

Energy Efficiency



Jack Sipila - Energy Management Engineer

Energy Efficiency: Investing in EE

How much does PSE invest in energy efficiency every year?

- \$25 million
- \$50 million
- \$75 million
- \$100 million

\$100 Million!

Energy efficiency is our best strategy to meet PSE customers' growing needs

Our key drivers are:

- Social responsibility
- Helping customers manage energy costs
- Balanced resource planning
- System reliability
- Least cost alternative to power purchases
- Compliance – “It’s the law”

Energy Efficiency: 2016 Targets

Our Goal: To offer a variety of new and updated programs, functions, and activities designed to exceed customer expectations and meet electric and natural gas conservation targets

2016 Target:

294,507 MWh

\$98,600,007



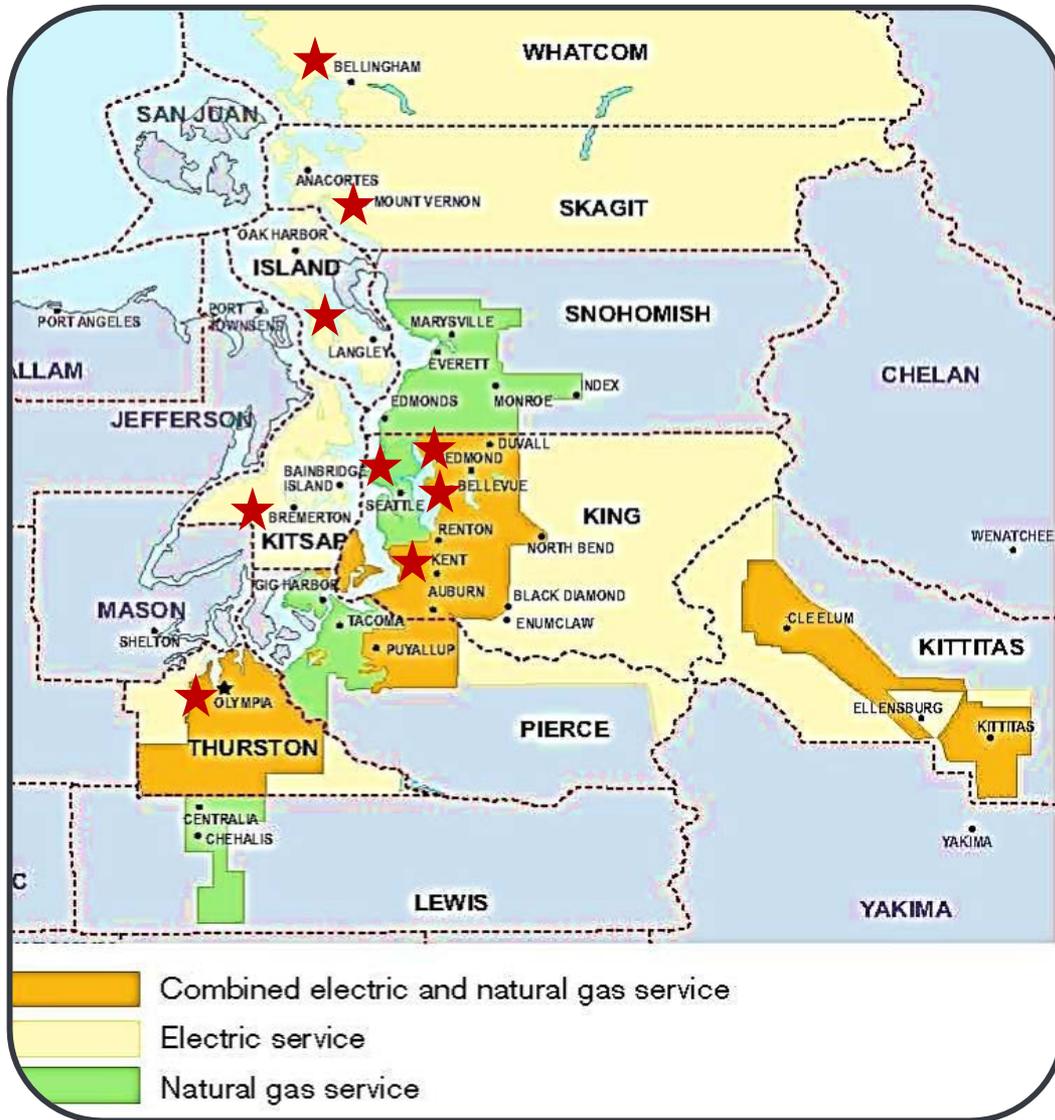
2016 Target:

3,963,462 Therms

\$14,713,716

Equivalent savings to power at least **21,000** single-family homes in America!

Energy Efficiency: Throughout Our Service Territory



Energy Management Team supports Customers throughout PSE's Service Territory

★ PSE Locations with EE Support:

- Energy Management Engineers (EME)
- Community Outreach Staff
- Energy Advisors
- Program Managers

- Bellingham Service Center
- Skagit Service Center (Burlington)
- Bothell Building H—EE Headquarters
- Bellevue, PSE Headquarters
- North Seattle
- South Seattle
- South King Complex (Kent)
- Kitsap Service Center (Bremerton)
- Olympia Service Center
- Whidbey Island (Freeland)

Energy Efficiency: 2016 Programs

Business Energy Management

Energy Management:

- Resource Conservation Manager (RCM)
- Comprehensive Building Tune-Up (CBTU)
- Industrial System Optimization Program (ISOP)

Business Lighting Program: (Custom Grants)

- Business Lighting
- Street Lighting:

New Construction Program: (Custom Grants)

- Commercial New Construction
- Multifamily New Construction

Commercial Retrofit Grants Program:

- Custom Grants
- Advanced Rooftop Unit Controller (ARC Joint Utility Rebate)
- Major HVAC Controls Upgrades
- Energy Smart Grocer (ESG)

Tools + Resources:

- www.pse.com/mybusiness
- Energy Interval Service (EIS)
- MyData

Rebates & Renewables

Commercial Rebates:

- Commercial HVAC Incentives
- Commercial Direct Install Programs
- Lodging-Specific Direct Install Program
- Commercial Kitchen Equipment Incentives
- Commercial Laundry Equipment Incentives
- Commercial Lighting Program: Lighting To Go

Residential Single Family Existing Programs:

- HomePrint Assessment Program
- Single-Family Existing Weatherization
- Single-Family Existing Window Rebates
- Electric Space Heat Rebate Programs
- Gas Space Heat Rebate Programs
- Electric Water Heat Rebate Programs
- Fuel Conversion Incentive Program
- Residential Lighting Showerhead & Aerator Rebates
- Upgrades Marketing & Outreach
- Residential Appliances: Refrigerators & Clothes Washers
- Residential Appliances: Heat Pump Dryer, Gas Dryer, Gas Range
- Residential Appliance Decommissioning
- Web Enabled Thermostat

Multi-Family Existing Programs:

- PSE Weatherization Assistance
- Multifamily Retrofit

Renewables:

- Green Power and Net Metering

Tools + Resources:

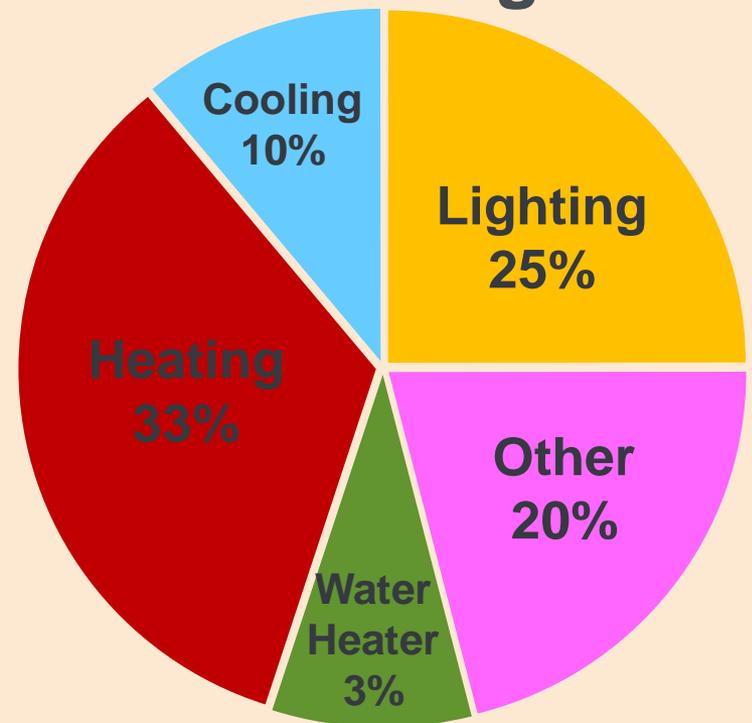
- www.pse.com/rebates
- Home Energy Report and Shop PSE
- Engagement: Marketing & Outreach Strategy

Commercial Retrofit Grants

Most Common:

- Controls Upgrades
 - Full System
 - Rooftop Units
 - Demand-Control Ventilation
- Boiler Upgrades
- VFDs
- HVAC Equipment
- Chillers
- Refrigeration Equipment

Typical Pacific NW Building



Custom Retrofit Grants

- **Custom Incentives to fit your needs:**
 - **Electric (Non-Lighting) = \$0.30/kWh** up to **70%** of project or incremental cost
 - **Natural Gas = \$5/therm** up to **70%** of project or incremental cost
 - We will consider funding **ANY cost-effective measure** that provides quantifiable energy savings benefits! (Typical measures included VFDs, chiller upgrades, boiler upgrades)

New incentives:

Advanced Rooftop Unit Controller (ARC Joint Utility Rebate)

- PSE is offering a **streamlined standard incentive and protocol for advanced rooftop controllers**, consistent with the three other I-5 regional utilities (Snohomish PUD, Tacoma Power, Seattle City Light)
- The incentive is **\$225/ton for the electric** utility and **\$50/ton for the gas** utility

Major HVAC Controls Upgrades

- Incentives cover up to **50 percent** of the cost of upgrading your HVAC controls
- Incentive levels vary depending on the services provided by PSE, the energy use of your facility and the verified savings
- At least a **5 percent savings** is expected

Business Lighting Program (Custom Grants)

- **Simplified Lighting Program** for improved customer experience and greater participation in program
- Number of lighting paths now **reduced and simplified:**

Business Lighting:

- Pre-approved, custom lighting upgrades with incentives of **\$0.20 per kwh** saved up to **70 percent of the project cost**
- Projects must be submitted for pre-approval before work starts and are subject to pre- or post-inspection

Street Lighting:

- **Pre-approved, incentives** paid on a retrofit of an existing HID street lighting installation or new LED street lights



Commercial New Construction: (Custom Grants)

- Incentives help bridge the gap for customers to upgrade to energy efficient equipment that goes above code requirements

Incentive Paths

- **Whole Building Approach**
Energy Modeled Savings
\$0.30/kWh or \$5/therm (non-lighting)
- **Component Approach (Lighting)**
WA State Energy Code Lighting Power Allowance (LPA) baseline
Energy savings calculated from lighting compliance forms
\$0.20/kWh up to 100% of system cost
Lighting must be minimum 10% more efficient than code
- **Component Approach**
\$0.30/kWh or \$5/therm (non-lighting), \$0.20/kWh (lighting), up to 100% of incremental cost

Design Team Support!

