2015

Annual Report of

Energy Conservation Accomplishments

March 1, 2016

PUGET SOUND ENERGY

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Table of Contents

Figures

Tables

Supporting Documentation

The Exhibits and Supplements to the 2015 Annual Report of Energy Conservation Accomplishments contain a significant amount of program detail, including savings, financial, measures, UTC filings, and compliance.

Exhibits Included in the 2015 Report of Conservation Accomplishments

Exhibit 1: 2015 Conservation Targets and Budgets versus Actual Achievements and Spending.

Exhibit 2: Program Cost Effectiveness.

Exhibit 5: Prescriptive measures offered in 2015.

Exhibit 9: Condition Compliance Checklist.

Exhibit 10: NEEA 2015 Report of Activities and Initiatives.

Supplements Included

Exhibit 1 *(Table of savings and expenditures)*

- Supplement 1: Expenditures by Cost Element Group (2014-2015 BCP view).
- Supplement 2: 2015 Savings adjustments.
- Supplement 3: 2015 Sponsorships and Memberships.
- Supplement 4: Portfolio Measure Category Counts.

Exhibit 5 *(Energy Efficiency's Prescriptive and selected calculated measures)*

- Supplement 1: Prescriptive measures available in 2015.
- Supplement 2: Prescriptive Measures Retired in 2015.

Exhibit 6 (The Evaluation Plan is excluded from this Report)

- Supplement 1: Evaluation studies with their associated Evaluation Report Responses (ERRs) performed in 2015.

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I. EXECUTIVE SUMMARY

A. Puget Sound Energy's Annual Report of 2015 Conservation Accomplishments

Puget Sound Energy's ("PSE's" or "The Company's") Energy Efficiency department presents this Annual Report of 2015 Energy Efficiency program accomplishments and activities, satisfying WAC 480-109-130(3), and condition (8)(b) of Commission Order 01, Attachment A in Docket No. UE-132043. The Report provides details of initiatives, activities, and adaptive management steps employed to meet the savings goals of Energy Efficiency programs funded by the Electric and Natural Gas Conservation Rider funding. Table I-1 presents 2015 Portfolio-level savings, expenditure figures, Utility Cost ("UC"), and Total Resource Cost ("TRC") benefit-to-cost ("B/C") ratios for electric and natural gas conservation programs.

Table I-1: Energy Efficiency 2015 Electric Savings and Cost-Effectiveness Results

2015	Savings	Expenditures	Utility Cost	Total Resource Cost
Electric (MWh)	282,600 32.3 aMW	$ 93,198,000	2.20	1.49
Goal/Budget	277,600 31.7 aMW	$ 99,408,000		
Percent	*102%*	*94%*		
Natural Gas (Therm)	3,242,000	$ 13,094,000	1.83	1.00
Goal/Budget	3,081,000	$ 13,140,000		
Percent	*105%*	*100%*		

1) 2015 Results

In 2015, Energy Efficiency continued its long-established standard of meeting energy savings goals and customer expectations for energy efficiency programs, while effectively and prudently managing costs for its customers.

Overall, electric conservation exceeded the savings goal of 277,600 MegaWatt-hour ("MWh") or 31.7 average MegaWatts ("aMW") by 2 percent, achieving 282,562, or 32.3 aMW. Electric expenditures finished the year 6 percent under expected costs: $93.2 million versus a budget of $99.4 million. Natural gas programs surpassed savings goals for the year by 5 percent: 3.24 million therms against a goal of 3.1 million therms, while natural gas expenditures were commensurate with planned spending, finishing the year at $13.1 million, compared to a budget of $13.1 million. PSE provides detailed savings and expenditure information by program in Exhibit 1: *2015 Savings and Expenditures.*

Portfolio results include savings expected to be reported by the Northwest Energy Efficiency Alliance ("NEEA") in May 2016. PSE will include the final, confirmed accounting of NEEA's 2014-2015 savings in PSE's 2014-2015 Biennial Electric Achievement Report, submitted in compliance with WAC 480-109-120(4) on or before June 1, 2016. Complete discussions of NEEA's 2015 performance can be found in Chapter 8: *Regional Initiatives,* and Exhibit 10: *NEEA 2015 Report of Activities and Initiatives*.

Energy Efficiency's 2015 Portfolio UC B/C ratio was 2.20, with a TRC B/C ratio of 1.49. PSE finished the year with a natural gas UC of 1.83 and a TRC of 1.00.

Both TRC figures include a 10 percent conservation credit. Although this is not standard for natural gas cost-effectiveness reporting, it is a useful representation in light of the UTC workshops on the considerations of natural gas cost-effectiveness calculations.[1]

[1] In a Docket No UG-121703 April 2013 workshop, participants discussed the merits of applying a conservation credit, similar to the 10 percent value applied for electric cost-effectiveness calculations. For consistency, PSE chose 10 percent for this representational value.

a. Enhancing Customer Participation in Conservation Efforts

Building on past years' achievements in encouraging customer participation, Energy Efficiency program staff consistently demonstrated their commitment to exceeding customer expectations of their programs throughout 2015. PSE continued to engage customers with innovative and expanded outreach campaigns, reaching customers in their communities, at events, and in their businesses. Program staff enhanced and simplified the customer rebate application processes, clarified program guidelines, and provided new avenues to communicate energy-efficiency information.

Energy Efficiency's initiatives resulted in a significant increase in customer awareness. For instance, a survey taken as part of the Energy Upgrades campaign indicated that customers are now 4 percent more aware (68 percent in 2014 to 72 percent in 2015) of how Energy Efficiency programs can save them money. Energy Efficiency emails delivered to 500,000 customers throughout the year were opened over 25 percent of the time.[2]

b. Adaptation through Total Quality Management

Energy Efficiency program staff continued its ongoing work to enhance processes and program offerings—especially those affecting PSE customers through its consistent application of Total Quality Management ("TQM"). The men and women of Energy Efficiency, regardless of the department or functions, focused on removing barriers to effectiveness, improving productivity, optimizing their measure offerings, and creating experiences that enrich customers' lives. Through its commitment to TQM and adaptively managing its business, PSE continued its progression toward operational excellence in every Energy Efficiency organization. Some highlights of key improvements and adaptation implemented by Energy Efficiency are:

- When its refrigerator recycling contractor abruptly ceased operations late in the year, program staff engaged a new vendor, and resumed operations in less than one week.
- Business Energy Management staff enhanced HVAC project protocols and RCM processes, resulting in robust analyses, customer reporting, and verification accuracy.

[2] For reference, the industry average is 21 percent.

- PSE vendors enhanced evaluation and reporting tools, including the development of a mobile app, resulting in streamlined data collection and reporting.
- The 2015 work on the DSM Central reporting system by many Energy Efficiency departments will yield considerable gains in 2016; to productivity, customer and contractor access, and program offerings.
- Services in several departments, including Net Metering and Rebates Processing, continued at a high level, despite significant increases in volume.

c. Notable Deliverables

Highlights of notable 2015 accomplishments, detailed in the following program-specific discussions include:

- The MyData team was honored in Washington DC for its accomplishments in making their energy use data easy for eligible customers to access.
- The Energy Efficient Communities' HomePrint™ outreach initiative directly reached over 28,000 customers in 10 communities, with approximately 30 percent of those customers enrolling in the service.
- Contractors enrolled in the Contractor Alliance Network ("CAN") increased by 30 percent in the Multifamily Existing program and Commercial HVAC contractor enrollment increased by 25 percent.
- Program staff ensured the prudent use of customer Rider funds by securing promotional payments from manufacturers for campaign consideration, and partnering with other utilities for payments of measures installed by PSE.
- PSE was integral in launching NEEA's venture into natural gas market transformation.
- PSE now has a voting member on the Regional Technical Forum ("RTF").
- PSE continued to augment the navigational ease of its 2016-2017 Biennial Conservation Plan Exhibit 1: *Savings and Budgets*. Finding specific program details in this 126-page workbook can now be accomplished with a few hyperlink button clicks.

2) Compliance

By the end of 2015, the Company had met all 2014-2015 compliance requirements.[3] Exhibit 9: *Condition Compliance Checklist* provides specific condition compliance status, and Chapter 13, *Compliance* includes additional compliance discussions. The below list outlines the primary conservation-related requirement documents that govern Energy Efficiency's operations:

A. RCW 19.285 and WAC 480-109,
B. The Second Supplemental Order of Docket No. UE-970686,
C. Exhibit F, the 2002 Stipulation Agreement, Docket No. UG-011571,
D. The 2010 Electric Settlement Agreement, Docket No. UE-100177, and
E. Order 01, Attachment A of Docket No. UE-132043.

3) Report Organization

In Chapter 2: *2015 Accomplishment Summary*, Energy Efficiency provides a Portfolio-level discussion of overall 2015 accomplishments. Next, Sector-level overviews provide a brief snapshot of each Sector's performance.[4] These are Residential, Business, Regional, Portfolio Support, Research & Compliance, and Other Electric Programs. Program detail discussions follow, with business-unit and program-level reviews of adaptive TQM steps implemented and accomplishments realized in 2015.

Exhibits, enumerated on page viii of this Report, are presented following the Report, and contain a significant amount of additional Energy Efficiency detail.

[3] Notable exceptions are only those that have a deliverable date of 2016; primarily those related to the reporting and Commission review of PSE's 2014-2015 conservation achievements.

[4] The order of these discussions correspond with Sector headings outlined in Exhibit 1: *Savings and Budgets.*

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II. ENERGY EFFICIENCY 2015 ACCOMPLISHMENTS SUMMARY

The discussions in Chapter 2 provide Portfolio summaries of key performance areas for the Energy Efficiency Sectors: savings and expenditures, five-year trends, cost-effectiveness ratios, adaptive management through Total Quality Management ("TQM") initiatives, customer satisfaction, and savings by measure.

A. Savings and Expenditures

PSE maximized electric and natural gas conservation savings while prudently and effectively putting its customers' Conservation Rider funding to work in 2015. Table II-1 and Table II-2 provide Sector-level views of 2015 electric and natural gas savings results, and electric and natural gas expenditures, respectively.

1) Conservation Savings

Each Energy Efficiency Sector achieved strong results, exceeding its savings goals for electric and natural gas portfolios. As discussed in the program-specific chapters to follow, key drivers of Energy Efficiency's positive results include the incorporation of new technologies and measures, and the application of innovative customer communications and pioneering outreach efforts (including new Customer Awareness Tools, retailer training and quality assurance in-store visits, and the Energy Upgrades campaign). Program staff also implemented system and reporting enhancements, and sustained their focus on the proactive management of value-chain constituents, including new Contractor Alliance Network ("CAN") members and new retailers.

These are illustrative of the adaptive management steps that program staff developed in order to exceed their electric and natural gas savings goals in 2015.

2) Expenditures

The majority of Energy Efficiency programs finished the year consistent with anticipated expenditures. A notable exception was the DSM Central project, with 2015 expenditures of approximately $1 million (applied to both the electric and natural gas portfolio in appropriate ratios). This centralized software solution is designed to incorporate most of the disparate databases and reporting systems into a single point of contact for both Energy Efficiency staff, customers, and trade allies.

At the time of the 2015 budget development, Energy Efficiency was in the conceptual phase of the project, (discussed in detail in Chapter 9: *Measurement & Verification*) and had not yet developed its anticipated spend.

Another unplanned expense of approximately $500,000 was the implementation of Customer Awareness Tools. This electronic communication alerts customers at specified milestones throughout the year, providing them with useful energy-efficiency information in a form and timeframe that fits their lifestyles. PSE discusses Customer Awareness Tools in more detail in Chapter 10: *Portfolio Support*.

PSE reviewed the progress of these two initiatives with its Conservation Resource Advisory Group ("CRAG") on various occasions throughout 2015.

Other pressures on 2015 expenditures included the management of intermittent staffing shortages, slower-than-anticipated uptake of Electric Vehicle Charger incentives, NEEA invoice timing, and Net Metering system distribution cost accounting. Program overviews in the coming chapters will also discuss any significant expenditure variances.

2015 was the first full year that accounted for key Energy Efficiency re-organizations that occurred in the middle of 2014: separating the Rebates Processing Team and the Data and Systems Services group—both of which were formerly assessed across the program groups, and shifting the Business Rebate programs into the Dealer Channel.[5] PSE discusses these departments' accomplishments and activities in more detail later in this Report.

It is notable that several programs—primarily in the Residential Energy Management Sector—accrued a revenue balance in 2015. This is a result of PSE's continuing focus on adaptively managing program costs to achieve the maximum value for its customers. These revenue balances help to offset conservation expenditures, and are listed in Exhibit 1, Supplement 1: *Actual Expenditures Compared to Anticipated Spends.* PSE discusses key drivers in the applicable program overviews.

[5] Although the Business Rebates staff report into the Residential Energy Management organization, their 2015 program reviews can be found in Chapter 6: Business Energy Management Program Details, following the Large Power User/Self-Directed discussion, in alignment with the Exhibit 1 Schedule number sequence.

Table II-1 presents electric and natural gas savings figures for each Sector. Table II-2 presents electric and natural gas expenditures by Sector.

Table II-1: Energy Efficiency 2015 Savings Results by Sector

2015 Savings						
	Electric			Natural Gas		
	Actuals	Goals (MWh)	Percent	Actuals	Goals (Therms)	Percent
Residential	135,800	131,900	103%	1,283,000	1,469,000	87%
Business	116,200	112,100	104%	1,959,000	1,612,000	122%
Pilots	8,200	8,200	100%	0	0	
Regional	22,300	25,300	88%	0	0	
Total	**282,500**	**277,500**	**102%**	**3,242,000**	**3,081,000**	**105%**

Please note that the "Total MWh" indicated in Table II-1 is a result of adding already-rounded Sector totals. The actual 2015 total portfolio electric savings is 282,562 MWh.

Table II-2: Energy Efficiency 2015 Expenditures by Sector

2015 Expenditures						
	Electric			Natural Gas		
	Actuals	Budgets	Percent	Actuals	Budget	Percent
Residential	$47,961,000	*$47,674,000*	101%	$6,269,000	*$6,948,000*	90%
Business	$31,162,000	*$32,673,000*	95%	$4,136,000	*$4,006,000*	103%
Pilots	$822,600	*$1,268,000*	65%	$323,400	*$233,900*	138%
Regional	$2,690,000	*$4,772,000*	56%	$936,100	*$738,000*	127%
Portfolio Support	$5,892,000	*$5,576,000*	106%	$887,700	*$731,800*	121%
Research & Compliance	$3,065,000	*$3,807,000*	81%	$541,700	*$482,400*	112%
Other Electric	$1,605,000	*$3,638,000*	44%	na	*na*	na
Totals	**$93,197,600**	***$99,408,000***	**94%**	**$13,093,900**	***$13,140,100***	**100%**

Overall total amounts may vary from those presented in Table I-1 and Exhibit 1 due to multiple rounding.

3) 2014-2015 Biennial Target Progress

Table I-1 in Chapter 1: *Executive Summary* presents the 2015-specific overall Portfolio electric savings (282,600 MWh) and natural gas savings (3.24 million therms). Those figures include planned NEEA electric savings.

As a courtesy, PSE endeavors to provide Stakeholders with a preview of its biennial performance in its even-year Energy Efficiency Annual Reports. Table II-3 presents the projected total 2014-2015 biennial savings and expenditures. It is important to note that these forecast figures exclude any potential adjustment to the electric savings resulting from the final 2014-2015 Biennial Electric Conservation Achievement Review ("BECAR") and NEEA electric savings.

PSE will present the final 2014-2015 electric savings and expenditure figures in its Biennial Electric Conservation Report, which will be filed on or before June 1, 2016, consistent with WAC 480-109-120(4).

Table II-3: Projected 2014-2015 Total Savings and Expenditures

2014-2015	Projected Biennial Figures *Total Portfolio*	
Electric	Savings, MWh	Expenditures
Target/Budget	621,120	$ 188,462,300
aMW	70.9	
Forecast	661,100	$ 192,533,392
Percent	106%	102%
Gas	Savings, Therms	Expenditures
Target/Budget	6,940,500	$ 24,197,200
Forecast	7,588,338	$ 24,982,540
Percent	109%	103%

- Indicated savings goal figures represent the overall Portfolio, rather than the Commission-approved penalty targets.
- Indicated figures reflect the originally-filed 2014-2015 BCP (UE-132043), versus the originally-filed 2014 figures plus the updated 2015 ACP figures.
- Indicated Forecast figures are preliminary, and may be adjusted following the final Biennial Electric Conservation Achievement Review in April 2016.

4) Five – Year Trends

As indicated in Figure II-1, the Portfolio's electric savings have decreased an overall 19 percent from 2011 to 2015. 2015 electric savings decreased 25 percent from 2014. The electric expenses for the 5-year timeframe increased an overall 20 percent, with a 2015 decrease of 6 percent from 2014 expenditures. This trend reflects the market saturation of several key measures, revisions to measure UES values, updated energy codes, some increased incentive amounts, marketing efforts, and staff rigor required to achieve ambitious savings goals while sustaining prudent use of customer funding.

