

**City of Tumwater
Resource Conservation Management Program
(Phase 2)**



Prepared by:

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Plant Operations Support Consortium

Washington State University Extension Energy Program

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Executive Summary

The purpose of this second-phase study is to provide the City of Tumwater energy conservation recommendations and information on available incentives through Puget Sound Energy and other programs. These recommendations were based on walk-through assessments detailed in the Phase 1 report, and included Tumwater City Hall, Facilities Shop, Old Town Center, Headquarters Fire Station, North End Fire Station and Library. A baseline assessment utilizes information obtained during a brief period of observation to characterize the existing equipment and operation for the purpose of evaluating opportunities for saving energy and other resources.

The City of Tumwater has committed to climate change mitigation through their participation in the U.S. Mayor's Climate Protection Agreement and the ICLEI Five Milestones process, and even developed their own detailed Climate Change Action Report. The City has also committed to reducing its greenhouse gas emissions to seven percent below year 2000 levels. In its Climate Change Action Plan, the City notes that building energy use represents the second greatest source of greenhouse gas emissions in the city. However, despite an energy conservation program started in 2003, energy use in City buildings has increased annually since then, other than a slight dip between 2005 and 2006. It seems that a more aggressive commitment to facility energy savings will be needed to achieve the city's stated goals.

Acknowledgements

This report was developed by the GA-WSU Team, consisting of staff members from the State of Washington Department General Administration's Plant Operations Support Consortium and the Washington State University Extension Energy Program. Key team members included Bob MacKenzie, Phil Partington, Larry Covey and Rob Penney. For more information on the POS Consortium, access <http://www.energy.wsu.edu/>. For more information on WSU Extension Energy Program, access www.energy.wsu.edu.

We wish to thank the U.S. Department of Energy's Building Technologies Program for their funding of the Northwest Building Efficiency Center (NBEC), the program through which the Tumwater City Hall assessment was performed. NBEC delivers information on energy efficient technologies to builders, code officials and public building managers, so they can significantly reduce building energy use in the region, striving to deliver the right information at the right time, in the best manner, to the people who can implement successful energy efficiency projects. For more information on NBEC, link to www.nwbuildings.org.

We also wish to thank Bill Steigner and Lori Moen with Puget Sound Energy. Both have provided excellent assistance in answering questions and providing valuable resources during the development of this report.

Introduction

On March 3, 2008, the City of Tumwater moved forward with their goal of improving the energy consumption of their operations by contracting General Administration's (GA) Plant Operations Support Consortium to complete a two-phase mission regarding establishing the groundwork for a Resource Conservation Management program (Interagency Agreement No. 2008-710: "City Resource Conservation Management Program").

Pursuant to Phase One (1) of the agreement, the Department of General Administration's (GA) Plant Operations Support Consortium, with Washington State University Extension Energy Program conducted on-site energy walk-through May 15, June 3 and July 24, 2008. Each visit included comprehensive tours of City of Tumwater buildings, including Old Town Center, Headquarters Fire Station, North End Fire Station, City Hall, Public Works Operations Building, Henderson and Crosby House Museums, Facilities Shop and the Tumwater Library. Visits also included individual and collective interviews with facilities maintenance and other building occupants/users.

Bob MacKenzie, program manager of the Plant Operations Support Consortium, presented the completed Phase 1 report to the City of Tumwater City Council on October 21, 2008. The report provided our findings of the walkthroughs, as well as recommendations.

In Phase Two (2) of the agreement, we were tasked to perform the following critical actions (in bold below). We have included a summary status of each critical action.

- **Incorporate findings of product from Phase One (1) to develop City-wide RCM program.**

The intent of this report is to jump start the City of Tumwater's RCM program. However, to proceed further, City leaders must make key decisions based on options we've provided in this report and must determine prioritization based on the City's economic circumstances.

- **Integrate utility company's data on existing programs, rate schedules and billing histories.**

This critical action was completed as part of the Phase 1 report.

- **Create a baseline from obtained information.**

Baseline data have been extracted a synthesized and can serve as benchmarks for City facilities management employees.

- **Perform a monthly status meetings/memo to keep key customers informed.**
 Plant Operations Support Consortium has forwarded periodic e-mail updates to City of Tumwater employees to keep them in-the-loop and encourage buy-in. Additionally, we have remained closely linked to Jeff Vrabel, the City’s Facilities Manager, while providing constant updates.
- **Develop an RCM team for each building to maintain focus and increase “buy-in” by employees.**
 Since there is no person deemed the “building manager” for each particular building, Jeff Vrabel, along with Consortium staff has assumed the role of RCM focal point to coordinate actions and encourage employee buy-in. RCM-related roles per building can be defined with guidance by Jeff Vrabel and the City Council. Consortium staff will remain linked to the City even after this agreement is completed. ,
- **Develop facility specific operations guidelines.**
 (Please see pages 7-9)
- **Determine the target cost savings for the RCM Program.**
 Targeted savings depend on options selected by City leaders and will be monitored by City facilities management staff. Consortium staff will provide formulas and other technical data as options are selected and implemented.
- **Continue to track utility billings and show trending of conservation.**
 Consortium staff will continue to track these data and will provide the City any updates for trending models received by WSU-Energy. .
- **Review as-built/Owner Manuals to gain a better understanding of the building systems.**
 Please see page 10 for description and pages 11-12 for quick reference via a decision matrix.
- **Research grant opportunities with utility companies.**
 Research grant opportunities are provided within this report.
- **Develop long-term planning of potential projects.**
 Long term planning opportunities developed in the course of this study resulted in linkage to GA-Energy’s team with a possibility of an Energy Services Performance Contract. Additionally, we provided Mr. Vrabel with a list of project candidates to be funded more traditionally.
- **Provide planning for projects with cost savings opportunities.**
 The ESPC provides the greatest opportunity to achieve costs savings and retrofit/remodel.
- **Develop projects to be either bid or to be performed by in-house staff.**
 This report includes a decision matrix (page 11-12) that identifies long-term solutions, projects with cost saving opportunities, as well as projects that can be performed by in-house staff. Moreover, Consortium staff has linked City of

Tumwater with General Administration's Energy Team to look into Energy Saving Performance Contracting (see page 13-15 for more details). The decision matrix is intended to clearly outline possible energy conservation paths for the City of Tumwater to consider.

- **Monthly reporting to stakeholders.**

POS Consortium has provided monthly e-mail reports through Jeff Vrabel, or has reported directly to Jeff.

Conclusion

City leadership is to be lauded for requesting this proactive assessment. There are loads of energy savings opportunities which are now within reach. Although the City of Tumwater's facility energy use has continued to increase steadily since its energy conservation program started in 2003, we have reasons for optimism. This report will serve as a platform from which the City of Tumwater's RCM program can be jump started. It includes a comprehensive decision matrix, which focuses on the energy savings opportunities at City Hall. In addition, this report provides several incentive options for energy savings through General Administration's Energy Team, Puget Sound Energy and other energy incentive sponsors. As an additional component of the agreement, POS Consortium will establish semi-annual walk-throughs *gratis* as part of the City's membership to the Consortium.

Office Energy-Saving Guidelines

Lighting

- Turn off lights when not needed. For example, turning off fluorescent lights saves energy, extends overall lamp life and reduces replacement costs. Myth: Turning lights on and off uses more electricity than leaving the lights on.
- Reduce or replace inefficient, outdated or excessive lighting within your building.
- When replacing old lighting equipment, evaluate new technologies that may need fewer fixtures and/or fewer lamps within existing fixtures.
- Ensure that light levels will remain at adequate levels before changing out technologies and/or reducing number of lamps.
- Where practical, replace incandescent lamps with compact fluorescent lamps (CFLs). Ensure you install compatible dimming technology if CFLs are used along with a dimming system.
- When fluorescent T-12 lamps burn out, consider retrofitting fixtures with T-8 lamps and changing from magnetic ballast to electronic.
- Replace incandescent "EXIT" signs with LED signs. LEDs use about one-tenth the wattage and last 50 times longer than incandescent-lamp signs.
- Install lighting occupancy sensors that automatically turn lights on or off, depending on occupancy. These sensors work well in areas such as conference rooms, break rooms or individual offices that are not occupied continuously.
- Take advantage of natural daylight: turn off or dim electric lighting when adequate sunlight is available to illuminate interior space.
- Ensure outdoor lighting is off during daytime when applicable.

Heating and cooling

- Establish a preventative maintenance program for your heating, venting and air conditioning (HVAC) equipment and systems. Ensure that you regularly:
 - Change or clean all air filters, preferably every month.
 - Clean all heat exchanger surfaces, water and refrigerant coils, condensers and evaporators.
 - Repair leaks in piping, air ducts, coils, fittings and at the unit(s).
 - Replace defective equipment insulation, ducting and piping.

