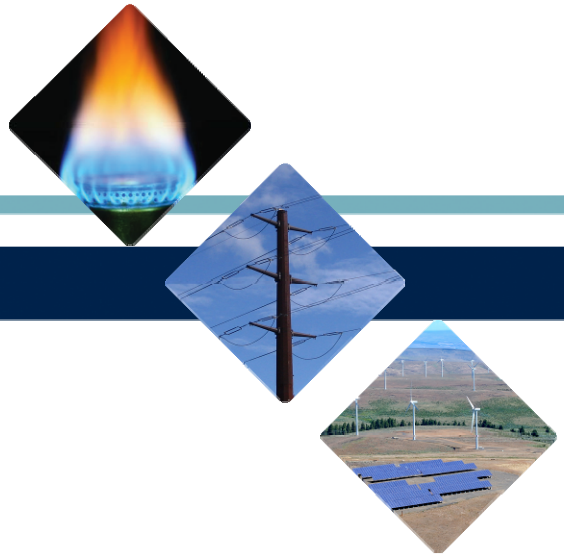
CONSERVATION RESOURCE ADVISORY GROUP (CRAG)

2010 – 2011 EES Planning Wrap-up

October 14, 2009



PSE PUGET SOUND ENERGY

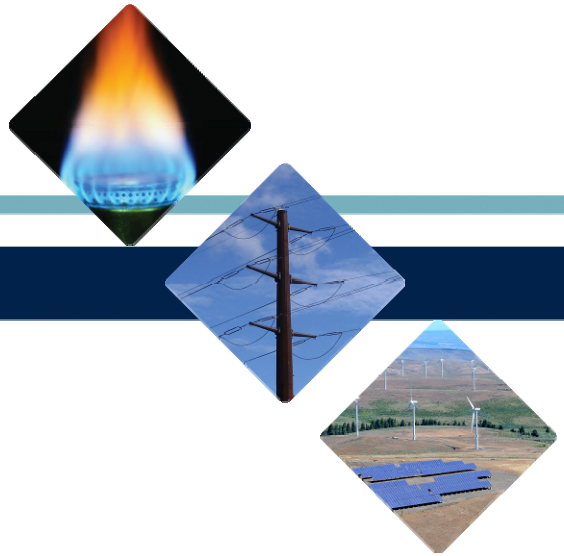
The Energy To Do Great Things

Meeting Agenda

Topic	Presenter	
Welcome!	***Cal Shirley***	Vice President, Energy Efficiency Services
Conservation Tariff Filing Schedule Review	***Cal***	
Savings Issues Review	***Cal***	
Ramping to 38 aMW annually	***Cal***	
I-937 filing	***Bill Hopkins***	Manager, EES Strategic Planning and Research
NEEA Targets	***Jeff Harris***	Senior Manager, NEEA Planning
Home Energy Reports	***Todd Starnes***	Manager, EES Residential Energy Management
EES Funding; Effect on Customer Bills	***Dan Anderson***	Manager, EES Budget and Administration
Proceeds from REC sales; LIW impact	***Eric Englert***	Manager, Regulatory Initiatives and Tariffs
Appendix D (Evaluation) Preview	***Syd France***	Manager, EES New Prog. Development & Eval.
Incentive Evaluation Status Update	***Bill Hopkins***	Manager, EES Strategic Planning and Research
Demand Response Briefing	***Syd***	
General Updates		
PSE credit union loan program for fuel conversion	***Grant Ringel***	Director, Customer Market Strategies
ARRA dates/awards	***Janet Gaines***	Director, Community Outreach and Education
Specific Items From CRAG Members	***Team***	

Welcome!

Cal Shirley
Vice President, Energy Efficiency Services

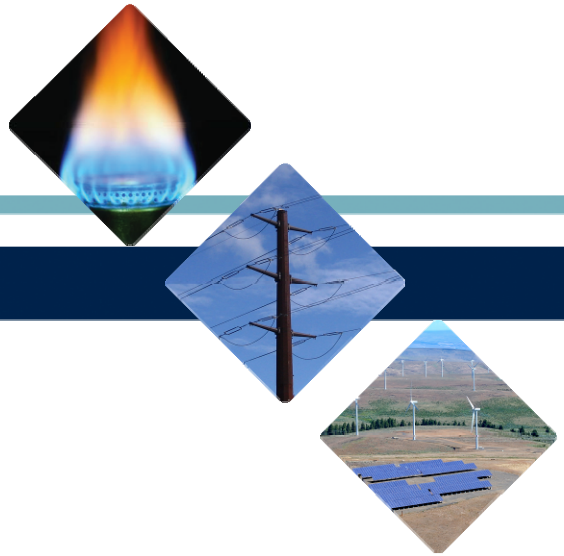


October 14, 2009

PSE PUGET SOUND ENERGY
The Energy To Do Great Things

Tariff Filing Schedule Review

Cal Shirley



October 14, 2009

PUGET SOUND ENERGY

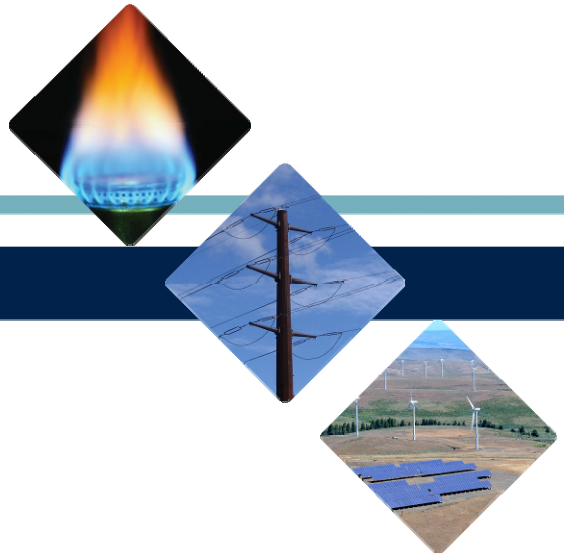
The Energy To Do Great Things

2010-2011 Conservation Tariff Filing Schedule

Date	Task
▪ November 2, 2009	Provide Tariff package to CRAG (60 days to effective date)
▪ December 1, 2009	File Tariff package with WUTC (30 days to effective date)
▪ December 23, 2009	WUTC; open meeting consideration
▪ January 1, 2010	2010 – 2011 Biennial Tariff effective
▪ March 2010	File Schedule 120
▪ April 2010	Schedule 120 effective

Savings Issues Review

Cal Shirley,
Bill Hopkins, Manager, EES Strategic Planning & Research,
Jeff Harris, Senior Manager, Northwest Energy Efficiency Alliance,
Todd Starnes, Manager, EES Residential Energy Management