Figure II-2 shows that natural gas savings have decreased an overall 37 percent from 2011 to 2015. 2015 natural gas savings decreased 25 percent from 2014. The natural gas expenses for the 5-year timeframe have declined 15 percent from 2011 to 2015, while natural gas expenses increased 10 percent from 2014 to 2015.

These figures reflect the significant impact of lower natural gas avoided costs and consolidation over time of higher-cost measures within Energy Efficiency programs; more high-cost measure make up a larger proportion of the overall Portfolio.

Figure II-1: Energy Efficiency Electric Programs; Savings and Expenditures – Five-year Trends

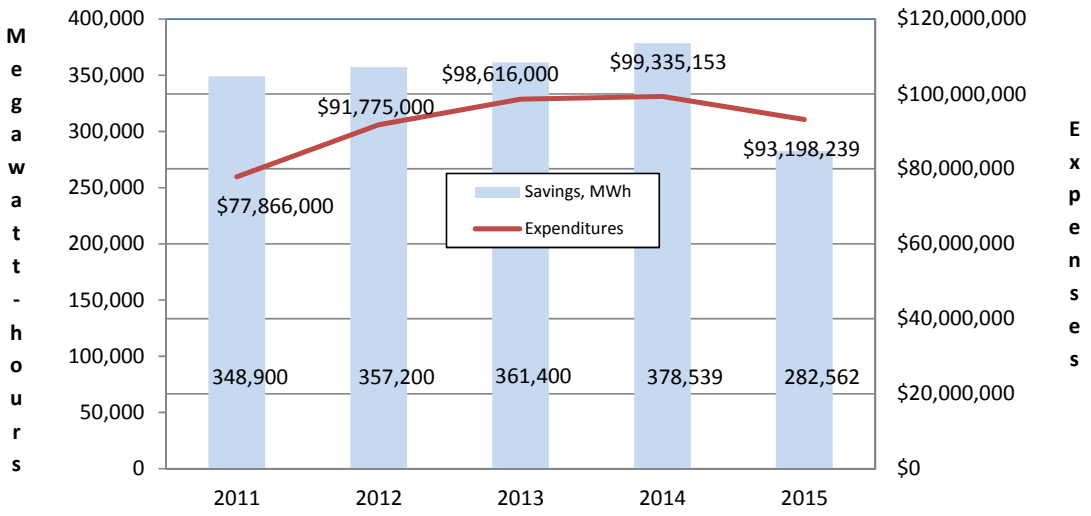
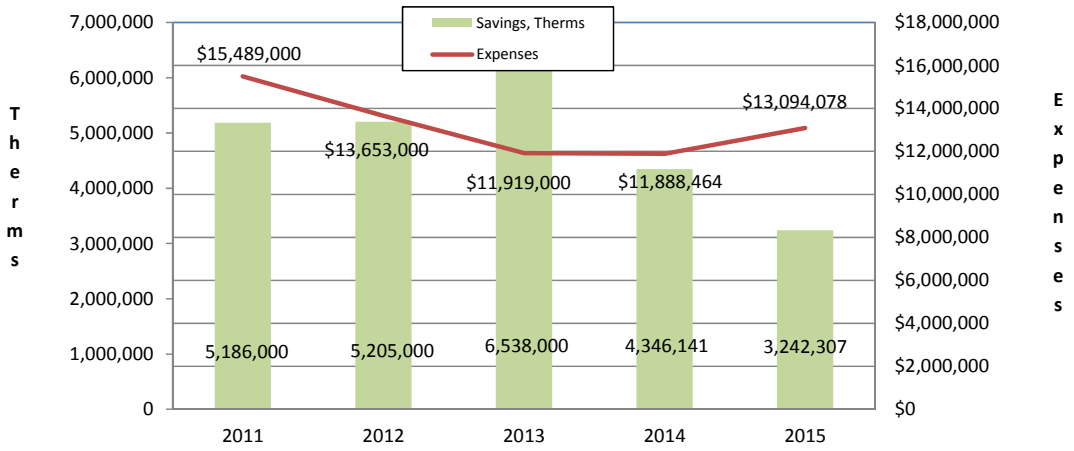


Figure II-2: Energy Efficiency Natural gas Programs: Savings and Expenditures - Five-Year Trends



5) Cost-Effectiveness Ratios

Table II-4 provides the Portfolio view Utility Cost ("UC") and Total Resource Cost ("TRC") Benefit to Cost ("B/C") results for 2015. Figure II-3 represents PSE's five-year Portfolio Total Resource Cost results. All TRC figures are indicated with a 10 percent conservation credit adder included.

Although such an adder is not a generally-accepted attribute of natural gas cost-effectiveness, some type of a conservation credit or risk adder was discussed between 2012 and 2013,[6] when the UTC conducted workshops to develop their Policy on natural gas programs' cost-effectiveness analyses. Intended merely as a comparison to a TRC value without any conservation credit, PSE has also included this figure in past Conservation Plans and Reports.

a. Portfolio Results

The Energy Efficiency Portfolio finished 2015 with an overall electric UC B/C ratio of 2.20, and a natural gas UC of 1.83. The electric Portfolio's TRC B/C ratio was 1.49, and its natural gas TRC B/C ratio was 1.00. This is despite the Residential Energy Management ("REM") Sector finishing the year with a TRC of 0.81.

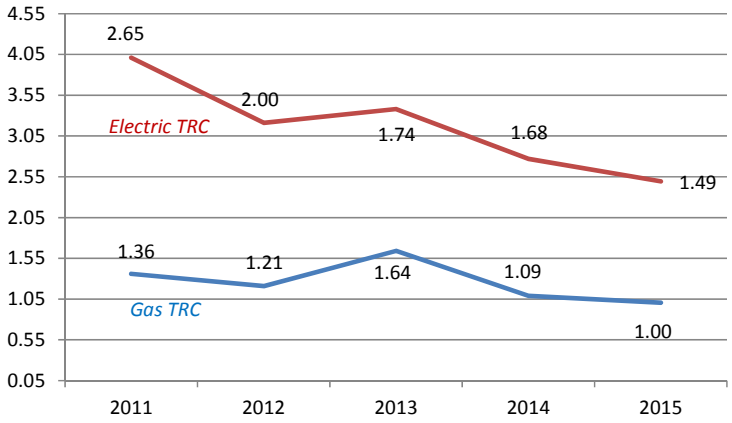
[6] ¶ 29, page 12 of Docket No. UG-121207, Policy Statement on the Evaluation of the Cost-Effectiveness of Natural Gas Conservation Programs: *"(…) Stakeholders discussed the use of an across-the-board adder to the quantified benefits of conservation activities. (…)"*

REM's UC B/C ratio was 2.08. Therefore, the overall natural gas portfolio was consistent with UTC guidelines outlined in its 2013 Policy Statement.

Table II-4: Overall Energy Efficiency Cost-Effectiveness Benefit/Cost Ratios

Benefit to Cost Ratios Portfolio		
	Utility Cost	Total Resource Cost
Electric	2.20	1.49
Gas	1.83	1.00

Figure II-3: Electric and Natural Gas TRC Ratios – Five-year Trends



6) Direct Benefit to Customer as a Percent of Energy Efficiency Expenditures

Exhibit 1, Supplement 1: *Actual Expenditures Compared to Budgets*, provides results of incentives paid to customers in addition to detailing program-level budget groupings such as labor, employee expense, materials, etc. Certain expenditures related to customer benefits that are difficult or administratively onerous to quantify are not specifically classified as "incentives," but clearly also carry a value to the customer, albeit not necessarily monetary.

PSE denotes these expenditures as "Direct Benefit to Customer" ("DBtC"). This distinction represents that most customers derive many more benefits than simply remuneration.

For instance, Commercial Retrofit customers realize a benefit of engineering evaluations and verifications in addition to any custom grant received; customers derive a value from consulting with an energy advisor before investing in a new heat pump, etc. It would be impractical—and very inefficient—to attempt to track the time an energy management engineer or energy advisor spends on each of these tasks. It is therefore inaccurate to attempt to categorize total Portfolio expenditures as simply "administrative" and "incentives" in order to imply a measure of how effectively a program is using customer funds.

In 2015, PSE returned 72 percent of the total portfolio electric expenditures[7] and 67 percent of total portfolio natural gas expenditures to customers in the form of direct benefits. As represented by the DBtC versus the total Energy Efficiency savings programs-specific[8] expenses, the electric and natural gas ratios increase to 79 percent and 75 percent, respectively. PSE is confident that the actual DBtC is greater when accounting for the significant intangible benefits to customers.

These ratios are impressive, considering the program staff effort required to: manage increasingly complex programs, develop Conservation Plans, develop and maintain extensive measure research and documentation, respond to third party and evaluation data requests, and to review and validate third-party reporting. Other support functions that contribute to the overall Portfolio conservation achievement and expenditures with no DBtC recognition include the Verification Team, Rebates Processing and the Evaluation Team. Additionally, the Marketing, Energy Efficient Communities and Market Research organization are also critical to Energy Efficiency's success, with each contributing intrinsic customer direct benefit.

[7] Excluding Other Electric (Net Metering and Electric Vehicle Charger Incentives) programs.

[8] "Energy Efficiency-specific" organizations are those that acquire conservation savings: Residential and Business Energy Management groups, Pilots and NEEA. Conversely, Portfolio Support, Research & Compliance, and Other Electric program expenses are included in the overall Portfolio ratio, as those functions do not directly generate savings or provide a direct benefit to PSE customers, but could be considered administrative functions that support the savings programs.

PSE accomplished this sustained level of DBtC through process maximization and careful attention to continuous improvement throughout the organization, as discussed in the program-specific chapters that follow.

7) Measures

Figure II-4 illustrates the overall Energy Efficiency electric and natural gas savings, distributed by measure savings type. Measure savings types include RTF UES (Unit Energy Savings), PSE Deemed, NEEA Deemed, Calculated and Custom.[9]

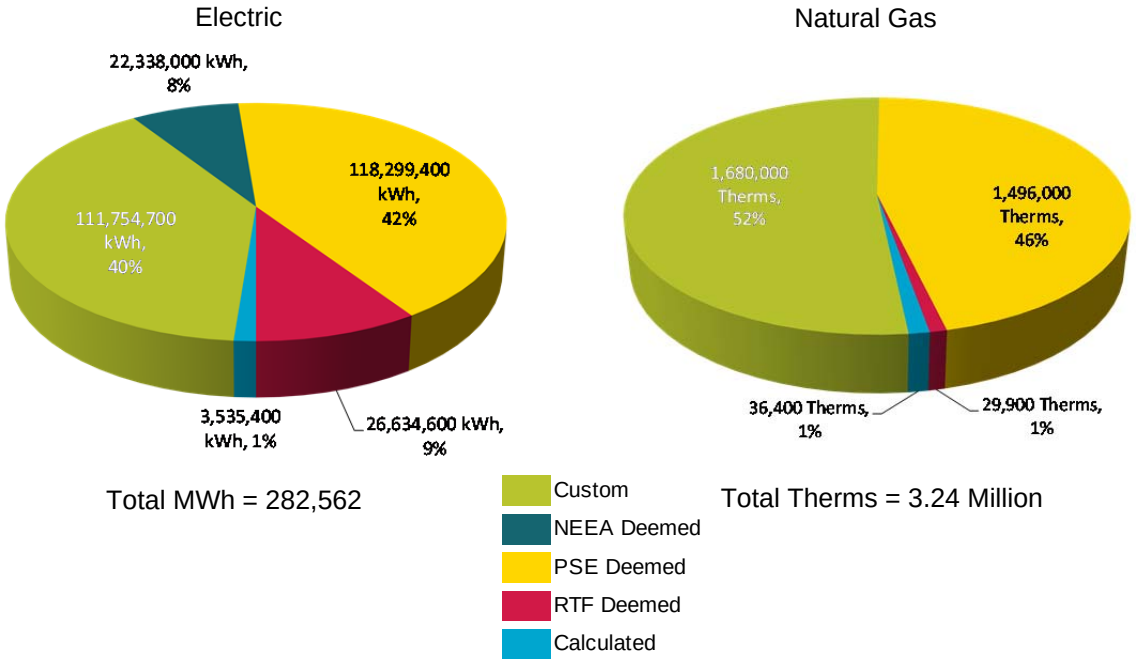
The savings type of "NEEA Deemed" is included as a representation of savings estimates provided by NEEA during biennial planning periods. PSE reports these savings at the Portfolio level.

NEEA computes and provides their actual savings in the May-June timeframe following the year in which the savings were achieved. While this is too late to be reflected in this Report as other than a planned figure, PSE includes a discussion about planned-versus-actual NEEA savings in its Biennial Electric Conservation Reports, filed on or before June 1 each year.

It is important to note that PSE rounds the overall savings figures indicated in these charts for presentation purposes. The data is extracted from the source tracking systems, categorized, and then summed. The actual overall electric and natural gas savings by program, represented in Exhibit 1: *Savings and Budgets*, may vary by an insignificant amount.

[9] Each of these terms is defined in the Glossary, starting on page 217.

Figure II-4: 2015 Savings Distributions by Measure Savings Type



a. Measure Details

A discussion of Energy Efficiency's Measure Metrics archival system is contained in Chapter 9: *Measurement & Verification*, starting on page 129. Exhibit 5, Supplement 1 presents prescriptive measures[10] that Energy Efficiency programs used in 2015. Exhibit 5, Supplement 2 lists measures that PSE retired[11] in 2015.

[10] Only measures that were originally included in the Source of Savings database at the time of the measure's creation, or measures that have a deemed savings value are archived. For instance, LED MR-16 lamps in the Commercial Lighting program. Their 2015 deemed value was a fixed kWh/yr. In commercial applications, though, that value is modified by the number of operating hours within a certain building. This measure is therefore classified as "calculated". Calculated measures archived in the Source of Savings database have an indicated savings value of "0" to avoid the impression that a savings value was inadvertently omitted.

[11] It is important to note that measures are never cancelled in any of the Measure Metrics archival databases. For historical reference, measures are retired when they are no longer offered, were archived with the incorrect savings value or incentive amount, put on hiatus, etc.

b. Measure Counts by Program

Exhibit 1, Supplement 4: *Portfolio Measure Category Counts* provides a very condensed view of measure counts; typically, only one or two key measures per program. This Supplement is intended to provide a high-level impression of measures that were key in driving Energy Efficiency savings accomplishments. Program-specific measure overview tables are included in each program discussion, and provide more refined views—albeit general summarizations—of a program's projects or measure installations.

It is important to note that PSE provides these high-level figures to afford a sense of program scale, customer demand, key savings contributors, and interesting measure types in each program. The tables include a limited number of measure types, and aren't intended to be comprehensive lists of all measures installed; only a representative sampling of measure types are provided. Program measure tables aren't intended to be used as audit tools or to reconcile actual tracking records.

8) Memberships and Sponsorships

Energy Efficiency staff derives value for customers by engaging in memberships and sponsorships. For instance, PSE is a major sponsor of the Regional Technical Forum (RTF). Exhibit 1, Supplement 3: *Sponsorships and Memberships* lists those paid in 2015.

9) Compliance

Chapter 13: *Compliance*, provides a complete discussion of Energy Efficiency regulatory compliance, beginning on page 199. This 2015 PSE Annual Report of Conservation Accomplishments is consistent with WAC 480-109-120(3), and condition (8)(b) of Order 01 , Attachment A of Docket No UE-132043. The Report will also reflect PSE's compliance with requirements outlined in WAC 480-109-100(1): Process for pursuing all conservation [sic].

It is noteworthy that in the interest of brevity and to avoid repetition, PSE will use the terms "condition (N)(x)" or "Section M(z)" when referencing deliverables outlined in Exhibit F to Stipulation Agreement, Docket No. UG-011571;[12] the 2010 Electric Settlement Terms, Docket No. UE-100177;[13] and Order 01 of Docket No. UE-132043.

PSE addresses additional deliverables as they pertain to specific requirement sections of the Report, and will be noted therein.

[12] Commission Order 05 in Docket UE-100177 vacated specific electric deliverables outlined in Docket No. UE-011570.

[13] Within the 2010 Electric Settlement Terms, "Conditions" apply specifically to Section K. There are also specific PSE deliverables in applicable sections of the Settlement Terms.

B. Energy Efficiency's Ongoing Customer Focus

PSE customers are the key determinant in the success of Energy Efficiency's conservation programs. Throughout 2015, the dedicated men and women in the department—as well as staff members in departments that support Energy Efficiency—continued their long-standing commitment to maximize customer participation in PSE energy-efficiency programs while surpassing customers' expectations at each point of customer contact. Customers expect PSE to provide pioneering conservation products, flexible avenues of energy efficiency messaging and outreach, easier rebate and grant processing, simple applications, and online tools that help them manage their energy use.

1) Maximizing the Ease of Participation for Customers

Energy Efficiency teams focused on creating programs that were easy for customer to participate in, with expanded participation options. Efforts included broad outreach strategies and tactics, including community activities and small business blitzes, which enabled small business owners to immediately register for conservation measures. PSE's Energy Upgrades campaign (where PSE engaged over 60,000 customers) was also very successful and provided new participation avenues for customers. Retailer point-of-purchase rebates, and better training for PSE partners and contractors also enhanced customer participation opportunities.

