

Energy Efficiency Programs Drivers

Bob Stolarski, Director
Customer Energy Management

October 28, 2008



PUGET SOUND ENERGY

The Energy To Do Great Things

Agenda

- ◆ Who we are
- ◆ What we're facing
- ◆ How we plan and our plans
- ◆ What we offer

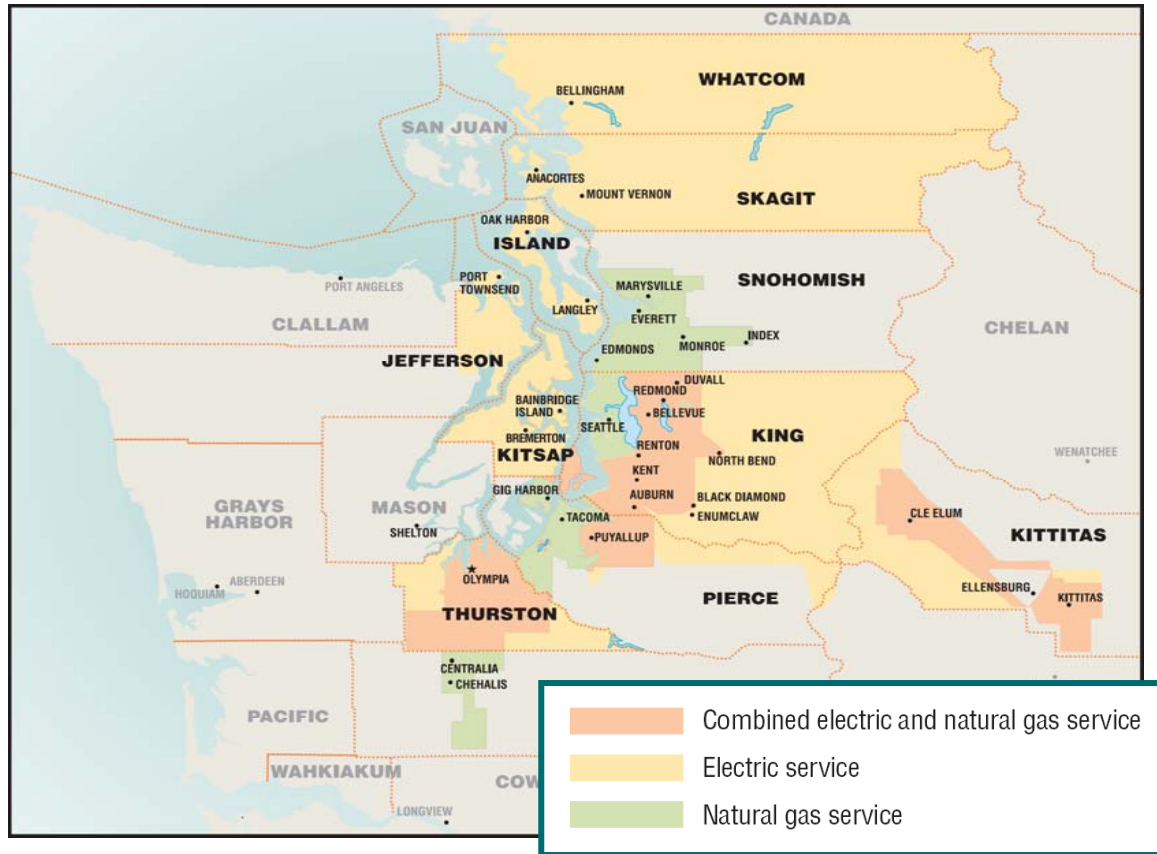


Puget Sound Energy

- ◆ Over 1 million electric customers
