentives for LLLCs are now available from Puget Sound Energy, Seattle City Light and Tacoma Power. This cluster of incentive programs has encouraged manufacturers to increase marketing and promotional efforts into the Puget Sound area, which is critical to overcoming some of the awareness, confidence and cost barriers associated with this product. As of Q4 2018, there were 12 qualifying manufacturers and 18 systems on the qualified product list, representing strong product availability and diversity.

**Reduced Wattage Lamp Replacement** – 2018 was the last year of market development for the Reduced Wattage Lamp Replacement (RWLR) program. The program worked with seven electrical

distributors with 33 combined branch offices located in Puget Sound Energy territory. Overall, market share for low-watt lamps in Puget Sound Energy territory reached 44 percent in 2018 (up from 26 percent in 2017). Though direct market intervention on the part of the alliance has ended, due to the steady market penetration increase of linear fluorescent lighting in the Puget Sound area, the program will continue to track lamp sales in 2019. Going forward, the distributor platform, which was built through the RWLR program, will continue to supply commercial lighting data and support for other efficiency programs.

## **OTHER MARKETS**

**Residential and Commercial Window Attachments** – The Window Attachments program works in concert with the Attachment Energy Ratings Council (AERC) to increase the market adoption of high-performance window attachments in existing buildings and establish these products as standard practice. In 2018, the program worked alongside AERC and manufacturers to build regional awareness, identify early adopters and support AERC’s commercial certification program which is expected to launch in early 2020. In 2018, AERC began certifying and labelling Low-E Storm Windows as a precursor for ENERGY STAR labeling.

**Extended Motor Products** – In Q1 2018, NEEA’s Regional Portfolio Advisory Committee voted to add the Extended Motor Products (XMP) program to the NEEA electric portfolio. The goal of the XMP program is to accelerate the adoption of more efficient motor driven products, such as pumps, fans and compressors, in end markets with significant savings potential. The program is envisioned as a cost-effective way for the region to capture energy savings from the market adoption of energy-efficient pumps systems in Commercial and Industrial applications with less than 50 horsepower (HP) and, with approval from alliance funders, other motor driven products in the future. In 2018, the program focused on developing and gathering data for a Pumps Research Plan and launching a market characterization and baseline study to better understand market barriers and opportunities. Puget Sound Energy engineering staff help to guide the XMP program through participation in the XMP Technical Workgroup and NEEA’s Commercial and Industrial Advisory Committees. Puget Sound Energy staff also contributed data, guidance and introductions that led to important data contributions for the XMP Pumps Research Study.

**High-Performance HVAC** – In Q2 2018, NEEA’s Regional Portfolio Advisory Committee voted to add the High-Performance HVAC program to the NEEA electric portfolio. At its onset, the program will focus on the design and installation of Very High Efficiency Dedicated Outside Air Systems (VHE DOAS) in the commercial sector. VHE DOAS is a high efficiency specification that separates the heating and cooling system from the ventilation system. In 2018, the program launched a market characterization study to better estimate the market opportunity for VHE DOAS, assess market barriers and begin mapping HVAC purchase and replacement decision-making processes within targeted building types. The program also partnered with Puget Sound-area utilities and NEEC (Northwest Energy Efficiency Council) to hold the first Northwest training on ventilation for high-performance commercial buildings. The event was well received by 52 attendees, almost half of whom were utility engineers and staff including representatives from Puget Sound Energy. To support Puget Sound Energy to deliver customer solutions, the program team provided technical support to Puget Sound Energy engineers to determine the viability of VHE DOAS technology on three potential commercial HVAC upgrades.

## **INFRASTRUCTURE PROGRAMS**

In addition to its market transformation programs, the alliance develops and delivers trainings, tools and resources that do not directly deliver energy savings but support Puget Sound Energy's local programs and market transformation as a whole.

**Commercial Real Estate** – The Commercial Real Estate (CRE) program works to create market demand for energy efficiency and supports Puget Sound Energy in delivering customer efficiency solutions. In 2018, the program supported the City of Bellevue in delivering three one-hour training sessions on the value of benchmarking and the business case for commercial building tune-ups and retro commissioning. Through the City of Seattle's 'Tune-Up Accelerator Program,' the CRE program prepared energy efficiency opportunity assessments for 35 Puget Sound area commercial buildings. Generated with the NEEA Spark tool, these customized reports estimate total project costs and financial benefits of an integrated package of efficiency measures. The program also continued to manage and maintain the CREHub on BetterBricks.com, a unique way for building owners to quickly find only the most relevant information relating to their buildings.