Joint utility programs such as the Advanced Rooftop unit Controls ("ARC") incentive process significantly improved consistency between utilities and simplified the customer's incentive application process. PSE also grew the number of Contractor Alliance Network ("CAN") members, expanding the number of Multifamily and commercial lighting contractors.

2) Expanding Energy Efficiency Awareness

Another key area of emphasis for program staff was pursuing efforts to increase customer awareness of Energy Efficiency programs throughout the year. Highlights of Energy Efficiency initiatives include:

- PSE's digital communications, including its websites, "e-blasts",[14] and targeted emails, which resulted in 22 unique energy-efficiency offers to a pool of 500,000 customers throughout the year.
- PSE's Customer Awareness Tools started emailing selected customers in autumn 2015, and provided customers with more targeted and timely seasonal energy-efficiency information and bill alerts.
- Program staff launched the MyDataManager reporting system for its Resource Conservation Management ("RCM") customers.
- Quality Assurance ("QA") verification inspectors provide customers with applicable energy-efficiency information when they're in customers' homes performing verifications.
- The Multifamily Existing program distributed more than 50 "Strive for Five" plaques—which are prominently displayed to maximize tenant awareness—to multifamily properties throughout the PSE service territory.
- Energy Efficiency staff also provided program information to a variety of PSE staff in other departments to help them discuss Energy Efficiency programs in their own customer interactions.
- In response to the Energy Upgrades campaign survey question "Are you aware of how PSE can save you money and cut your bill with Energy Efficiency Upgrades?", there was a 4 percent increase (from 68 percent in the 2014 survey to 72 percent in 2015) of customers answering "yes". This substantially exceeded the goal of 1 percent.

[14] "E-blasts are email communiques to approximately 30,000 business customers. The emails contain (1) a customer energy-efficiency success story, (2) an energy-savings tip, and (3) program updates.

3) Continuously Improving Internal Processes for Customers

As noted in the program discussions throughout this Report, program staff consistently focused on increasing customer participation and minimizing customer costs in energy-efficiency programs and exploring ways to maximize the value of external, customer-facing opportunities. Several PSE organizations participated in 2015's work on the development of Energy Efficiency's DSM Central program management system.

DSM central will reduce the time required to process customers' grants and rebates, allow program staff to nimbly react to market conditions, and will provide customers with the ability to monitor the process of their incentive application. These, and other benefits will instill greater customer confidence in Energy Efficiency.

Throughout 2015, program staff continued to refine processes that affect customer funding. Program staff consistently perform due diligence in managing the accurate and timely tracking of rebate and grant payments, as well as vendor and contractor payments. Program managers collaborated with contractors and vendors to develop improved reporting and inventory reconciliation to ensure that customer Rider funds were being appropriately safeguarded.

4) PSE Extends its Commitment to Customer Satisfaction

PSE's emphasis on customer service is prominent in PSE's expectations of its trade allies, vendors, and contractors. PSE holds each third-party entity that represents PSE Energy Efficiency Programs when installing or servicing energy-efficiency measures to ever-increasing customer service standards. Energy Efficiency staff regularly review a vendor's or contractor's performance to ensure that they also meet customer expectations.

PSE's commitment to exceeding customer expectations also extends to a key set of customers: its Regulatory Stakeholders. This Report is designed to exceed their expectations by providing critical and useful information, based on their previous requests, comments, and ideas.

Specific program discussions in this Report will provide additional examples of PSE's commitment to providing an outstanding energy efficiency experience for its customers.

C. 2015 Continuous Improvement and Adaptation through Total Quality Management

Energy Efficiency continued to conduct its operations with a focus on continuous improvement and adaptive management through the application of progressive Total Quality Management ("TQM") principles throughout 2015. Doing so not only ensures compliance with WAC 480-109-100(1)(a)(iv), *Adaptive Management*, it is by far the most sensible and effective way to operate such a complex and customer-centric organization.

TQM is an established and engrained method of adaptive program management for Energy Efficiency program staff. Incorporating TQM, the skilled professionals of Energy Efficiency achieved incremental improvements—in process efficiency, in the way that Energy Efficiency staff interface with customers, in maximized productivity—throughout the organization. Doing so provided for prompt and innovative solutions to challenges and market opportunities, where teams were able to confidently adapt and maximize customer satisfaction and conservation savings.

In each iteration of the TQM cycle, PSE makes management decisions with these requirements uppermost in mind:

1. Meet customer expectations to drive continued program participation,
2. Prudently apply customer funds to cost-effective conservation,
3. Maximize staff productivity, process efficiency and effectiveness,
4. Ensure rigorous program execution and metrics, with a high degree of savings reporting accuracy, financial prudence, compliance, and transparency.

Every organization's focus on adaptively managing its program execution resulted in numerous process improvements, reductions in duplications of efforts, increased management transparency, and optimized data and information access. PSE's focus and continuous improvement efforts yielded optimal savings results while the business expenses were managed with due diligence.

PSE provides several highlights in more detail in the program discussions, including:

- When PSE's refrigerator recycling vendor abruptly halted business operations, program staff engaged a new vendor within a week over the Thanksgiving holiday.
- With no increase in staffing, the Net Metering program added over 1,300 new customer-generators in 2015.

- With no net increase in staffing, the Rebates Processing team administered over 27,000 rebate applications—more than 4,000 applications, worth $2 million additional—that the team processed than in 2014.
- With only three QA verification inspectors, the Verification Team conducted almost 2,000 verifications throughout PSE's service territory.
- Business Energy Management staff created an innovative approach to HVAC controls projects protocol, which will greatly simplify and streamline the verification of building control system operation.
- PSE re-engaged Lowes® in its retail showerhead program by working directly with two key manufacturers.
- Energy Efficiency implemented WAC 480-109 requirement revisions without pause, adapting them into its Low Income Weatherization program, its standard compliance tracking matrix, and the department's 2016-2017 Biennial Conservation Planning process.
- New field tools, including a mobile "iOS" app in the Residential Business to Business Channel allowed for faster electronic approval of projects and streamlined data collection and reporting in near real-time.
- Several RCM process improvements led to more accurate and simplified customer reporting and substantiated energy savings.

PSE discusses these and other accomplishments further in the following chapters.

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III. RESIDENTIAL ENERGY MANAGEMENT

A. 2015 Residential Energy Management Sector Summary

The following discussions provide brief summaries of the Residential Energy Management ("REM") sector. Detailed program discussions are located in Chapter 4: *Residential Program Details*. Table III-1 and Table III-2 provide, at a program level, REM 2015 savings and expenditure figures respectively. Details of the Business Energy Management ("BEM") Sector results are included in Chapter 5: *Business Energy Management Overview* and Chapter 6: *Business Energy Management Program Details*.

Table III-1: 2015 Residential Electric and Natural gas Expenditures

2015 Expenditures

Schedule	Programs	Total	% of Budget	Budget
	Electric			
	Natural Gas			
E201	Low Income	$ 3,489,481	105%	$ 3,318,140
E214	Single Family Existing	$ 30,783,811	98%	$ 31,570,262
E216	Single Family Fuel Conversion	$ 480,351	61%	$ 785,783
E217	Multi Family Existing	$ 12,386,860	108%	$ 11,513,537
E218	Residential New Construction	$ 820,504	169%	$ 486,591
	Total Electric Programs	**$ 47,961,008**	101%	$ 47,674,313
G201	Low Income	$ 174,171	65%	$ 268,098
G214	Single Family Existing	$ 5,498,926	100%	$ 5,522,572
G217	Multi Family Existing	$ 391,655	78%	$ 499,044
G218	Residential New Construction	$ 204,359	31%	$ 657,848
	Total Gas Programs	**$ 6,269,111**	90%	$ 6,947,562

Table III-2: 2015 Residential Electric and Natural Gas Savings

2015 Savings

Schedule	Programs	Total	% of Goal	Goal
	Electric, MWh			
	Natural Gas, Therms			
E201	Low Income	1,739	111%	1,571
E214	Single Family Existing	105,657	104%	101,369
E216	Single Family Fuel Conversion	1,173	57%	2,063
E217	Multi Family Existing	25,678	99%	25,862
E218	Residential New Construction	1,518	144%	1,057
	Total Electric Programs	**135,765**	103%	131,922
G201	Low Income	10,070	54%	18,815
G214	Single Family Existing	1,172,005	98%	1,195,517
G217	Multi Family Existing	70,314	65%	107,542
G218	Residential New Construction	30,858	21%	147,072
	Total Gas Programs	**1,283,247**	87%	1,468,946

1) Five-Year Trends

Figure III-1 and Figure III-2 provide views of REM's 5-year electric and natural gas savings and expenditures.

Figure III-1: Residential Electric 5-Year Trends

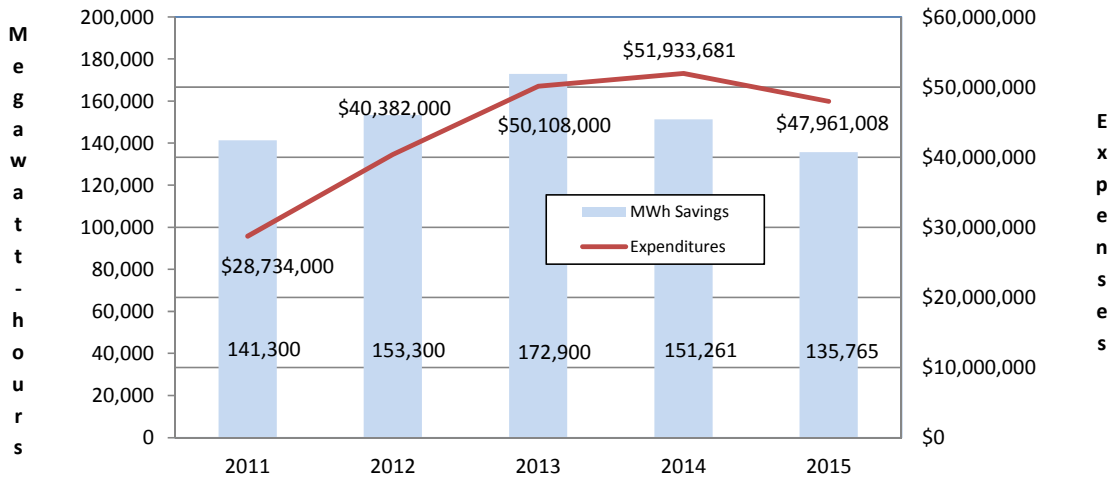
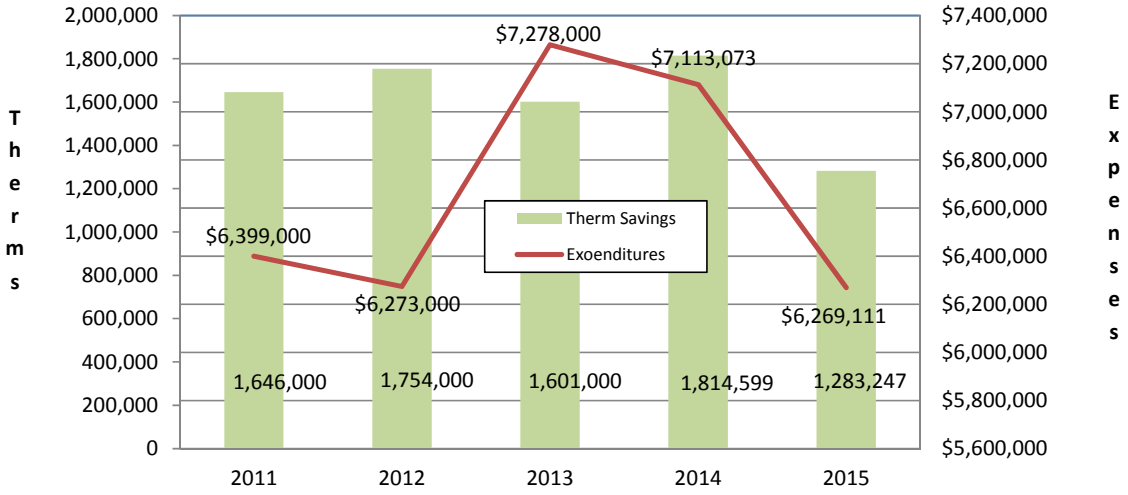


Figure III-2: Residential Natural Gas 5-Year Trends



2) REM Cost Effectiveness

Table III-3 represents the actual calculated Utility Cost and Total Resource Cost benefit-to-cost ("B/C") tests for the Residential Sector. PSE presents the complete UC and TRC tables, showing cost-effectiveness calculations by program in Exhibit 2 of this Report.

Table III-3: 2015 Residential Sector Cost-Effectiveness Tests

Benefit to Cost Ratios Residential Sector		
	Utility Cost	**Total Resource Cost**
Electric	2.48	1.57
Gas	2.08	0.81

Indicated TRC includes the application of a 10 percent Conservation credit value.

a. REM Program Performance

All REM electric programs finished 2015 with a TRC of over 1.0. Key drivers of REM's natural gas TRC B/C ratio were the Low Income Weatherization (TRC of 0.78), Single Family Weatherization (TRC of 0.50), and Multifamily New Construction (TRC of 0.84). Only Low Income Weatherization finished 2015 with a UC of substantially below 1.0: 0.69. Multifamily New Construction's UC was only slightly lower, at 0.95.

3) Savings Ratios by Measure Type

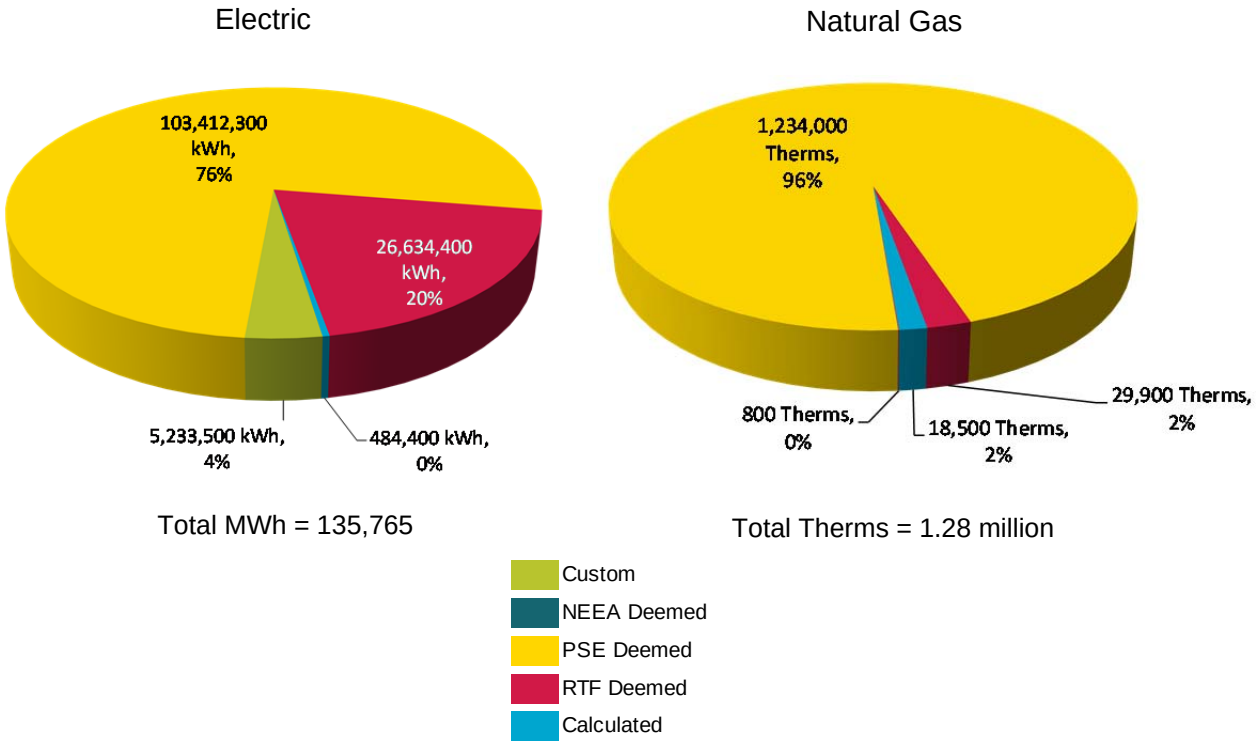
Figure III-3 illustrates the distribution of savings in the Residential Sector by measure type: RTF UES, PSE Deemed, or Calculated.[15] Custom measures, requiring the analyses of an energy management engineer ("EME") are used almost exclusively in BEM.

[15] The Residential Sector electric chart indicates a "0 %" for calculated measures. The actual percentage is approximately 0.4%. Similarly, the natural gas chart indicates a "0 %" for custom measures. The actual percentage is approximately 0.06%.