October 14, 2009

PSE PUGET SOUND ENERGY
The Energy To Do Great Things

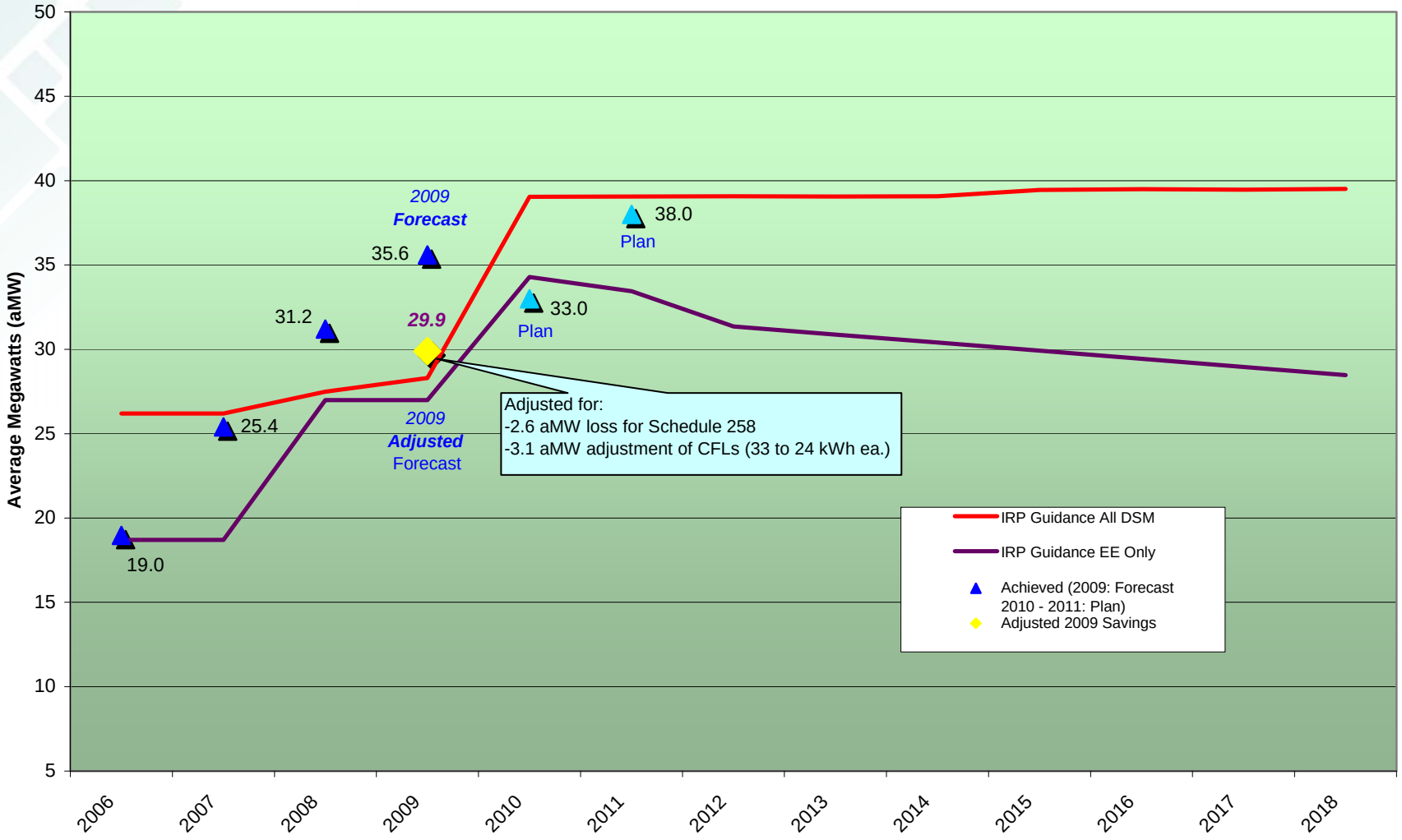
2010 – 2011 Plan

2010 - 2011 EES Savings and Expenditures

		2010	2011	TOTALS
Electric	Savings (aMW)	33	38	71
	Expenses ($ million)	$79.15	$88.30	$167.45
Gas	Savings (1,000 Therms)	4,489	4,489	8,978
	Expenses ($ million)	$15.75	$17.18	$32.93
	Total Expenses ($ M)	$94.90	$105.48	$200.38