- ◆ About 800,000 gas customers

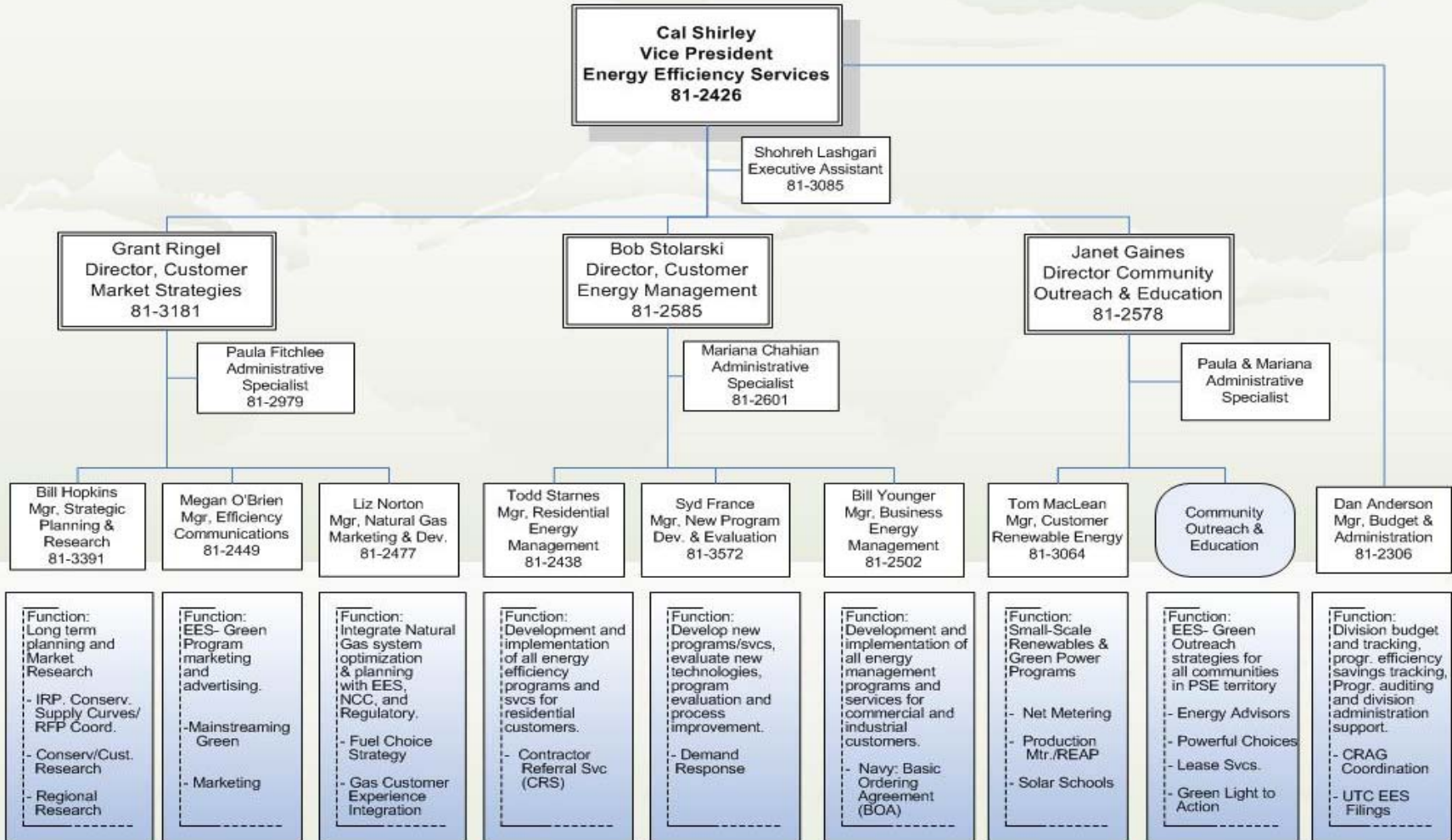


Programs Eligibility



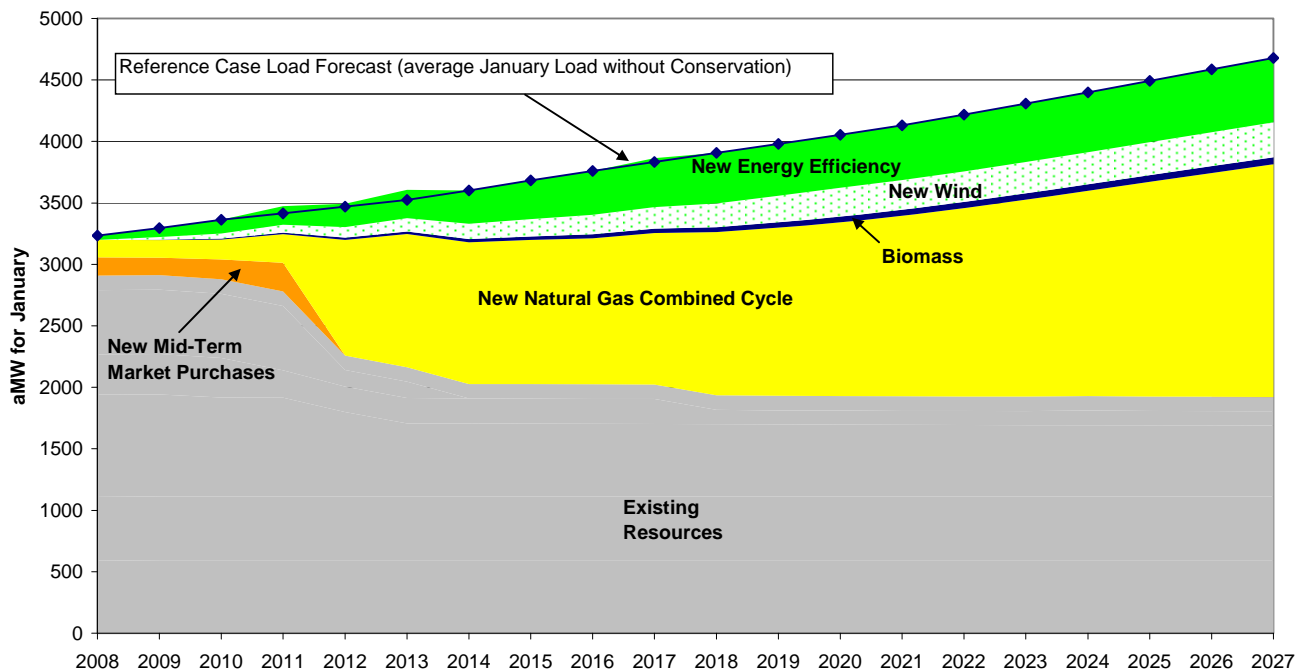
- ◆ Electric Incentive – Must be a PSE electric customer
- ◆ Gas Incentive – Must be a PSE natural gas customer
(Natural gas transportation customers are NOT eligible to receive conservation incentive funding)