It is important to note that PSE rounds the overall savings figures indicated in these charts for presentation purposes. The data is extracted from the source tracking systems, categorized, and then summed. The actual overall electric and natural gas savings by program, represented in Exhibit 1: *Savings and Budgets*, may vary by an insignificant amount.

In the Residential electric portfolio, a key driver in the ratio of RTF UES to PSE Deemed savings is the shift in residential lighting (the largest contributor to the Residential Sector electric savings) to LED from CFL, as the majority of 2015 LED measure values are PSE Deemed.

Figure III-3: Residential Sector Savings Distributions by Measure Type



4) Program Measure Tables

PSE provides measure tables in each of the program discussions in Chapter 4: *Residential Program Details*. As noted in Chapter 2, PSE provides these high-level figures to afford a sense of program scale, customer demand, key savings contributors, and interesting measure types in each program. The tables include a limited number of measure types, and aren't intended to be a comprehensive list of all measures installed; only a representative sampling of measure types are provided. Program measure tables aren't intended to be used as audit tools or to reconcile actual tracking records.

The following program discussions In Chapter 4 outline process and tactical improvements that enhance the customer's energy-efficiency experience and prudently utilize Conservation Rider funding, along with program results and accomplishments.

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IV. RESIDENTIAL PROGRAM DETAIL DISCUSSIONS

A. Single Family Existing

Schedules E/G 214

1) Description

The Single Family Existing group is comprised of two Channels: each of which is comprised of several programs. These programs are detailed in the following chapter.

a. Direct to Consumer Channel
b. Dealer Channel

Single Family Existing programs deliver cost-effective, targeted, residential energy savings using a menu of prescriptive and calculated energy efficiency measures; offering rebates for single-family existing structures**.** Prescriptive rebates are intended to facilitate participation by customers, contractors, developers and trade allies, and provide administrative efficiencies for PSE in meeting energy efficiency goals.

Existing single family structures are defined as residential dwellings that include: structures with four or less units that are attached by a contiguous roofline, manufactured or factory built homes permanently affixed to a concrete foundation, and manufactured or factory-built homes that are transportable. Single family existing residences exclude structures that are currently under construction.

It is important to note that multifamily campuses that have a mixture of existing residential building types, including buildings with four attached residential units or less, are served under the Multifamily Existing program; schedules E217 & G217.

Rebates and incentives offered to eligible natural gas and electric PSE Single Family Existing customers include a variety of end-use classifications, not limited to:

- Compact Fluorescent Lighting including CFL lamps.
- Light-Emitting Diode (LED) lighting including A-line, BR-30, downlight, MR-16, and candelabra.
- Consumer Electronics, including advanced power strips and those offered through PSE's partnership with NEEA.
- Appliances—including refrigerators, freezers, clothes washers, and those offered through PSE's partnership with NEEA.
- Retail, online, and engagement LEDs and showerheads.
- Refrigerator and Freezer Decommissioning – both secondary and primary units.
- Refrigerator and Clothes Washer Replacement – focus on older inefficient models to encourage early retirement.
- Weatherization, including windows, insulation air-and duct sealing.
- Space heating including hydronic systems, high efficiency furnaces, high efficiency boilers, high efficiency fireplaces, heat pumps, and system controls, such as web-enabled thermostats.
- Water heating, including tank water heaters, heat pump water heaters, and efficient showerheads.
- Home Performance activities that may include home energy assessments, audits, and all-inclusive home retrofit services.

Program staff regularly review incentive amounts and savings values, which are based on regionally accepted energy savings estimates and incremental efficiency measure cost. Incentives may be subject to change in response to revisions in savings estimates, average incremental cost or changes in Federal appliance efficiency standards or State codes.

2) Program Performance

Table IV-1 and Table IV-2 provide a 2015 summary of expenditures and energy savings for the Single Family Existing group, which consists of multiple single-family programs.

Table IV-1: Single Family Existing 2015 Expenditures

2015 Expenditures

Schedule	Programs	Total	% of Budget	Budget
	Electric			
	Natural Gas			
E214	Single Family Existing			
	Residential Lighting	$ 15,269,039		$15,379,407
	Space heat	$ 4,090,312		$4,061,640
	Water heat	$ 503,757		$400,630
	HomePrint	$ 2,482,259		$1,811,236
	Home Appliances	$ 4,947,055		$6,297,053
	Mobile Home Duct Sealing	$ 1,357,281		$1,665,636
	Web-Enabled Thermostats	$ -		$0
	Showerheads	$ 339,989		$574,710
	Weatherization + ARRA	$ 1,683,131		$1,227,724
	Home Energy Reports	$ 110,988		$152,226
Subtotals		**$ 30,783,811**	98%	$31,570,262
G214	Single Family Existing			
	Residential Lighting	$ -		$0
	Space heat	$ 1,364,348		$1,595,778
	Water heat	$ -		$0
	HomePrint	$ -		$0
	Home Appliances	n/a		$0
	Mobile Home Duct Sealing	$ -		$0
	Web-Enabled Thermostats	$ (75,781)		$323,443
	Showerheads	$ 217,834		$387,115
	Weatherization + ARRA	$ 3,937,956		$3,171,545
	Home Energy Reports	$ 54,569		$44,691
Subtotals		**$ 5,498,926**	100%	$5,522,572

Table IV-2: Single Family Existing 2015 Savings

		2015 Savings		
Schedule	Programs	Total	% of Goal	Goal
	Electric, MWh			
	Natural Gas, Therms			
E214	Single Family Existing			
	Residential Lighting	74,927		66,609
	Space heat	8,009		7,842
	Water heat	911		635
	HomePrint	3,784		3,009
	Home Appliances	7,530		11,386
	Mobile Home Duct Sealing	4,480		4,666
	Web-Enabled Thermostats	0		0
	Showerheads	2,507		4,139
	Weatherization + ARRA	3,509		2,610
	Home Energy Reports	0		473
Subtotals		**105,657**	104%	101,369
G214	Single Family Existing			
	Residential Lighting	0		0
	Space heat	485,321		531,650
	Water heat	0		0
	HomePrint	0		0
	Home Appliances	24,862		32,736
	Mobile Home Duct Sealing	0		0
	Web-Enabled Thermostats	0		54,000
	Showerheads	110,458		145,116
	Weatherization + ARRA	551,364		432,015
	Home Energy Reports	0		0
Subtotals		**1,172,005**	98%	1,195,517

3) Single Family Existing 2015 Accomplishments and Activities

In 2015 the Direct to Consumer and Dealer Channels collaborated to develop and execute unique customer engagement campaigns focused on driving customer awareness of and participation in PSE's single-family residential energy efficiency programs; the Energy Upgrades campaign and the Cross-Sell campaign. The two channels also collaborated on Energy Efficiency awareness tools and the *Chinook Book*.

a. The Energy Upgrades Campaign

For 2015, PSE built upon the success and popularity of the campaign from 2014; significantly increasing and often doubling metrics outlined in the table below.

Energy Upgrades was a sports-themed campaign that leveraged popular events, activities, and sporting games to surprise PSE residential customers at a location that they were not expecting to see PSE and hear about energy efficiency. The campaign's centralized message to customers was, "save money and cut your bill with energy efficiency upgrades from PSE." PSE's research has shown that saving money cuts across all segmentations of customers and the word "upgrade" signals to customers that energy efficiency does not mean the customer has to sacrifice anything. The Campaign delivered not only this energy efficiency awareness message, but also exciting best-in-class energy-efficiency prizes. Prizes were funded by manufacturer sponsors and consideration paid to PSE is reflected as revenue within both Direct-to-Consumer and Dealer Channel program lines in Exhibit 1, Supplement 1: *Actual Expenditures Compared to Anticipated Spends.*

As customers were on their way to, or as they arrived at their event, they were handed a perforated upgrade ticket and were enthusiastically encouraged to participate. Every ticket was a winner and was uniquely coded. Customers could learn what they won at the PSE booth.

After booth staffers briefly celebrated their prize with each customer, the ticket was separated along the perforated edge. The half that the customer kept had information about PSE's programs and limited-time offers that PSE had arranged with campaign sponsors. The half kept by the booth staff was coded to inform PSE of the location that the ticket was handed out so PSE could determine the most successful distribution locations.

The campaign launched in May of 2015 and targeted 23 high-profile events throughout PSE's territory over the subsequent 5-month period of time. Of those 23 events, the cornerstone events occurred on Sunday May 31 and Sunday, September 27, as PSE innovatively targeted game-day commuters traveling by ferry, bus, light-rail, and train, as they made their way to the Seattle Mariners and Sounders game in the spring as well as the Seahawks NFL football game at CenturyLink field in the fall.

The campaign also consisted of marketplace geographically-targeted advertising, earned media, and social media. The following summary provides a snapshot of the results.

i. Energy Upgrades Summary Results

Mariners/Sounders Blitz Day by the numbers:

- 70 outreach staffers hit the ground on blitz day.
- 18 transit stops were canvassed by outreach staffers covering the Puget Sound area.
- More than 7,000 PSE Golden Upgrade tickets were distributed to excited game-goers.
- More than 3,000 people came to the three PSE booths to redeem their tickets.
- Approximately 40 percent of PSE customers redeemed their Golden Upgrade ticket on game day, demonstrating that PSE was able to cut through the game-day clutter and motivate customers to seek out the three PSE booths.
- More than 40 instant prizes were given out at the stops to raise excitement and drive fans to the PSE redemption booths, including Greenlite™ LED bulbs, Kohler® WaterSense® Showerheads, washer-dryers from Whirlpool® and LG Electronics, KitchenAid® stand mixers, TVs, ORCA cards, and store gift certificates—all donated by PSE's sponsors.

Seahawks Blitz Day by the numbers:

- 97 outreach staffers hit the ground on blitz day, reaching customers one-on-one.
- 20 transit stops were canvassed by outreach staffers, covering the Puget Sound area from Auburn to Tukwila to Bellevue.
- Over 10,700 PSE Golden Upgrade tickets were distributed to enthusiastic game-goers. Tickets included an exciting foil scratch-off section, plus education about six PSE energy efficiency programs, with limited time offers, from water and space heating to HomePrint Assessments.
- More than 4,000 people came to the three PSE booths to redeem their tickets. Two PSE booths outside CenturyLink Field and a third at the Seattle Ferry Terminal caught game-goers coming from all directions, and offered education on PSE programs and efficiency upgrades.

- More than 25 instant prizes were given out at the stops to raise excitement, including TVs, ORCA cards, and Target store gift certificates.
- Approximately 38 percent of PSE customers with Golden Tickets redeemed their upgrade ticket on game day. Those driven to the PSE booths won upgrades from LEDs to flat-screen TVs—all donated by PSE's sponsors.

Total customer engagement at all 23 events:

- Total Golden Upgrade tickets distributed: 61,520
- Number of people who visited the PSE booth: 33,403
- Total redemption rate: 54%

Paid and earned marketing and ad buy results:

- Digital impressions: 10,500,000
- Transit station impressions: 9,96 million
- Ferry impressions: 25.6 million
- Estimated additional ferry impressions: 1.6 million
- Print impressions: 515,000
- Spanish TV: 1.2 million
- PSE billing insert: 4.4 million
- PSE e-blasts: 1.9 million
- Campaign webpage page views: 44,000
- Estimated earned media impressions: 9,500
- Sounders FC radio impressions: 179,000
- Mariners radio impressions: 185,000
- Seahawks radio impressions: 4.9 million
- Total impressions: **61 million**

On Blitz days, social media was also quite active, with photos and videos sent from 28 different locations throughout the day. Totaling more than 100 photos and videos, most were posted on PSE's Facebook and Twitter channels.

Product sponsors paid PSE a fee for promotional consideration in PSE's Energy Upgrades campaign.[16] These sponsors (General Electric, Greenlite®, and Kohler® for instance) not only provided free upgrade products and prizes, but also advertised during the events. Although the Retail Lighting program received the majority of these payments, revenue was also distributed to a lesser degree among related programs (Single Family Water Heat and Home Appliances, for instance). This revenue contributed to offsetting some costs of the campaign, demonstrating PSE's commitment to the prudent use of customer Rider funds.

b. The Cross-Sell Campaign

2015 marked the third year of The Direct to Consumer and Dealer Channel's Cross-Sell Campaign. The goal of this campaign is to encourage customers to participate in PSE's energy efficiency programs, keep them regularly engaged with PSE, and to increase their awareness of other PSE energy efficiency offerings.

This was accomplished by leveraging PSE's propensity modeling, which uses predictive analytics to determine customers' likelihood to qualify and participate in a number of energy efficiency programs. This gives a higher probability that customers receive messages that are relevant and wanted.

i. Overall Results

PSE distributed 15 unique electronic messages for a total email distribution of 2.7 million emails. The emails received a 29 percent average open rate; 8 percent above industry average. 2 percent of customers clicked-through links provided to learn more about the offer.

c. Energy Efficiency Awareness Tools

In this new customer initiative, PSE provided energy efficiency email messaging to customers during moments when they are likely to be thinking about their energy usage (typically, when they receive a PSE bill, at the start of heating season, etc.).

[16] These fees are included in the Revenue column in Exhibit 1, Supplement 1's applicable program lines.

Emails were sent to customers in 2015 during two specific instances:

- During the Fall of 2015, as equipment needs to be checked or serviced, PSE customers received an email providing energy efficiency tips and solutions for seasonal concerns. One email was sent to approximately 500,000 customers.
- For existing e-billing customers, when their bill was ready, customers received an email reminder with a usage breakdown summary and links to energy efficiency programs to help them better understand and manage their energy use. From August to December 2015, five emails were sent to approximately 370,000 customers.

d. Chinook Book

Another resource that PSE employs to reach customers is the Chinook Book. PSE marketed two of its more popular programs, HomePrint™ and WaterSense showerheads, through this popular discount book to advertise these programs. This is the second year that PSE has engaged with the Chinook Book.

Chinook Book is a media company that specializes in sustainable commerce and creates incentives for people to live a more sustainable lifestyle. Chinook Book publishes a print book and mobile app in five markets: Seattle, Portland, California Bay Area, Denver, and Minneapolis.

In the Puget Sound region, Chinook Book has a total distribution of 33,000 print and 26,900 mobile users. The books and mobile app subscriptions are sold at natural food stores (PCC, Whole Foods, Central Coop, etc.), mainstream retailers like Costco, and through school fundraisers. Mobile app sessions average about 12,600 per month.

B. Direct to Consumer Channel

The Direct-to-Consumer Channel focuses on services targeted to a wide variety of retail and manufacturer entities, including but not limited to “big box” chains, drugstore/grocery chains, warehouse stores, online retailers, and other local and independent resellers. The Channel also manages a PSE-branded online store, ShopPSE (http://PSE.com/shoppse).

The Channel manages several programs—most of which are consumer-oriented—including refrigerator and freezer decommissioning, showerheads, Energy Star® appliances, electronics, and of course, energy efficient lighting. This Channel also collaborates on consumer electronics and select appliances through PSE’s funding relationship with NEEA. The Direct-to-Consumer Channel operates primarily within the structure of Schedule 214, Single Family Existing.

To best leverage existing market relationships and to drive a consistent customer and contractor engagement strategy, management reporting for the Lighting To Go program that resides under Schedule E 262 was moved into the Direct to Consumer Channel in Q2 of 2014. 2015 was the first full year that the department operated within this structure. Details regarding this program and the associated accomplishments for 2015 can be found under the Business Management section detailing Schedules E 262.

1) Direct-to-Consumer Programs

These programs collaborate with retailers and manufacturers of energy efficient products – such as lamps, light fixtures, showerheads, electronics, and appliances – to ensure that customers have access to a wide variety of efficient product options.

When advantageous to do so, PSE may purchase energy-efficiency products directly from manufacturers or distributors for resale to customers or provide to retailers for resale. This may occur at either traditional or online stores, including ShopPSE. PSE also provides field services to educate retail employees on its products, detail qualifying product, and ensure compliance with PSE agreements.

2) 2015 Continuous Improvement through TQM

PSE continues to look for new and innovative ways to market its programs, touch customers, and provide them with the best possible customer experience. The following discussions demonstrate PSE's commitment to proactive and adaptive program management throughout the year.

a. Retail Store Awareness and Field Services

2015 marked another successful year of implementation for PSE's Field Services. Effective signage and retail sales associate training is critical on products sold in stores that offer PSE rebates, such as appliances, lighting, and showerheads.

New for 2015, PSE added field services for the Retail Products Portfolio ("RPP"). This is a program that is part of PSE's collaboration with the Northwest Energy Efficiency Alliance ("NEEA"). It is funded by PSE's membership, but managed by NEEA. RPP incentivizes retail stores when they sell select energy efficient products; all products that PSE currently does not offer a rebate on.

i. Summary of Field Visits:

PSE's field services team, made up of four representatives, made 4,447 field visits in 2015. In 2015, the stores were classified in an organized tier system that determined the number of team visits needed to ensure adequate representation:

- A (1-2 visits per month)
- B (1 visit per month)
- C (1 visit every other month, with two levels of communication in the off month)
  - C1 (1 visit every other month, call/email other month)
  - C2 (1 visit every other month)
- D (1 visit every quarter)
- E (1 visit or call every 6 months)

Visits per tier and average visits per month by tier are shown in Table IV-3.