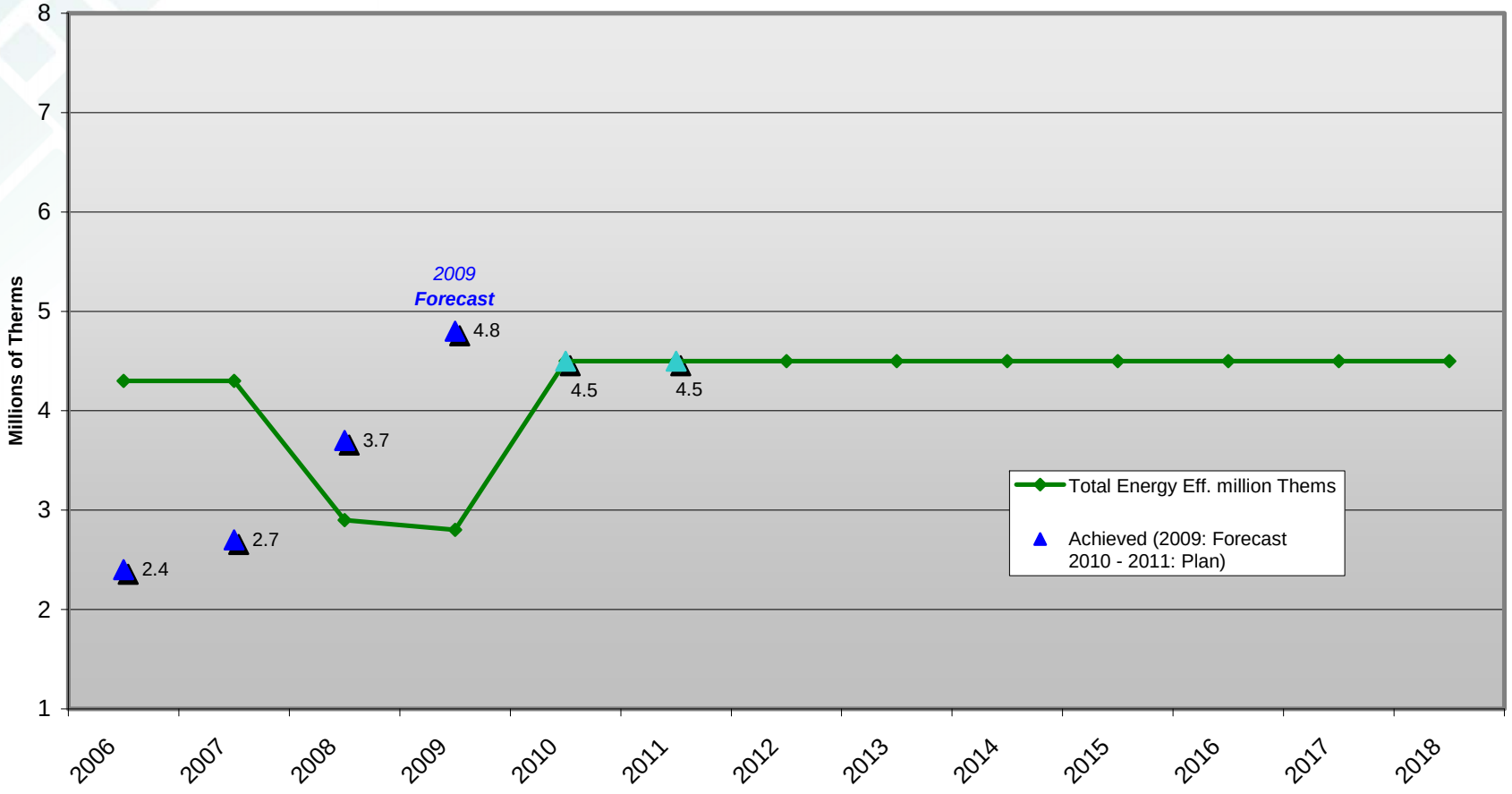
2010 – 2011 Electric Savings

EES Historical aMW Savings



2010 – 2011 Gas Savings

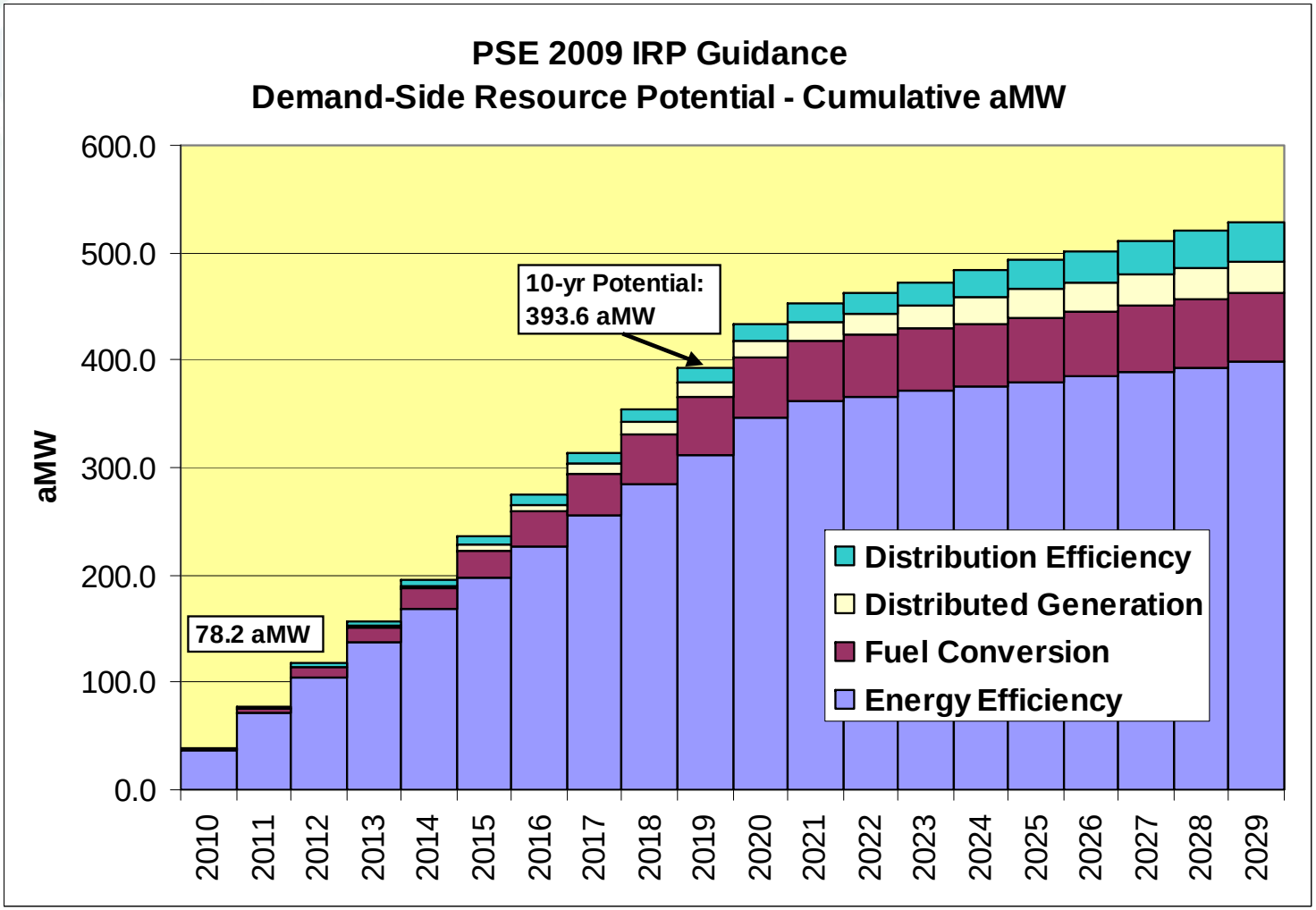
EES Historical Therms Savings



I-937

- Achievable Conservation Targets
- Target Range
- Compliance Filing

Achievable Conservation Potential



Savings are at the customer meter, excluding line losses

Target Range

- 78.2 aMW – 68.8 aMW
  - Range due to uncertainty around actual achievability of IRP potentials

	2-yr aMW	
Total IRP Guidance	78.2	
Less: Uncertainty Factors		
Fuel Conversion (75%)	-2.8	PSE program currently behind target
Distributed Gen (100%)	-0.2	PSE had no success with CHP porjects in previous RFPs
Distrib. Sys. Eff. (100%)	-2.2	Uncertain inmplementation plan, cost-effectiveness, funding mechanism
Industrial Eff. (50%)	-1.3	Schedule 258 timing
New Construction (37.5%)	-2.9	New bldg code into effect 7/1/2010, 50% of svgs affected
Total Minus Uncertainty	68.8	

Compliance Filing Requirements

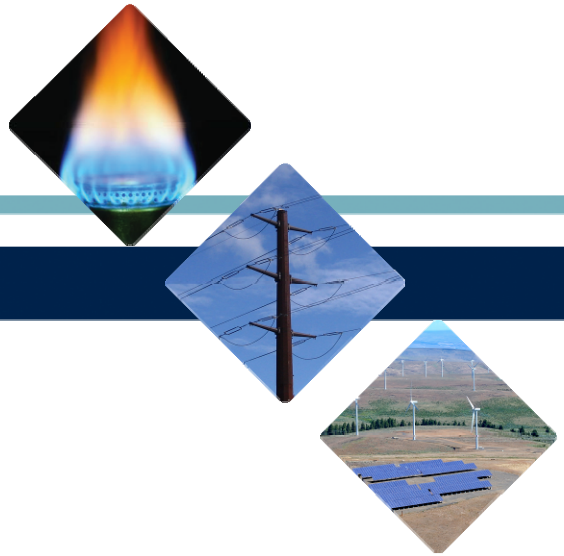
- Public Participation
  - IRPAG meeting in November 2009
- Target filed no later than January 29, 2010
  - Will not file concurrent with program tariffs
  - Documentation of conservation potential to be included

Northwest Energy Efficiency Alliance (NEEA)

2010 – 2011 Planned Savings and Spending

Jeff Harris, Senior Manager, NEEA

NORTHWEST ENERGY EFFICIENCY ALLIANCE
www.nwalliance.org



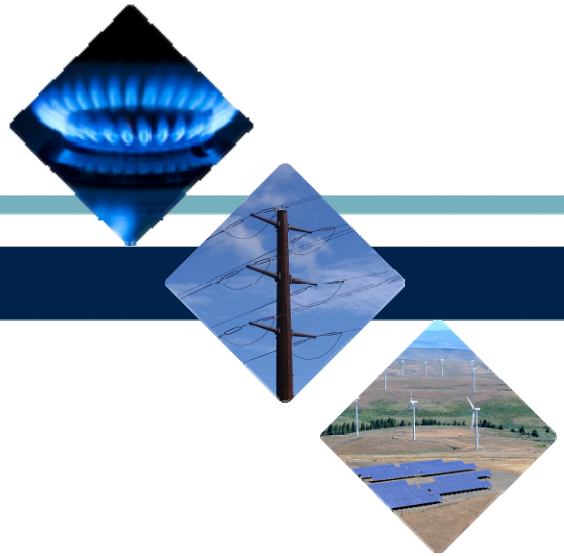
October 14, 2009

PSE PUGET SOUND ENERGY
The Energy To Do Great Things

Home Energy Reports

Evaluation process to quantify savings

Todd Starnes
Manager, EES Residential Energy Management



October 14, 2009

PSE PUGET SOUND ENERGY
The Energy To Do Great Things

Conservation Stipulation Agreement

PSE GENERAL RATE CASE
DOCKET NOS. UE-011570 and UG-011571
SETTLEMENT TERMS FOR CONSERVATION

20. **Information-only services shall be assigned no quantifiable energy savings value without full support of the Advisory Committee.** PSE may expend up to 10% of its budget on information-only programs if its total mix of programs in that sector pass the cost-effectiveness test (Information-only services refers to those information services that are not associated with an active incentive program or include no on-site technical assistance or on-site delivery of school education programs.)