- When replacing air conditioning units of five tons or greater, purchase units with a high energy efficiency ratio (EER) of 10.5 or more to reduce operating costs for the life of the unit. Ensure that your contractor performs a "Manual N" calculation to select a properly sized system based on your building load characteristics and specific occupancy needs.
- When old motors fail, replace them with premium efficiency motors that operate at a lower annual cost. Ensure you specify the proper sized motor for the application. [View cost reduction strategies for motors.](#)
- Install variable speed drives (VSDs) on large motor loads, where appropriate, to further reduce energy usage.
- Use outside air and water side-economizers for "free cooling" when outside air temperatures and conditions permit - during the spring and fall.
- In facilities with older chillers, consider replacing them with new, energy-efficient units that operate at or below .60 kilowatts per ton. View a chilled water system analysis tool to improve efficiency.
<https://www.energy.gov/eere>

Temperature control

- In winter, set office thermostat offices between 68 and 72 during the day/business hours, and 60 to 65 degrees during unoccupied times.
- In summer, set thermostats between 75 and 78 degrees during the day/business hours, and above 80 degrees during unoccupied hours.
- Adjust thermostats higher when cooling and lower when heating an occupied building or unoccupied areas within a building, e.g., during weekends and non-working hours.
- During summer months, adjusting your thermostat setting up one degree typically can save 2-3% on cooling costs.
- Consider installing locking devices on thermostats to maintain desired temperature settings.
- Install programmable thermostats that automatically adjust temperature settings based on the time of day and day of the week. If you have multiple HVAC units, set thermostats to return to the occupied temperature a half an hour apart.
- In larger facilities with energy management systems (EMS), verify that temperature set points and operating schedules are correct for the controlled equipment. For EMS systems that no longer operate as initially designed, consider a retro-commissioning project to restore the system's functionality.

Office equipment

- To conserve energy and reduce internal heat gain, turn off computers, monitors, printers and copiers during non-business hours.
- To save energy during periods of inactivity, ensure that the built-in power management system for your office equipment is active.
- Ensure your screen saver is compatible with the computer's power management features, and that the setup allows the system to go into power saver mode.
- According to E-Source, using a laptop computer instead of a desk-top system can save 80-90% in electrical cost.
- When purchasing new office equipment, look for ENERGY STAR. The [ENERGY STAR office equipment program](#) promotes energy-efficient computers, monitors, printers, fax machines, scanners, copiers and multi-function devices that automatically power down during extended inactivity. Energy saving of 50% or more is possible.
- Install plug load controllers in cubicles to control multiple loads like monitors, task lights and fans. These devices use a motion sensor that is incorporated with a plug load surge suppressor. Inactive equipment can be shut down when the cubicle is unoccupied.
- Specify ENERGY STAR equipment when purchasing or negotiating a contract for new vending machines. The [ENERGY STAR machines](#) incorporate energy efficient compressors with refrigeration and lighting controls. Efficient vending equipment can save 30-50% over older equipment.

Employee involvement

- Educate and encourage employees to be energy-conscious and to offer ideas about how energy can be saved. Employee buy-in and involvement can make or break your company's efforts to conserve energy.
- Designate a "responsible party" to be responsible for and to promote good energy practices for the organization and/or facility. This individual should work with management to facilitate energy savings ideas and strategies - optimizing energy use and costs minimizes overhead and operation costs

City Hall Decision Matrix

Upon reviewing the as-built/Owner Manuals and after completing on-site, assessment/walk-throughs of the City of Tumwater's City Hall, the energy assessment team offers numerous recommendations for improving the energy consumption of the City's HVAC Units. For more details on City Hall's HVAC, please refer to page 9 of the Phase 1 report. While there is a spectrum of cost for these suggestions, keep in mind that higher cost options often lead to higher savings. For example, replacing variable volume/variable temperature (VVT) air distribution terminal boxes with pressure independent VAV boxes is the largest measure recommended by the energy assessment team, both in installed cost and potential savings.

The decision matrix, provided on pages 11 and 12, are designed as a quick guide of recommendations in order to help the City of Tumwater prioritize and determine what direction to go. As members of the Plant Operations Support Consortium, and per agreement 2008-710, the Consortium will serve as the City's sponsor in assisting with following through with whatever paths the City decides to tread.

City of Tumwater Energy Conservation Assessment, Phase 2

City Hall Decision Matrix

Key	Lighting	HVAC Major Retrofit	HVAC Maintenance/Operation
	Water Heating	Building Envelope	Other

No Cost	Low Cost (\$0-\$10,000)	Medium Cost (\$10,000 - \$25,000)	High Cost (>\$25,000)
Inspect the air-side economizers to ensure proper operation. Check the minimum outside air setting and adjust to provide 20 CFM per person. (page 13)	Perform light level testing and replace fixtures as need to meet today's lighting standards. (page 12)	Initiate contract with contractor for relamping with T-8 lamps and replace the ballasts with energy-efficient electronic models. (page 12)	Replace Parker-Carrier pressure-dependent variable volume / variable temperature (VVT) air distribution terminal boxes with pressure independent VAV boxes. (page 12)
Check all dampers for leakage and replace any missing or deteriorated seals or gaskets on access doors. (page 14)	Replace any incandescent lamps in exit signs with LED inserts, or replace exit signs with LED, photoluminescent or electronluminescent models. (page 12)	Create HVAC separation between City Hall Administration Areas from Police station	Replace the primary building automation system with a direct digital control system and reconfigure the zoning to better serve the existing office layout. (page 13)
Inspect surrounding around outside condensing units and keep free of debris. (page 14)	Install automated dimming system for foyer lighting (page 12)	Perform a combustion test to ensure the boilers are operating at optimal efficiency. Adjust setting for burners and controls as needed (page 13)	Separate HVAC system for the police area of the building to allow night setback of the majority of the building. (page 13)
Plant trees to shade the condensing units to improve cooling efficiency. (page 14)	Install occupancy sensors for interior lighting system.	As HVAC motors require replacement, choose only Premium-efficient models. (page 13)	Replace water heater, at the end of the life expectancy, with an energy-efficient model using the GAMA directory (page 14)
Set the dead band between heating and cooling settings for each space to a minimum of five degrees F. (page 14)	Initiate group relamping with T-8 lamps and replace the ballasts with energy-efficient electronic models. (page 12)	Contract with commissioning agent to review the existing HVAC system to ensure system is working as designed.	Replace boiler with a more efficient model.
Set night set back in all zones where possible. (page 14)	Paint the ceiling of the Council Chambers with a brighter, lighter color to better reflect light downward. (page 12)	Install a submeter on the power feed coming from Building #2, which provides power to critical end uses in the City Hall to allow a comprehensive accounting of energy used at City Hall (as well as Building #2). (page 15)	Replace existing condensing units and air-handlers serving the Council Chambers and the basement with DX-VAV units. (page 13)

<p>Consolidate types/modles of lighting fixture lamps and ballasts for proper stock.</p>	<p>Seal ductwork leaks with mastic as necessary. (page 13)</p>	<p>Consider purchasing Green Power from Puget Sound Energy to help achieve the City's Climate Change Action Plan goals.</p>	<p>Replacing existing constant-speed air handling units serving the basement spaces (other than the training room) and the Council Chambers with models using variable speed blowers. (page 13)</p>
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If a recirculation pump is used, ensure that it is operated with a timer or other control. (page 14)	Replace any missing or deteriorated seals, gaskets, actuators or linkages after checking all outside air and return air dampers. (page 14)		Consider using an energy management system to limit peak demand by cycling loads when demand exceeds 50 kW. (page 14)
Verify hot water temp at fixture closest to the water heater with thermometer (120 degrees F); adjust water heater thermostat as needed. (page 14)	Monitor space temperatures throughout the office space (when electric resistance space heaters are off) for base line data. (page 13)		
Direct occupants to report their discomfort for maintenance to troubleshoot. (page 13)	Change air handling filters regularly. (page 14)		
Direct occupants to discontinue the use of personal space heaters.	Check the refrigerant charges of all cooling systems regularly.		
Perform ESPC project with barrowing from the State Treasurer's office and pay back with energy budget.	Install vapor barrier and insulation where they have been disturbed and are hanging down in the attic. (page 14)		
	Check for air leaks between the roof and the top of the walls and at the roof peaks. Carefully seal all leaks using non-expanding foam. (page 14)		
	Install weatherstripping on attic access doors. (page 14)		

**Energy Saving Performance Contracting
GA Energy Team**



Energy Saving Performance Contracting

<https://www.energy.gov/eere>

Contact:

Roger Wigfield

GA Energy Manager

Phone: 360-902-7198 (office)

E-mail: rwigfie@ga.wa.gov

Plant Operations Support Consortium set up a meeting with Jeff Vrabel, Facilities Manager, General Administration's Energy Team ESPC representatives, Roger Wigfield, Energy Team manager, and Doug Kilpatrick, P.E., as well as Consortium staff members, Bob MacKenzie, program manager, Larry Covey, senior facilities planner, and Phil Partington, program coordinator. See City ESCO Presentation in PDF Format.