Table IV-3: Retail Store Visits by Tier

Store Tier	# of Stores	Total # of 2015 Visits	Visits per Store	Avg. Visits Per Month
A (1-2 visits per month)	37	612	16.5	1.37
B (1 visit per month)	145	1,787	12.3	1.02
C1 (1 visit (call/email) every other month)	125	989	7.9	0.65
C2 (1 visit every other month)	112	787	7	0.58
D (1 visit every quarter)	72	235	3.26	0.27
E (1 visit or call every 6 months)	5	30	6	0.5

The tiered system allows PSE's field service representatives to spend the right amount of time with lower-maintenance stores and more time with high-need stores, such as Home Depot and new stores.

ii. Summary of Retail Store Sales Associate Trainings:

Formal and informal trainings continue to be a critical strategy for program outreach, which includes important training for retail partners. The overall impact of trainings remains relevant and critical to program success, especially when it comes to acclimating new retail partners. PSE believes in the importance of educating each retail sales associate with energy efficiency program information so that sales associates can relay it to each customer as if it came directly from PSE.

In 2015, the same four field representatives conducted 696 trainings; trainings are defined as either an informal one-on-one or formal group education of retail sales associates. These trainings consisted of both everyday rebate offerings as well as education on limited time offers associated with PSE's Cross-Sell and Energy Upgrades campaigns.

iii. Summary of Retail Store Events:

Field representatives completed 48 retail events throughout 2015. These events were educational tabling events within the retail store itself during peak shopping times that engage PSE customers with energy efficient products, and program knowledge.

iv. Summary of Quality Assurance / Quality Control:

Secret shopper visits were conducted in several stores throughout the year to provide QA/QC of field activity. Visits included an assessment of lighting end caps, bays, wingstacks (mid-aisle stacks of product that attract more attention), aisle and other special displays, as well as confirmation of point-of-purchase signage and other required materials in the appliance sections of stores. Both independent stores and corporate chain stores were visited and tracked.

Secret shopping visits also entail speaking with at least one employee or manager to gauge their knowledge of the program and PSE. Although store associates don't always know their field rep by name, they can recognize their rep when they come into the store, and know that their rep is the go-to for information about energy efficiency products and PSE. In addition to secret shopping visits, Energy Efficiency program managers conduct ride-alongs with field representatives to assess route efficiency, product knowledge, and store relationships. These ride-alongs were conducted throughout the year with a different rep for each visit.

Here is a summary representation of the type of evaluation conducted during each secret shopper ride along:

Has rep improved your program awareness?	Wingstack or Displays Score	Water Heating Score	Showerhead Score	Lighting Fixture Score
4	4.1	4.3	4.4	4.9

The scores above are on a 1-5 scale, with 5 being the best, and are an average of the scores given throughout the 2015 QA/QC process. Each aspect of point-of-purchase signage placement throughout the store is ranked to determine if a field representative has ensured PSE awareness for all eligible products. Representatives are also evaluated on their uniform, product knowledge, and efficiency in planning their routes and product identification.

Finally, Salesforce[17] continues to streamline processes and facilitate collaboration between PSE and the field service representatives. Minor but important changes to Salesforce were implemented at the start of 2015, including updating fields for 2015 retail and manufacturer contractual agreements and continuing to streamline field reporting, which is tracked for every field action.

b. Thank You Kits

2015 marked the second full year of PSE's successful "Thank You" kits. PSE sent "Thank You" kits to over 22,000 eligible residential electric and combined service customers that either participated in a PSE rebate program or whose HVAC heating and water heating, appliance, or weatherization application was denied. The purpose of the "Thank You" kits is to show appreciation to PSE customers for their interest in its energy efficiency programs and to offer a surprise opportunity to adopt energy efficient measures in their home.

The "Thank You" kit contained two Philips® SlimStyle™ LED A-lamp bulbs and a brochure thanking the customer for their participation and detailing PSE's various energy efficiency residential programs. By including the LED bulbs, PSE gave customers the opportunity to have hands-on experience with the latest and most innovative LED technology.

c. Pop-Up Retail Events

PSE continued its popular "pop-up" retail events at PSE businesses throughout PSE's service territory. A Pop-Up retail event is a limited-time—often one day—opportunity for customers to learn about and purchase PSE qualified and rebated products. Other PSE conservation programs are often promoted as well.

Events are generally offered to businesses with more than 500 employees in the core PSE electric service territory. In 2015, in collaboration with these businesses, PSE conducted 70 total events and it is estimated that over 102,000 customers learned about energy efficiency offerings.

[17] Salesforce, a third-party vendor, provides comprehensive data on the vast majority of retail activity. PSE has been a long-time customer of Salesforce.

3) 2015 Accomplishments and Activities

The Direct to Consumer results reflect a high degree of adaptive management throughout the year.

a. Retail Lighting

PSE offers incentives to purchase energy efficient lighting measures through instant rebates and limited time offers. In 2015 the Residential Retail Lighting program exceeded its savings goal while meeting the program's budget. This accomplishment was aided by changing market conditions in which the overall cost of LED technology declined and the customer adoption rate of residential LEDs increased. Additionally, effective campaigns such as Energy Upgrades and Cross-sell contributed to the program's successful performance.

The decrease in cost for LED technology coupled with the overall growth in customer adoption rate of LEDs caused a decline in sales for CFLs. PSE believes this declining trend for CFL purchases will continue.

During 2015, in addition to the Energy Upgrades and Cross-Sell campaign, PSE marketed energy efficiency lighting to customers in other new and innovative ways. The following are examples of these efforts:

- PSE partnered with other regional utilities and Greenlite® for Microsoft's Earth Day event. Microsoft employees pre-ordered LED bulbs featuring an Earth Day increased instant rebate and picked up the bulbs at the event.
- Lowes® and Sylvania partnered with PSE for a limited time offer. PSE provided additional signage in Lowes stores to highlight the incentivized Sylvania bulbs to customers.
- PSE provided a limited time offer for Cree energy efficient bulbs sold at The Home Depot®. In addition to point of purchase advertising provided by PSE, Cree promoted the special offer in local newspapers and digital banners.

b. Residential Appliances

In 2015, the Direct to Consumer Channel offered incentives on a variety of appliance programs for residential customers. These include:

- Refrigerator & Freezer Decommissioning,
- CEE Tier 3 Energy Star Clothes Washers,

- CEE Tier 2 and 3 Energy Star Refrigerators,
- Refrigerator & Clothes Washer Replacements.

Starting in 2015, Energy Star specifications changed for both refrigerators and clothes washers; making Energy Star appliances much more efficient. As a result, many appliances were removed from the Energy Star qualified list, and this significantly limited the quantity of Energy Star products available for customer purchase.

PSE partnered with manufacturers Whirlpool® and LG® Electronics during the 2015 Upgrades Campaign and increased its rebate to $100 for clothes washers and refrigerators. PSE also created a limited time offer from May 30th to August 16th of $150 for Whirlpool and LG branded heat pump dryers. PSE promoted this special offer through Cross-Sell emails, point-of-purchase signage, radio and Facebook ads. This partnership helped provide an increase of 24 percent in appliances rebate applications during the campaign period when compared with the previous and subsequent periods.

Along with partnerships and promotions with large retail stores, PSE partnered with independent retailers Judd & Black, King and Bunny, McKinney's Appliance, Albert Lee™ and DeWaard & Bode to participate in an exclusive April special promotion. This promotion allowed independent retailers' customers to receive a $100 rebate on qualifying refrigerators and clothes washers. In return, independent retailers marketed the promotion to their customers through newspaper ads, radio ads and website banners. This promotion was a success as the retail stores reported an increase in sales during the promotional period.

Similar to years past, the refrigerator and clothes washer replacement program was strategically rolled out throughout PSE's service territory. PSE continued with a community-by-community marketing campaign that would steadily keep customers participating in the program. This allowed PSE to meet the demand while providing the best possible customer experience.

To boost customer participation in the Appliance Decommissioning Program, PSE launched a charity campaign with Food Lifeline near the end of the year. The campaign ran from mid-October to mid-December. PSE marketed to our customers that during this promotional period they had the option of donating their $25 rebate to Food Lifeline and PSE would match their rebate. This was PSE's second year to do a match donation promotion.

To increase awareness about the charity campaign, PSE organized a Fridge Charity Seahawks Blitz at the Seahawks versus the 49ers game on November 22. This Blitz was similar to PSE's Energy Upgrades campaign; keeping a consistent look and energy efficiency message. 57 staffers representing PSE and Food Lifeline distributed 8,890 Golden Upgrade Tickets that educated game day fans about PSE's free recycling program. Using 2014 as guidance, the 2015 goal was a 40 percent customer donation rate and a total donation count of 365. PSE exceeded this goal, with 407 donation count equating to approximately 60 percent of customers that participated in the recycling program at that time.

Despite these successes, the overall appliance savings and budget result was below its forecast and spending goals for the year. Two key drivers are:

- The reduced participation in the clothes washer and refrigerator rebate programs due to lack of qualifying products available and also stocked on the retail sales floor.
- Lower adoption of refrigerator & clothes washer replacements and refrigerator & freezer decommissioning. Customers with qualifying units are becoming scarcer.

c. Advanced Power Strips

Reported under PSE's Residential Appliance Program, an Infrared (IR) sensing advanced power strip is installed with a home entertainment system. When this device is installed, it disconnects power to connected devices after a set period with no IR signal.

In 2015, PSE implemented an online delivery method for this specialized product and drove active marketing to the site through e-mail. Customers can visit PSE.com/APS and purchase the product for $10, shipping and taxes included.

PSE also distributes advanced power strips through pop-up retail events. Customer interest in the product is high.

d. Residential Showerheads

PSE made several strides in strengthening the retail showerhead program in 2015. Most notably, in July PSE was able to reengage Lowe's® in the retail showerhead rebate program by working directly with manufacturers Oxygenics® and Delta®. PSE also utilized the Cross Sell and Energy Upgrades marketing platforms to promote the showerhead programs to customers. PSE's most surprising success was a Cross Sell email campaign in September promoting ShowerStart products. ShowerStart technology is very complex and as result the email contained a significant amount of language to adequately describe the product's function. Despite the design being text heavy, the email campaign was a huge success. The email was sent to 170,000 natural gas customers and had one of the highest open rates at 33 percent. 4,735 units were purchased, which is a very high conversion rate of almost 3 percent.

PSE was also recognized for the second year in row by the EPA as a WaterSense® Excellence Partner of the Year. More than 1,700 utilities, manufacturers, retailers, builders, and organizations partner with WaterSense. However, PSE was one of a select few recognized for their significant program contributions and promotion of WaterSense rated products.

Although significant progress was made in 2015 for expanding the reach and recognition of PSE's retail showerhead program, PSE's electric and natural gas savings goals were high. The program fell short of achieving its forecasted savings goal. This was due to lower than anticipated customer interest in showerheads.

e. Web-Enabled Thermostats:

In 2015, PSE received the web-enabled thermostat impact evaluation from the pilot program that occurred back in 2013. The evaluation showed cost-effective savings for connected thermostats. However, due to technical complications associated with proving that a thermostat was connected, PSE wasn't able to launch a permanent program as planned in 2015. PSE determined a solution for these barriers in 2015 and a permanent program will launch in 2016. The program finished the year with a $76,000 credit balance in Outside Services as a result of a vendor re-payment of sales tax over-collection made during the pilot program.

f. Home Energy Reports

2015 was the seventh full year of PSE's Home Energy Report "legacy" program.[18] In addition to the paper copy that customers have been receiving since the onset, PSE sent an electronic version of the Home Energy Report to customers who had an email on file. This was a new way in 2015 to engage this group of customers.

The program reported zero savings for 2015, due to the results of the 2014 Home Energy Report impact evaluation. This evaluation showed for the first time in the program's history that savings did not incrementally increase year-over-year. The Home Energy Reports electric costs were lower while the Home Energy Reports gas costs were higher because the actual allocation split between the programs was adjusted to be more representative of the customer fuel types served. The lower costs were compounded on the Home Energy Reports electric side due to lower than targeted programmatic costs from PSE's contractor.

Additional information about the 2015 expansion pilot can be found in Chapter 5: Pilots.

[18] It is important to note that, consistent with a CRAG agreement established in target-setting meetings in 2013, "legacy" Home Energy Report electric savings apply towards the EIA 2014-2015 conservation penalty target, while the expansion pilot savings (if any) are excluded from the EIA penalty target.

4) Direct to Consumer Channel Measure Highlights

Table IV-4 provides an overview of Retail Channel measures reported in 2015 by measure types. It is important to recognize that these figures are rounded and intended to convey the scale and scope of measure types reported in this channel, rather than to provide the precise number of measures installed.

Table IV-4: Overview of 2015 Direct-to-Consumer Channel Measure Activity

Direct to Consumer Channel Measure Counts			
Program Measure Type	Measure	Electric	Gas
Retail Lighting			
CFLs	Various types	1,570,000	
LED Lamps	Globe, A-lamps, directional, etc.	2,530,000	
LED Fixtures	Indoor, outdoor, etc.	118,000	
	LED retrofit kits	192,000	
Home Appliances			
Freezers	New, replacements, decommissioning, etc.	900	
Refrigerators	New, replacements, decommissioning, etc.	7,900	
Clothes Washers	New, replacements, etc.	12,000	
Clothes Dryers		30	
Advanced power strips		2,700	
Showerheads			
Showerheads	Various efficiencies, various delivery methods	21,000	16,000
Showerstart	Showerstart & adapters	1,800	4,500
Home Energy Reports		-	-

C. Dealer Channel

The Dealer Channel's target market constituency consists primarily of resellers and contractors that sell, install, and service HVAC systems, water heating systems, windows and insulation, as standalone measures, or through comprehensive Home Performance activities that may include home energy assessments, audits and all-inclusive home retrofit services. The Dealer Channel operates primarily within the structure of Schedule 214; Single Family Existing. Programs within this channel are delivered to customers mostly through contractors.

1) HomePrint™

HomePrint Assessments provide customers with a free in-home service performed by a PSE qualified independent HomePrint Specialist. The program is intended to increase the awareness of customers regarding their home's energy consumption and identify cost-effective ways to use less energy. Additionally, customers benefit from instant energy savings from the direct installation of LED light bulbs, and leave-behind showerheads, and Tier 2 Advanced Power Strips ("APS") units delivered to qualifying electric customers identified through the assessment. All measures are provided free to the customer with the exception of the Tier 2 APS which required co-pay from the customer.

2) Weatherization

The weatherization program oversees the "shell" of residential structures; installation of windows, insulation, air and duct sealing. There are a wide variety of duct sealing offerings, some directed specifically to mobile homes, while other focus on site-built residences.

3) Space and Water Heating

The program manages incentives and installations of heating and water heating systems, including but not limited to natural gas furnaces and boilers, heat pumps, hydronic systems, and domestic water heaters.

4) Manufactured Home Duct Sealing

PSE's manufactured home duct sealing program achieves measurable, cost-effective energy savings within PSE's electric service territory for existing single-family manufactured homes by supporting duct sealing upgrades, direct installation of LED lamps, and leave-behind efficient shower heads, at no cost to qualifying customers.

5) 2015 Adaptation and Continuous Improvement

By the end of 2014, the Channel had completed the successful transition of all single family existing weatherization rebate and verification reporting processes to the internally-managed online portal. Consistent with adaptive management principles, this project has:

- Improved real-time tracking of program performance metrics,
- Enhanced visibility into quality assurance activities including increased successes in scheduling customer appointments,
- Improved contractor satisfaction through reduced reimbursement cycle-time, and
- Greatly reduced data errors.

Program staff also made further enhancements with respect to PSE management of Contractor Alliance Network ("CAN")-member contractor inventories of direct-install LED materials applicable to the HomePrint™ Assessment program. Throughout 2015, the team implemented various inventory tracking and reconciliation process improvements in collaboration with its vendor partner. The enhanced procedures resulted in a best-practice Just In Time ("JIT") inventory management design. This improvement saved customer funds by reinforcing PSE's vendor partner accountability. The resulting efforts, coupled with a 38 percent increase of in-home assessments over planned activity for 2015, is reflected in Direct Benefit to Customer costs variance from budgeted allocations for the year.

6) Accomplishments and Activities

The Dealer Channel built on the success of the 2014 HomePrint door-to-door outreach campaign. In 2015, the campaign focused on ten communities, many of those underserved by Energy Efficiency outreach initiatives in the past and included three communities in PSE's service territory associated with the Georgetown University Energy Prize.[19] The Energy Efficient Communities Team was integral to the success of this initiative. Throughout the ten communities, the program engaged approximately 28,000 customers via direct mail and door-to-door efforts, achieving approximately a 31 percent enrollment rate of all customers engaged.

In 2015, the Channel built on the success of the Community Energy Efficiency Program ("CEEP"), which began in 2014 in partnership with Washington State University to provide weatherization measures to under-served customer segments. Program staff refined the technical and field specifications to drive further process improvements of the innovative manufactured home floor insulation program. Using WSU CEEP funding, PSE developed an incentive structure for customers that supported roughly 67 percent of the total measure cost.