Building Performance Programs

- **Resource Conservation Management (RCM)**

- Available to all commercial customers with annual consumption greater than **1,000,000 kWh** or **135,000 Therms**
- Pay for performance model rewards annual savings and persistence of savings
- Program also provides a training stipend, resource accounting software, and workshops sponsored by PSE

**Customers typically achieve
10 to 15% savings**

- **Urban Smart Bellevue (USB)**

- Partnership with the City of Bellevue to engage businesses in downtown Bellevue in energy management
- Working with building owners, managers, and occupants to reduce energy consumption by **5%**
- Make Bellevue a smarter, more efficient, more sustainable place to work

PSE provides customers with training, technical support, energy data, software and incentives to help them manage energy usage across their portfolio

Comprehensive Building Tune-Up (CBTU)

- **PSE provides incentives of up to 100% to cover commissioning costs**
 - Any PSE customer with a building larger than 50,000 ft²
 - Building must be older than 18 months
 - Must use approved provider
 - Must be approved by PSE as a good candidate
 - \$0.15 to \$0.35/ft² plus one-year performance incentive, up to 100% of provider costs
- **Post-Occupancy commissioning is now an incentive through CBTU**
 - PSE will pay for up to 75% of third-party post-occupancy commissioning per building code
 - \$0.15/ft² to \$0.35/ft², up to 75% of provider costs
 - Building must be 6 months to 18 months old

**Program energy savings: 7-15 %
Average payback period: 0.6 years**

The most cost-effective way to save energy!

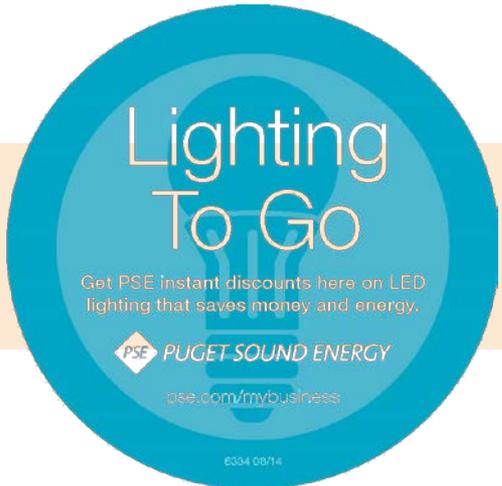
Benefits: Whole building | sub-metering incentive | Energy audit | Facility Guide



Lighting to Go Program

Lighting To Go:

- **Point of sale incentive at distributors.** This program has expanded to include more distributors in order to provide an easy method for business customers to receive rebates
- PSE instant discounts for qualified screw-in LED lighting at participating Lighting To Go vendors
- Get a list of **participating vendors at pse.com/lightingtogo**
- Integration of **Lighting To Go** into the Residential Lighting program model; utilizing field services, increased Point-of-Purchase signage, and marketing outreach



Commercial HVAC Incentives

On-going HVAC Incentive Programs:

High-efficiency Commercial HVAC Unit Replacement

- Incentives of \$100/ton to \$550/ton

Commercial HVAC Rooftop Unit Premium Service incentive

- Incentives range depending on size and service



Did you know that almost half of commercial energy bills can be attributed to heating and cooling?

Industrial System Optimization Program (ISOP)

- ISOP will continue to serve PSE Industrial customers
- Natural gas incentives coming soon:
 - Still must be a PSE electric customer



Facility energy savings: 5-15 %
Average payback period: < 1 year

- Provides **no and low-cost** operation and management improvements to your facility
- Includes **engineering support at no cost** to the customer
- Provides **in-depth action plan** to achieve energy savings
- Incentive is **\$0.05/kWh up to 70%** of the implementation cost

Eligibility Guidelines:

Typical use at least 1 million kWh

Building should have industrial processes
(fans, pumps, blowers, refrigeration,
compressed air, etc)

Commercial Laundry Equipment Incentives

On-going Commercial Laundry Equipment Incentive Programs:

- **Commercial Laundry Equipment**
 - Must be served by PSE electricity or natural gas
 - Incentive varies per unit
 - Adding non-laundromat specific customer eligibility to the program
 - Incentives for high-efficiency:
- **Clothes washers**
- **Condensing water heaters**
- **Condensing boilers**



Utility Energy Services Contract (UESC)

Puget Sound Energy (PSE) wants to make it easy for Federal and tribal customers to meet energy, water, and renewables targets established by Executive Order 13693.

How does it work?