What it is:

- The most cost-effective process for completing building energy upgrades
- A means to use utility savings to pay all project costs
- A partnership of the owner, the ESCO (energy service company) and the GA Energy Team

How Energy Saving Performance Contracting works:

- You select of GA's pre-qualified ESCO's to complete an energy audit of your facility
- The ESCO designs, installs, commissions, and finances the projects you select
- The ESCO guarantees both the maximum project cost and the projected energy savings
- GA energy engineers provide long-term monitoring of project savings

Typical projects include:

- Energy management systems
- Interior and exterior lighting
- Boiler replacement and repair of steam distribution systems
- High-efficiency HVAC systems
- LED traffic systems, wastewater treatment plant pumps and motors, and swimming pool systems

Guarantees

- Guaranteed Project Cost
- Guaranteed Savings
- Guaranteed Equipment Performance

Advantages of ESPC

- Single point of accountability – the ESCO
- No requirement to use the lowest bid
- Owner participates in equipment and subcontractor selection
- Low interest financing available through the Washington State Treasurer
- Verification of annual energy savings through a monitoring program

Puget Sound Energy Efficiency Programs and Rebates



PSE Efficiency Programs and Rebates Introduction Link:

<https://www.pse.com/rebates/business-incentives>

Increasing energy efficiency is one of the best investments we can make to help meet the growing demand for electricity and natural gas in the region. Puget Sound Energy (PSE) encourages all of its customers to be efficient in their use of energy. We have a broad array of programs, financial incentives (grants and rebates), and tools designed to offer all of our customers the opportunity to participate in conserving energy.

Here's a quick list of the many ways we can help you get the most out of your energy dollars:

Grants

- Customized incentives to fund your energy-efficiency projects
- Funding for energy-efficient new construction (non-residential)

Rebates

- Streamlined incentives for specific energy-efficient products, or PSE customer groups. Available for over a dozen measures with over 100 options.

Resource Conservation Manager Program

- Incentives to improve operations and maintenance practices for better efficiency and lower resource costs in your organization.

Direct installation and maintenance programs

- Simple efficiency measures provided directly by PSE, or our contractors.

Tools

- Online energy audit
- Energy Interval Service: A web-based application that provides access to usage data from your meters.
- Energy Smart information library
- Links to other Web sites for energy efficiency information

PSE Energy Efficiency Online Tools

Link: <https://www.pse.com/rebates/business-incentives/tools-and-resources>

PSE Energy Management Program Brochures and Forms

Link:

<https://www.pse.com/rebates/business-incentives/energy-management-programs/industrial-strategic-energy-management>

- **Online Energy Audit**

<https://www.pse.com/rebates/business-incentives/tools-and-resources>

A quick, easy online energy audit. You're just two minutes away from ways to better manage your energy use. Save data for your facilities, and enter usage profiles for an in-depth facility audit as well.

- **EnergySmart Library**

<https://www.pse.com/pages/property-management-services/my-data>

Your guide to improving the energy efficiency of your facility. Learn about high efficiency equipment, and get operating tips for heating, cooling, lighting, water heating, and many more commercial and industrial energy uses.

- **Energy in Business**

<https://www.pse.com/rebates/business-incentives/tools-and-resources>

PSE publishes an electronic newsletter six times a year. It's filled with energy saving tips, case studies of successful energy efficiency projects throughout the region, and updates on services for your business. Click here to view the current issue, or to sign up.

- **Energy Interval Service**

<https://www.pse.com/pages/property-management-services/my-data> A web-based application that provides access to usage data from the PSE meters at your facilities. See how other customers are using this service as a powerful tool to manage energy use.

PSE Grant Case Studies

Link:

<https://www.pse.com/business>

Prescriptive approach to energy efficient building design

Link: <https://www.pse.com/rebates/business-incentives/energy-management-programs>

Also check out PSE's approach to energy efficiency in new office buildings:

<https://www.pse.com/rebates/business-incentives/commercial-new-construction-grants>

As well as a page of links to background technical information related to PSE's Prescriptive Approach:

<https://www.pse.com/construction-services/guides-handbooks>

Take advantage of Puget Sound Energy's prescriptive program for designing energy efficient projects in a whole building approach. Developers, property owners, designers and contractors can utilize this easy to implement system of measures and incentives to include the energy-wise features that communities and markets are demanding. PSE's prescriptive approach offers incentives that range from 50 cents to \$2.60 per square foot and it will result in facilities that are at least 10% more energy efficient than required by Washington State Energy Code.

Eligibility

- Project must be located in PSE's electric service area
- If the building is heated by natural gas, the gas must be provided by PSE
- Building must be one of three types: retail, office or school
- Size restriction: up to 100,000 square feet

Measures

- Applicable to typical building and structure types
- Choice of standard ready to implement measures in HVAC, building envelope and lighting design
- Flexible yet simple choices for improved efficiency
- Works in concert with LEED and BPA programs

Incentives

- PSE grants pay for up to 100 percent of the incremental cost of the package of measures
- Incentives range from 50 cents to \$2.60 per square foot for the basic package plus substantially more for optional enhanced measures
- Increased incentives for including more measures

- Incentives depend on the building and heating types

How to participate

Owners and designers of eligible buildings can maximize their options for energy efficiency by contacting PSE at the planning or early design stages of a project and reviewing what the program offers. Determine which building type - retail, office or school - best describes your project and click on the appropriate tab above.

Find out more:

- View this presentation (<http://www.pse.com>) with step by step information and examples.
- Download this brochure about designing for energy efficiency in retail, office and school building projects: (<https://www.pse.com>)
- Prescriptive Approach - Whole Buildings brochure (<https://www.pse.com/>)
- Retail Measures and Incentives brochure insert (http://www.pse.com/SiteCollectionDocuments/PrescriptiveApproach/2842_110108.pdf)
- Office Measures and Incentives brochure insert (http://www.pse.com/SiteCollectionDocuments/PrescriptiveApproach/3181_110108.pdf)
- School Measures and Incentives brochure insert (http://www.pse.com/SiteCollectionDocuments/PrescriptiveApproach/3181_110108.pdf)

PSE Grant Programs

Link: <https://www.pse.com/rebates>

Bill Steigner, 360-786-5930 (office phone), is the PSE Energy Management Engineer nearest to Tumwater. PSE Energy Advisors, 1-800-562-1482, is another contact.

- Grants can help fund:
 - Efficiency retrofits and upgrades on existing facilities
 - New construction
 - Expansion of existing facilities
- Eligibility
Puget Sound Energy (PSE) offers funding to commercial and industrial electricity and natural gas customers who install cost-effective, energy-efficiency measures for equipment or facilities supplied with energy by PSE.

Project funding and grants:

- Using project scope, energy savings projections and cost estimates, a PSE Energy Management Engineer (EME) will provide an energy-efficiency funding estimate.
- Actual funding is determined after final project analysis and approval by the EME.
- PSE funding is typically 50 percent of the installed project cost. Funding may be less, but the maximum is 70 percent.
- Copies of approved invoices are required.
- Projects with a simple payback less than one year, or more than ten years are not eligible for funding

Retrofit projects: Application and pre-approval are required to qualify for funding.

- Energy-efficient equipment must meet or exceed efficiency in the applicable energy code.
- Retro commissioning may also qualify for funding.

PSE Grant process

Link: <https://www.pse.com/business>

1. Customer submits application to PSE Energy Efficiency Services.

2. Puget Sound Energy (PSE) Energy Management Engineer reviews the project and visits site to conduct a pre-inspection and collect facility information.
3. Energy savings estimates and bids for installation cost are used to estimate PSE's funding.
4. A Grant Agreement committing funding is executed between PSE and customer.
5. Customer selects a contractor, or installs measure(s) per agreed specifications.
6. PSE inspects the installed equipment and verifies efficient operation.
7. Customer provides copies of invoice(s) or other supporting documentation (if required in grant agreement) for installed measures.
8. PSE pays grant to customer.

PSE Grant Forms

Link:

<https://www.pse.com/>

PSE Energy Efficiency Rebates Overview

Link: <https://www.pse.com/rebates/business-incentives/small-business-energy-efficiency>

For more information, call a PSE Energy Advisor at 1-800-562-1482.

Rebates for lighting and lighting controls

- **Lighting for small business:** \$3 - \$225 for various projects from simple bulb replacement to fixture retrofits.
- **Occupancy sensors and lighting controls:** \$40 - \$80 for occupancy sensors and lighting timers.
- **LED exit signs:** \$50 for each exit sign replaced with an ENERGY STAR® qualified LED exit sign.
- **LED traffic signals:** \$5 - \$20 for traffic signal light replacements to LED signals.

Rebates for HVAC equipment upgrades and services

- **Natural gas boiler tune-up:** 100 percent of the tune-up cost, up to \$600
- **Premium HVAC service program:** \$300-\$1260 paid to PSE approved HVAC contractors for advanced service performed on qualifying equipment.
- **Seven-day programmable thermostat:** \$50 per unit that replaces a non-programmable thermostat
- **High efficiency HVAC unit:** \$30 per ton for units larger than 65,000 Btuh
- **Electronically Commutated Motor (ECM):** \$0.12 per square foot served
- **Variable Speed Drive (VSD):** \$100 per driven HP for HVAC fan motors and closed-loop HVAC pump motors

Rebates for equipment

- **Vending machine controller:** \$80 per controller
- **High efficiency commercial clothes washer:** \$200 per qualified machine
- **Reach-in refrigerators and freezers:** \$125-\$200 dependent on size
- **High-efficiency kitchen equipment:** up to \$2,000 for qualifying commercial kitchen equipment

Rebates for other products

- **EnergySmart Grocer:** provides energy audits and information to optimize efficiency of facility
- **NEMA premium efficiency motor rebates:** \$2-\$20 per HP dependent on size/type

- **Portable classroom rebates:** Receive rebates of 100 percent of cost, up to \$250, per 365-day programmable thermostat

PSE Equipment Rebates

High-efficiency commercial clothes washer rebate

Link:

<https://www.pse.com/rebates/business-incentives/small-business-energy-efficiency>

Puget Sound Energy (PSE) offers a \$200 rebate for the purchase of high-efficiency coin operated commercial clothes washers to customers that heat their water with PSE supplied electricity or natural gas. Eligible commercial washers meet stringent Consortium for Energy Efficiency (CEE) specifications.