The CEEP state funding support for the program ended June 30, 2015 however, and beginning July 1, PSE leveraged Rider funds to extend the project—maintaining the initiative's cost-effectiveness—through the end of 2015.

Weatherization activity and measure installation remained strong through the 2015 program year. The program was successful in driving the replacement of existing double-pane windows both in natural gas and electrically heated homes; PSE provided incentives for 300,000 square feet of double-pane window upgrades in gas-heated homes alone. This was a key driver of the program's results; both in exceeding 2015 Direct Benefit to Customers and electric and natural gas savings targets.

The Dealer Channel also had great success by collaborating with the Direct to Consumer Channel to promote incentives through the Cross-Sell email campaign.[20]

[19] The Georgetown University Energy Prize is a two-year national competition, where a community with a population between 5,000 and 250,000 develops a long-term energy efficiency plan and demonstrates both its initial effectiveness and sustainability over two years. Winners receive a substantial award; in 2017, winners will receive $5 million. For additional information on the current competition, please see https://www.georgetown.edu/news/georgetown-university-energy-prize-launch.html

[20] The Cross-Sell campaign is discussed on page 38.

Specific emails were generated for HomePrint, Electric Space Heat, (ductless heat pump) Gas Space Heat, (Energy Star® gas furnace) and Electric Water Heat (heat pump water heater). Collectively, each of these emails were sent out to over 150,000 customers. Several of these offerings included Limited-Time-Offers ("LTOs") with PSE's Contractor Alliance Network ("CAN") members. The campaign resulted in increased referrals of an average 60 percent compared to the same time frame in 2014.

As a result of the high volume of customer participation during these successful campaigns, the Electric Space and Water Heat programs exceeded the forecasted budget for 2015. However, this also resulted in the program exceeding its savings targets as well.

7) Dealer Channel Measure Highlights

Measures, grouped by types that were reported in 2015, are presented in Table IV-5. It is important to note that the rounded figures are intended to convey a sense of scale and scope of project activity, rather than to provide comprehensive measure count or an audit tool.

Table IV-5: Overview of 2015 Dealer Channel Measure Activity

Dealer Channel Measure Counts			
Program Measure Type	Measure	Electric	Gas
Weatherization	*(Unless otherwise note, the below figures represent square footage)*		
Insulation			
	Floor, various types	710,000	1,190,000
	Wall, various types	2,530,000	242,000
	Attic, various types	300,000	1,340,000
Air Sealing		33,000	95,000
Windows, various types		209,000	540,000
Duct Sealing			1,200
Space Heat	*(All figures represent number of units, rather than square footage)*		
Heat Pumps			
	Ductless	1,500	
	Air source, geothermal, etc.	1,900	
Heat Pump Sizing & Lockout Controls		50	
Forced Air Furnace to HP Conversion		460	
Boilers			40
Fireplaces			800
Furnaces			3,700
Water Heat	*(All figures represent number of units, rather than square footage)*		
High Efficiency Water Heater	Various efficiencies, various delivery methods	300	
Heat Pump Water Heater		600	
Manufactured Home Duct Sealing	*(All figures represent number of units, rather than square footage)*		
Duct Sealing			
	In-park	800	
	Out-of-park	1,500	
Direct Install Measures	LEDs, showerheads, etc.	13,000	
HomePrint	*(All figures represent units)*		
Leave-Behind CFLs		400	
Direct-Install LEDs		140,000	
Leave-Behind Showerheads		1,100	
Advanced Power Strips		1,100	
Fuel Conversion			
Water Heater Only	Storage & tankless	100	
Space Heat Only	Baseboard & forced air	40	
Space & Water Heat	Baseboard & forced air	40	

D. Single Family Fuel Conversion

Schedule E216

This program discussion is presented out of Schedule-number sequence. This is because it is managed within the Dealer Channel. Presenting it in numeric sequence would also interrupt the program sequence of the Residential Business-to-Business (RB2B) Channel, which also includes the Single Family New Construction program, Schedule E/G 215 as part of its Residential New Construction discussion.

1) Description

The Company provides incentives for replacing existing electric forced-air or baseboard space heating equipment and/or tank style water heating equipment with high efficiency natural gas space heating equipment[21] and/or high-efficiency natural gas domestic water heating equipment.

2) 2015 Accomplishments and Activities

Historically the majority of the savings for the program came from electric to natural gas water heater conversions. This is due to the relative ease of converting water heaters when there is already natural gas service to the house.

However, in 2015 the space-heat conversions—especially forced air units—outperformed forecasts and was a major contributor while water heat conversions underperformed forecasts leading to noted variances in Exhibit 1.

The fuel conversion program team developed a targeted direct mailing piece to customers that had a natural gas access nearby and met the annual electric usage criteria for program eligibility. The piece informed prospective customers of the additional fuel conversion incentives available.

[21] As outlined in the Company's Schedule 216, **Section 1, Availability/Eligibility**, the equipment to which the Customer is converting must be "highly efficient natural gas space and/or domestic water heating…"

Overall, the Fuel Conversion program missed its expected savings and budget target for 2015. This was a direct result of the program's minimum annual electric consumption of 19,000 kWh requirement. That high of an annual usage level posed a challenge for customers to qualify. Program staff will examine ways to overcome this barrier to participation in 2016.

Table IV-6 illustrates a summary of measure types installed in the Single Family Fuel Conversion program during 2015. Please note that the figures are rounded and are not intended to represent a comprehensive measure listing.

Table IV-6: Key Fuel Conversion Measures

Dealer Channel Measure Counts		
Program Measure Type	Measure	Electric
Fuel Conversion		
Water Heater Only	Storage & tankless	100
Space Heat Only	Baseboard & forced air	40
Space & Water Heat	Baseboard & forced air	40

E. Residential Business to Business (RB2B) Channel

The Residential Business-to-Business ("RB2B") Channel develops and implements programs for businesses that provide direct services and benefits to PSE customers, and is comprised of the Multifamily Existing, Low Income Weatherization, Single Family New Construction and Multifamily New Construction, and programs.

The Multifamily Existing program collaborates with variety of stakeholders and provides outreach services to increase customer awareness and maximize the benefits of PSE services to property residents and managers. The Low Income Weatherization program works with social service agencies to satisfy the need of our customers that meet low income guidelines. The Single Family and Multifamily New Construction staff relies heavily on their relationships with the building industry and related trade allies like NW Energy Star® Homes, to ensure that measures are incorporated in the design and construction of a wide spectrum of multifamily building types.

The group provides services under electric and natural gas Schedules 215, 217, 218 and collaborates with PSE's Business Energy Management sector when multifamily projects include a combination of residential and commercial custom measures. The Low Income Weatherization program is operated under the terms of electric and natural gas Schedules 201.

1) Low Income Weatherization

Schedules E/G 201

a. Description

The Low Income Weatherization ("LIW") program is included in the Residential Business-to-Business Channel. This is primarily because the majority of customer-facing contact for this organization is through social service agencies throughout the PSE territory. The program discussion is presented here to maintain the numerical sequence of the Conservation Schedules, as also presented in *Exhibit 1: Savings and Budgets.*

LIW assists low-income residential customers to improve the energy efficiency of single family residences, multifamily structures and manufactured/mobile homes.

In 2015, the goal of the LIW program was to continue to reduce the energy-cost burden of lower-income customers by improving the energy efficiency of their residences and educating these consumers on routine ways to reduce their energy use and costs. Program efforts built on the existing model and extended the partnerships with assistance agencies, as well as leverage other PSE programs for lower-income customers to include safety awareness and bill-payment assistance. As discussed below, the program was successful in meeting its objectives.

Key stakeholders are low-income customers with electric and natural gas service; county and municipal low-income weatherization agencies in the PSE service area, Washington State Department of Commerce ("Department of Commerce" or "Commerce"), and participating weatherization contractors and suppliers. Residential LIW provides funding of many cost-effective home weatherization Measures for low-income customers receiving natural gas and/or electric service from PSE to heat their homes. Funds are used for single-family, multifamily and mobile home residences. Some measures which do not meet standard cost-effectiveness tests may also be approved.

In addition, this program provides funding for energy-related repairs and energy education. An energy-related repair is a repair that is necessary: (1) to install a weatherization measure properly, (2) to protect the health and/or safety of the occupants, (3) to address an existing problem that weatherization could aggravate or (4) to protect the integrity of the installed measure. Examples include but are not limited to:

- Repair roof leaks,
- Electrical inspection and repairs,
- Mold/mildew remediation,
- Rodent, insect and pest extermination,
- Bath and kitchen ventilation upgrades,
- Furnace or water heater repairs or replacement.

Sources of LIW funding include, but are not limited to the Electric Program Conservation Service Rider and the Natural Gas Conservation Service Rider, Company funds, or other federal or state government programs.

For those funds that must meet cost-effectiveness standard, up to 30 percent may be applied to energy-related repairs that are necessary to effect the installation of other cost-effective Measures. The final percentage allocated will be determined according to the overall program cost-effectiveness.

b. Adaptation through TQM

In 2015, PSE furthered it commitment to increase public awareness and enhance program participation by developing a brochure for single family and mobile home landlords who own property where tenants are interested in participating in PSE Weatherization Assistance. The purpose of the brochure was to help landlords better understand program benefits for both their tenants and for themselves. Social service agencies had reported that some landlords are reluctant to allow their tenants to participate in the Weatherization Assistance program, simply because they do not fully understand the benefits of the program.

The brochure removed some burden from the low income customer, allowing them to engage their landlord to support program participation through a clear information exchange directly from PSE to the landlord. The brochure was distributed to Weatherization Assistance applicants to provide to their landlord.

c. 2015 Accomplishments and Activities

This year, low-income agencies continued to focus on completing projects. Electric savings exceeded goal by 11 percent and natural gas savings finished the year lower than forecasted at 54 percent of goal. Impacts to the Gas Program in 2015 include reduced program intake and production; State and Federal regulatory influences that impacted agency production; decreased RTF savings estimates for single family units—meaning the Program must serve more units to achieve the same amount of savings, also making it difficult to install measures at a cost effective rate.

Additionally, in 2015, the Program:

- Developed an approach to implement the WAC 480-109 rule for Low Income Programs that would facilitate agency participation and clarify reporting.
- Completed an evaluation that provided a tool allowing the Program to segment customer and geographical data to enhance program outreach, focus messaging, and increase participation in PSE's low income and other relevant energy efficiency programs.

- Visited social service agency partners in the field to identify and provide solutions for program barriers and opportunities.

Table IV-7 provides a high-level summary of Low Income Weatherization measures installed in 2015. The figures represent unique dwelling units (homes, apartments, manufactured homes, etc.), and are rounded to indicate a general sense of program scope, rather than precise totals to be used for auditing. The list is not intended to represent a comprehensive tally of measures installed. A dwelling unit may have one or more measures installed as a part of a project.

It is important to note that the indicated number of units (which represents the measure type) doesn't always correlate to the total number of measures installed. For instance, for each "LED Lamp" category indicated, there could be substantially more than one LED lamp installed.

Table IV-7: Low Income Weatherization Measure Highlights

Measure	Electric	Gas
Air Sealing	20	0
Attic Insulation	160	40
Floor Insulation	220	30
Wall Insulation	20	30
Common Area HVAC	1	0
Duct Insulation	10	30
Duct Sealing	110	40
Ductless Heat Pump	230	0
Electronic Thermostat	1	0
EnergyStar Whole House Ventilation	200	0
Gas Furnace Replacement >95%	0	20
Integrated Space and Water Heat	0	1
LED A Lamp	2080	0
LED Fixture	10	0
Pipe Insulation	180	10
Refrigerator Replacement	30	0
Shell Sealing	210	50
Showerheads	60	0
Windows	20	0

2) Multifamily Existing

Schedules E/G 217

a. Description

The objective of the Multifamily Existing program is to increase the installation of cost effective energy efficient Measures into existing multifamily (MF) buildings with PSE natural gas and/or electric service.

The Multifamily Existing program is designed to increase the uptake and installation of selected energy efficient Measures in existing multifamily buildings with five or more attached residential dwelling units located in PSE's electric and natural gas service areas. The team works with property owners, managers, trade ally contractors, and tenants to encourage program participation. The program also serves multifamily campuses which have a mixture of building types including buildings with less than five units. Multifamily structures and campuses typically have opportunities for upgrades in the units, common areas, and building envelope. Measures may include windows, insulation, and air sealing enhancements; appliance, lighting, and HVAC upgrades; O&M improvements; behavioral modification; and calculated commercial upgrades such as central boilers and solar pool heaters. This program targets installation of energy efficient measures occurring during planned retrofit and replace upon failure.

b. Adaptation through Total Quality Management

The Ecova Efficiency Platform is a cloud-based project management system built on the Salesforce engine was initially introduced in 2014. In 2015, process improvements were made on the platform to allow for faster electronic approval of projects, streamlined reporting, and document storage. Field auditors are also using custom applications for property audits and verifications. In 2015, Ecova developed a mobile "iOS" app specifically for use with on PSE's Direct Install Program. These field tools allow for streamlined collection of data and processing of data in near real-time.

The program added two new direct install LED lamp (PAR30 & MR16 GU10) in 2015 in order to comprehensively serve its customers and maximize savings opportunities when in PSE customers' homes. PSE field crews had been collecting data on the potential quantity for the new LED lamp types and the volume was high enough to justify adding the measures.

To capitalize on new savings opportunities not previously offered to past participants, when conducting preapprovals of existing appliances, customers also receive thermostatic restrictor showerhead adaptors, bathroom faucet aerators, and advanced power strips.

Program staff also worked to strengthen relationships with its trade allies. Staff helped enroll numerous qualified contractors into the Contractor Alliance Network ("CAN") including Elite Energy Solutions, the program's top performing insulation contractor of 2015. Currently, there are no gaps in geographic coverage or contractor types, thus enabling field staff to consistently provide a minimum of two referrals for any given project.

c. 2015 Accomplishments and Activities

Overall, the program served more than 520 multifamily properties, almost 3,000 buildings, and 31,000 units in 2015, exceeding its electric savings target, with natural gas savings coming in short of goal by 11 percent. The Multifamily Existing program had an impressive 2015 with achieved savings of over 25 million kWh and more than 70,000 therms.

i. Savings

Over 50 percent of the gas savings were recognized in the final four months of the year after PSE's multifamily service partner Ecova launched an aggressive savings plan. While this boosted PSE's natural gas savings, the program fell short of the 2015 goal. Over 70 percent of gas savings came from direct install measures – thermostatic showerheads and adaptors and aerators. Ecova also implemented a multifamily direct install program for Seattle City Light. As a result, customers that utilize both utilities were able to be comprehensively served through direct install services.

Contractors had difficulty bringing in substantial gas savings due largely to the cost of doing business in Seattle, where many of PSE's multifamily gas meters are located. Very few window retrofits, for example, remained under the program's price cap of $29 per square foot due to permitting costs, lift rentals, and special install requirements to maintain the historical character of buildings.

ii. Customer Service

Savings occurred while program staff worked diligently to provide the highest possible customer service on behalf of PSE. Throughout 2015, program staff received many positive customer comments; from both individuals and those representing residential building groups. Table IV-8 illustrates customer served metrics from 2015 compared to 2014.

Table IV-8: 2014 to 2015 Multifamily Existing Customers Served

Metric	2014	2015	% increase in 2015
Properties Served	520	600	15%
Buildings Served	2,900	4,700	62%
Units Served	31,000	38,000	23%

iii. Air Sealing

In 2015, air sealing was introduced to the multifamily program after a 2 year pilot phase ended in 2013. Properly sealing infiltration points within a building is very technical and incorporates advanced techniques, which is why contractors were required to first participate in the training. This ultimately helps maintain quality control and assurance in the installation process. We continue to provide remedial training to contractors through our current blower door and pilot service partner, Arrow Insulation.

Seven contractors were trained to perform the work and sixty-one buildings were air sealed with the following square footage totals noted in Table IV-9:

Table IV-9: Multifamily Air Sealing Square Footage

Area	Sq Ft Air Sealed
Attic	177,800
Crawl	51,400
Wall	224,900
TOTAL	**454,100**

iv. Appliance Replacement

In 2015, over 1,000 electric clothes washers and more than 1,000 refrigerators were replaced through the multifamily replacement program. Both of these numbers were below initial targets due to market saturation as the measures have been offered since 2011 for refrigerators and 2013 for clothes washers.

v. Energy Fairs & Customer Recognition

To increase customer engagement, the program conducted five energy fairs in 2015 at apartment and condominium complexes. Most of these were held during or immediately prior to direct install work being done. This increased customer participation as it allowed customers to ask questions and see the products that would be installed.

The program also continued implementation of the "Strive for Five" recognition campaign. The campaign aims to recognize multifamily property managers who complete three or more measure categories within a property with a bamboo recognition plaque. Similar to a star rating system, there are five measure category plates in total on the plaque. The "Strive for Five" theme provides a clear path and constant reminder to receiving all five plates.