Energy Efficiency Services Division



IRP Electric Resource Strategy

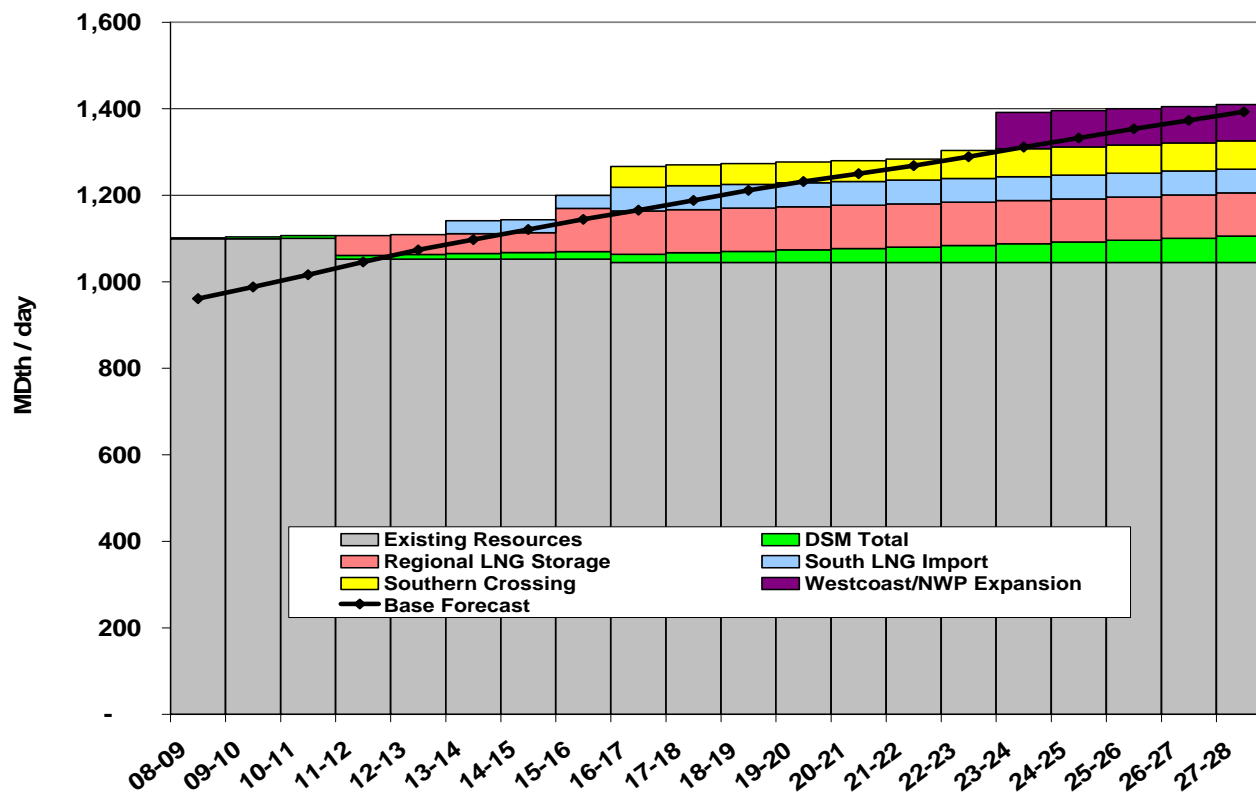
Lowest Reasonable Cost Resource Portfolio 2007 IRP



- Immediate need; large increase in 5 years
- New resources will meet 59% of load
- EE/FC/DG is 19% of new resource adds

IRP Gas Resource Strategy

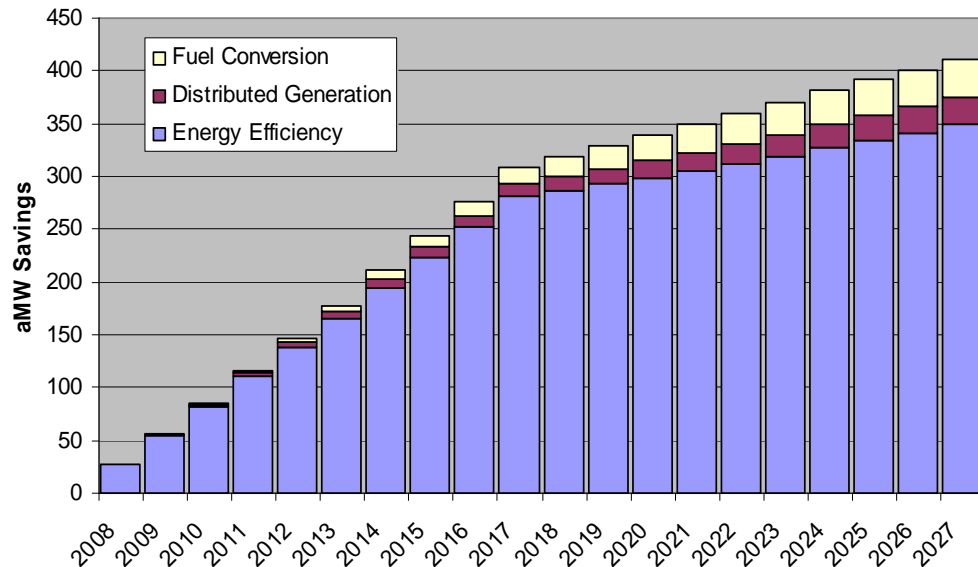
Lowest Reasonable Cost Portfolio
2007 IRP



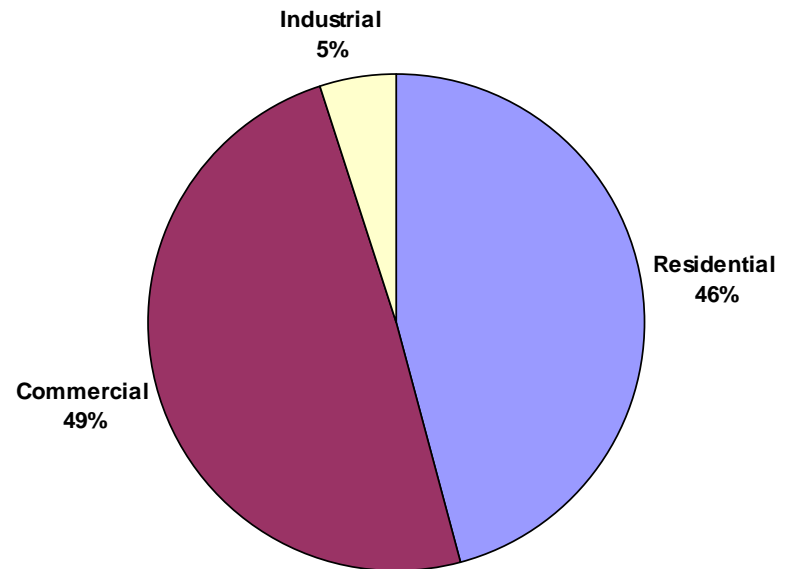
- Need is 4 years out
- New resources will meet 25% of load
- EE is 17% of new resource adds

