



Exhibit 10

2016 Northwest Energy Efficiency Alliance

Report of Activities and
Accomplishments

March 31, 2017



2016 Annual Report for Puget Sound Energy

INTRODUCTION

The Northwest Energy Efficiency Alliance (NEEA or 'the alliance') is a non-profit organization working in collaboration with Puget Sound Energy, the Bonneville Power Administration, Energy Trust of Oregon and more than 140 public and private Northwest utilities to accelerate the innovation and adoption of energy-efficient products, services and practices in the Northwest. With funding and direction from Puget Sound Energy, the alliance intervenes in the market to create lasting change by removing barriers or exploiting 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:

1. **Fill the Energy Efficiency Pipeline with new Products, Services and Practices**
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 2016 regional energy efficiency activities on behalf of Puget Sound Energy. For additional information about NEEA's programs or to read the 2015-2019 Business Plan, please visit www.neea.org.

GOAL 1: FILL THE ENERGY EFFICIENCY PIPELINE (ELECTRIC)

With funding and direction from Puget Sound Energy, the alliance identifies emerging energy-efficient technologies (or services or practices) and conducts testing and vetting to ensure these opportunities are ready for utility programs. These efforts are coordinated with Puget Sound Energy through the Regional Emerging Technology Advisory Committee, which NEEA staff facilitate.

2016 EMERGING TECHNOLOGY HIGHLIGHTS

Scanning for new opportunities: The alliance reviewed 18 unsolicited proposals and continued investigating a dozen other emerging energy-efficient technologies representing more than 1,400 average megawatts (aMW) of 20-year potential energy savings for the region.

Testing and verifying new technologies: The alliance conducted lab and field testing of a number of emerging technologies, including: advanced HVAC rooftop units, compressed air saver units, combination spaced and water heating units, clothes washers, advanced water heating systems, and quick-connect ductless heat pumps.

Influencing appliance and equipment standards: The alliance worked to influence the Department of Energy’s new test procedure and labeling approach for motor systems and clear water pumps, and developed a test method to assess the full range of new Ultra-High Definition (UHD) TV features and can be used to measure real energy consumption.

Partnering with manufacturers: The alliance met with representatives from national manufacturers including A.O. Smith, Rheem, Bradford White, Fujitsu, Cadet and GE to solidify relationships, identify new product opportunities, and reinforce the efficiency value proposition for utilities and end-users. Following the announcement that GE would be discontinuing its HPWH product, the alliance facilitated conversations between GE and Bradford White. In early 2017, Bradford White purchased the entire GE GeoSpring line.

Conducting Research: The alliance commissioned and published 5 emerging technology research reports, all of which are available on neea.org.

- [Revising the TV Energy Use Test Procedure: Incorporating HDR and other Needed Changes](#)
- [Energy Efficiency Financing: Barriers and Opportunities in the Small Utility Market](#)
- [Dimming Systems Characteristics](#)
- [Thermal Break Shear Wall: A Case Study of Rigid Foam Insulation between Frame and Sheathing](#)
- [Embedded Data Centers](#)

GOAL 2: CREATING MARKET CONDITIONS FOR ENERGY EFFICIENCY (ELECTRIC)

By pooling resources through NEEA and working in collaboration with the region, Puget Sound Energy is accelerating the development and market adoption of efficient energy-efficient products, services and practices. NEEA’s 2015-2019 Business Plan directs the organization to focus its market transformation efforts on four high-priority strategic markets: Residential New Construction, Residential Consumer Products, Commercial New Construction, and Commercial and Industrial Lighting.

CONSUMER PRODUCTS

Regional Strategic Market Planning - In 2016, NEEA staff facilitated the development of a regional strategic market plan for the consumer products market. The Plan, which is available on ConduitNW.org, was developed through a collaborative process and aligns the region on long-term vision, goals and strategies for how the region can improve coordination and maximize energy efficiency in this important market. Puget Sound Energy is the co-chair of the Consumer Products collaborative.

Heat Pump Water Heaters (HPWH) – The alliance works with manufacturers, retailers and distributors to accelerate the market adoption of high-efficiency heat pump water heaters (HPWHs). In 2016, the alliance implemented training, marketing and supply chain engagement strategies to support Puget Sound Energy and other regional utility program efforts. Puget Sound Energy was actively engaged in

the supply chain and consumer demand generation activities. In 2016, 973 heat pump water heaters were sold in Puget Sound Energy territory.

Ductless Heat Pumps (DHP) – To support market capacity and demand for ductless heat pumps in electrically heated homes, the alliance delivered two technical trainings for installers in Puget Sound Energy territory and coordinated a Mitsubishi promotion that featured Puget Sound Energy’s logo in 21 Home Depot® locations. The alliance also facilitated the development of a significant product markdown promotion with Mitsubishi and its distributor Gensco. In 2016, there were approximately 14,000 documented sales of ductless units in Washington (through Q3), 19% growth over 2015.