Home Energy Reports
(formerly Positive Energy)

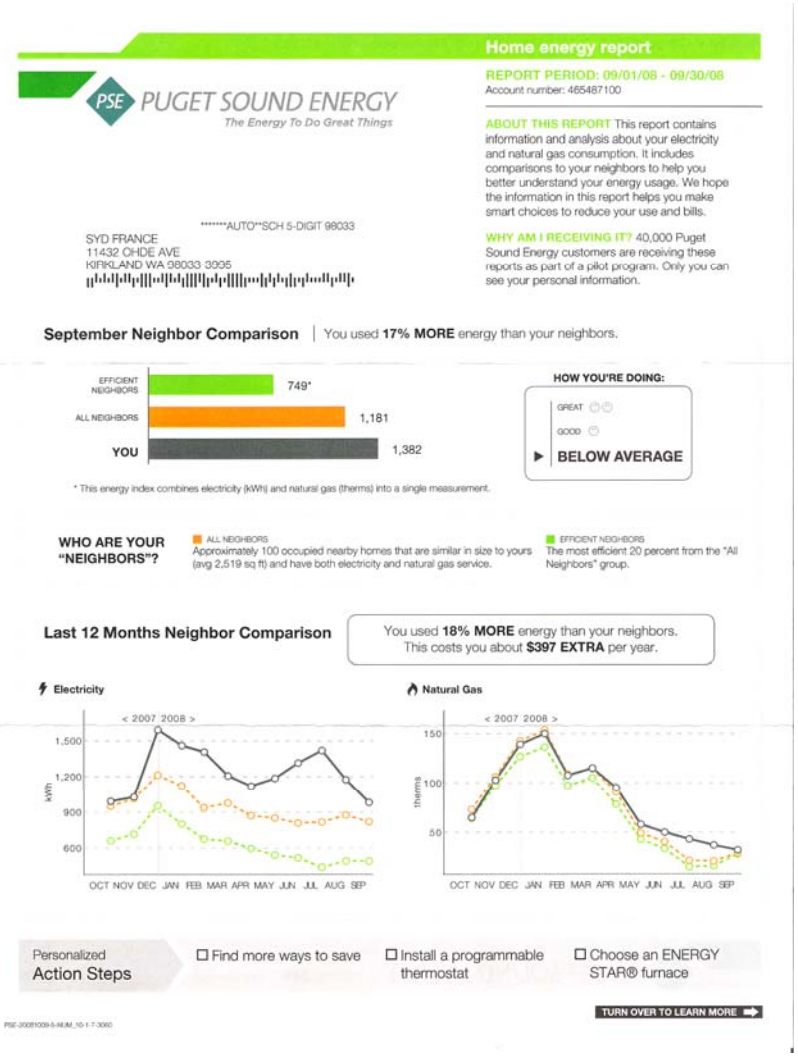
- Implemented In October of 2008

- Combined Gas and Electric (Single-Family) Customers

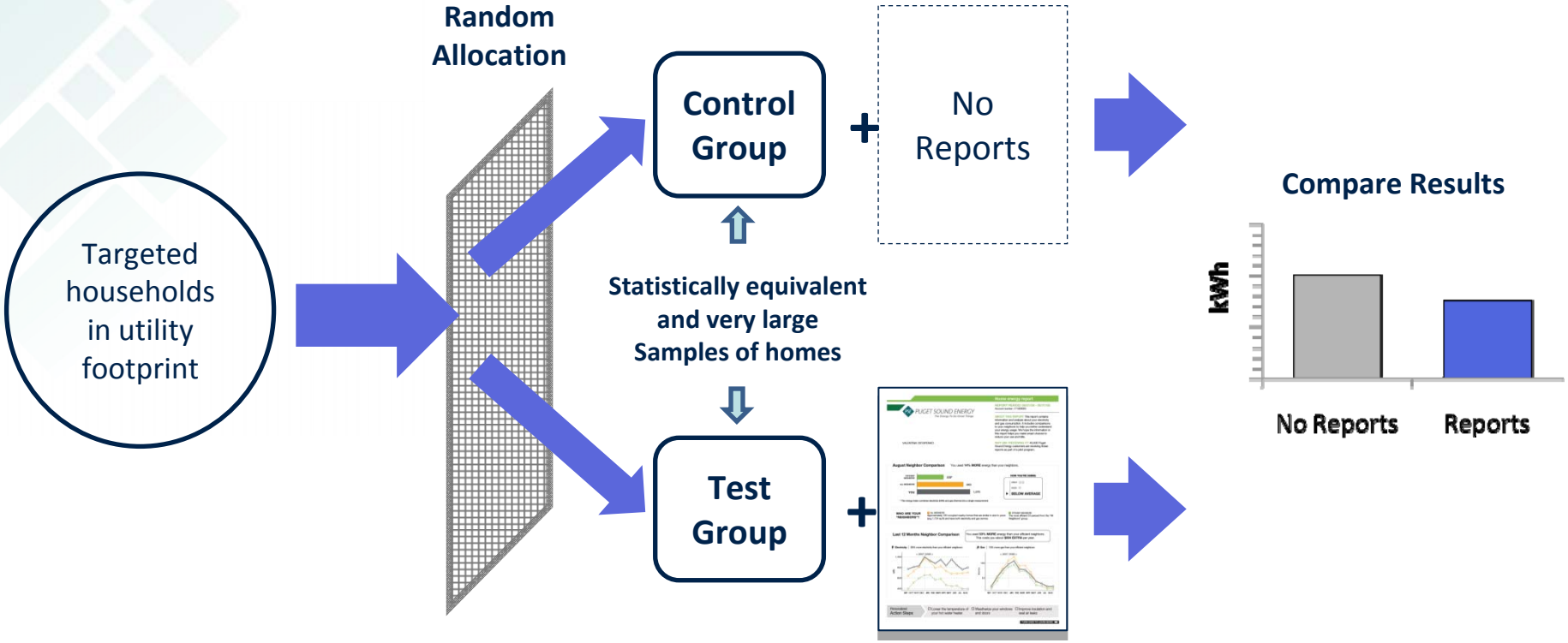
- The program utilizes a social marketing campaign to encourage responsible energy behavior and choices

- Achieves intended conservation by providing a monthly (or quarterly) Home Energy Report to nearly 40,000 households in PSE's combined gas and electric service territory.

- Reports compare the receiving household's energy usage with that of their neighbors, essentially using peer pressure to achieve conservation behavior.



Program Designed for Quantifiable Measurement



- Follows experimental design
- Isolates impact of reports
- Only investigates one year of savings at a time
- Follows NAPEE guidelines
- Endorsed by ACEEE
- Applicable to both gas and electric measurement

Participant and Control Groups

- Started with a group of 83,976 homes, which were selected on the following criteria:
  - Dual Fuel
  - Single family residential home
  - Uses more than 80 MBtu of energy per year
  - Home does not utilize a Solar PV system
  - Address must be available with parcel data from the county assessor
  - Has a bill history that starts on or before January 1, 2007
  - Home must have 100 similar sized homes (neighbors) within a two mile radius
  - Home must have automatic daily meter reads
- Randomly selected 39,755 homes to participate in the participant group, others were assigned to the control group.
- 25% of participant group homes were randomly selected to receive quarterly reports; the remainder of the participant group received monthly reports.