IRP Guidance – Electric DSM

2007 IRP Electric Demand-Side Resource Potential



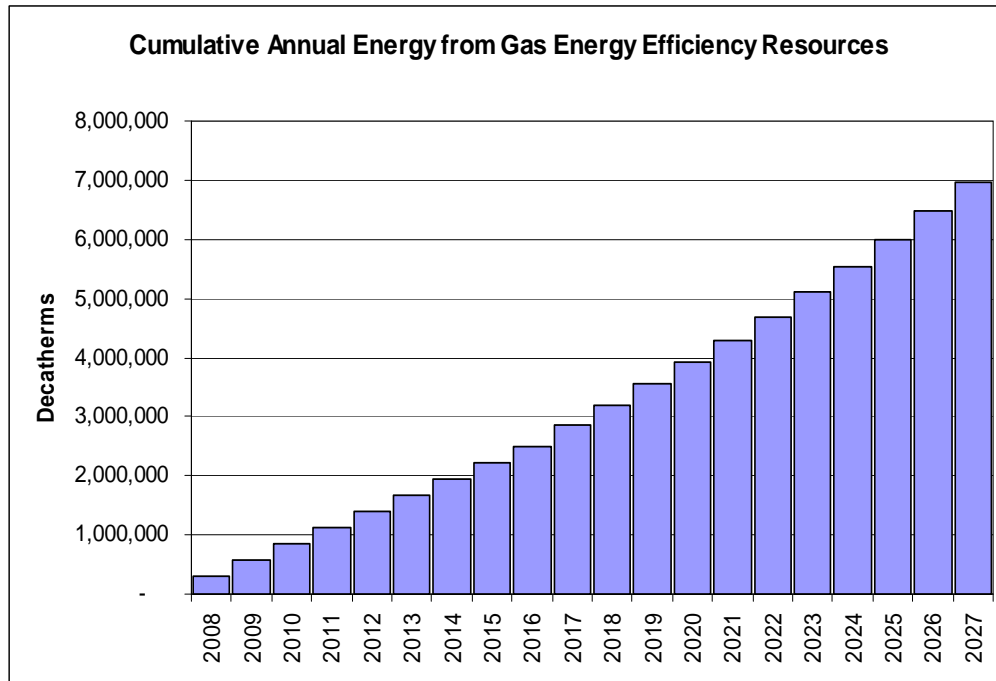
IRP EE Electric Savings by Customer Class



- 412 aMW savings at the customer meter over 20 yrs.
- Acceleration of EE acquisition
- 56 aMW savings in 2008-09

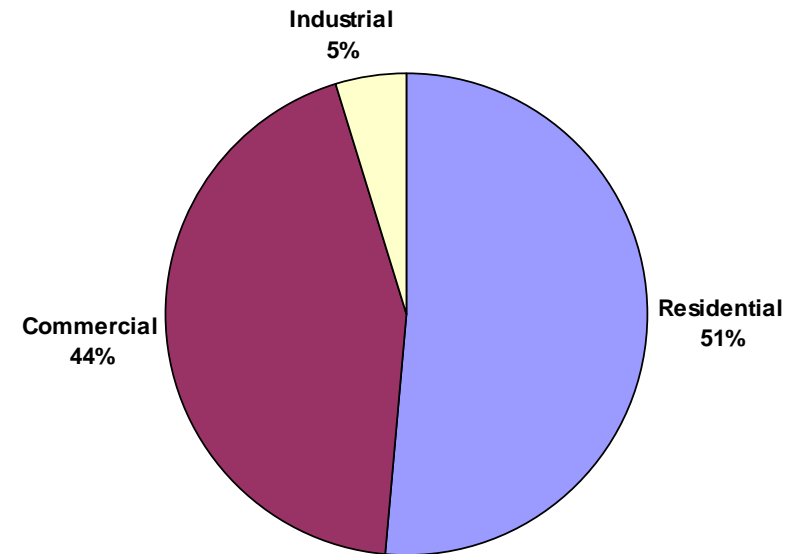
- 70% Retrofit; 30% “Lost Opportunities”
- Lighting remains largest opportunity

IRP Guidance – Gas DSM



- 70 million therms of savings over 20 years
- Steady ramp-up over time
- 5.8 million therms of savings in 2008-09

IRP Gas Savings by Customer Class



- 46% Retrofit; 54% “Lost Opportunities”
- Space heat, water heat and process boilers

Regulatory Framework – Incentive/Penalty

- ◆ Conservation Resource Advisory Group (CRAG)
 - ◆ Established by WUTC
 - ◆ Targets, programs development, evaluation
- ◆ Funding Efficiency Activities
 - ◆ Electric Rider / Natural Gas Tracker
- ◆ Incentive/Penalty
 - ◆ Penalty on Natural Gas Results
 - ◆ Penalty & Incentive on Electric Results
 - ◆ 2007 Results Earned \$3.4 Million Incentive



CRAG (Conservation Resource Advisory Group)