**Top Tier Trade Ally Advanced Training** – To support Puget Sound Energy's delivery of energy-efficient lighting solutions for its customers, the alliance provides resources and tools that build awareness, demand and capability for designing and installing energy-efficient lighting. NXT Level training, the market-facing brand for the Top Tier Trade Ally (TTTA) program, is the region's most comprehensive online lighting training program serving trade allies who work on retrofit projects in commercial and industrial facilities. To drive new applications to NXT Level in 2018, the program conducted in-person training sessions in Lynnwood and Tacoma, Washington, which were co-sponsored by Puget Sound Energy. Over 100 individuals attended between the two trainings, which resulted in 25 new NXT Level applications. Nine trade allies achieved NXT Level 1 designation in 2018, totaling 25 trade allies in the Puget Sound area since the training launched. To further enhance energy efficient lighting solutions, the TTTA program developed a second tier of lighting training, NXT Level 2, and launched the first workshop in Seattle in Q4 2018 with participation and support of Puget Sound Energy staff. Sixteen NXT Level 1 designees from the Puget Sound area attended and are currently working to complete the NXT Level 2 training.

**Commercial and Industrial Strategic Energy Management** – The alliance develops, maintains and delivers a holistic set of tools that support Puget Sound Energy in providing strategic energy management (SEM) resources to its customers. In 2018, the program continued to manage and maintain the SEM Hub, which houses a library of tools and resources for program administrators and other stakeholders to use in their SEM program design, implementation and evaluation efforts. In addition, the SEM Hub features two customizable tools: an Energy Management Assessment (EMA) tool; and a Learning Management System (LMS) platform with online SEM courses. The program supported the development of a customized LMS platform for Puget Sound Energy in 2018, which has been active with a large cohort of Commercial Strategic Energy Management participants. The program also hosted the eighth annual NW SEM Collaborative Fall Workshop Meeting and the second annual North American SEM summit for SEM program administrators and professionals to exchange information, share best practices and discuss shared challenges. Puget Sound Energy is a member of the SEM Collaborative Leadership team.

**Industrial Technical Training** – To support Puget Sound Energy's industrial energy efficiency efforts, the alliance provides coordinated industrial technical training (ITT) on key industrial energy efficiency



concepts. In 2018, the program delivered four training sessions in western Washington: Energy Efficiency for Industrial and Commercial HVAC Systems, Energy Efficiency of Chilled Water Systems, Energy Efficiency of Cooling Towers and Compressed Air Challenge Level 1. More than 40 Puget Sound Energy customers and staff attended the trainings, with four customers and 16 staff earning CEU credits. Staff from Puget Sound Energy are actively involved in annual planning for the ITT program, guiding course selection and recruiting customers to attend.

## **CODES AND STANDARDS**

The long-term goal of NEEA's market transformation programs is often to lock in energy savings through progressively effective energy codes and standards. NEEA supports regional stakeholders in energy code development and adoption, training and implementation. Program staff serve as technical experts during U.S. Department of Energy rulemakings, to encourage the adoption of federal appliance and equipment efficiency standards. In 2018, to support codes and standards education and compliance in Washington, the alliance:

1. Submitted 42 proposals for the 2018 Washington Commercial Energy Code. Two of these proposals provide additional code compliance paths with more flexible design options, including 1) a new performance path using ASHRAE 90.1 Appendix G with fixed-baseline modeling ruleset, and 2) an HVAC system equalizer approach that will provide efficiency correction factors based on system selection (see section on Commercial Code Enhancement).
2. Hosted commercial mechanical code trainings in Puget Sound Energy service territory that focused on the new dedicated outside air system (DOAS) provisions. The trainings were attended by 190 design and construction industry professionals.
3. Provided a commercial energy code and mechanical code training for the Washington Association of Building Officials (WABO) on the topic of kitchen exhaust systems in collaboration with a representative from the Codes and Advisory Services Department of Underwriters Laboratories (UL). The training was held at WABO's annual training institute in Sea-Tac and was attended by over 100 building officials, plans examiners, field inspectors and fire marshals.
4. Conducted five residential energy code trainings in Puget Sound Energy service areas with approximately 75 attendees across the trainings. The classes discussed the requirements of the residential energy code, duct and blower door testing, as well as issues surrounding indoor air quality and ventilation. The attendees included building department staff, general contractors, designers, and specialty contractors from the insulation and HVAC industries.
5. Developed a new web-based Washington commercial code compliance documentation portal, which will be launched in Q2 2019.