Most of these full-sized washers use 18 to 25 gallons of water per load, compared to the 40 gallons used by standard machines. They also extract more moisture from clothes during the spin cycle, thus reducing drying time (and wear and tear on the clothing).

The CEE develops national initiatives to promote the manufacture and purchase of energy-efficient products and services. Products that meet CEE specifications help customers save energy and money without sacrificing performance.

For the list of qualifying models go to the CEE Web site, <https://www.cee1.org/>.

Water utilities in the region also offer rebates for switching to clothes washers that use less water. Below are some that offer rebates for the installation of efficient commercial clothes washers. If you are supplied water from another provider, be sure to check with them regarding additional rebates you may be eligible for by purchasing high-efficiency clothes washers.

- Seattle and King County water districts affiliated with the Saving Water Partnership
- Cascade Water Alliance (King County) 425.453.1810
- LOTT Alliance (Lacey, Olympia, Tumwater, Thurston County)

Eligibility

Qualifying PSE commercial customers need to use either PSE electricity or natural gas for water heating at the site where qualified high-efficiency, coin-operated commercial clothes washers were installed.

How to participate

Step 1. Purchase and install qualifying equipment

Step 2. Submit your application for payment

- Complete the application form (<https://www.pse.com/rebates/business-incentives/high-efficiency-commercial-clothes-washers>), including your PSE account number, and signature.
- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or material purchases if your in-house project was not billed for labor. Please circle rebate-eligible items, and item quantities.
- Make a copy for your records.
- Mail or fax your rebate application to PSE, along with signed and dated invoices/receipts.
- Allow four to six weeks for processing. **Funding availability is subject to annual program budgets.**

Commercial kitchen equipment rebates

Link:

<https://www.pse.com/business>

Upgrade to qualifying equipment and receive up to \$2,000 in rebates for each item from Puget Sound Energy. Qualifying equipment includes:

Cooking equipment	Electric	Natural gas
Rack ovens	\$2,000	\$2,000
Combination ovens	\$2,000	NA
Convection ovens	\$1,000	\$1,000
Connectionless steamers	\$750	\$750
Fryers	\$250	\$750
Hot-food holding cabinets	\$500	NA
Refrigerator equipment (see Commercial reach-in refrigerators & freezers)		
Ice makers up to 500 lbs of ice harvest per day capacity	\$300	NA
Ice makers >500 lbs of ice harvest per day capacity	\$600	NA
Solid-door, reach-in refrigerators	\$125 - \$175 dependent on no. of doors	NA
Solid-door, reach-in freezers	\$150 - \$200 dependent on no. of doors	NA
Glass-door refrigerators	\$125 - \$200 depending on internal volume	NA
Water heating (in restaurant with a		

dishwasher)		
Qualified 92% efficient (or better) condensing water heater	NA	\$4.71 per 1,000 Btu/hr capacity
Qualified 92% efficient (or better) condensing boiler	NA	\$6.11 per 1,000 Btu/hr capacity

Ovens

Nearly every commercial kitchen has an oven. Over 50 percent of those ovens use inefficient general-bake ovens. The oven is the heart of most kitchens. Rising competition among oven manufacturers have lead to great improvements in oven efficiency.

Efficient rack ovens: \$2,000

Rack ovens offer high-volume production and even baking in a relatively compact footprint. A single-rack oven typically accommodates 15 pans of product at a time, effectively replacing three full-size convection ovens. These large capacity ovens fill the requirements of high-volume retail and baking operations. They are also ideal for rethermalizing many products prepared in cook/chill systems as well as baking and roasting. The rack oven is capable of producing thousands of identical products or many diverse menu items within the same cooking cavity. Click here for a list of qualifying rack ovens

<https://www.pse.com/rebates/business-incentives/commercial-kitchen-equipment>).

Efficient electric combination ovens - \$2,000

The combination oven (often referred to as combi-ovens) can cooked food in a dry-heat only mode, steam only mode, or a combination of both. The programmability of combination ovens allows food to be cooked partially in one mode at a certain temperature, and then finish in another mode at a different temperature. This lends versatility and, in some cases, you may be able to purchase less equipment overall. Click here for a list of qualifying combi-ovens <https://www.pse.com/rebates/business-incentives/commercial-kitchen-equipment>).

Efficient Convection Ovens - \$1,000

Convection ovens are the most common alternative to general bake ovens. Qualifying electric convection ovens are greater than 70 percent efficient and qualifying natural gas convection ovens are greater than 40 percent efficient. They are at least 10 percent and 5 percent more efficient that non-qualifying

models, respectively. Click here for a list of qualifying convection ovens
<https://www.pse.com/rebates/business-incentives/commercial-kitchen-equipment>

Connectionless steam cookers - \$750

Standard boiler-based steam cookers require water to be heated the entire time the equipment is on. This means that water and steam, you have paid to heat, are constantly going down the drain. In addition, more water is wasted to cool down the water and steam as it goes down the drain. An inefficient six-pan steamer could be using over 32,000 kWh of electricity and about 170,000 gallons of water per year. With PSE's rebate you could pay for a new steamer with your energy and water savings in less than two years. Click here for a list of qualifying steam cookers

<https://www.pse.com/rebates/business-incentives/commercial-kitchen-equipment>

Some water utilities also give rebates for ENERGY STAR qualified steamers in addition to the rebate from PSE. Below are some that offer rebates for the installation of connectionless steam cookers. If you are supplied water from another provider, be sure to check with them regarding additional rebates you may be eligible for by purchasing a connectionless steam cooker.

- Seattle and King County water districts affiliated with the Saving Water Partnership (<http://www.savingwater.org>)
- Cascade Water Alliance (King County) 425.453.1810
- LOTT Alliance in Lacey, Olympia, Tumwater, Thurston County (<https://lottcleanwater.org/>)

Fryers - \$750

ENERGY STAR qualified fryers are up to 25 percent more efficient than standard efficiency fryers. You could save 292 therms of natural gas per year or about \$310 by using an ENERGY STAR qualified fryer instead of an inefficient one. That's \$1,680 in an eight-year life of the equipment. In addition to saving you money, ENERGY STAR qualified fryers offer shorter cook times and higher production rates so you can cook more food faster. Click here for a list of qualifying efficient fryers

http://www.pse.com/SiteCollectionDocuments/business/Fryers_prod_list.pdf.

Hot-food holding cabinets - \$500

ENERGY STAR qualified hot-food holding cabinets are more efficient at maintaining food temperature while using less energy. Depending on size, they can save you up to 4,100 kWh or about \$280 per year. That's \$3,360 in the 12-year life of your equipment. In addition to saving you money whenever you use them, ENERGY STAR qualified hot-food holding cabinets incorporate better

insulation, reducing heat loss, and may also offer additional energy-saving devices such as magnetic door gaskets, auto door closures, or Dutch doors. The insulation of the cabinet also offers better temperature uniformity within the cabinet from top to bottom. Click here for a list of qualifying efficient hot-food holding cabinets

(http://www.pse.com/SiteCollectionDocuments/business/HFHC_prod_list.pdf).

**Condensing natural gas water heaters or boilers in full-service restaurants
water heaters - \$4.71 per 1,000 Btu/hr capacity boilers - \$6.11 per 1,000
Btu/hr capacity**

Condensing water heaters and boilers are designed to recover energy that normally would travel up the flue and into the air outside. Heating water is expensive so, the 10% or more increase in efficiency you can get by upgrading to a condensing model can really add up over a year. Businesses eligible for this rebate are restaurants that use dishwashers or warewashers. Water heaters and boilers are rated in Btu/hr. A common size found in restaurants is 199,000 Btu/hr. If this is a model on PSE's list of eligible models, it will be eligible for a rebate of \$937.29 (199 x \$4.71) for water heaters or \$1,215.99 for boilers (199 x \$6.11). A list of qualifying models will be posted soon.

Ice Machines

List of eligible ice machines

(www.pse.com/SiteCollectionDocuments/business/IceMachineList.xls).

Eligibility

PSE's non-residential customers that purchase and install qualified equipment in a facility using energy supplied by PSE. For details about the rebate, call a PSE Energy Advisor at 1-800-562-1482.

How to participate

Step 1. Purchase and install qualified equipment for your commercial kitchen

- Purchase qualified equipment from a distributor participating in the point of sale rebate program. They will help you with completion of rebate forms and deduct the PSE rebate from your invoice. Receive your rebate instantly!