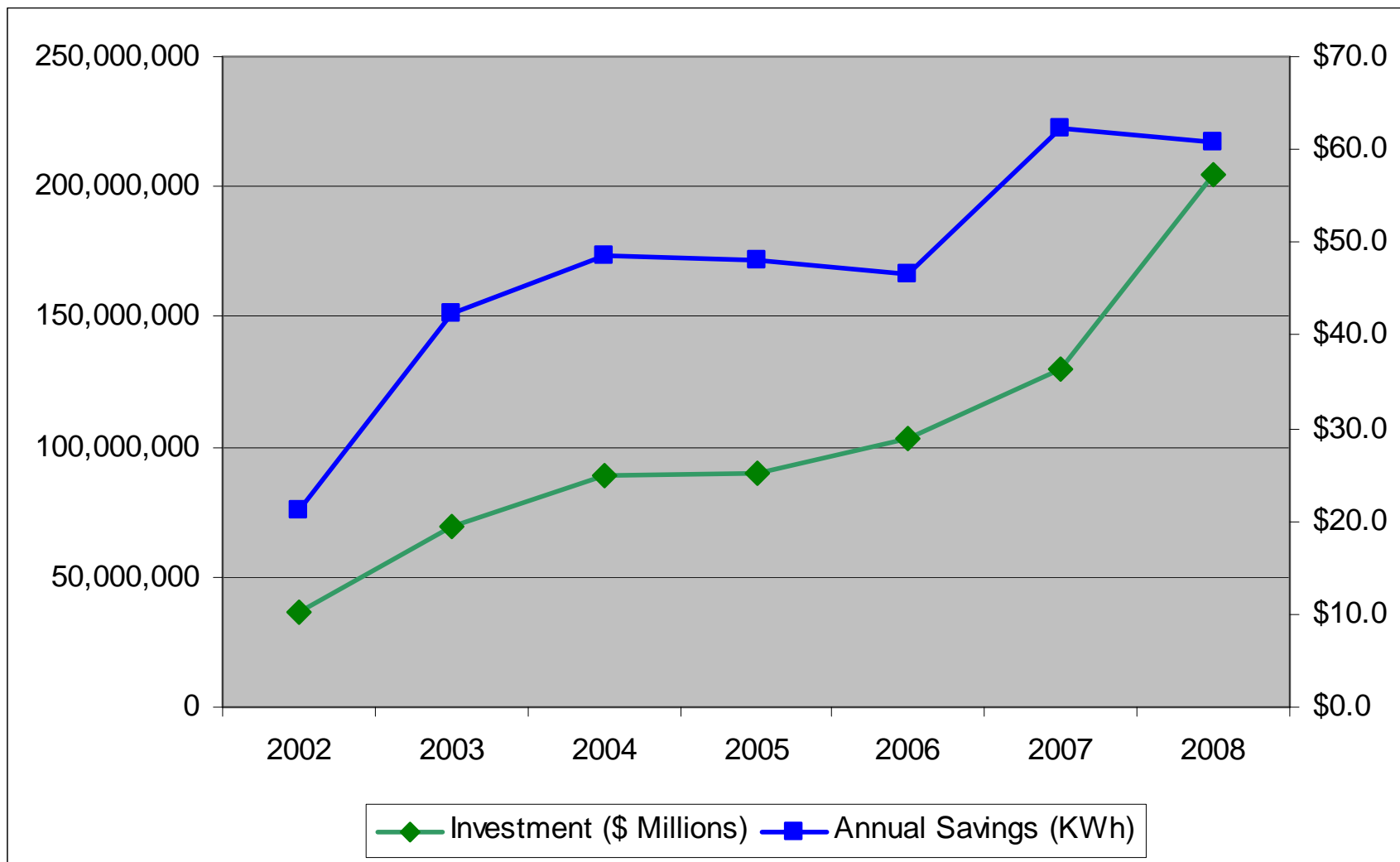
- ◆ Northwest Power and Conservation Council
- ◆ Northwest Energy Coalition
- ◆ King County Housing Authority
- ◆ Public Council
- ◆ WUTC Staff
- ◆ CTED: Community Trade and Economic Development
- ◆ Northwest Industrial Gas Users
- ◆ ICNU: Industrial Customers of Northwest Utilities
- ◆ Boeing & Microsoft

Two-Year Energy Savings & Budgets

	<u>Savings</u>	<u>Budgets</u>
'08/09	53.3 aMW	* \$119.5 million
'06/07	40.0 aMW	\$ 64.0 million
'08/09	5.3 M Therms	\$25.3 million
'06/07	4.2 M Therms	\$12.8 million

* EES Costs Only - does not include \$3 million Demand Response Pilots & \$750k Small-Scale Renewables in Sch. 120 cost recovery.

Electric Savings and Budgets



EES 2008-2009 Programs

Program Name	MWH Elec Tariff Savings	Electric Tariff Budget	Therm Savings	Gas Tariff Budget	Sorted By Total Budget & Sector
Residential Programs					
Single Family Existing	170,130	\$ 37,392,000	1,746,000	\$ 10,720,000	\$ 48,112,000
Multi Family Existing	21,546	\$ 5,823,000	166,000	\$ 937,000	\$ 6,725,000
Single Family New Construction	5,557	\$ 2,702,000	344,000	\$ 2,487,000	\$ 5,189,000
Low Income	2,967	\$ 3,064,000	54,000	\$ 992,000	\$ 4,656,000
Residential Information Services	-	\$ 2,286,000	-	\$ 1,022,000	\$ 3,308,000
Pilots	3,845	\$ 1,975,000	73,000	\$ 1,149,000	\$ 3,124,000
Energy Education	2,785	\$ 1,077,000	152,000	\$ 516,000	\$ 1,593,000
Multi Family New Construction	1,365	\$ 683,000	15,000	\$ 132,000	\$ 850,000
Total, Residential Programs	208,195 (23.8 aMW)	\$ 55,002,000	2,550,000	\$ 17,955,000	\$ 73,557,000
Commercial Programs					
Commercial / Industrial Retrofit	120,000	\$ 35,600,000	1,000,000	\$ 3,200,000	\$ 38,800,000
Large Power User - Self Directed Prg.	31,000	\$ 7,500,000	-	\$ -	\$ 7,500,000
Small Business Lighting Rebate	18,000	\$ 5,400,000	-	\$ -	\$ 5,400,000
Commercial/Industrial New Construction	12,000	\$ 3,200,000	250,000	\$ 700,000	\$ 3,900,000
Resource Conservation Manager	18,000	\$ 1,850,000	600,000	\$ 825,000	\$ 2,675,000
Commercial Rebates	10,000	\$ 1,300,000	900,000	\$ 1,200,000	\$ 2,500,000
C/I Energy Efficiency Information	-	\$ 268,000	-	\$ 138,000	\$ 406,000
LED Traffic Signals	1,000	\$ 55,000	-	\$ -	\$ 55,000
Total, Com'l & Ind'l Programs	210,000 (24.0 aMW)	\$ 55,173,000	2,750,000	\$ 6,063,000	\$ 61,236,000
Other Programs					
NW Energy Efficiency Alliance	49,000	\$ 4,200,000	-	\$ -	\$ 4,200,000
Market Research, Program Evaluation & Mkt Transformation	-	\$ 4,480,000	-	\$ 600,000	\$ 3,000,000
Energy Efficient Technology Evaluation	-	\$ 220,000	-	\$ 100,000	\$ 320,000
Net Metering & Mainstreaming Green	-	\$ 425,000	-	\$ -	\$ 250,000
Total, Other Programs	49,000 (5.6 aMW)	\$ 11,580,000	-	\$ 1,250,000	\$ 10,575,000
Total All Programs TARGET	53.3 aMW	\$ 121,755,000	5,300,000	\$ 25,268,000	\$ 145,368,000
Demand Response Pilots & Small Scale Renewables		\$ 3,750,000	-	\$ -	\$ 3,000,000