Retail Product Portfolio (RPP) – RPP provides incentives to retailers to preferentially stock efficient products and share sales data with the alliance. There are currently five products in the RPP portfolio: air cleaners, sound bars, room ACs, freezers, TVs, and dryers. In 2016, the program launched a data portal and participating retailers began providing monthly sales numbers allowing the alliance to measure program results and count savings. NEEA staff worked with Puget Sound Energy staff to refine and finalize the RPP product selection process and prepare an analysis of recommended incentive tiers for two new products (clothes washers and refrigerators), which are expected to be added to the portfolio Q2 2017.

Super-Efficient Dryers – The alliance works with manufacturers to support the development, testing and introduction of super-efficient heat pump dryers. In 2016, the alliance worked closely with ENERGY STAR to introduce a Most Efficient category to its clothes dryer specification. The Most Efficient category provides customers a way to differentiate between energy efficiency levels of existing products in the market. The alliance also worked with Whirlpool to conduct lab and field testing and to ensure its HybridCare model met the Regional Technical Forum’s tier 3 threshold. When the HybridCare enters the market in Feb, 2017 it will be the most efficient dryer available to Puget Sound Energy customers.

RESIDENTIAL NEW CONSTRUCTION

Next Step Homes –Through the Next Step Homes program, Puget Sound Energy and NEEA are identifying the most cost-effective methods to achieve maximum energy savings in residential new construction. While most efficient homes on the market use about 15 percent less energy than those built to code, houses built under the guidance of the Next Step Homes program are 30 percent more efficient. In 2016, the alliance provided training, technical assistance and consulting to five homebuilders completing 34 Next Step Home projects in Puget Sound Energy territory. NEEA also held six training sessions for 225 local builders, raters/verifiers, and HVAC companies.

Manufactured Homes – The goal of this program is to ensure that a voluntary, above-code manufacturing specification (NEEM) exists after the next code change (anticipated in 2018). In 2016, the alliance developed a NEEM 2.0 specification (targeting Regional Technical Forum approval in February, 2017), which will allow future energy savings to be measured and thus captured by Puget Sound Energy. The alliance also worked with Fleetwood Homes to build the first demonstration home using the NEEM 2.0 standard. Three more demonstration homes are planned for early 2017.

COMMERCIAL NEW CONSTRUCTION

Commercial Code Enhancement - The Commercial Code Enhancement (CCE) initiative works to increase the region's ability to propose, adopt, and implement more efficient commercial building energy codes. In June, 2016, the Regional Portfolio Advisory Committee (RPAC) voted to approve the addition of this program to NEEA's portfolio. Puget Sound Energy is a member of RPAC and PSE staff participated in CEE program design meetings in Q4 2016.

COMMERCIAL LIGHTING

Luminaire-Level Lighting Controls – The Luminaire Level Lighting Controls (LLLC) program is working to make sensors and luminaire-level controls standard for commercial light fixtures. In 2015, the alliance collaborated with Design Lights Consortium to create a draft specification for LLLC. The final specification was approved in 2016 and has been adopted by 10 manufacturers with 13 controls systems now designated LLLC on the Qualified Products List. In 2016, the alliance worked with the Regional Technical Forum to add LLLCs to its non-residential lighting calculator protocol, making it easier for Puget Sound Energy to establish energy savings. Puget Sound Energy now offers an incentive specifically for LLLC fixtures and part of its Business Lighting Incentive Program.

Reduced Wattage Lamp Replacement (RWLR) – The Reduced Wattage Lamp Replacement program offers support to participating electrical distributors to shift customers away from 32 watt T8 lamps toward more efficient 28 watt and 25 watt lamps, while working with manufacturers to reduce costs. In 2016, the program worked with 26 branch offices across five electrical distribution companies located in Puget Sound Energy territory (Platt, North Coast, Stoneway, HD Supply, Grainger), and four others who ship lamps into Puget Sound Energy territory (Graybar, CED Columbia Division, Pacific Lamp & Supply, United Lamp and Supply). Overall market share for low watt lamps in Puget Sound Energy territory grew by 18% in 2016 (although some branches are reporting much higher).

OTHER MARKETS

Certified Refrigeration Energy Specialist (CRES) Certification – The alliance is working with utility and industry partners to build awareness and drive demand for Certified Refrigeration Energy Specialist certification. In 2016, the alliance created an online CRES certification database, which will allow Puget Sound Energy to track the energy savings activities submitted by CRES certificants. While there are no CRES certificants yet from Puget Sound Energy Territory, a number of local refrigeration engineers are currently pursuing the certification.