Distributors participating in the point of sale rebate program are:

Retailer	Address	Phone
Bargreen Ellingson Food Service Supply & Design	133 128th St SW, Everett	425-740-2424 1-888-770-2424
Bargreen Ellingson Food Service Supply & Design	3627 1st Ave S, Seattle	206-682-1472 1-800-525*-0131
Bargreen Ellingson Food Service Supply & Design	6626 Tacoma Mall Blvd, Ste B, Tacoma	253-475-9201 1-800-322-4441
Continental Foodservice Equipment	1201 Center St., Tacoma	253-572-7720
Dick's Restaurant Supply East Side Inc.	2102 140th Ave N.E., Bellevue	425-289-0680
Dick's Restaurant Supply Mount Vernon	324 Chenoweth Street, Mt Vernon	360-848-0259
DSL Northwest	21513 - 84 Ave S, Kent	360-848-0259
Food Service Equipment, Inc.	2825 Marvin Rd, STE S, Lacey	360-943-6479
Olympic Restaurant Equipment	425 E. Washington St, Sequim	360-582-1050
Smith & Greene Company	19015 66th Avenue, Kent, WA	1-800-232-8050
The Seattle Restaurant Store	14910 Aurora Ave. N., Shoreline	206-362-4900

Step 2. Submit Rebate Application and proof of purchase

- Complete the application form (<https://www.pse.com/rebates/business-incentives/commercial-kitchen-equipment>), including your PSE account number, and signature.

- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or material purchases if your in-house project was not billed for labor. Please circle rebate-eligible items, and item quantities.
- Make a copy for your records.
- Mail or fax your rebate application to PSE, along with signed and dated invoices/receipts.
- Allow four to six weeks for processing. Funding availability is subject to annual program budgets.

Commercial refrigerators and freezers

Link: <https://www.pse.com/rebates>

Today's super-efficient refrigerators and freezers use a lot less energy, saving you money for as long as you own the equipment. Puget Sound Energy (PSE) is offering rebates up to \$200 to make them even more affordable.

Purchase an energy-efficient, solid-door, reach-in refrigerator or freezer that meets strict Consortium for Energy Efficiency (CEE) qualifications and you can qualify for a rebate of \$125 - \$200 depending on the model you choose.

Equipment type	One door	Two door	Three door
Solid door, reach-in refrigerator – CEE	\$125	\$150	\$175
Solid door, reach-in freezer – CEE	\$150	\$175	\$200
Equipment type	19 to 30 Ft³	>30.1 to 60 Ft³	Greater than 60 Ft³
Glass door refrigerator	\$150	\$175	\$200

Below are lists of qualifying models:

- Qualifying commercial refrigerators (<http://www.pse.com/business>)
- Qualifying commercial freezers (<http://www.pse.com/business>)

- Qualifying glass-door refrigerator
(<http://www.pse.com/business>)

How to participate

Step 1.

- Purchase a qualifying unit and install at a location where PSE provides electricity.
 - Purchase a qualifying unit from a retailer participating in the point of sale rebate program and receive your rebate at the time of purchase with no additional paperwork!

The following retailers are participating in a point of sale rebate program. They'll deduct the rebate from the purchase price of your equipment if PSE provides electrical service at your facility.

Retailer	Address	Phone
Bargreen Ellingson Food Service Supply & Design	133 128th St SW, Everett	425-740-2424 1-888-770-2424
Bargreen Ellingson Food Service Supply & Design	3627 1st Ave S, Seattle	206-682-1472 1-800-525*-0131
Bargreen Ellingson Food Service Supply & Design	6626 Tacoma Mall Blvd, Ste B, Tacoma	253-475-9201 1-800-322-4441
Continental Foodservice Equipment	1201 Center St., Tacoma	253-572-7720
Dick's Restaurant Supply East Side Inc.	2102 140th Ave N.E., Bellevue	425-289-0680
Dick's Restaurant Supply Mount Vernon	324 Chenoweth Street, Mt Vernon	360-848-0259
DSL Northwest	21513 - 84 Ave S, Kent	360-848-0259
Food Service Equipment, Inc.	2825 Marvin Rd, STE S, Lacey	360-943-6479
Olympic Restaurant Equipment	425 E. Washington St, Sequim	360-582-1050
Smith & Greene Company	19015 66th Avenue, Kent, WA	1-800-232-8050

The Seattle Restaurant Store	14910 Aurora Ave. N., Shoreline	206-362-4900
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Step 2. Complete the installation

- Complete the application form (<https://www.pse.com/rebates/business-incentives/commercial-kitchen-equipment>), including your electric account number and signature. Be sure to indicate the correct address where the units are installed.
- Submit within 90 days of equipment purchase.
- Attach a copy of your invoice showing where purchased, purchase date, brand name, model number and price of the unit(s) purchased.
- Make a copy for your records.

Step 3. Submit your application for payment

- Make sure the form is completely filled out, sign and date the application, and send applications for rebates to PSE for payment.

Mail rebate applications to:
Cool Rebates - EST-10W
P.O. Box 90868
Bellevue, WA 98009-0868

Vending machine controller rebate

Electricity costs for operating a standard cold drink vending machine are typically more than \$250 per year. Simple installation of a vending machine controller can cut your operating costs by up to 50 percent. This calculator can help you determine the savings potential in your facility.

A vending machine controller incorporates sensors to monitor occupancy, temperature, and electric current. They reduce the amount of time the machines operate, while maintaining desired temperatures. Controllers can be installed without tools, or additional wiring in most instances.

Puget Sound Energy (PSE) provides a rebate of \$80 for each controller you install in your facilities where PSE provides electric service. Download a rebate application or call a PSE Energy Advisor at 1-800-562-1482 for complete details.

Vending machine controllers have a 5-year warranty and are available from:

David Kunesh
Lighthouse Lighting, Poulsbo, WA
1-877-887-5483, or 360-779-9767

USA Technologies Group
Sales Office: Denver, CO
1-800-770-8539
<https://www.usatech.com/>

Eligibility

To receive the PSE Vending Machine Controller Rebate, applicants must purchase electricity from PSE at the site where the controllers were installed.

How to participate

Step 1. Purchase and install qualifying equipment

Step 2. Submit your application for payment

- Complete the application form (http://www.pse.com/SiteCollectionDocuments/business/3022_VendingMiserRebate.pdf) including your PSE account number, and signature.
- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or material purchases if your in-

house project was not billed for labor. Please circle rebate-eligible items, and item quantities.

- Make a copy for your records.
- Mail or fax the completed and signed application to PSE.
- Allow four to six weeks for processing. Funding availability is subject to annual program budgets.

PSE HVAC Rebates

Commercial HVAC rooftop unit premium service rebate

Link:

<https://www.pse.com/rebates>

Puget Sound Energy will pay a rebate of up to \$1260 per unit to provide premium services that increase the efficiency of your packaged HVAC rooftop unit. Most HVAC rooftop units operate inefficiently wasting energy and money. Standard maintenance practices for HVAC rooftop units typically maintain select system components and are not designed to optimize overall HVAC system performance.

Using advanced diagnostic tools; a qualified technician will test and calibrate your equipment to ensure it is operating as efficiently as possible. The upgraded service includes:

- Quality assurance check of refrigerant charge
- Verified; adjusted airflow
- Recalibration of economizer
- Recalibration of thermostat schedules and setpoints
- Sensor testing, calibration, and replacement
- Replacement of bad sensors, controllers, and linkages
- Installation of economizer where none exists and where it is not required by code.

Participation in the rebate program requires that service be performed by an approved contractor.

Eligibility

This rebate is available to non-residential customers supplied with electricity by PSE for the HVAC rooftop units serviced under the program. Customer agrees to have service done by an authorized HVAC contractor.

How to participate

Step 1. Contact a PSE Energy Advisor at 1.800.562.1482 for a list of participating contractors

Step 2. Choose your contractor

- Your current HVAC contractor may be able to provide this service. If they are not on the program, please contact PSE to get a list of participating contractors

- Basic planned maintenance and service continues as usual at the contract rate you have negotiated with your HVAC service provider.
- PSE subsidizes premium services performed on your HVAC rooftop unit.
- The contractor is paid up to \$1260 by PSE for the premium services provided on your HVAC rooftop unit.

Electronically commutated motor rebate

Link:

<https://www.pse.com/business>

Retrofit your constant volume HVAC fan boxes with Electronically Commutated Motors (ECMs) and Puget Sound Energy (PSE) will provide you with a rebate of \$0.12 for every square foot served by the HVAC fan.

Eligibility

To receive the PSE ECM rebate, applicants must purchase electricity from PSE at the site where ECMs are installed. Please note that pre-approval of your application is required.

Equipment guidelines

The rebate is available to non-residential customers supplied with energy provided by PSE where the ECMs is used as a replacement for constant volume HVAC distribution fan motor(s).

How to participate

Step 1. Obtain PSE pre-authorization

- Complete the application form (MS Word), including your PSE account number, and signature.
- Make a copy for your records.
- Mail or fax the completed and signed application to PSE.
- PSE will process your application as soon as possible, usually within 10 days.
- Authorizations are noted at the bottom of the application on the copy returned to you.

Step 2. Submit your application for payment

- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or material purchases if your in-house project was not billed for labor. Please circle rebate-eligible items, item quantities and note which measure code from the PSE application applies.
- Return the PSE-authorized copy of your application to PSE, along with signed and dated invoices/receipts.