The program can be broken down into four simple steps:

- 1. **Workshop** – Customer outlines goals, needs and project criteria. PSE explains the UESC process and expectations.
- 2. **Preliminary Assessment** – After the customer chooses to move forward, PSE develops a pipeline of project opportunities by conducting a preliminary assessment.
- 3. **Task Order** – Based on customer direction, PSE finalizes the costs through subcontractor bids, project scope, calculations and third-party financing.
- 4. **Implementation** – PSE provides oversight and transparent reporting to ensure the customer’s project goes according to plan.



MyData

- **MyData** is a tool to request **whole building energy usage data from PSE**
- Use to Automate and Benchmark your commercial building
- Use it with your **ENERGY STAR Portfolio Manager®** account or simply request the data in an Excel spreadsheet for other purposes.

Go to: mydata.pse.com

mydata.pse.com

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MyData

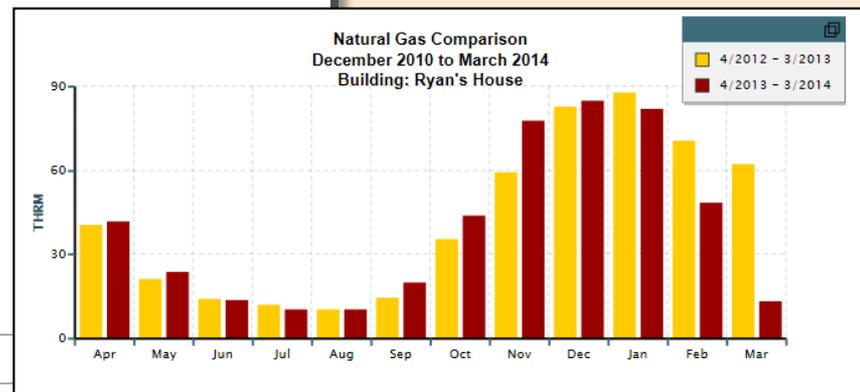
Sign In

Username:

Password:

Submit

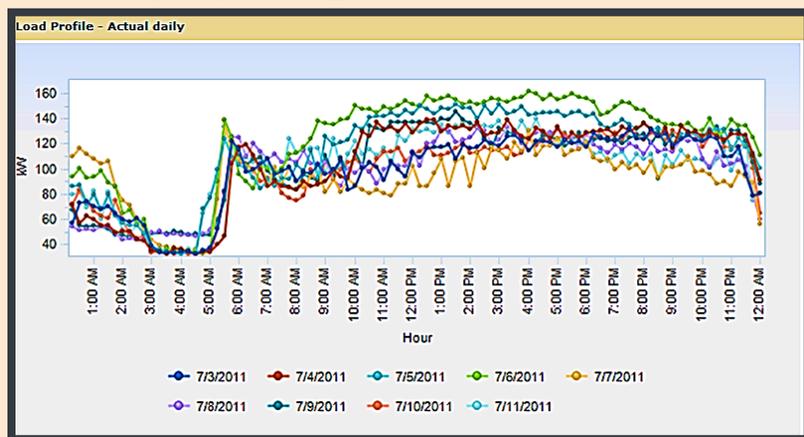
[Forgot your password?](#)
[Forgot your username?](#)



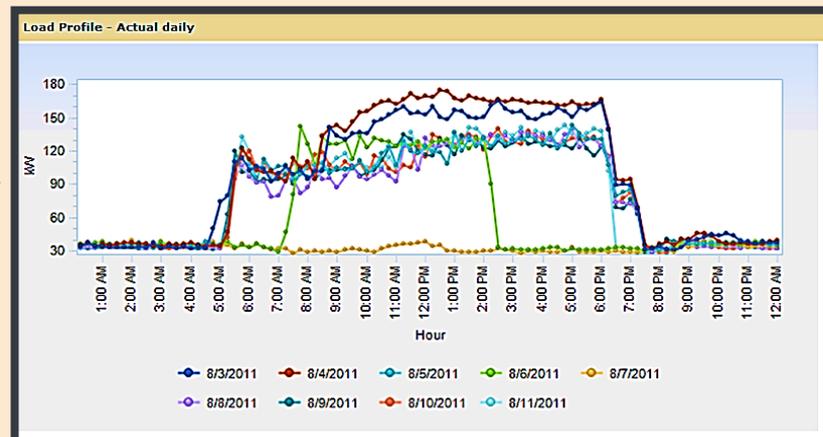
Energy Interval Service (EIS)