Mid-year regression analysis

- Completed in July, 2009
- Gross Savings Estimate
  - 18 month participant group usage
  - 18 month control group usage
  - Square feet of home
  - Value of home (proxy for income)
  - Age of home
  - Frequency of report delivery
- For the mid-year evaluation, no survey information was utilized to collect socio-economic variables.
- Net Savings will be evaluated at one year

Regression Model For Electricity

Table 1. Regression Results: Estimating Impact of Positive Energy's Home Energy Reports on Household **Electric** Consumption for Dual Fuel, Single Family Homes in Puget Sound Energy's Combined Service Territory

	Parameter Estimate	Standard Error	P Values
Intercept	-6.695	0.116	<0.0001
kWh 2007[1]	0.003	0.0000	<0.0001
Therm 2007[2]	-0.000	0.0001	<0.0001
Test Group Indicator[3]	-0.046	0.364	0.2060
Period Indicator[4]	0.252	0.0359	<0.0001
Quarterly[5]	-0.014	0.0488	0.7713
Period Test Group Interaction[6]	**-0.444**	**0.0561**	**<0.0001**
Heating Degree Days	0.016	0.0000	<0.0001
Cooling Degree Days	0.045	0.0003	<0.0001
Age of Home	0.016	0.0013	<0.0001
SqFt of Home	0.000	0.0000	<0.0001
House Value	0.000	0.0000	0.2913
Test Quarterly Interaction	0.019	0.0717	0.7857
Quarterly Period Interaction	0.006	0.7419	0.9319
Test Quarterly Period Interaction	0.054	0.0016	0.6227

Adjusted R square: 0.70
Number of Observations Used: 1,252,121 **Standard Errors were Clustered at the Premise Level**

Mid-year results are consistent with other utilities

Appear persistent and improve over time

Utility Partner	Cumulative Savings	Past 6 Months Savings
SMUD	2.5%	3.1%
PSE Electric*	1.5%	1.9%
PSE Gas*	1.1%	1.8%
Connexus	1.9%	2.0%

* These calculations include all results through September 2009

*PSE reports are dual fuel, so their impact is spread between two forms of reduction, leading to smaller savings for each but larger overall energy savings

Other programs are new for measurement, or have chosen not to measure savings with test and control groups

Post Year Evaluation

- Gross Billing Analysis
  - Same regression model as mid-year
  - Additional model with a “Fixed Premise” (unique participant baseline)
- Net Savings
  - Account for hard measures installed in other PSE programs
    - Utility tracking records
    - Survey data – buy down measures such as CFL
- Obtain behavior change information
  - Pre and post survey instrument
  - Measure attribution & marketing
  - Measure impact on program participation
- Begin to quantify persistence

Marketing and Attribution

- Through surveys and customer records, we can identify the difference in program participation (and program savings) between the control and test group
  - Participation delta will be used to examine Home Energy Reports as a marketing vehicle
  - Savings associated with participation delta will not be counted in Home Energy Reports savings (to avoid double counting), but they are attributed to Home Energy Reports

Persistence

- Measuring Persistence
  - January 2010
    - A new test group will be formed from a random group of customers taken off of the Home Energy Reports
    - At two years, comparison of savings between those homes that were taken off of the program and those homes that were left on the program
    - Savings will also be measured against the control group, for both continued and discontinued test group participants
  - Continue to evaluate annually

Home Energy Reports are being deployed by 19 Utilities Nationwide

California: *6 utilities, including:*

- *Sacramento Municipal Utility District*
- *Southern California Edison*
- *San Diego Gas & Electric*
- *Southern California Gas*

Washington: *2 utilities:*

- *Puget Sound Energy*
- *Seattle City Light*

Minnesota: *5 utilities, including:*

- *Connexus Energy*
- *Xcel Energy*

Additional utilities in:

- **PA, MI, MA, IL, CO, VA**

Utilities Deploying Home Energy Reports include:

PUGET SOUND ENERGY
The Energy To Do Great Things

Sempra Energy®

Xcel Energy®

nationalgrid

ComEd
An Exelon Company

SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL® Company

Dominion

SMUD

6 PUCs have approved or made concrete plans to approve the Home Energy Reports as a measure

State	Legislative Status
Minnesota	The Office of Energy Security has approved Home Energy Reports and the M&V methodology as a resource program for utilities to hit CIP mandate; it has encouraged MN utilities to setup Home Energy Reporting
Virginia	Home Energy Reporting System savings are approved as reimbursable in VA
Massachusetts	The DOER has stated that OPOWER's Home Energy Reporting System can be included under the TRC test, and included the program in its 3-year efficiency plan
California	Has plans to address savings from the Home Energy Reporting System by year end, and requires that medium to large utilities conduct Home Energy Reporting System-type pilots (Governor signed legislation 10/12/09)
Texas	The state has approved the Home Energy Reporting System as an energy efficiency program, through legislation
Pennsylvania	Approved Home Energy Reporting as a Custom Measure

Independent research to verify results is begin conducted across the United States

- SMUD has the longest running program, results have been independently verified by:
  - ACEEE
  - Summit Blue

- Leading academics have verified results at Puget Sound Energy and Connexus Energy:
  - Ian Ayres Analysis of SMUD and PSE programs
  - Hunt Allcot Analysis of Connexus Energy program

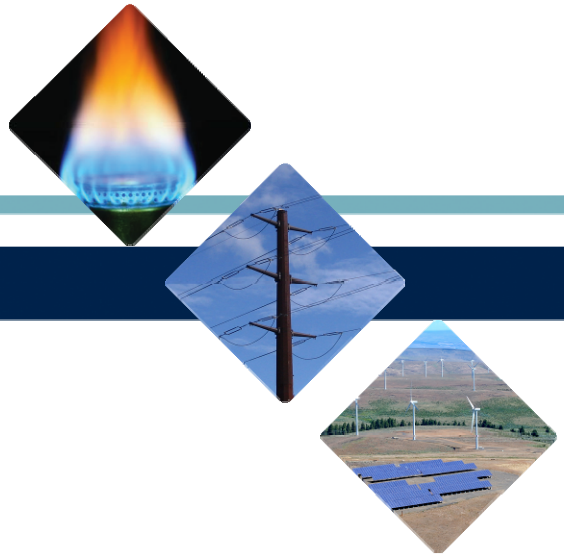
- PSE (Bobbi Wilhelm – PSE Sr. Analyst) is working with BPA, ETO, SnoPud, and Seattle City Light to develop a standard protocol for evaluating behavior based programs in the region.
  - Allow for program comparison across utilities
  - Allow for comparison of different behavior based programs within the same utility

Anticipated savings for 2011

- kWh
  - Customers — 75,000
  - Savings per customer — 160 kWh annually
  - Total Savings — 12 million kWh (1.4 aMW)
  - Cost per kWh — 3¢ (includes ARRA funds)
- Therms
  - Customers — 75,000
  - Savings per customer — 7 therms annually
  - Total Savings — 525,000 therms
  - Cost per therm — 35¢ (includes ARRA funds)

2010-2011 EES Funding:
Effect on Customer Bills

Dan Anderson
Manager, EES Budget and Administration



October 14, 2009

PUGET SOUND ENERGY
The Energy To Do Great Things

Effect on 2010 Customer Bills

Schedule 120 Filing	Residential $ Change	Average Residential Monthly Total	Residential Percent of Total Bill
Electric Conservation Rider			
Mar-08	+ $1.34	$3.14	3.4%
*Mar-09	- $0.31	$2.83	3.1%
Mar-10	+ $2.04	**$4.87**	5.2%
Gas Conservation Tracker			
Mar-08	+ $0.09	$0.63	0.8%
Mar-09	+ $0.38	$0.98	1.0%
Mar-10	+ $0.37	**$1.36**	1.7%

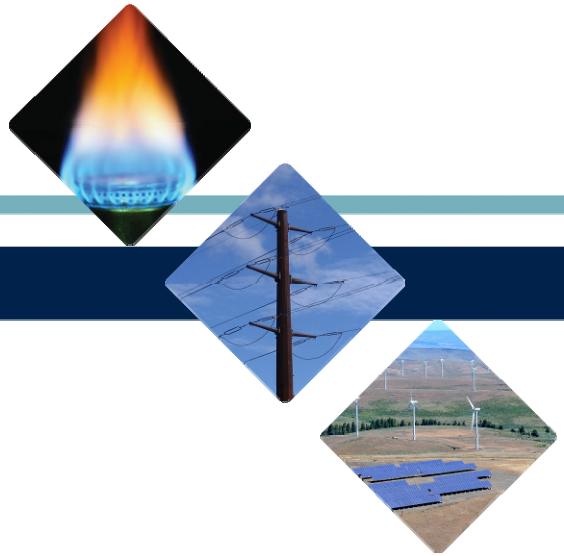
** Reduction caused by $18 million overcollection in 2008.*

Summary of Joint Proposal for Use of Proceeds from REC Sales for Low Income

Puget Sound Energy
The Energy Project
Northwest Energy Coalition
Renewable Northwest Project

Eric Englert
Manager, Regulatory Initiatives and Tariffs

October 14, 2009



PSE PUGET SOUND ENERGY
The Energy To Do Great Things

Background

- April 16, 2007 - PSE files Accounting Petition. Proposes to use Renewable Energy Credit (REC) revenues to fund utility-level small renewables
- WUTC staff indicates they would not support proposal. Suggest funds used to offset conservation costs
- 2008 - PSE works with low income and renewable community to explore alternative use of funds
- 2008/2009 - PSE, low income, renewable community develop proposal for use of funds
- Late 2008/2009 – Settlement of California energy crisis litigation expands scope of potential REC sales
- October 7, 2009 – Amended accounting petition filed. Portion for low-income energy efficiency and energy-related repairs as well as small renewable residential systems.