- Allow four to six weeks for processing. **Funding availability is subject to annual program budgets. However, payment is guaranteed for pre-authorized projects.**

High-efficiency commercial HVAC rebate

Link:

<https://www.pse.com/rebates/business-incentives/small-business-energy-efficiency>

Almost half of business energy bills can be attributed to heating and cooling. Low cost equipment often used for either new construction or replacement is generally less efficient and results in unnecessary and avoidable energy costs. Puget Sound Energy (PSE) is offering a rebate of \$30 per ton for new energy-efficient HVAC equipment.

Save Now - Get a rebate of \$30 per ton - when you purchase an energy-efficient air conditioner or heat pump that meets the Consortium for Energy Efficiency's (CEE) high-efficiency commercial air conditioning and heat pump initiative. The PSE rebate will help lower your purchase price on more energy-efficient HVAC equipment.

Save Later – Lower utility bills – efficient HVAC equipment saves energy and money throughout the life of the unit. Your facility demand charges may be decreased with the use of more efficient equipment.

Efficient HVAC equipment will save you money every month in energy costs. Units meeting the CEE specification are up to 20 percent more efficient than standard HVAC equipment.

Eligibility

To receive the high-efficiency HVAC rebate PSE must supply electricity to the HVAC units. Units must meet or exceed CEE Tier 1 standards and be greater than 65,000 Btuh

How to participate

Step 1. Purchase and install qualifying equipment

Step 2. Submit your application for payment

- Complete the rebate application form (MS Word) including your PSE account number and signature.
- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or material purchases if your in-house project was not billed for labor. Please circle rebate-eligible items, and item quantities.
- Return the signed and completed copy of your rebate application to PSE, along with signed and dated invoices/receipts.

- Allow four to six weeks for processing. **Funding availability is subject to annual program budgets.**

Natural gas boiler tune-up rebate

Link (Including how to participate):

<https://www.pse.com/rebates>

A tune-up can reduce the natural gas consumed by your boiler by up to 20 percent and increase its output. Puget Sound Energy's (PSE's) natural gas customers can receive rebates for 100 percent of the tune-up cost, up to \$600. Additional repairs that increase the efficiency of your boiler, including boiler replacement, may also qualify for PSE energy efficiency grant funding.

A tune-up can restore a natural gas boiler to its normal efficient operating condition by detecting and correcting excess air losses, smoking, unburned fuel losses, sooting, fireside fouling and high flue gas temperatures. The boiler tune-up start with measuring the oxygen concentration, flue gas temperature, and emissions. Then the air/fuel ratio is adjusted to the optimum point of combustion efficiency.

Eligibility

This rebate is available to non-residential customers who purchase natural gas from PSE for hot water or steam boilers over 300,000 Btu/hr that are equipped with power burners.

Eligibility guidelines

1. Perform pre-tune-up combustion efficiency tests across the full range of load using an electronic flue gas analyzer and print out the results.
2. Tune the natural gas boiler
3. Perform post-tune-up combustion efficiency tests across the full range of the load and print out the results.
4. Send the completed rebate application, analyzer test printouts, and copies of your contractor's invoice with separate charges for labor, parts and taxes.

There is no limit on the number of tune-up rebates that may be awarded to a customer for different boilers, but each boiler is limited to one tune-up rebate. A separate rebate application must be submitted for each boiler tuned.

A natural gas boiler tune-up may identify other energy efficiency improvements that may qualify for a PSE energy efficiency grant. These include:

- Boiler replacement
- Boiler/burner controls
- Replacing motors with high efficiency motors

Seven-day programmable thermostat rebate

Link:

<https://www.pse.com/rebates>

Upgrade to a seven-day programmable thermostat and Puget Sound Energy will give you up to \$50 rebate to jump-start your savings. A programmable thermostat typically cuts your energy usage and costs by 10 – 40 percent through reduction of heating and cooling when buildings are not in use. You'll save even more by reducing the wear and tear on your HVAC system.

Eligibility

This rebate is available to non-residential customers supplied with energy (electricity or natural gas) by PSE for space heating or cooling when a non-programmable thermostat is replaced with an eligible seven-day programmable thermostat. Please note that 5-2 and 5-1-1 programmable thermostats are not eligible.

Equipment guidelines

- At a minimum, thermostat(s) must allow user:
- Seven-day programming.
- Temporary manual override.
- Thermostat(s) shall replace non-programmable thermostat(s).
- Thermostat(s) shall be installed according to manufacturer's specifications and comply with manufacturer's warranty requirements.
- Thermostat(s) should have a program memory retention capability or battery back-up (minimum 2 days), with warning indicator for battery replacement.
- Thermostat(s) should be capable of automatic variation of the start of daily warm-up time depending on indoor and outdoor temperature variations, otherwise known as optimum start.

How to participate

Step 1. Purchase and install qualifying equipment

Step 2. Submit your rebate application for payment

http://www.pse.com/SiteCollectionDocuments/business/3877_ThermostatRebate.doc

- Complete the application form (MS Word), including your PSE account number, and signature.

- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or equipment if your in-house project was not billed for labor. Please circle rebate-eligible items, and item quantities.
- Mail or fax the completed and signed application to PSE. Include signed and dated invoices/receipts.
- Allow four to six weeks for processing. **Funding availability is subject to annual program budgets.**

Variable speed drives rebate

Link: <http://www.pse.com/business>

Variable speed drives (VSDs) save money and energy by allowing your fans and pumps to operate at lower speeds when they're serving loads less than their full capacity. Energy savings of 30 - 50 percent are often possible in HVAC fan and pump applications when single speed motors are equipped with VSDs.

Install VSDs in your HVAC system and Puget Sound Energy will give you a rebate of \$100 per horsepower for VSDs used in HVAC fan applications and closed-loop pump applications.

Eligibility

To receive the PSE VSD rebate, applicants must purchase electricity from PSE at the site where VSDs are installed. Please note that pre-approval of your application is required.

Equipment guidelines

VSDs for use in HVAC fan or closed-loop pump applications, with a variable load, where not required by code.

How to participate

Step 1. Obtain PSE pre-authorization

- Complete the application form (www.pse.com/SiteCollectionDocuments/business/3879_VSDRebateForm.doc), including your PSE account number, and signature.
- Make a copy for your records.
- Mail or fax the completed and signed application to PSE.
- PSE will process your application as soon as possible, usually within 10 days.

- Authorizations are noted at the bottom of the application on the copy returned to you.

Step 2. Complete the installation within 60 days of authorization

Step 3. Submit your application for payment

- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or material purchases if your in-house project was not billed for labor. Please circle rebate-eligible items, item quantities and note which measure code from the PSE application applies.
- Return the PSE-authorized copy of your application to PSE, copies of signed and dated invoices/receipts.
- Allow four to six weeks for processing. **Funding availability is subject to annual program budgets. However, payment is guaranteed for pre-authorized projects.**

PSE Lighting Rebates

Link includes all application forms for rebates:

<https://www.pse.com/business>

Contact PSE Energy Advisors, 425-456-2731, for more information about lighting rebates and eligibility.

Section I: Incandescent conversions

- Compact fluorescent bulbs– screw base CFL bulbs substitute for screw base incandescent bulbs: \$3 - \$12
- New compact fluorescent fixtures: \$35 - \$55
- New 4-FT fluorescent lamp fixture: \$70
- New LED exit signs: \$50

Section II: Higher wattage incandescent and HID conversions

- Higher efficiency HID light sources (metal halide and HPS): \$90- \$125
- T8 or T5 fluorescent warehouse lighting: \$110- \$225
- CFL higher-wattage wall packs: \$110- \$130

Section III: T12 fluorescent lamp and ballast (only) conversions

- "Lamp for lamp," using T8 lamps and electronic ballasts: \$50- \$55
- T8 lamps and electronic ballasts, but with fewer lamps: \$60

Section IV: Linear fluorescent conversion hardware kits and new replacement fixtures

- Rebate options for linear-tube fluorescent lighting include incentives for reducing lamp count (or lamp lineal footage): \$50-\$95

Lighting Controls

- Applies to occupancy sensor or timer controls. The rebate amount depends on the wattage controlled: \$40-\$80

Lighting upgrades not listed on the small-business lighting pre-approval form may be eligible for custom incentives. Call a PSE Energy Advisor at 1-800-562-1482 for details.

Eligibility guidelines

Your business can benefit from this rebate by meeting the following requirements for eligibility:

- PSE electric customer served by commercial rate schedule 24 or 08
- Obtained pre-approval prior to ordering or installing materials

All other non-residential customers can apply for funding for lighting upgrades via our custom grant program.

Eligible business lighting rebate measures provide several avenues for converting older commercial lighting to more efficient lighting. Lighting hardware covered by the rebates includes lamps, lamp and ballast combinations, fixture conversion kits, new fixtures, and lighting controls.

LED exit sign rebate

Link:

<https://www.pse.com/rebates>

LED exit signs dramatically reduce energy and maintenance costs. Puget Sound Energy (PSE) can help you save even more. We offer a rebate of \$50 for each exit sign lit by incandescent or fluorescent lamps that you replace with an ENERGY STAR® qualified exit sign lit with an efficient, long lasting LED module.

Since they're required to operate 24 hours a day, every day, exit signs can add significantly to your facility's costs. LED exit signs use approximately 90 percent less energy than signs lit with incandescent lamps. They're virtually maintenance free with no bulbs to change.