- The EIS is an **energy-monitoring tool** that provides detailed information about the energy use patterns in your facility
- **Available to Commercial Customers** that participate in PSE's energy efficiency programs
- Provides you with a **greater understanding** of your building's energy use: 15-minute electric consumption data and hourly gas data

Before EIS



After EIS



Energy Efficiency: Business Energy Management

www.pse.com/mybusiness

The screenshot shows the PSE Business Energy Management website. At the top, there is a navigation bar with the PSE logo, social media icons, and links for 'Contact Us', 'Print', and 'Home'. A search bar is located on the right. Below the navigation bar, there are several menu items: 'Accounts & Services', 'Safety', 'Savings & Energy Center', 'In Your Community', 'About PSE', and 'Other Languages'. The main content area features a large banner for 'Business incentives' with a piggy bank icon. To the right of the banner is a section for 'Ask an Energy Advisor' with contact information for phone, email, and web. Below this is a 'Featured content' section with links for 'Energy-efficient financing' and 'MyData'. At the bottom, there is a grid of seven categories: Energy Management, HVAC, Kitchen, Laundry, Lighting, New construction, and Retrofit grants. A sidebar on the left contains a list of categories including 'Rebates & offers', 'Tips, Tools & Ideas', 'Business incentives', 'Energy Management', 'HVAC', 'Kitchen', 'Laundry', 'Lighting', 'New construction', 'Retrofit grants', 'Generators', and 'Tools & resources'. A vertical URL 'www.pse.com/mybusiness' is overlaid on the left side of the screenshot. A red button at the bottom right of the screenshot says 'Visit Our Landing Page!'.



Visit Our Landing Page!

Energy Efficiency Programs

- **Energy Advisors 1-800-562-1482**
- **Jack Sipila 360-475-7077 jack.sipila@pse.com**
 - Lighting
- **Dave Montgomery 425-424-6846 david.montgomery@pse.com**
 - Pumps & Motors
 - Steam Systems
 - Boilers
 - Process
- **Corey Corbett 253-395-6978 corey.corbett@pse.com**
 - Refrigeration
- **Jeff Petersen 425-424-6844 jeffrey.petersen@pse.com**
 - HVAC-Unitary
 - HVAC-Plant
 - Controls

Custom Grant LED Lighting Retrofit

- Parking and Pathway LED Lighting Retrofit - Casino
- Establish Baseline
 - Existing number of fixtures and wattage
 - Hours of operation
- Proposed
 - Number of LED fixtures and wattage
 - Hours of operation

Savings:
149,542 kWh/Year
\$10,767 Per/Year
\$196,717 Project Cost
\$29,908 PSE Grant



New Construction - Casino

- Whole Building Efficiency Upgrade
- Establish Baseline – 2009 WSEC Modeling by Demand Side Engineering
- Measures:
 - Water Loop Heat Pumps
 - Variable Speed Drives (for water loop heat pumps)
 - Air to Water Heat Exchanger (water loop heat pumps)
 - Outside Air Supply Energy Recovery Unit
 - LED lighting in rooms and common areas of hotel
- Savings:
 - 316,876 kWh/Year
 - \$22,815 Per Year
 - PSE Grant \$130,186

Industrial Optimization Program

- Wastewater Treatment Plant
- Measures:
 - Pumps and Mixers: Slow or cycle off equipment based on flows.
 - Aeration: Reduce the minimum capacity of blowers and/or find periods when they can be shut off.
 - UV Lamps: Calibrate sensors and allow lamps to turn down to minimum power.
- Savings:
 - 93,000 kWh/Year
 - \$7,100 Per Year
 - Project Cost \$6,000
 - PSE Grant \$4,200