Given PSE's long-standing relationships with multifamily property managers and the fact that a comprehensive retrofit on a complex can span multiple years, the plaques serve to further engage and encourage the customer to complete all energy efficiency measure opportunities. PSE requests that the property manager display the plaque in the rental office or other areas of high visibility, which serves as a marketing tool for prospective tenants as well as an awareness building tool for existing tenants.

vi. Industry Events

As in 2014, the program sponsored and exhibited at three key industry tradeshows and conferences in 2015 including RHA TRENDS, WMFHA Business Exchange, WMFHA Maintenance Mania, and WSCAI Community Associations Day. PSE remains active members of both the RHA, WMFHA, WLA, and WSCAI which provides critical engagement opportunities with decision makers. Ecova's Senior Manager is now on the supplier advisory committee with WMFHA, representing the interests of PSE.

Through participating in industry events, program staff are able to nurture relationships with property managers and ultimately generate more project leads. There are several repeat customers who are also members of WMFHA and RHA so it also allows Program Staff to re-engage with them and present new opportunities.

vii. Condominium Complexes

Condominiums have historically been a difficult market segment to penetrate due to each unit being individually owned. Through process improvements such as attending HOA meetings and the development of talking points for the condo market, we've increased the number of condo complexes served compared to prior years. See Table IV-10:

Table IV-10: Condominiums Served

Year	Condo Complexes Served	Condo Units Served
2013	12	1,300
2014	27	4,800
2015	32	3,200

viii. Variances

In 2015, the Multifamily Existing program realized slight revenue balances in its electric and natural gas sectors. This resulted from a partnership with the Cascade Water Alliance ("CWA"), where CWA paid PSE one-half of the measure cost for the installation of water-saving measures in locations that spanned both utilities' service territories.

This strategy is much more cost-effective and efficient for both parties than the former process of procuring and accounting for these measures (showerheads and aerators) from CWA. The added revenue helps to offset a portion of the program's overall costs, reflecting staff's commitment to the prudent use of customer Rider funding.

On a per measure basis, attic insulation (R11-R38), common area lighting, and windows (double pane metal frame to double pane vinyl) proved to be the three measures with the greatest positive variance for electric savings.

Trade allies were most active among these measures, actively seeking out properties with these opportunities. Additionally, numerous measures were underspent compared to their contracted incentive budget.

Two gas measures substantially exceeded their budgeted incentives in 2014-15 – attic insulation (R0-R38) and thermostatic restrictor showerheads. The main driver of the attic insulation overspend was three large projects that took place across 325 units and accounted for more than 200,000 square feet of insulation. The goal for this measure was modest (20,000 square feet) due to prior program cycle trends.

For thermostatic restrictor showerheads, PSE saw a general uptick in interest in direct install at gas properties in 2014-15, including some large property participation.

Table IV-11 provides a general overview of measure categories reported in the Multifamily Existing program in 2015. For this discussion, these figures are rounded, and are intended to provide a perspective of the scale and scope of Multifamily Existing activity, rather than a precise count of every measure installed.

Table IV-11: Multifamily Existing 2015 Measures

Multifamily Existing Measure Counts			
Measure Type	Measure	Electric	Gas
Insulation	*(Unless otherwise note, the below figures represent square footage)*		
	Attic	3,750,000	109,000
	Floor	247,000	-
	Wall	13,000	6,100
Windows		246,000	9,200
Lighting Fixtures	Interior, exterior, tenent-controlled, etc.	1,700	
LED Lamps			
Various Types		105,000	
Water Heat			
	Pipewrap, water heaters, boilers, etc.	5,600	
Advanced (IR) Power Strips		13,000	
Showerheads	*(Figure represents units, rather than square footage)*		
Thermostatic Showerhead Restrictors, Direct-installed showerheads		10,000	3,000
Appliances			
Refrigerators, refrigerator replacement, clothes washers, etc.		2,200	
Heat Pumps			
Air source		40	

3) Residential New Construction

Schedule E215, G215; applicable to single family construction
Schedule E218, G218; applicable to multifamily construction

a. Description

The following discussion applies to new residential construction, both single-and-multifamily structures. Conservation Schedule terms and conditions, as outlined in the above-noted Schedule numbers, govern the applicability, measure types, funding, analyses and general rules and provisions for each structure classification. Where there are specific requirements, service offerings, measures, incentives, marketing, or outreach applicable to the specific structure type, those are so noted in each of the following sections.

PSE does not offer single family new construction incentives due to stringent code updates. While PSE does not offer financial incentives, it work closely with the Northwest Energy Efficiency Alliance (“NEEA”), the Master Builders Associations and other builder organizations to maintain a presence in the market and provide technical support.

The Residential New Construction program acquires cost-effective energy savings from multifamily new construction projects that increase the installation of energy efficient measures into new electric & natural gas heated buildings constructed in the PSE service territory.

Residential New Construction includes multifamily structures, per Washington State Energy Code 2012 Edition (effective July 1, 2013). Multifamily units are covered under terms of Schedule 218 (for both natural gas and electric service). These structures typically have both in-unit and common area energy-savings opportunities. These include, but are not limited to, energy efficient upgrades to building shell, appliances, lighting, HVAC and water heating systems.

Eligible customers for multifamily new construction include owners, developers, general contractor or agents acting on behalf of a responsible party of service receiving electricity or natural gas through PSE. This program provides financial incentives to the above audience for both natural gas and electric residential and commercial meters. The incentives offered are both prescriptive and calculated.

In the new construction marketplace, high-efficiency measures need to be specified and installed during design and construction. Otherwise, it may many years before energy efficient changes to the buildings take place. For measures and incentives that apply to existing multifamily structures, please refer to the Multifamily, Existing program measures in Exhibit 4: *Measures, Incentives and Eligibility*.

Rebates and incentives are offered to eligible natural gas and electric PSE new construction developers, contractors, trade allies and customers (cumulatively, the program refers to these as “partners”) who are constructing multifamily buildings. The program also works with these partners to market energy efficient equipment to their customers. Energy Efficiency encourages the purchase and installation of energy efficient products for their construction projects.

For new residential construction projects, financial incentives are packaged under one grant and are structured to work in accordance with current Business Energy Management programs. PSE provides a single “point of contact” to development teams for all energy efficient measures and/or upgrades. This allows PSE to maximize the energy savings opportunity in each development and reduce multi-program confusion for the customer.

The program includes prescriptive and calculated incentives. Eligible customers include developers, owners or agents receiving electricity through PSE’s residential schedules 7 (including 17, 27, 37 and 47) and 7A; and commercial schedules 8, 11, 12 and 24; and/or natural gas service through PSE’s residential schedule 23 and commercial schedule 31.

Structures include but are not limited to apartments, town homes, condominiums, dormitories, affordable housing, low-income housing, workforce housing, and assisted living residences with three or more attached units.

There may be a combination of residential and commercial meter mixes located within these developments. Incentives include a variety of end-use classifications, not limited to:

- Lighting: Common area,
- Appliances: Clothes washers, refrigerators,
- Ventilation; in-unit whole-home or common area,
- HVAC equipment upgrades.

For all of the conservation measures installed, Energy Efficiency receives measure installation data directly from the developers, builders, and other market stakeholders. It is therefore possible to precisely track measure details.

b. Total Quality Management

Program staff expanded the number of presentations made to its customers, which maximized the generation of energy-efficiency project leads. Presentations also included a discussion on other PSE products and services.

c. 2015 Accomplishments and Activities

The 2015 Multifamily New Construction program finished 2015 at 144 percent of its electric savings goal, while expenditures were 192 percent of anticipated expenditures. The program's natural gas savings were 21 percent of the year's goal, with spending 30 percent of anticipated costs.

The variance in electric expenditures and savings in the Multifamily New Construction program can be attributed to the current new construction boom. More staff was added to account for the increase in projects. Electric savings benefited from the increased construction activity and from more new projects completions, located outside of natural gas-only territory.

Natural gas savings were achieved primarily through grants written in 2014 and paid in 2015 at the completion of construction and verification.

There were very few grants written in 2015 due to the lower price of natural gas and some custom natural gas measures not being cost effective, even though project incremental costs remained fairly constant.

The Single Family New Construction team continues to maintain a presence with King/Snohomish and Pierce Built Green programs and holds committee member status. This allows PSE to stay current with codes and current building practices. They also support NEEA's Energy Star® and Next Step Homes program. The Next Step Homes is a pilot to develop deeper savings in single-family homes.

A customer/contractor video was developed to promote the Next Step Homes, with PSE sponsorship.

Table IV-12 provides a general overview of measure categories reported in the Multifamily New Construction program in 2015. For this discussion, these figures are intended to provide a perspective of the scale and scope of Multifamily New Construction activity, rather than a precise count of every measure installed.

Table IV-12: Multifamily New Construction 2015 Measure Summary

Multifamily New Construction Measure Counts			
Measure Type	Measure	Electric	Gas
	(Represents number of units)		
Lighting Fixtures	Interior, exterior, tenent-controlled, LED, CFL, etc.	7,200	
Stairwell Lighting	*(Represents number of units)*		
Various Types		160	
Lighting Reductions	*(The below figures represent square footage)*		
	Garage, corridor, etc.	4,890,000	
Lighting Power Density	*(The below figures represent square footage)*		
	Garage, corridor	17,610,000	
Showerheads	*(Figure represents units, rather than square footage)*		
Direct-installed showerheads		700	500
Appliances			
Refrigerators, clothes washers		1,600	
Water Heat			
Condensing boilers			10,000
Condensing water heaters			6,000

V. BUSINESS ENERGY MANAGEMENT

A. 2015 Business Energy Management Sector Summary

The following discussions provide brief summaries of the Business Energy Management ("BEM") sector. Detailed program discussions are provided in Chapter 6: BEM Program Details. Table V-1 and Table V-2 provide, at a program level, BEM savings and expenditure figures.

Table V-1: Business Sector 2015 Expenditures

2015 Expenditures

Schedule	Programs	Total	% of Budget	Budget
	Electric			
	Natural Gas			
E250	C/I Retrofit	$ 18,731,492	96%	$ 19,421,153
E251	C/I New Construction	$ 2,900,659	97%	$ 2,987,974
E253	Resource Conservation Manager - RCM	$ 1,905,533	69%	$ 2,744,361
E258	Large Power User - Self Directed 449 + non-449	$ 3,022,361	181%	$ 1,667,723
E261	Energy Efficiency Technology Evaluation	$ 91,537	43%	$ 210,710
E262	Commercial Rebates	$ 4,510,037	80%	$ 5,641,008
	Total Electric Programs	**$ 31,161,617**	95%	$ 32,672,929
G250	C/I Retrofit	$ 2,511,154	123%	$ 2,044,680
G251	C/I New Construction	$ 308,246	51%	$ 606,236
G253	RCM	$ 639,719	101%	$ 636,260
G261	Energy Efficiency Technology Evaluation	$ -		$ 20,000
G262	Commercial Rebates	$ 676,905	97%	$ 698,839
	Total Gas Programs	**$ 4,136,025**	103%	$ 4,006,015

Table V-2: Business Energy Management 2015 Savings

2015 Savings

Schedule	Programs	Total	% of Goal	Goal
	Electric, MWh			
	Natural Gas, Therms			
E250	C/I Retrofit	69,245	111%	62,260
E251	C/I New Construction	14,262	153%	9,350
E253	Resource Conservation Manager - RCM	12,823	78%	16,350
E258	Large Power User - Self Directed 449 + non-449	4,636	273%	1,700
E261	Energy Efficiency Technology Evaluation	0		500
E262	Commercial Rebates	15,274	70%	21,967
	Total Electric Programs	**116,240**	104%	112,127
G250	C/I Retrofit	793,013	208%	381,000
G251	C/I New Construction	114,935	77%	150,000
G253	RCM	778,529	156%	500,000
G261	Energy Efficiency Technology Evaluation	0		n/a
G262	Commercial Rebates	272,583	47%	580,881
	Total Gas Programs	**1,959,060**	122%	**1,611,881**

1) Five-Year Trends

Figure V-1 and Figure V-2 provide views of BEM's 5-year electric and natural gas savings and expenditures.

Figure V-1: Business Energy Management 5-Year Trends: Electric

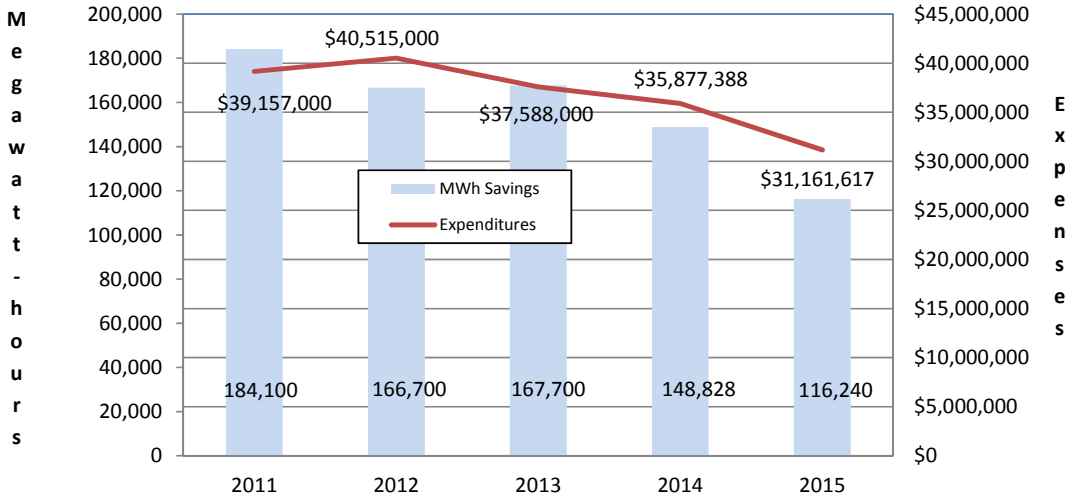
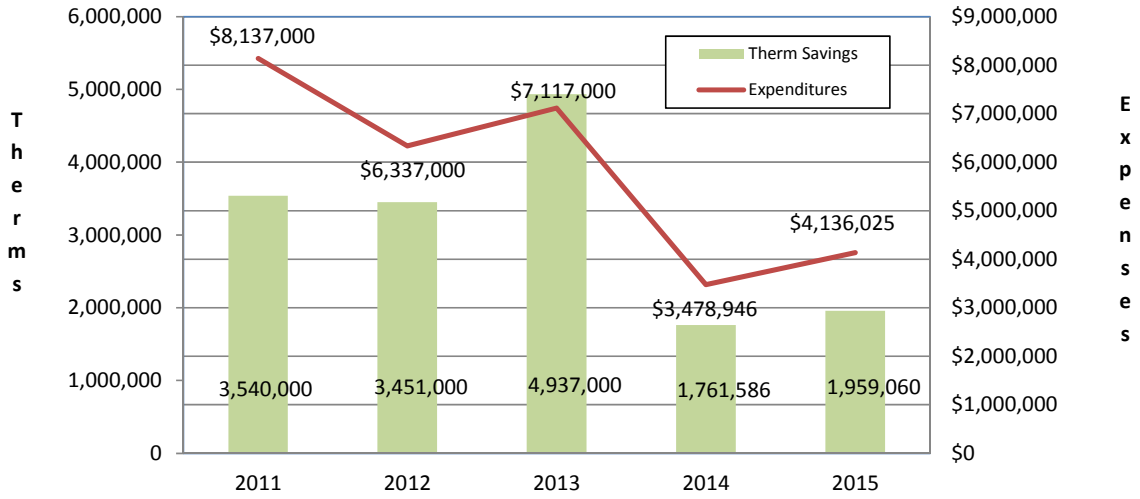


Figure V-2: Business Energy Management 5-Year Trends: Natural Gas



2) BEM Cost Effectiveness

Table V-3 represents the Utility Cost and Total Resource Cost benefit-to-cost ratios for BEM. A complete listing of cost-effectiveness ratios by program is presented in Exhibit 2: *Program Cost Effectiveness*. All BEM programs finished the year with a UC and TRC B/C ratio of over 1.0.