Proposal

- Allocate existing funds (approx. $10 M) plus 20% of future REC proceeds, not to exceed a combined total of $20 M, to low-income programs (as described more fully in later slides)
- Allocate 40% of the REC proceeds, not to exceed $21,062,800, to offset the California Receivable that PSE has held on its books since the California energy crisis in 2000 and 2001
- Allocate remainder of the REC proceeds to provide a rate benefit to customers by offsetting against a regulatory asset

Low Income Component Proposal

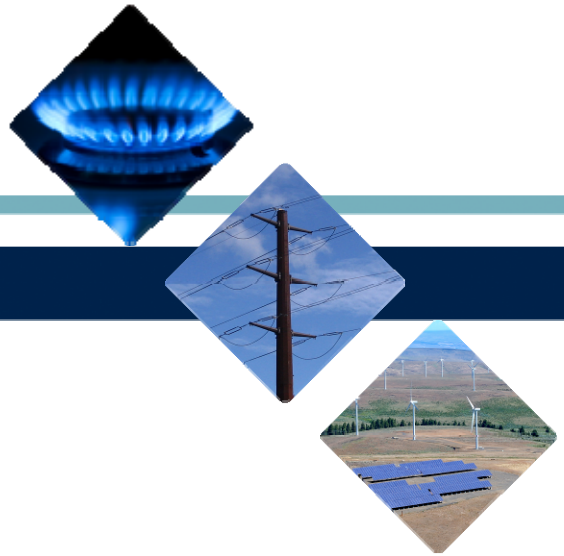
- Use portion of REC revenues to fund a separate account to fund low income weatherization, repairs and small renewables
- Collect sales proceeds over 1 to 2 years – spend benefits on programs over 7 years
- Use separate account to spread the benefits of funds collected over more years
  - Minimize ramp-up, ramp-down
  - Stabilize programs over more years

Program Descriptions

1. Additional funding for low-income weatherization
2. Energy-related repairs
   - Allows other cost-effective conservation measures to be installed properly
   - Address an existing problem that weatherization could aggravate (e.g. moisture/mold problem)
   - Protect the integrity of an installed measure
3. Renewable energy systems in low-income residential sector
   - Solar hot water heating systems, solar PV systems

Appendix D Preview
Evaluation Plan

Syd France



October 14, 2009

PUGET SOUND ENERGY
The Energy To Do Great Things

2010-2011 EES Program Evaluation Plan

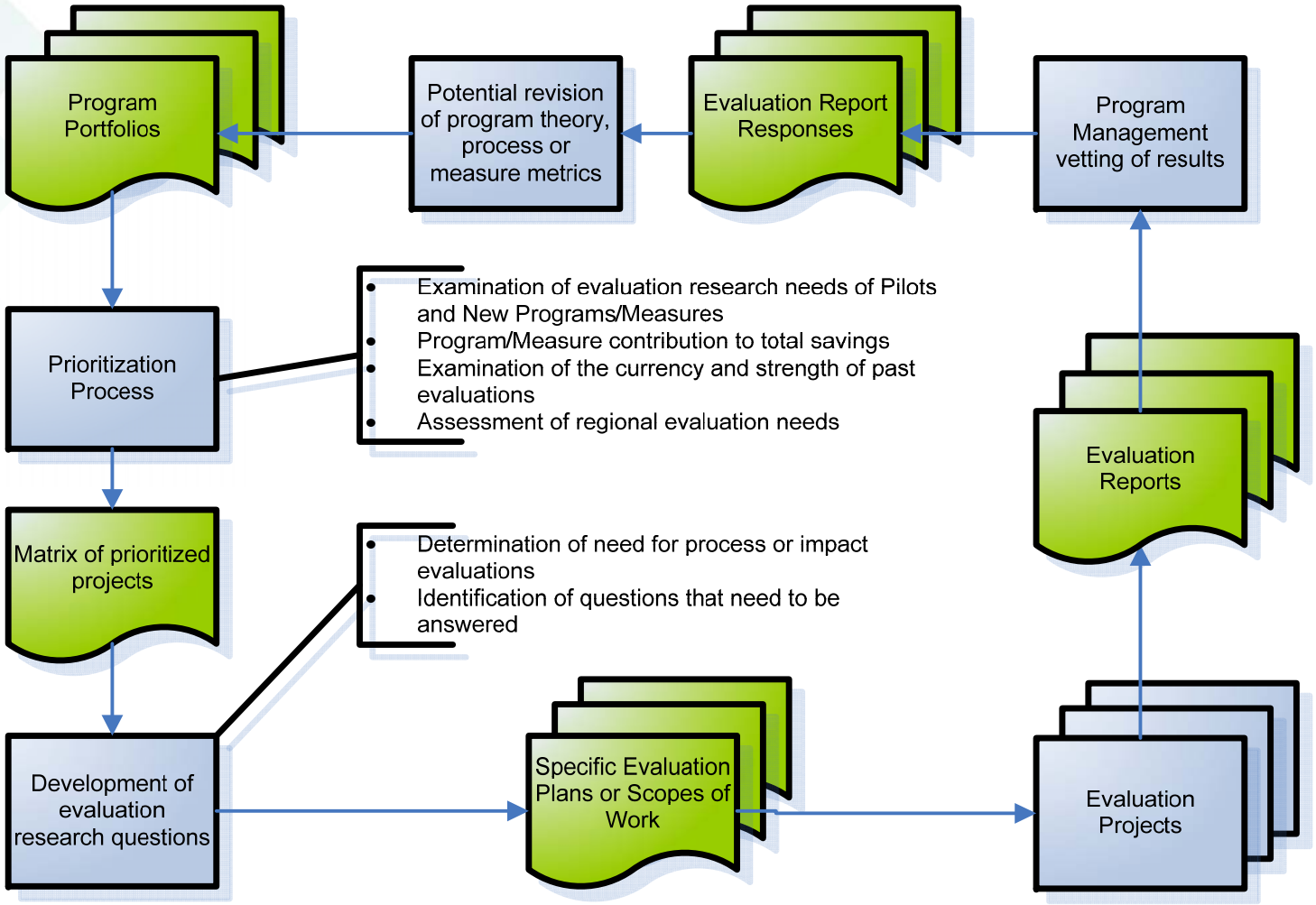
Mission

- Evaluate the degree to which PSE is successful in meeting its energy savings targets (MWh and Therms),
- Identify ways to optimize program delivery and,
- Minimize the risk associated with the Company's portfolio of energy efficiency programs developed to achieve the 2010-2011 energy savings targets.