EES Program Measures

- ◆ **Residential Sector**

- ◆ 2008 & 2009: 23.8 aMW & 2.55 million therms, \$73.5 million
- ◆ Low Income, Single Family, and Multi-Family Programs

- ◆ **End Use: Measures and Incentives**

HVAC and Refrigeration:

Furnaces
Heat Pumps
Duct Sealing
Variable Speed Motors
Low-Wattage Whole-House Ventilation
Systems

Appliances:

Clothes washers
Dishwashers
Refrigerators
Refrigerator
Decommissioning

Building Thermal Improvements:

Roof and Ceiling Insulation
Exterior Roof Insulation
Structure Sealing
Wall Insulation
Insulated Windows
Duct Insulation

Building Modeling

Increase MF Energy Efficiency Performance

Controls:

Programmable Thermostats
Motion Sensors

Lighting Improvements:

Compact Fluorescent Luminaries
Light Socket Conversion kits
Compact Fluorescent Fixtures
Common Area Lighting—Multi-Family

Water Heating Improvements:

Water Heaters
Water Heater Insulation
Tankless Water Heater
Piping Insulation
Low Flow Shower heads & Aerators



Single Family Homes

- ◆ Existing Homes
 - ◆ Lighting - Recycling
 - ◆ Appliances, Refrigerator decommissioning
 - ◆ Tiered Heat Pump rebates, High Efficiency Furnaces
 - ◆ Water Heaters, Showerheads and Aerators
 - ◆ Weatherization
 - ◆ Bundling
- ◆ New Construction
 - ◆ Lighting
 - ◆ Appliances
 - ◆ Manufactured Homes



Multi-Family

- ◆ Existing Buildings
 - ◆ Building the business
 - ◆ Insulation, Windows
 - ◆ Lighting & Common area lighting
 - ◆ Appliances
 - ◆ Efficient Showerheads and Aerators
 - ◆ High Efficiency Furnaces
- ◆ New Construction
 - ◆ Single Point of Contact
 - ◆ Calculated Performance
 - ◆ Appliances, Showerheads/Aerators, Water Heat
 - ◆ Heating Upgrades

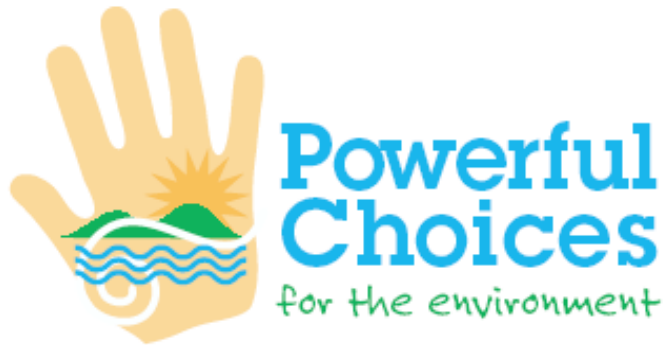


Low Income

- ◆ New database, rebates, & agency contracts
- ◆ Single Family, Multi-Family
 - ◆ Synergies with Residential Multi-Family programs
- ◆ Manufactured Housing
- ◆ Native American
 - ◆ Train the Trainer



Energy Education



- ◆ Efficiency and environmental curriculum
- ◆ 4 days in classroom
- ◆ 6 – 8 facilitators
- ◆ 13,000 Middle school students annually
- ◆ The Baker School
 - ◆ Teaching the teachers
 - ◆ No cost to students

New Residential Programs

- ◆ HomePrint - Energy Audits
- ◆ Positive Energy
- ◆ Residential Community Manager
- ◆ Ductless Heat Pumps
- ◆ Cool Schools – High School Program
- ◆ Direct Use of Natural Gas
- ◆ In-Home Display
 - ◆ Home Electricity Monitor



Energy Advisors & PSE.com

- ◆ *Technical Questions*
- ◆ *Rebate Programs Information*
- ◆ *Online Brochures*
- ◆ *Contractor Referral Service*
- ◆ *Online Bill Analyzer*

The screenshot shows a web browser window displaying the PSE website. The address bar shows the URL: <http://www.pse.com/solutions/ForYourHomeLanding.aspx>. The website header includes the PSE logo, the text "PUGET SOUND ENERGY", and a "My PSE Account: LOGIN" link. Below the header is a navigation menu with options: Home, Service Map, Search, and Contact Us. The main content area is titled "For Your Home" and features several sections:

- FOR YOUR HOME**
 - Paying Your Bill
 - About Your Account
 - Low Income Assistance
- Ways to Save**
 - Energy Efficiency
 - Appliances
 - Lighting
 - Heating
 - Water Heating
 - Weatherization
- Rebates & Promotions**
 - Electric & Natural Gas Service Requests
 - Choosing Natural Gas
 - Green Power Program
 - Energy Advisors
 - Contractor Referral Service
 - Rates
 - Customer Service Guarantee

The "For Your Home" section includes a prominent green banner for the "Green Power Program" with the text: "It's a great time to join the Green Power Program!" and "Now through July 31, 2006, new participants in the Green Power Program can receive a complimentary gift of triple certified coffee from Grounds for Change. [More >](#)".

Other sections include "Register today for My PSE Account" and "Energy Advisors" which states: "PSE's Energy Advisors provide free tips and tools to customers on ways to make their homes more energy efficient. Energy Advisors can also direct you to PSE's Contractor Referral Service for free, no-obligation estimates on home improvement products and services for your home. [More >](#)".

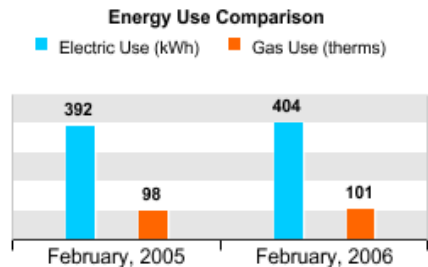
At the bottom of the page, there is a footer with "General Info: (888)225-5773" and links for "Terms of Use", "Privacy Policy", "Website Feedback", "For Investors", and "Site Map".