INFRASTRUCTURE PROGRAMS

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

Commercial Real Estate – The Commercial Real Estate program has three goals: 1) supporting energy benchmarking in commercial buildings; 2) developing and delivering resources and tools for energy-efficient new construction and existing building retrofits; and, 3) connecting the market with local utility programs. In 2016, the program developed and made available four educational toolkits

(Exploring opportunities to engage tenants; Leveraging leasing Practices; Tailoring business case efficiency to fit your capital budget; and Selling efficient spaces. Program staff also hosted a Spark (deep energy retrofit tool) webinar in the Smart Buildings Center in Seattle, WA. About 20 property managers, architects, and designers participated.

Top-tier Trade Ally Advanced Training (TTTA): To support Puget Sound Energy's commercial and industrial lighting programs, the alliance provides resources and tools that build awareness, demand and capability for designing and installing energy-efficient lighting. In 2016, the NXT Level 1 training and designation continued to gain traction. Twenty-two Puget Sound Energy trade allies from seven companies participated in the training and 11 individuals earned the NXT level designation. NXT Level is the region's most comprehensive lighting training and is designed for trade ally professionals who work on retrofit projects in commercial and industrial facilities.

Commercial and Industrial Strategic Energy Management – The alliance's Commercial and Industrial Strategic Energy Management (SEM) program provides a holistic set of tools that support Puget Sound Energy and the market to build market awareness, capability and demand for SEM. In 2016, the alliance launched the SEM Hub, an online resource for contractors, utilities and other energy professionals to share resources and exchange ideas and information on regional SEM programs. Puget Sound Energy staff provided invaluable input into the discovery, design and development of the project and are active users of the SEM Hub tools. Also in 2016, the alliance organized a Commercial SEM collaborative workshop for Puget Sound area utilities. PSE staff participation was extremely valuable and very helpful to other utilities looking to design Commercial SEM programs.

Industrial Technical Training (ITT): To support the region's industrial energy efficiency efforts and build market capacity, the alliance provides coordinated technical training on key industrial energy efficiency concepts. In 2016, the program delivered five training sessions in western Washington to 94 total attendees: Adjustable Speed Drive Applications and Energy Efficiency (in September and May), Motor Systems Management Best Practices, Compressed Air Challenge and Introduction to Strategic Energy Management. Staff from Puget Sound Energy are actively involved in annual planning for the alliance's Industrial Technical Training program, guiding course selection and recruiting attendees.

CODES AND STANDARDS

Working in collaboration with Puget Sound Energy, the alliance works at the state level to influence the adoption of increasingly efficient building energy codes and support code compliance. In 2016, to support code education and compliance in Washington, the alliance:

- Provided training for more than 2,445 people across Washington to support residential and commercial code compliance
- Conducted demonstration pilots of dedicated outdoor air systems (DOAS) to support new 2015 WSEC code requirements and provided training to support market understanding of this efficient technology
- Completed Phase I of the new Washington commercial code online compliance tool, which provides an innovative framework for online submittal of compliance documents
- Updated the Simple Heating System Calculator to include all of the insulation values that are part of the various option packages in the Washington Energy Code.

With funding and direction from Puget Sound Energy, the alliance gives the Northwest a voice in federal standards processes and is frequently the only efficiency organization directly representing utilities in these forums. In 2016, NEEA staff participated in several successful 2016 rulemakings by the Department of Energy. Among those are rules for: Conversion Factors for Residential and Certain Commercial Water Heaters (from EF to UEF); Standards for Uninterruptible Power Supplies; Standards for Commercial Packaged Boilers; Standards for Walk-in Coolers and Freezers; Test Procedures for Walk-in Coolers and Freezers; Standards for Residential Dishwashers; Test Procedures for Commercial Packaged Boilers; Test Procedures for Commercial Water Heating Equipment; Standards for Miscellaneous Refrigeration products; Test procedures for General Service Lamps.

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 collaboration regional effort is improved consumer choice and increased efficiency of natural gas use.

2016 NATURAL GAS PORTFOLIO HIGHLIGHTS

Emerging Technology Scanning: With funding and direction from Puget Sound Energy, the alliance scans the market for emerging technologies, services, and practices to ensure a robust pipeline of efficiency opportunities well into the future. In 2016, the alliance identified three emerging natural gas technologies for the residential water/space heating market. Staff are building relationships with company representatives to understand the potential of these technologies, assess the opportunity for the Northwest and explore partnerships to bring products to market.

Market Research: The alliance launched a natural gas market characterization study in 2016. This research will provide Puget Sound Energy and other natural gas utilities with a rich understanding of natural gas end use customers, and inform future strategies to overcome market barriers to product acceleration and adoption.