Prioritization of Work

- *All programs/measures will be prioritized to determine which will be formally evaluated*
- *Coordination is key*
  - Other parties in the region will likely have similar needs
- The Stakes are High
  - Goals for 2010-2011 remain high

Evaluation Process



Standardized Approach to Evaluation Projects

- Review of Existing Program Data
- Identification of Key Program/Measure Considerations
- Review of Key Performance Elements
- Determining Key Evaluation Research Questions
- Defined Evaluation Strategy & Project Plan
- Clearly Defined Outcomes

Our Tool Box

- Data Analysis/File Review
- Staff Interviews
- Tailored Best Practice Review
- Metering
- Billing/Econometric Analysis
- Customer Surveys
- Trade Ally Surveys
- Engineering Analysis

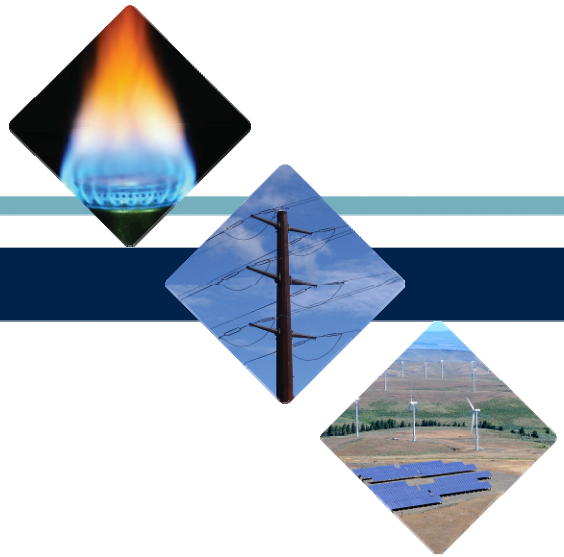
Proposed Evaluation Budgets

- Electric Programs Evaluation: $1,500,000
  - $365,000 RTF
- Gas Programs Evaluation: $400,000
- Total: $1,900,000

Electric Incentive Mechanism Evaluation

Status Update

Bill Hopkins



October 14, 2009

PUGET SOUND ENERGY

The Energy To Do Great Things

Electric Conservation Incentive Mechanism Evaluation

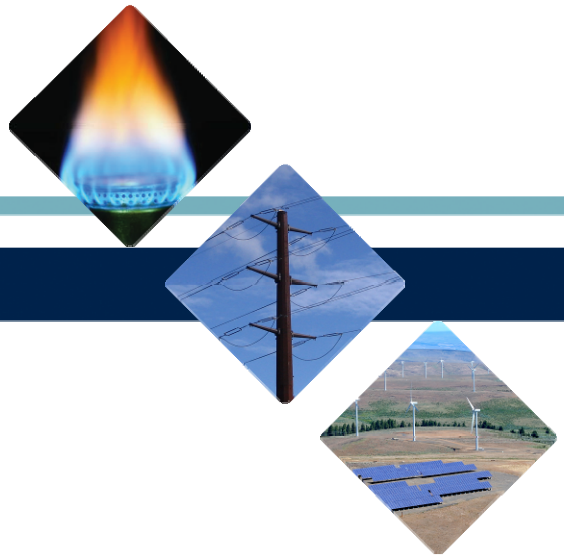
- Status
  - Draft 2-year results presented to interested CRAG members September 23, 2009
  - Comments on draft report provided October 7
  - Final two-year report by October 30
- Implications for a new mechanism in 2010-11
  - Lost margins a significant issue
  - Need mechanism that addresses disincentives
  - Address electric and gas EE
  - Structure, timing and venue TBD

Demand Response Pilots

Residential & Commercial Load Control Update

Syd France

October 14, 2009



PUGET SOUND ENERGY

The Energy To Do Great Things

Commercial Load Control Pilot

Overview

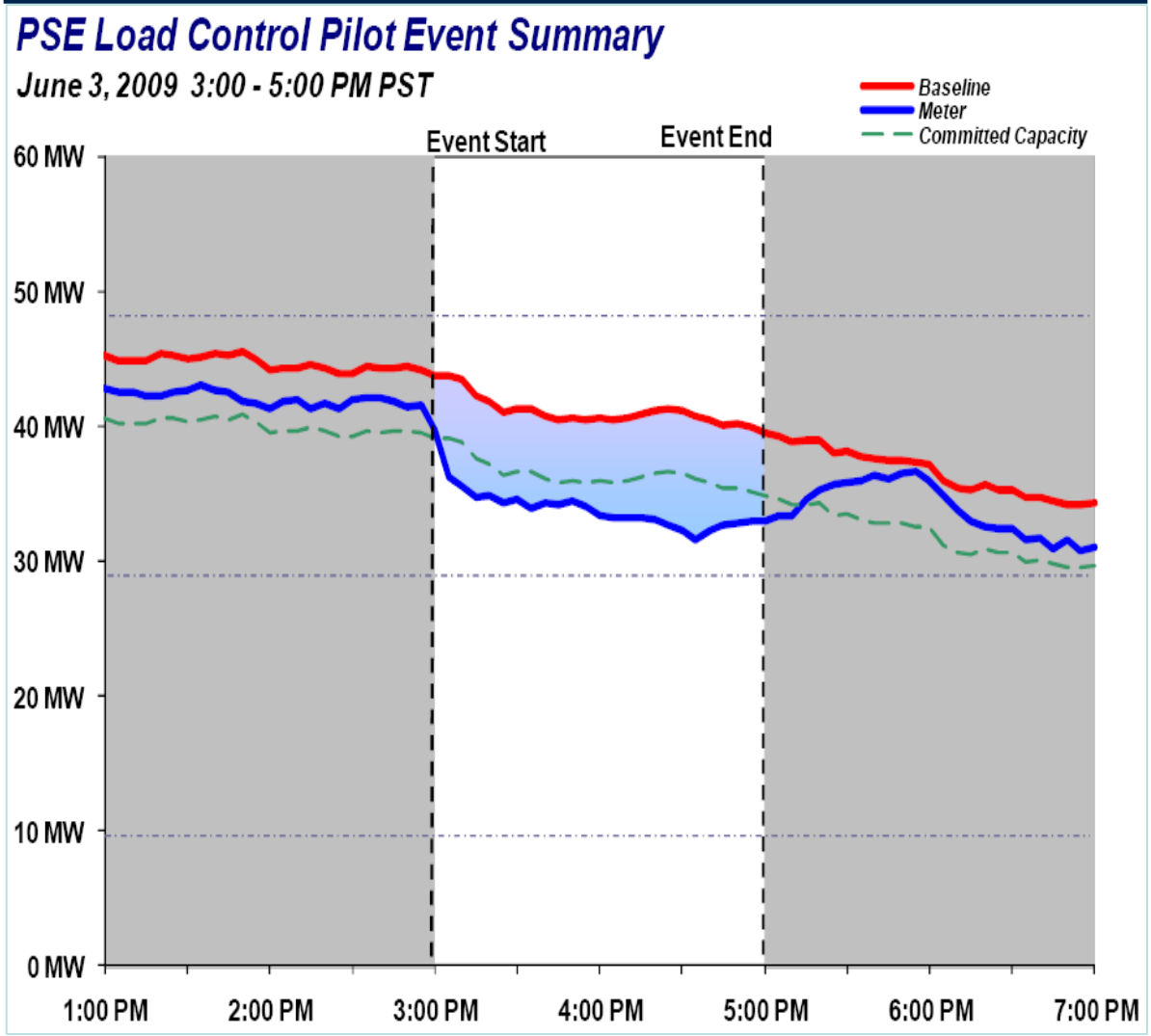
- 2-yr pilot, spring 2009 through winter 2010/11
- Aggregator, EnerNOC, implementing PSE criteria
- 25 customers totaling 4.4 MW under contract
  - 9 Office Buildings – 1,270 kW
  - 8 Mfg / Processing – 1,365 kW
  - 7 Higher Education – 1,600 kW
  - 1 Hotel – 200 kW
- Typical loads: Discretionary Lighting, HVAC, Process
- Event Windows:
  - 6 – 9 am and/or 5 – 9 pm Winter
  - 2 – 6 pm Summer

Commercial LCP Event Performance

6/3/09 Event Summary:

- 24 Participants of 25 Enabled
- **4.4 MW** contracted
- **7.3 MW** delivered

Portfolio Performance Graph (Most Recent Event)