PSE Energy Advisors
1 800 562 1482

Tools Available to You

Online Energy Use Analysis

How does my current energy use compare to last year's?

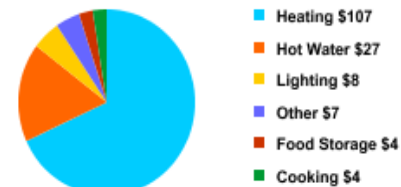


Bill History

View and graph up to 24 months of information from your bills.

How is energy used in my home?

Total Costs 1/5/2006 to 2/2/2006

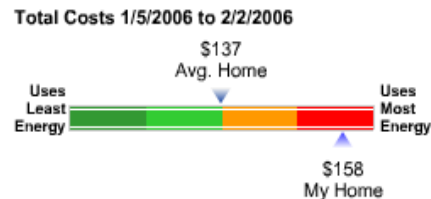


Total Electricity Gas

Appliance Use Analyzer

Find out how much it costs to run your appliances.

How does the cost of energy used in my home compare to similar homes?

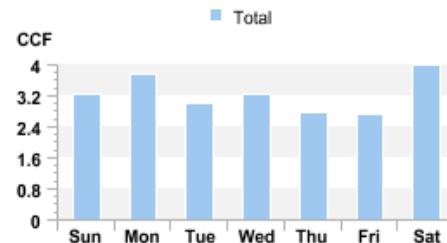


Total Electricity Gas

Your home used more energy than most of the similar homes in your area. Click on the **Find Ways to Save** tab

When is energy being used in my home?

Average Energy by Day-of-Week



Choose meter: 000820816 - Gas

Energy Use Analyzer



EES Program Measures

- ◆ **Commercial/Industrial Sector**

- ◆ **2008 & 2009: 24 aMW & 2.75 million therms, \$61.2 million**
- ◆ **Retrofit, New Construction, Small Business Lighting, Large Power and Self-Directed and Incentive Programs**
 - ◆ **End Use: Measures and Incentives (Grants as well as prescriptive basis)**

HVAC and Refrigeration:

HVAC – unitary
HVAC – central
Heat Recovery Systems
Chillers
Economizers
Variable Speed Drives
Intelligent Motors
TEFC and ODP Motors

Building Thermal Improvements:

Roof and Ceiling Insulation
Exterior Roof Insulation
Wall Insulation
Insulated Windows
Duct Insulation

Process Efficiency Improvements:

Refrigeration Systems
Motor and Drive Systems
Fan, Compressor and Pump Systems or Stations
High Efficiency Motors
ENERGY STAR Transformers
Other Process Modifications
Resource Conservation Manager (RCM)

Commissioning:

Commissioning Energy Systems

Controls:

Energy Management Systems
Direct Digital Control Systems
Lighting Control Systems
Vending Machines
Thermostats
Motion Sensors
Process and Other Efficiency
Control Systems

Lighting Improvements:

Fluorescent Luminaries
Compact Fluorescent Luminaries
HID Luminaries
LED and EL Exit Signs
Traffic Signals

Water Heating Improvements:

Water Heaters
Piping Insulation
Low Flow Devices
Spray Heads
Boiler Tune-ups

Appliances:

Refrigerators
Fryers
Steamers
Commercial Clothes Washers
Commercial Dishwashers



'08/09 Program Highlights

- ◆ Commercial Industrial Retrofit
- ◆ C/I New Construction
- ◆ Commercial Industrial Rebates
- ◆ Small Business Lighting
- ◆ Gas Boiler Optimization
- ◆ Resource Conservation Manager
- ◆ 258 Large Power Users
- ◆ Energy Information



C/I Retrofit Program Highlights

- ◆ Funding for non-lighting measures to 70%
- ◆ Modified funding formula for longer payback measures
- ◆ Grocery refrigeration sector thru PECl
- ◆ Fuel switching
- ◆ Energy recovery generation
- ◆ Solar thermal applications



Commercial New Construction Options

- ◆ Component Approach
 - ◆ Incentives to cover up to 100% of incremental costs
- ◆ Whole Building Approach
 - ◆ Graduated incentives for exceeding code by 10% to 30%
 - ◆ \$.60 to \$1.80 per sq.ft.
- ◆ Prescriptive Whole Building Approach
 - ◆ Packages of prescriptive measures
 - ◆ \$.50 - \$2.60 per Square Foot
- ◆ Modeling assistance & Commissioning



Commercial Industrial Rebates

◆ Commercial Rebate Program Highlights

- ◆ Adding more commercial kitchen rebates
- ◆ Premium Service HVAC
- ◆ Heat pump incentives to High Efficiency
 - ◆ Capture smaller unit replacement
- ◆ PC power management related rebates
- ◆ Demand control ventilation for specific applications



Other Rebate Programs

- ◆ **Small Business Lighting Program Highlights**

- ◆ Calculated Savings
- ◆ Increase the rebates to about 70% of measure cost
- ◆ Added custom measures line
- ◆ Direct install or rebate for signage lighting

- ◆ **Boiler Tune-Up Program**

- ◆ Increased incentive to \$600 or full cost
- ◆ Limited to large power burners
- ◆ Linkage-less burner controllers
- ◆ Water temperature reset controller