Market Transformation Programs:

- **Gas-fired heat pump water heaters:** In the first half of 2016, Puget Sound Energy participated in a field test of residential gas fired heat pump water heaters. The field test yielded encouraging results with units operating at a COP of 1.3 or greater and delivering hot water consistently. Following the test, the alliance worked with the manufacturer refining and testing product components to maximize energy savings, reduce product cost and ensure consumer satisfaction.
- **Combination water and space heating systems:** In late 2016, the alliance launched a field study of internal combustion engine heat pump technology to understand the energy savings opportunity for commercial buildings. NEEA staff will leverage the results of this study to better understand the technology and explore barriers to adoption. Lessons learned may be applied to similar exploration of residential solutions.

- **Super-efficient gas clothes dryers:** On behalf of Puget Sound Energy, the alliance is working to influence the introduction of super-efficient, natural gas-powered clothes dryers. In 2016, the alliance conducted laboratory testing to assess baseline energy consumption and energy savings of efficient gas dryers. The Natural Gas Advisory Committee, of which Puget Sound Energy is a member, voted to advance the Dryers Program to the next phase to support advancements in federal efficiency requirements.
- **Rooftop HVAC:** In 2016, Puget Sound Energy participated in a pilot of condensing rooftop HVAC units, which successfully validated manufacturer energy savings claims. The alliance completed a suite of market research aimed to better understand the market opportunities, barriers and potential of this technology and gain a clearer understanding of natural gas customers in the Northwest. The research, coupled with the results of the pilot, will help shape market strategy and ensure the team targets those customers most likely to purchase.
- **Hearth Products:** In 2016, the alliance conducted research exploring one of three identified market transformation approaches to gas hearth products: replacing the standing pilot lights in existing equipment with intermittent pilot lights. The study determined that this approach was not feasible given testing standards, manufacturer warranties and code in our region.

PROVIDING ENERGY EFFICIENCY SERVICES AND RESOURCES TO PUGET SOUND ENERGY

The alliance pools regional resources to conduct research, facilitate regional collaboration, and provide data services for the benefit of Puget Sound Energy customers. Regional data and research informs program design and supports utilities to deliver more impactful energy efficiency programs Northwest customers.

EVALUATION AND MARKET RESEARCH

Market Research and Evaluation – The alliance conducts independent, third-party evaluations of all its market transformation programs. Market research and evaluation drives alliance program design, defines the challenges within its work, and provides critical market data and analyses. The alliance published 17 market research and evaluation reports in 2016, all of which are all publicly available at neea.org/reports.

Regional Building Stock Assessments – In 2016, the alliance kicked off data collection for the next Residential Building Stock Assessment (RBSA) and started planning for the Commercial Building Stock Assessment (CBSA). The RBSA and CBSA are comprehensive inventories of existing Northwest buildings that NEEA conducts every five years. Results inform future power planning efforts, as well as utility energy efficiency programs. Puget Sound Energy is funding oversampling of the RBSA to ensure the results are statistically relevant to its service territory and customers.

REGIONAL COLLABORATION

EFFICIENCY EXCHANGE – In April, 2016, 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 a sold-out crowd of over 400 attendees.

CONDUITNW.ORG – Developed in partnership with the Bonneville Power Administration, “Conduit” is an online community that facilitates information sharing, coordination and collaboration among energy efficiency stakeholders in the Northwest. Conduit currently has over 3100 members across the Northwest, and 87 active users from Puget Sound Energy.

REGIONAL COORDINATION

Alliance programs are coordinated through regional working groups and advisory committees, whose membership includes representatives from Puget Sound Energy staff. The Regional Portfolio Advisory Committee (RPAC) is the body responsible for overseeing NEEA’s market transformation portfolio. NEEA staff formally solicit RPAC approval at critical program decision-points. In 2016, NEEA staff submitted three programs to RPAC for advancement votes, as well as the draft Regional Strategic Market Plan for Consumer Products. In each case, RPAC voted unanimously in favor of going forward.

NEEA staff are grateful for the time and energy Puget Sound Energy staff have dedicated to participate in NEEA’s Board and various sector advisory committees:

Board of Directors: Bob Stolarski, Director, Customer Energy Management, NEEA Board Chair

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: Dennis Rominger, Market Manager

Emerging Technologies Advisory Committee: Rem Husted, Consulting Engineer

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

Cost Effectiveness Advisory Committee: Rebecca Blanton, Senior Market Analyst

ADDITIONAL INFORMATION

For additional information, NEEA’s [2016 Quarterly Performance Reports](#) and the [2015 Annual Report](#) are available online.

NEEA is committed to serving its regional stakeholders across diverse geographic areas and markets. We 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 7 in Seattle, WA and the general public is invited to attend. Meeting details will be posted on neea.org in advance.

Please contact Virginia Mersereau, NEEA Communications Manager, at vmersereau@neea.org for any questions or comments about this report.