Commercial LCP Update

Pilot Evaluation Objectives

- Assess Baseline calculation methodology
- Demand impacts by end use, wi/wo event window
- Energy impacts by end use overall
- Customer participation/incentives, satisfaction, impacts
- Metering and technology applications
- Distribution system impacts/benefits
- Cost / Resource Value / Cost-effectiveness
- Improvement Recommendations

Residential Demand Response Pilot

Overview

- 2-yr pilot, winter 2009/10 thru summer 2011
- Bainbridge Island – constrained capacity / growing load
- Contractor GoodCents implementing PSE criteria
- Goal: 700 participants (6,700 invited customers)
- Targeting electric space and water heat

Residential DRP Update

Highlights

- Web-enabled event activation
- Programmable Communicating Thermostats
- 1.1 MW total diversified winter load curtailable
- 0.6 MW total diversified summer load curtailable
- Event Windows (max):
  - 6 – 9 am and/or 5 – 9 pm Winter
  - 2 – 6 pm Summer
- $50/year participation incentive
- Invitation letters out October 2nd

Demand Response Pilots – Next Steps

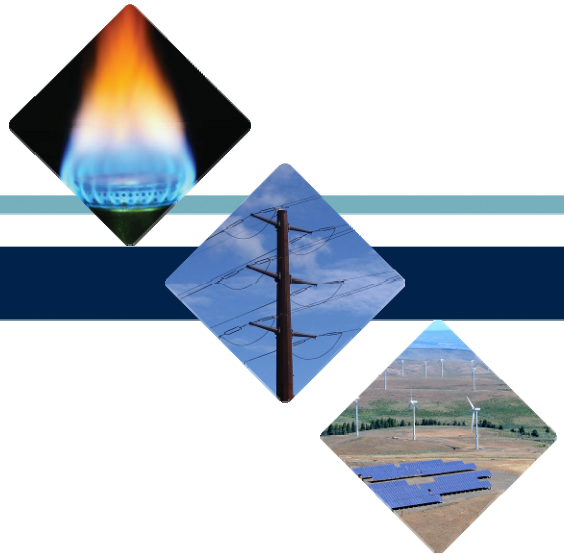
Questions/Issues for PSE & CRAG -

(IF Pilots found Cost-Effective)

- Capacity Valuation, content & methodology?
- Delivery Options (programs, rates, customer sectors)?
- Funding Options (Power/O&M, Rider, combo)?
- Targets & Timing?

Miscellaneous Conservation Updates

Grant Ringel, Director, Customer Market Strategies,
Janet Gaines, Director, Community Outreach and Education

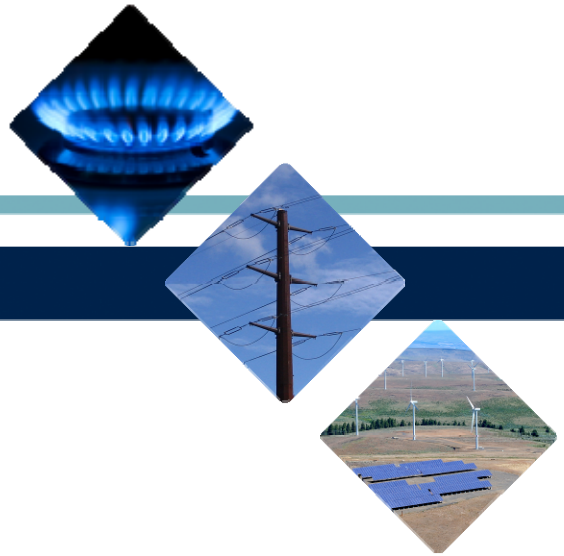


October 14, 2009

PUGET SOUND ENERGY
The Energy To Do Great Things

Removing Fuel Conversion Hurdles

Grant Ringel



October 14, 2009

PUGET SOUND ENERGY

The Energy To Do Great Things

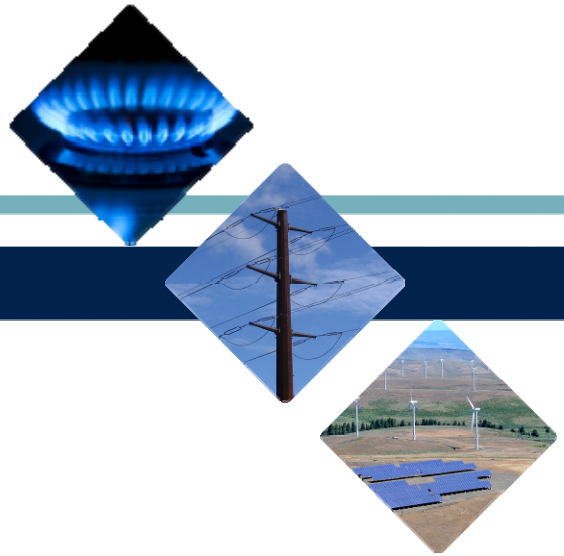
Operational Improvements, Financing Option

- Operational
  - Cross-functional team
  - Process review
  - Fee structure review
  - Changes mapped
  - Implementation

- Financing Option
  - Simple Referral from PSE
    - No business association
    - No financial support
  - First cost Barrier
    - Natural gas equipment
    - Service line extension
    - Main line extension
  - Pilot with Lender for Financing
    - Puget Sound Cooperative Credit Union
    - Finance equipment AND Infrastructure
    - Reasonable rates

ARRA Dates — Awards

Janet Gaines, Director, Community Outreach and Education



October 14, 2009

PSE PUGET SOUND ENERGY

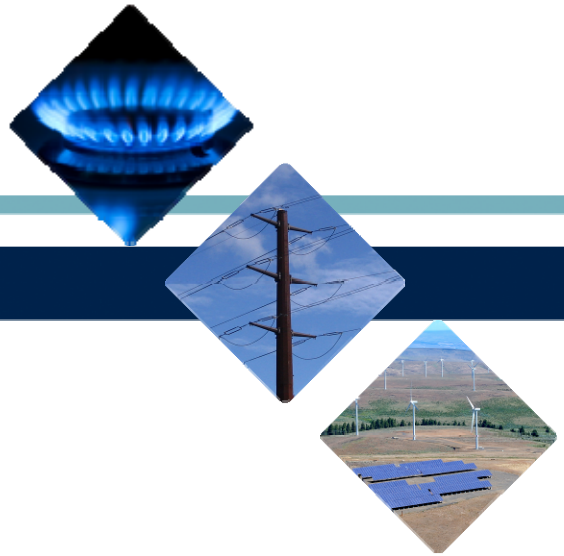
The Energy To Do Great Things

ARRA Dates—Awards

Handouts Will be Provided

CRAG Open Discussion Items

CRAG Members



October 14, 2009

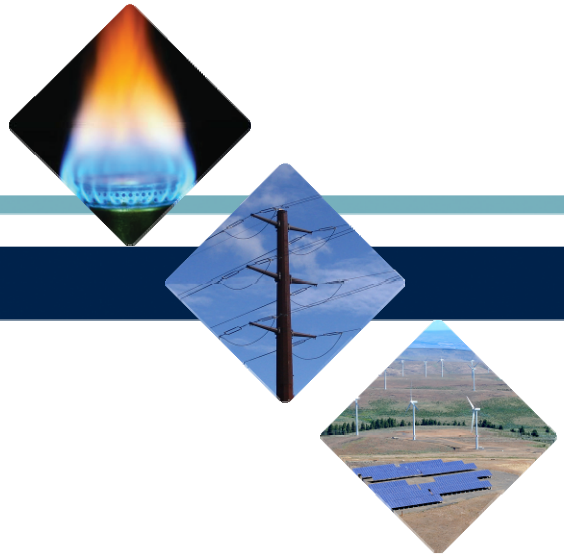
PUGET SOUND ENERGY

The Energy To Do Great Things

CRAG Discussion Items

CRAG input

Thank You for a great 2009!



October 14, 2009

PUGET SOUND ENERGY

The Energy To Do Great Things