Visit the ENERGY STAR Web site to learn more about LED exit signs and find a list of qualified models.

Eligibility

To receive the PSE LED exit sign rebate, applicants must purchase electricity from PSE at the site where exit signs were installed. Please note that pre-approval of your application is required.

How to participate

Step 1. Obtain PSE pre-authorization

- Complete the application form (MS Excel, 71 KB), including your PSE account number, and signature.
- Make a copy for your records.
- Mail or fax the completed and signed application to PSE.
- PSE will process your application as soon as possible, usually within 10 days.
- Authorizations are noted at the bottom of the application on the copy returned to you.

Step 2. Complete the installation within 60 days of authorization

Step 3. Submit your application for payment

- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or material purchases if your in-house project was not billed for labor. Please circle rebate-eligible items, and item quantities.
- Return the PSE-authorized copy of your application to PSE and copies of signed and dated invoices/receipts.
- Allow four to six weeks for processing. **Funding availability is subject to annual program budgets. However, payment is guaranteed for pre-authorized projects.**

Lighting controls and occupancy sensor rebates

Link:

<https://www.pse.com/business/>

Utilizing lighting controls can help cut your energy consumption, extend the life of your lamps, and reduce maintenance costs. Puget Sound Energy (PSE) will provide a rebate of up to \$80 for each control installed in your facility.

Occupancy sensors and timers help you save energy by making sure lights are turned off when not needed. Private offices, rest rooms, and conference rooms may be empty for more than 50 percent of your operating hours.

Rebates are:

- \$40 for each occupancy sensor or timer controlling 100-200 watts of lighting
- \$80 for each occupancy sensor or timer controlling over 200 watts of lighting

The Lighting Design Lab in Seattle has guidelines to help you get the most out of your investment in lighting controls, and choose the best equipment for your needs.

Eligibility:

To receive the PSE lighting controls rebate, applicants must purchase electricity from PSE at the site where controls are installed. Please note that pre-approval of your application is required.

How to participate

Step 1. Obtain PSE pre-authorization

- Complete the application form (MS Excel, 71 KB), including your PSE account number, and signature.
- Make a copy for your records.
- Mail or fax the completed and signed application to PSE.
- We'll process your application as soon as possible, usually within 10 days.
- Authorizations are noted at the bottom of the application on the copy returned to you.

Step 2. Complete the installation within 60 days of authorization

Step 3. Submit your application for payment

- Sign material receipts or contractor invoices to indicate your approval and acceptance of the installation, or material purchases if your in-house project was not billed for labor. Please circle rebate-eligible items, and item quantities.
- Return the PSE-authorized copy of your application to PSE, along with signed and dated invoices/receipts.
- Allow four to six weeks for processing. **Funding availability is subject to annual program budgets. However, payment is guaranteed for pre-authorized projects.**

Other PSE Incentives

Premium-efficiency motor rebate

Link: <http://www.pse.com/business>

The purchase price of a motor is insignificant compared to the cost of the electricity required to run it over its life. Installing a premium-efficiency motor will quickly save far more than the cost of the motor and keep saving for years to come. Why waste profits on less efficient motors?

Puget Sound Energy (PSE) is offering rebates ranging from \$2 to \$20 per horsepower (HP) for installing new premium-efficiency, three-phase motors.

The table below shows the rebate amounts available for various motor types and sizes.

Motor type	Motor size	Rebate amount per HP
Totally enclosed fan cooled motors	1 - 5 HP	\$20
	7.5 - 100 HP	\$7
	125 - 200 HP	\$3
Motors with open drip-proof enclosures	1 - 5 HP	\$8
	7.5 - 100 HP	\$4
	125 - 200 HP	\$2

Eligibility

To receive the PSE premium-efficiency motor rebate, applicants must purchase electricity from PSE at the site where the motor is installed.

Equipment guidelines

New 1 – 200 horsepower premium-efficiency, three-phase motors that meet or exceed the National Electrical Manufacturers Association(NEMA) criteria for premium-efficiency motors (no rewinds or repairs). Visit the NEMA Web site (<http://www.nema.org/gov/energy/efficiency/premium>) for qualifications, or contact a PSE Energy Advisor at 1-800-562-1482.

How to participate

Step 1. Purchase and install qualifying equipment

Step 2. Submit your application for payment

- Complete the application form (<https://www.pse.com/business/>), including your PSE account number, and signature.
- Sign material receipts or contractor invoices to indicate your approval and acceptance of installation, or material purchases if your in-house project was not billed for labor. Please circle rebate eligible items and item quantities.
- Return the signed application to PSE, along with signed and dated invoices/receipts.
- Allow four to six weeks for processing. Funding availability is subject to annual program budgets.

PSE Resource Conservation Manager Program

The Resource Conservation Manager program is focused on PSE electric or natural gas customers who operate multiple facilities. Organizations employing a full-time RCM typically have facility portfolios of over 2 million square feet or over \$2.5 million in total resource costs (energy, water, sewer, refuse). PSE program support and grant funding can be prorated for organizations with larger or smaller facility portfolios. Typically, customers need to operate 350,000 square feet of facility space to qualify for partial funding of an RCM.

Flyer Link:

https://www.pse.com/-/media/Project/PSE/Portal/Rate-documents/Electric/elec_sch_253.pdf

PowerPoint Marketing Link:

http://www.pse.com/SiteCollectionDocuments/energySupply/RFP/RCM%20Program_Marketing%20Overview_2%20slides%20pp.pdf

Application Link:

<https://www.pse.com/construction-services/cs-project-steps>

Other Incentives

Avista Utilities - LED Traffic Signal Incentive Program

Incentive Type: Utility Rebate Program

Eligible Efficiency

Technologies: Traffic Signal Lighting

Applicable Sectors: Local Government, State Government, Tribal Government

Incentive Amount: Varies based on equipment; \$10 - \$55

Maximum Incentive: Incentive payments will not exceed invoiced cost.

Project Review/Certification: Avista may choose to inspect equipment following installation to verify customer compliance with performance obligations.

Website: https://www.avistautilities.com/business/rebates/washington_idaho/Pages/incentive_15.aspx

Summary:

Avista Utilities' LED Traffic Signal Incentive Program offers a variety of incentives based on annual energy savings for customer LED retrofits. Avista's website has a table that illustrates estimated energy and cost savings for typical LED traffic signal uses. Equipment must be purchased, installed and fully operational before submitting an [incentive agreement](#).

Contact:

Avista Utilities
Customer Service
PO Box 3727
Spokane, WA 99220
Phone: (800) 227-9187
E-Mail: AskAvista@AvistaUtilities.com
Web site: <http://www.avistautilities.com/home.asp>

Northwest Solar Cooperative - Green Tag Purchase

Incentive Type: Production Incentive

Eligible Photovoltaics, Wind

Renewable/Other

Technologies:

Applicable Sectors: Commercial, Residential, Nonprofit, Schools, Local Government, State Government, Agricultural, Institutional

Amount: \$0.02/kWh through December 31, 2009

Maximum

Incentive: None specified

Terms: Up to 50 kW automatically approved; > 50 kW approved on case-by-case basis

Website: <http://www.cascadesolar.com/greentags.htm>

Summary:

The Northwest Solar Cooperative* (NWSC) offers to purchase the rights to the environmental attributes or “Green Tags” derived from grid-connected photovoltaic (PV) or wind energy at a rate of \$0.02 per kilowatt-hour (kWh) through December 31, 2009. Residential and non-residential owners of PV and wind-energy systems installed after June 1, 2002, in Oregon, Washington, Idaho and Montana are eligible to participate in the Green Tag Purchase Program.

The term of the contract is not of fixed duration. Rather, production-based payments will continue through December 31, 2009, regardless of the date the contract is signed. Depending on circumstances of 3 Degrees Energy, the buyer of these Green Tags, contracts may be renewed for another three-year term beginning December 31, 2009.

Interested participants sign an agreement with NWSC to sell their Green Tags, report any system failures and submit AC production meter readings each year. The NWSC agrees to make payments to participants by March 31 of the year following production of Green Tags.

**The NWSC is a not-for-profit service operated by Cascade Solar Consulting. It purchases Green Tags from many individual private sellers throughout the region, aggregates them, and sells them in one package to 3 Degrees Energy who, in turn, sell them to wholesale customers and consumers.*

Contact:

Doug Boleyn
Northwest Solar Cooperative
17610 Springhill Place
Gladstone, OR 97027
Phone: (503) 655-1617
Fax: (503) 655-1617
E-Mail: doug@cascadesolar.com
Web site: <http://www.cascadesolar.com>

Washington Renewable Energy Production Incentives

Incentive Type: Production Incentive

Eligible: Solar Thermal Electric, Photovoltaics, Wind, Anaerobic Digestion

Renewable/Other

Technologies:

Applicable Sectors: Commercial, Residential, Local Government

Sectors:

Amount: \$0.12/kWh - \$0.54/kWh through 6/30/2014, depending on technology type and where equipment was manufactured

Maximum

Incentive: \$2,000/year

Terms: Off-grid properties are not eligible

Authority 1: RCW 82.16.110 et seq.