## **NATURAL GAS MARKET TRANSFORMATION**

By pooling resources through NEEA and working in collaboration with the region, Puget Sound Energy is accelerating the development and market adoption of efficient natural gas products, services and practices in the Northwest. The goal of this effort is to deliver more energy efficiency options to Puget Sound Energy customers and increase the efficiency of natural gas use in the region. In 2018, NEEA's Natural Gas program focused on increasing manufacturer diversification to support a portfolio of

products, expanding partnerships to influence market development, and finding and leveraging synergies between gas and electric programs.

## **FILLING THE ENERGY EFFICIENCY PIPELINE**

**Scanning** – NEEA staff scan the market to identify promising new energy-efficient natural gas products, services and practices. In 2018, NEEA staff reviewed eight natural gas projects or products, including: combination systems for space and water heating, a gas absorption heat pump for heating and domestic hot water, gas heat pumps and a commercial tankless water heating system. Additional information about each of these products is available through the Regional Emerging Technology Advisory Committee database, which is housed on Conduit:

<https://conduitnw.org/Pages/Community.aspx?rid=29>

## **NATURAL GAS MARKET TRANSFORMATION PROGRAMS**

**Efficient Gas Water Heaters** – In 2018, alliance efforts focused on understanding market barriers to efficient gas water heating and supporting product development, leveraging lessons learned from NEEA’s electric heat pump water heater program. In partnership with the Gas Technology Institute, the program conducted an evaluation of opportunities to reduce cost through removing installation barriers for gas heat pump water heaters, including condensate drainage requirements and ducting complexities. Outcomes from this assessment will be shared with manufacturers to inform future product development efforts. NEEA program staff collaborated with NEEA’s electric heat pump water heater team to conduct a [market characterization study](#) of the Northwest water heater market. The study, which describes both supply and demand-side market dynamics as well as current market trends, will inform future program strategy, business case development and marketing efforts. Throughout 2018, the program continued collaboration with manufacturers, technology developers, utilities and other energy efficiency partners to accelerate product development. It is expected that commercialization by a major manufacturer will culminate with a market launch within NEEA’s 2020-2024 Business Cycle.

**Combination Water and Space Heating Systems** – In 2018, program efforts were focused on accelerating the commercialization of gas combi units. The alliance conducted a study to identify ways to reduce the weight, cost and complexity of a gas combination unit under evaluation by a major HVAC manufacturer. Findings of the study, which include overall weight reductions of 13 percent and cost reductions of up to 15 percent, were incorporated into a DOE-funded commercialization project. As of December 2018, the DOE-funded project has produced four next-generation prototype units and field installations are underway. Also in 2018, NEEA finalized and delivered a [Gas Heat Pump Product Characterization](#) report to key market partners. The report provides quantitative and qualitative research that new market entrants can use for identifying product capacities and features, yielding the highest probability of market success. Finally, in late 2018 the program began a project with manufacturer Rheem and technology developer SaltX, to accelerate development of a natural gas combination space and water heating unit using salt to store and amplify heat. A proof-of-concept prototype demonstrating energy performance is expected to be complete in early 2019.

**Super-Efficient Gas Clothes Dryers** – Gas dryers have a very low market share in the Northwest – between 5 and 10 percent of the market – making extra-regional partnerships essential for program success. In 2018, the program focused on building partnerships to influence market development of a high-performance ENERGY STAR or Most Efficient gas dryer. Program staff developed a “Strategic

Partnership Opportunity" tool to highlight Northwest and national gas dryer market share opportunity to manufacturers to demonstrate the business case for developing efficient gas dryers. The program also held informational webinars with seven utilities across the nation to gain utility support for an improved federal test procedure and for products that save energy and deliver a satisfactory customer experience. Thus far, two utilities have signed on to the NEEA specification.

**Condensing Rooftop Units** – In 2018, the program installed and commissioned condensing rooftop units (C-RTUs) on four commercial buildings in the Northwest, including one in Puget Sound Energy service territory (Renton, WA). Pilot results will provide energy savings and product performance data for utility programs and inform future market channel development work. The program team also completed market research on C-RTU installation practices. Results of the research will be included in the final field trial report and used to inform manufacturer product development and installation guidance information for market actors. The program team was a driving member of a technical subcommittee committed to revising the Canadian Standards Association Group test procedure for commercial gas-fired package furnaces that will allow consumers and manufacturers to differentiate products based on efficiency. This international subcommittee is comprised of industry partners (including manufacturers), North American utilities and governmental organizations.

**Hearth Products** – In 2018, the program conducted industry outreach to gauge interest in the development of a low capacity hearth. This outreach was met with much hesitation and lackluster response by both industry organizations and manufacturers, resulting in ramped down efforts by NEEA staff.

## **DATA, RESEARCH AND ANALYSIS**

The alliance pools regional resources to conduct research and evaluation and provide data and analytical services for the benefit of Puget Sound Energy customers.