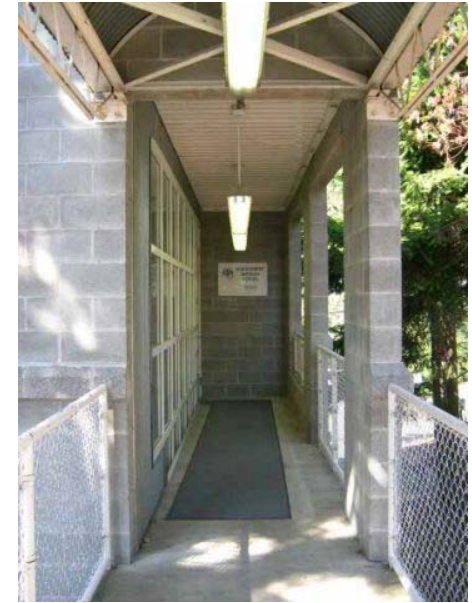
Other Programs

- ◆ **Schedule 258 - Self Direct Program**
 - ◆ 30 largest sites – portfolio and retail access
 - ◆ Final 2 years of 4 year program
 - ◆ Majority of savings in 2009
- ◆ **LED Traffic Signals**
 - ◆ Majority of signals completed
- ◆ **Demand Response Pilots**





Resource Conservation Manager

- ◆ Customers with multiple facilities
- ◆ Focus on behavior & operation
- ◆ Typical 10%-15% savings
- ◆ PSE RCM for our facilities



CONSERVATION CHECKLIST

Winter Break Shutdown for Custodians

HVAC Systems

- Place main heating systems into Holiday, Unoccupied or OFF mode.
- Schedule or manually place portable classroom heat to Skip Day, Unoccupied mode or to OFF position (not temporary override).
- If heat is necessary for after-hour or weekend use, provide heat to the smallest zone allowable.
- Turn exhaust fans off.

Lighting

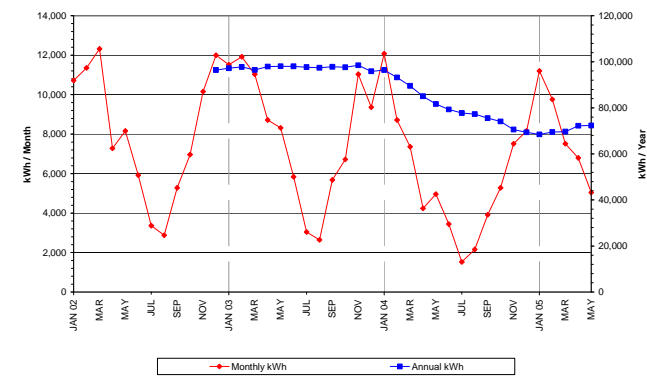
- Schedule exterior lights to remain OFF, except if needed for evening community activities. This can save a lot of energy. Each parking lot light is probably 200 – 400 watts.
- Check to insure building lighting, including display case lighting is OFF before leaving.
- When working in the building, keep off or turn on only half the lights in hallways and other common areas where you don't need full lighting to perform your tasks.

Water

- Shut hot water circulation pumps off. This reduces the amount of heat lost in the pipes and consequently the amount of energy the water heaters will use to maintain temperature.
- Turn water heaters off, if you can do this easily.
- Check your water meters for indication of possible leaks.

Building Envelope

- Check doors and windows to make sure they're locked tight.
- Turn window blinds so that the underside of blinds faces in. This will help reduce heat loss.



PSE Energy Interval Service

Energy Interval Service

QUICK START GUIDE
www.energyintervalservice.com



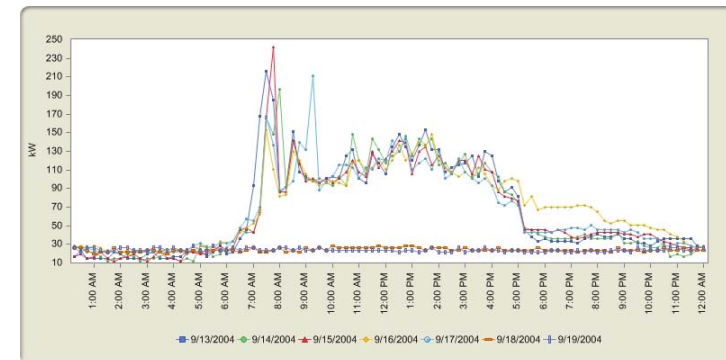
PSE

PUGET
SOUND
ENERGY

pse.com

The energy to do great things.

- ◆ View 15-minute demand kW profiles
- ◆ Hourly or daily natural gas
- ◆ Free for RCM Program participants
- ◆ Free for 2 years following grant project
- ◆ Identify operational trends and anomalies
- ◆ Compare demand against other channels
 - ◆ kVAR and Weather
- ◆ Rate and cost data



PUGET SOUND ENERGY
The Energy To Do Great Things

Energy Efficiency Information

- ◆ On-line audit tool
- ◆ Trade-ally access for expanded customer audit
- ◆ O&M and ECM recommendations
- ◆ Printing capability for consistent look

Quickest Payback			
Greatest Savings			
Rebates			
These are initial results, based upon the initial set of questions that you've answered about your business. To learn more about an energy management opportunity, <i>click</i> on its title in the table below.			
Add to My PLAN	Savings Opportunity	Estimated Annual Savings	Features
<input type="checkbox"/>	OFFICE/ELECTRONICS Purchase Equipment with the ENERGY STAR® logo	\$400-\$700	
<input checked="" type="checkbox"/>	HEATING Lower Thermostat in Winter. Install Programmable Thermostat.	\$280-\$420	Rebates
<input type="checkbox"/>	HEATING Routine Maintenance / Service Contract	\$250-\$380	No/Low Cost
<input type="checkbox"/>	HEATING Check and Seal Leaking Ducts	\$140-\$210	No/Low Cost
<input type="checkbox"/>	LIGHTING Use "Task Lighting" and Improve Energy-efficiency	\$100-\$150	No/Low Cost
view more			
Detailed Analysis offers a more in-depth look at energy use and savings. ... Continue to refine your energy management strategy.			DETAILED ANALYSIS



Program Promotions / Awareness

- ◆ Enhanced Market Research
 - ◆ Segmentation, satisfaction
- ◆ Integrated Marketing
 - ◆ Community Marketing
 - ◆ Green Messages – Mainstreaming Green
 - ◆ Program-specific targeting
 - ◆ Promotions effectiveness tracking



Thank You

Bob Stolarski

Director, Customer Energy Management



PUGET SOUND ENERGY

The Energy To Do Great Things

bob.stolarski@pse.com

425.456.2585