Date Enacted: 5/6/2005

Effective Date: 7/1/2005

Expiration Date: 6/30/2014

Authority 2: WAC 458-20-273

Effective Date: 8/31/2006

Website: <https://www.solarwa.org/>

Summary:

In May 2005, Washington enacted Senate Bill 5101, establishing production incentives of \$0.12 to \$0.54 per kilowatt-hour (kWh), capped at \$2,000 per year for individuals, businesses, and local governments that generate electricity from solar power, wind power or anaerobic digesters. The incentive amount paid to the producer starts at a base rate of \$0.15/kWh and is adjusted according to how the electricity was generated by multiplying the incentive by the following factors:

- For electricity produced using solar modules manufactured in Washington state: 2.4
- For electricity produced using a solar or wind generator equipped with an inverter manufactured in Washington state: 1.2
- For electricity produced using an anaerobic digester, by other solar equipment, or using a wind generator equipped with blades manufactured in Washington state: 1.0
- For all other electricity produced by wind: 0.8

Ownership of the renewable-energy credits (RECs) associated with generation

remains with the customer-generator and does not transfer to the state or utility.

The state's utilities will pay the incentives and earn a tax credit equal to the cost of those payments. The credit may not exceed the greater of \$25,000 or 0.25% of a utility's taxable power sales. The incentive amount may be uniformly reduced if requests for the incentive exceed the available funds.

The Washington Department of Revenue (DOR) is responsible for submitting a report measuring the impacts of this legislation, including any change in the number of solar energy system manufacturing companies in Washington, and the effects on job creation, such as the number of jobs created for Washington residents.

The incentives apply to power generated as of July 1, 2005, and remain in effect through June 30, 2014. A utility may not claim any tax credits for incentive payments after June 30, 2016.

Click [here](#) for the DOR renewable energy system certification form. Click [here](#) for the DOR annual incentive payment application.

Contact:

Mike Nelson
Washington State University
The Northwest Solar Center
PO Box 43165
925 Plum St SE Bldg #4
Olympia, WA 98504-3165
Phone: (206) 396-8446
E-Mail: mike.nelson@northwestsolarcenter.org
Web site: <http://northwestsolarcenter.org>

Federal Incentives

U.S. Department of Energy - Energy Efficiency and Renewable Energy
Alternative Fuels and Advanced Vehicles Data Center

Link: http://www.afdc.energy.gov/afdc/progs/state_summary.php/WA

Washington Incentives

Alternative Fuel Vehicle (AFV) and Hybrid Electric Vehicle (HEV) Tax Exemption

Beginning January 1, 2009, new passenger cars, light-duty trucks, and medium-duty passenger vehicles that are dedicated AFVs are exempt from the state sales and use tax. Qualified vehicles must operate exclusively on natural gas, propane, hydrogen, or electricity, meet the California motor vehicle emissions standards effective January 1, 2005, and comply with the rules of the Washington Department of Ecology. In addition, all new passenger cars, light-duty trucks, and medium-duty passenger vehicles that utilize hybrid electric technology and have a U.S. Environmental Protection Agency estimated highway fuel economy of at least 40 miles per gallon are exempt from state sales and use tax. This tax exemption expires January 1, 2011. (Reference [Revised Code of Washington](#) 82.08.809 and 82.08.813)

Alternative Fuel Grant and Loan Program

The Energy Freedom Program (Program) is established within the Department of Community, Trade, and Economic Development (CTED), and administered by the Director of the CTED in consultation with other state agencies. The Program awards low-interest loans and grants through a competitive application process. Eligible projects include: research and development of new and renewable energy and biofuel sources, including biomass, solar, and wind power; renewable energy and alternative fuel infrastructure, facilities, and technologies; and research and development to develop markets for alternative fuel byproducts. Funding for the Program is provided by the Energy Freedom Loan Account and the Green Energy Incentive Account. The Program expires June 30, 2016.

Construction of new alternative fueling facilities as well as upgrades and expansion of existing fueling infrastructure offered to the public are eligible for funding of up to \$50,000 per fueling infrastructure project. Funding for fueling infrastructure projects will only be awarded if the project is located within a 'green highway zone' in the state, which is a designated area within reasonable proximity of Washington Interstates 5, 90, and 82.

(Reference [Revised Code of Washington](#) 43.325)

Electric and Plug-In Hybrid Electric Vehicle Demonstration Grants

The Vehicle Electrification Demonstration Grant Program is established within the Department of Community, Trade, and Economic Development (CTED), and administered by the Director of the CTED. Eligible applicants are state agencies, public school districts, public utility districts, or political subdivisions of the state. Grants may be awarded to projects involving the purchase or conversion of existing vehicles to plug-in hybrid electric vehicles or battery electric vehicles for use in an applicant's fleet or operations; additional eligibility requirements apply. (Reference [Revised Code of Washington](#) 43.325.110)

Alternative Fuel Vehicle (AFV) and Hybrid Electric Vehicle (HEV) Emission Inspection Exemption

Electric, compressed natural gas, and liquefied petroleum gas vehicles are exempt from emission control inspections. HEVs that obtain a U.S. Environmental Protection Agency fuel economy rating of at least 50 miles per gallon of gasoline during city driving are also exempt from these inspections. (Reference [Revised Code of Washington](#) 46.16.015)

Clean Renewable Energy Bonds (CREBs)

Incentive Type: Federal Loan Program

Eligible Renewable/Other Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal

Applicable Sectors: Local Government, State Government, Tribal Government, Municipal Utility, Rural Electric Cooperative

Amount: Varies

Authority 1: [26 USC § 54](#)

Effective Date: 08/08/2005

Expiration Date: 12/31/2009

Authority 2: H.R. 1424: Div. B, Sec. 107 (The Energy Improvement and Extension Act of 2008)

Date Enacted: 10/03/2008

Effective Date: 10/03/2008

Website: http://www.irs.gov/irb/2007-14_IRB/ar17.html

Summary:

Note: *An allocation of \$800 million for new CREBs was made by The Energy*

Improvement and Extension Act of 2008. The 2008 legislation also extended the deadline for previously reserved allocations until December 31, 2009 and appears to address several weaknesses in the existing law that had previously limited the usefulness of the program for some projects. A separate section of the law expands the list of qualifying facilities for new CREBs to include marine and hydrokinetic power.

It should be noted that the IRS has not yet issued an announcement that they are accepting applications for the new allocation, or any official guidance detailing how it will operate. Until such official guidance is issued, it remains to be seen if the new program will operate exactly as described below.

Clean renewable energy bonds (CREBs) can be used by certain entities -- primarily in the public sector -- to finance renewable energy projects. The list of qualifying technologies is generally the same as that used for the federal renewable energy production tax credit. CREBs may be issued by electric cooperatives, government entities (states, cities, counties, territories, Indian tribal governments, or any political subdivision thereof), and certain lenders. The advantage of CREBs is that they are issued -- theoretically -- with a 0% interest rate.* The borrower pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the traditional bond interest.

Participation in the program is limited by the volume of bonds allocated by Congress for the program. Participants must first apply to the Internal Revenue Service (IRS) for a CREBs allocation, and past allocations have also included an expiration date by which the bonds had to be issued. The current allocation is \$800 million but there does not appear to be a time frame for issuing the bonds. (See History section for information on previous allocations). Public power providers, governmental bodies, and electric cooperatives are each reserved an equal share (33 1/3 percent) of the most recent allocation. The tax credit rate is set daily by the U.S. Treasury Department. Under past allocations the credit could be taken quarterly on a dollar-for-dollar basis to offset the tax liability of the bondholder. However, under the new allocation the credit has been reduced to 70% of what it would have been otherwise.

CREBs differ from traditional tax-exempt bonds in that the tax credits issued through CREBs are treated as taxable income for the bondholder. The tax credit may be taken each year the bondholder has a tax liability as long as the credit amount does not exceed the limits established by EAct 2005. CREBs rates are available [here](#).

History

The federal Energy Tax Incentive Act of 2005, under Title XIII of the federal Energy Policy Act of 2005 (EAct 2005), established Clean Energy Renewable Bonds (CREBs) as a financing mechanism for public sector renewable energy projects. This legislation originally allocated \$800 million of tax credit bonds to be issued between January 1, 2006, and December 31, 2007. Following the enactment of the federal

Tax Relief and Health Care Act of 2006, the Internal Revenue Service made an additional \$400 million in CREBs financing available for 2008 through Notice 2007-26.

In November 2006 the IRS announced that the original \$800 million allocation had been reserved for a total of 610 projects. The additional \$400 million (plus surrendered volume from the previous allocation) was allocated to 312 projects in February 2008. Of the \$1.2 billion total of tax-credit bond volume cap allocated to fund renewable-energy projects, state and local government borrowers were limited to \$750 million of the volume cap, with the rest reserved for qualified mutual or cooperative electric companies.

For more information on CREBs, please contact Zoran Stojanovic or Timothy L. Jones of the Office of Associate Chief Counsel of the Internal Revenue Service at 202.622.3980.

**In practice, for a variety of reasons bond issuers typically must issue the bonds at a discount or make supplemental interest payments in order to find a buyer.*

Contact:

Public Information - IRS
Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224
Phone: (800) 829-1040
Web site: <http://www.irs.gov>