### **EVALUATION AND MARKET RESEARCH**

**Market Research and Evaluation** – The alliance commissions annual independent third-party evaluations of each of its market transformation programs. It also conducts robust market research to inform market transformation program design and provide critical data and analysis. In 2018, NEEA staff published 13 market research and evaluation reports, all of which are publicly available at [neea.org](http://neea.org).

**Regional Building Stock Assessments** – In 2018, the alliance posted reports and data collected as part of the Residential Building Stock Assessment (RBSA), which was finalized in 2017. Also in 2018, the alliance worked with regional stakeholders to develop a new population frame and began fielding the Commercial Building Stock Assessment (CBSA). The RBSA and CBSA are comprehensive inventories of existing Northwest buildings managed by NEEA approximately every five years. Results inform utility energy efficiency programs as well as regional power planning efforts. Puget Sound Energy is engaged with NEEA staff on efforts expected to improve the effectiveness of recruitment through joint communication efforts around the study, particularly for managed accounts. The primary focus of 2019 is recruitment and fieldwork. CBSA data will be available by Dec. 31, 2019 with associated reports published in the first quarter of 2020.

**End-Use Load Research** – In 2018, the End Use Load Research project began collecting data on selected residential electric end-uses, including ductless heat pumps, ducted heat pumps, heat pump

water heaters, central air conditioning, forced air furnaces and baseboard heaters. Across the region, meters for the residential Home Energy Metering Study (HEMS) have been installed in 75 homes. Installations for the Commercial Energy Metering Study (CEMS) will begin in 2019. As the first end-use load research of any significance in the Northwest since the 1980s, this work will greatly support regional planning and program design. Puget Sound Energy serves as a contributing funder for the research, which is conducted outside of NEEA's business plan.

## **REGIONAL COLLABORATION AND COORDINATION**

### **REGIONAL COLLABORATION**

**EFFICIENCY EXCHANGE** – In May 2018, the alliance co-hosted the annual Efficiency Exchange conference in collaboration with Bonneville Power Administration and the Northwest Power and Conservation Council. The regional conference, which provides a forum for energy efficiency professionals to share knowledge, explore emerging innovations and discuss the direction of utility efficiency programs, drew more than 450 attendees.

**CONDUITNW.ORG** – Developed in partnership with the Bonneville Power Administration, the Conduit online community facilitates information-sharing, coordination and collaboration among energy efficiency stakeholders in the Northwest. More than 3,300 energy efficiency professionals across the Northwest, and approximately 111 active users from Puget Sound Energy, currently use Conduit.

### **REGIONAL COORDINATION**

Alliance market transformation programs are coordinated through regional working groups and advisory committees, whose membership includes representatives from Puget Sound Energy staff. NEEA staff formally solicits approval from the Regional Portfolio Advisory Committee (RPAC), the body responsible for overseeing NEEA's market transformation portfolio, at critical program decision-points. NEEA staff are grateful for the time and energy Puget Sound Energy staff dedicate to participating in these forums and on NEEA's Board of Directors, including:

**Board of Directors:** Bob Stolarski, Director, Customer Energy Management

**Regional Portfolio Advisory Committee:** Jeff Tripp, Manager, Residential Energy Management

**Commercial Advisory Committee:** Mark Lenssen, Supervising Engineer

**Industrial Advisory Committee:** Chao Chen, Supervising Industrial Energy Management Engineer

**Residential Advisory Committee:** Christina Crowell, Market Manager; Clint Stewart, Market Manager, Residential Business to Business

**Regional Emerging Technology Advisory Committee:** Rem Husted, Consulting Engineer

**Natural Gas Advisory Committee:** Andy Hemstreet, Regulatory Compliance Consultant; Rem Husted, Consulting Engineer

**Cost Effectiveness Advisory Committee:** Bill Hopkins, Manager, Development and Evaluation; Jim Perich-Anderson, Evaluation Lead; Kasey Curtis, Senior Market Analyst

## ***ADDITIONAL INFORMATION***

For additional information, NEEA's [2018 Quarterly Performance Reports](#), [newsletters](#) and the [2017 Annual Report](#) are available online at [neea.org](http://neea.org).

NEEA staff encourage stakeholder participation and appreciate input at all NEEA board meetings, Advisory Committee meetings and energy efficiency events around the region. The next NEEA Board of Directors meeting is March 5, 2019 in Seattle, Washington. Meeting details will be posted on [neea.org](http://neea.org) in advance.

Please direct questions or comments about this report to: Stephanie Lane, NEEA Marketing and Communications Coordinator, at [slane@neea.org](mailto:slane@neea.org)