Table V-3: Business Sector Cost-Effectiveness Tests

Benefit to Cost Ratios Business Sector		
	Utility Cost	**Total Resource Cost**
Electric	2.40	1.54
Gas	2.64	1.98

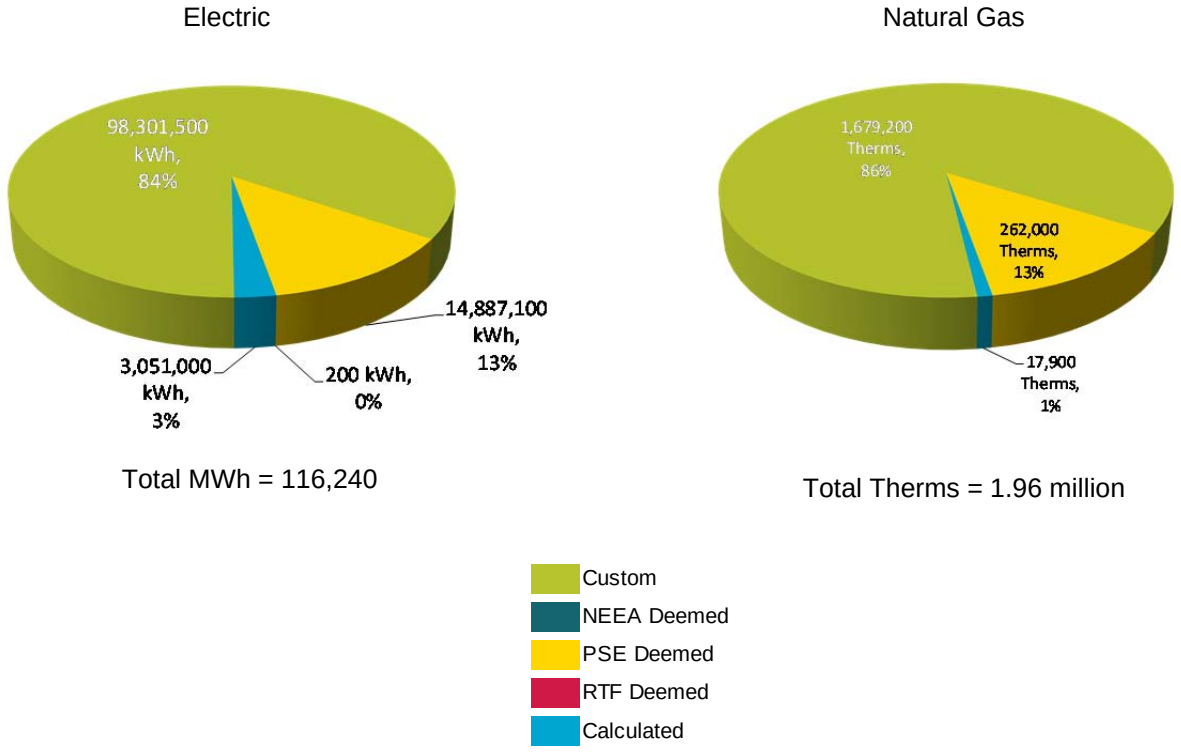
Indicated TRC includes the application of a 10 percent Conservation credit value.

3) Savings Ratios by Measure Type

Figure V-3 illustrates the distribution of savings in BEM by measure type: Custom, Calculated, PSE Deemed or RTF UES.[22] The majority of Business savings are derived from custom measures.[23]

It is important to note that PSE rounds the overall savings figures indicated in these charts for presentation purposes. The data is extracted from the source tracking systems, categorized, and then summed. The actual overall electric and natural gas savings by program, represented in Exhibit 1: Savings and Budgets, may vary by an insignificant amount. The primary contributor to Deemed savings in the BEM Sector is the Business Rebates program.

Figure V-3: Business Sector Savings Distributions by Measure Type



[22] A "0 %" amount is indicated in the electric chart. The actual percentage is less than 0.01%.

[23] In contrast to prescriptive measures, custom measures are determined on a project-by-project basis and are calculated and verified in a multi-step process by BEM energy management engineers.

4) Program Measure Tables

PSE provides project and measure tables in each of the program discussions in Chapter 6: *Business Program Details*. As noted in Chapter 2, PSE provides these high-level figures to afford a sense of program scale, customer demand, key savings contributors, and interesting measure types in each program. The tables include a limited number of measure types, and aren't intended to be a comprehensive list of all measures installed; only a representative sampling of measure types are provided. Program measure tables aren't intended to be used as audit tools or to reconcile actual tracking records.

PSE discusses additional program-specific details in the following chapter.

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VI. BUSINESS PROGRAM DETAIL DISCUSSIONS

A. Commercial/Industrial Retrofit

Schedules E/G 250

1) Description

PSE works with Commercial and Industrial customers to provide incentives for cost-effective energy efficiency upgrades to equipment, building shell, industrial process, and select O&M improvements. These services are provided on the customer's behalf and, where specified by the customer, will be developed in conjunction with design engineers, contractors, and/or vendors.

PSE conducts site assessments to identify savings opportunities, verify existing equipment and system operations, and makes recommendations to customers. PSE also reviews third-party savings estimates and analyses, and when required performs in-house analyses to validate energy savings. PSE works with financial decision makers at the customer's facility to ensure the customer is aware of cost-savings opportunities, including review of energy saving projections that can help obtain favorable financing rates.

Commercial/industrial retrofit projects commonly include: lighting system upgrades, HVAC equipment upgrades, HVAC controls improvements, commercial refrigeration Measures, and industrial process modifications. Additionally, incentives for existing building commissioning (O&M) improvements are provided through the Comprehensive Building Tune-Up (CBTU) Program offered under C/I retrofit.

Upon the customer's decision to proceed with a project, PSE issues a standardized Conservation Grant Agreement and Grant Attachment that establishes terms and conditions for participation in PSE's Custom Grant Program and also explains how the measure will be verified. After the agreement is signed by both parties, customer is given notice to proceed with the energy efficiency project.

Following completion of the project, PSE verifies the installation and energy savings via an on-site inspection, review of equipment operation and trend log data where necessary, and collection of project invoicing and specifications of installed equipment.

a. Business Lighting Program

Commercial lighting grants are managed through the Business Lighting program and application. The Business Lighting program and application addresses all customers' lighting needs by providing prescriptive lighting rebate options along with custom calculated incentives for non-prescriptive lighting and lighting controls measures

b. Contracted Programs

In addition to Commercial/Industrial Retrofit Custom Grant offerings, PSE contracts with industry experts to develop and implement cost effective programs tailored to the unique needs of target markets. Measure-specific incentives are provided through these contracted programs:

i. Industrial System Optimization Program ("ISOP")

The program focuses on operational and maintenance (O&M) measures to be verified through custom analysis on an individual project or site basis. Incentives are based on actual savings achieved. Customers agree to continue monitoring and verification following implementation to assure persistence of the savings.

ii. Data Center Energy Efficiency Program ("DCEEP")

The program focuses on various types of efficiency improvements in customer data centers; such as server virtualization, hot/cold aisle isolation, airflow upgrades, and cooling system upgrades. The program provides site assessments to identify cost effective energy savings opportunities and offers implementation assistance.

iii. Energy Smart Grocer ("ESG") Program

The program provides audits, technical assistance and measure-specific financial incentives to grocers who wish to purchase and install energy efficient lighting, refrigeration, HVAC systems and natural gas efficiency measures. The program is eligible for both Retrofit and New Construction incentives.

2) 2015 Continuous Improvement through TQM

As the following discussion outlines, the Commercial/Industrial Retrofit program consistently demonstrated several instances of adaptive management throughout the year.

The C/I retrofit program added personnel to the role of QC reviewer for custom grant projects. The addition of reviewers optimizes the internal work flow and enhances the customer experience by minimizing the time required to process a grant for the customer.

The **Comprehensive Building Tune-Up Program ("CBTU")** program Request For Quote ("RFQ"), used to qualify commissioning agents, was updated and three additional commissioning agents were approved to deliver the program. In addition, the assessment phase of the program was decoupled from the two remaining phases of the program to promote a more efficient application process and program growth. This gives customers the opportunity to receive an assessment prior to committing to the program. Finally, the performance incentive targets were lowered to 1 percent above the base incentive targets to improve the attractiveness of the program and to align the incentives with the HVAC Controls Protocol.

The **Business Lighting Program** officially launched in 2014 with the consolidation of four 2013 lighting programs. The program features one application that applies to all commercial rate schedules. The program evolved in 2015 when the application was updated to include tubular LED lamps ("TLEDs") as a prescriptive option based on customer feedback. This led to significant uptake in the TLED incentives, as almost 8,000 lamps were incentivized in 2015.

The **Advanced Rooftop-Unit Control ("ARC")** Program was launched in October 2015. The program was collaboratively created by four I-5 corridor major utilities – Puget Sound Energy, Seattle City Light, Snohomish PUD and Tacoma Power. The program was developed in response to customers' and trade allies' demands for more consistent and streamlined energy conservation program for a highly anticipated technology, ARC. The program is identically offered in all four utility territories for commercial gas and electric customers. The program offerings and energy savings are prescriptive which allows for faster market transformation and quicker administration time. The initial target sector of the program is medium to large sized retail businesses.

The **HVAC Controls Protocol**, which features a base and performance grant, was launched in March 2015 starting with a trade ally meeting. The meeting which outlined program participation and documentation requirements was attended by many controls and mechanical contractors. Interest in the protocol appear to be strong with three projects completing base grant payment phase in 2015 and several more due for completion in 2016. The first wave of performance payment evaluation will occur in mid-2016 which will encourage participants to fine-tune their building controls in order to maximize the potential incentive. PSE has seen a significant reduction in time and effort required by staff and contractors alike to evaluate and verify proper energy-efficient building control system operation. The protocol has proven beneficial enough for one contractor to dedicate a person specifically to the marketing and management of controls protocol projects.

3) 2015 Accomplishments and Activities

The C/I Retrofit program exceeded its 2015 electric savings target, while finishing the year slightly under budget expectations. The natural gas C/I retrofit program exceeded the 2015 target by delivering 208 percent of the target savings, with only a slight variance in program spending.

a. Electric

The primary driver of the program' electric savings performance was the strong customer participation in the Business Lighting Program, which delivers more cost-effective savings than other measures. The Business Lighting Program achieved 118 percent of target savings at 106 percent of budget.

Lighting efficiency projects continue to remain the major contributor to program savings with HVAC and Controls measures making up the second largest category of savings.

LED Street Lighting delivered approximately 10 percent of the lighting program achieved savings. The **Enhanced Lighting Program** continued to perform well, delivering 32 percent of the lighting program achieved savings.

Non-lighting custom grants finished the year slightly below target. This was due to several late-year projects that were projected to close in 2015, but were delayed. Consequently, program spending was also below budget.

The Office of Superintendent of Public Instruction ("OSPI") grants continued to play a small role in the overall program results, delivering slightly less than 1 percent savings to the program target.

The Data Center Energy Efficiency Program ("DCEEP") finished 2015 with lower than forecast savings and expenditures as a result of completing fewer projects than anticipated. The biggest obstacles in completing projects were working within the customers' timeframes and developing new projects.

Industrial Systems Optimization Program ("ISOP") Significantly exceeded the program's energy savings target while coming in slightly above budget. A total of 14 customers completed the program, reported energy savings and received incentives. On projects completed in 2015, the customer's simple payback, after incentive, was less than two months, indicating the high cost-effectiveness of this program. 2015 included significant progress in obtaining more detailed customer-supplied documentation to support claimed energy savings.

Energy Smart Grocer ("ESG") continued to pursue cost effective electric savings in the grocery and convenience store sectors in 2015.

The overall expenditures for the electric program was close to expected, with spending at 96 percent of budget. There were some variations in labor and overhead due to the way the schedule 258 program credit for administration was applied in March 2015. The initial budget assumed that the credit would be applied across both the labor and overhead, when in reality the credit was solely applied to labor.

Outside services represented a smaller piece of the budget than expected. This was primarily due to the decreased participation in the DCEEP and the implementation of more cost-effective measures through the ISOP.

b. Natural Gas

The majority of natural gas savings came from four large projects, three of which were contracted in previous years. These projects alone contributed to almost half of the total 2015 savings achievement. Consequently, C/I Retrofit Gas Direct Benefit to Customer (incentives) also exceeded budget estimates by delivering 208 percent of the target budget.

The overall quantity of gas projects were less than expected, but were made up for

by the larger projects. Due to the lower quantity, less labor and overhead were charged to the program.

The **Energy Smart Grocer** program continued to offer natural gas measures in 2015. The primary gas measure was the installation of glass doors to open refrigerated cases. This measure saves both electricity and natural gas by reducing refrigeration system load and cold air spillage into the heated store space. This in turn reduces HVAC natural gas consumption.

4) 2015 Project and Measure Type Summary

Table VI-1 below provides a representative number of Commercial/Industrial Retrofit projects. Table VI-2 and Table VI-3 on the following pages shows a representative number of electric and natural gas measures installed in their respective programs. These are not comprehensive lists of all projects or measures installed. It is important to note that indicated measures may include substantially more than a single unit. Figures greater than 10 are rounded, and are presented to provide a sense of scale and scope of program activities, rather than a precise count of all measures installed.

Table VI-1: Commercial/Industrial Retrofit Projects

PROGRAM	Project Count Per Program					
	Electric	Percent of Schedule 250 Electric Savings	Gas	Both Electric & Gas	Percent of Schedule 250 Gas Savings	All Projects Combined
Commercial & Industrial Retrofit	100	16%	60	0	98%	160
Industrial	20	3%	0	0	0%	20
Business Enhanced Lighting	170	22%	0	0	0%	170
Business Standard Lighting	580	35%	0	0	0%	580
Controls	2	0%	0	1	0%	3
Data Center Energy Efficiency	4	0%	0	0	0%	4
Energy Smart Grocer Program	230	14%	4	0	2%	230
Industrial System Optimization Program	20	10%	0	0	0%	20
Total Project Count	1,130	100%	64	1	100%	1,190

Table VI-2: Highlights of Commercial/Industrial Retrofit Measure Counts

PROGRAM	Measure Count Per Program		
	Electric	Gas	Total Measure Count
Commercial & Industrial Retrofit			
Boilers, Hot Water	20	1	20
Commissioning	1	3	4
Lighting	20	0	20
Insulation	3	2	5
HVAC	40	30	70
Compressors, Fans, VFDs, Pumps, Economizers	30	1	30
Energy Management Control System	2	0	2
Heat Recovery Systems	0	3	3
Refrigeration	3	0	3
Process Modification, Other Process	4	9	10
Total Measure Count	**120**	**50**	**170**
Industrial			
Comp, Dryer, Receiver	2	0	2
Equipment	5	0	5
Fan, Blower, VFD, Compressors	5	0	5
Industrial Office HVAC	1	0	1
Industrial Plant Lighting	2	0	2
Total Measure Count	**20**	**0**	**20**
Controls			
Total Measure Count	**3**	**1**	**4**
Data Center Energy Efficiency			
Total Measure Count	**5**	**0**	**5**
Energy Smart Grocer Program			
Total Measure Count	**330**	**5**	**335**
Industrial System Optimization Program			
Compresed Air	1	0	1
Performance Tracking System	1	0	1
Pumps, Fans, Blowers	6	0	6
Refrigeration	8	0	8
Total Measure Count	**20**	**0**	**20**

Custom Grant projects often consist of more than a single measure.

Custom Grant measures are rarely prescriptive, with some defying traditional classifications.

Table VI-3: Highlights of Commercial/Industrial Retrofit Measure Counts, Continued

PROGRAM	Measure Count Per Program		
	Electric	Gas	Total Measure Count
Business Enhanced Lighting			
LED Decorative	10	0	10
LED MR 16	20	0	20
LED: Directional (Par, BR, R) 20, 30, 38/40	80	0	80
LED: Omni Directional	90	0	90
LED: New Exit Sign	50	0	50
Lighting Enhanced, Controls, Occupancy Sensors	200	0	200
Per Item Install Cost	100	0	100
Tubular LED	20	0	20
Total Measure Count	**570**	**0**	**570**
Business Standard Lighting			
LED Decorative	5	0	5
LED MR 16	10	0	10
LED: Directional (Par, BR, R) 20, 30, 38/40	70	0	70
LED: Omni Directional	50	0	50
LED: New Exit Sign	30	0	30
Lighting Standard, Controls, Occupancy Sensors	580	0	580
Per Item Install Cost	80	0	80
Tubular LED	6	0	6
Street Lighting	4	0	4
Total Measure Count	**840**	**0**	**840**
Total Project Count			
Total Measure Count	**1,910**	**60**	**1,960**

Custom Grant projects often consist of more than a single measure.

Custom Grant measures are rarely prescriptive, with some defying traditional classifications.

A key contributor to Commercial/Industrial Retrofit savings are its lighting programs. Table VI-4 and Table VI-5 provide lighting projects by program and measure types by program, respectively.

Table VI-4: Commercial/Industrial Retrofit Lighting Program Project Counts

PROGRAM	Project Count Per Program
	Electric
Business Express Lighting	250
Street Lighting Express	20
Street Lighting Standard	20
Total Project Count	**290**

Table VI-5: Commercial/Industrial Retrofit Lighting Measures by Program

PROGRAM MEASURES	Measure Count Per Program
	Electric
Business Express Lighting	
LED Decorative	10
LED MR 16	20
LED: Directional (Par, BR, R) 20, 30, 38/40	280
LED: Omni Directional	90
LED: New Exit Sign	10
Occupancy Sensors	20
Per Item Install Cost	220
Tubular LED	30
LED: Hard-wired	4
T12 to T8 with Electronic Ballast	20
Subtotal, Measure Count	**700**
Street Lighting Express	
LED <= 50W	4
LED 101W - 150W	4
LED 151W - 200W	1
LED 200+ Watt	1
LED 51W - 75W	20
LED 76W - 100W	2
Per Item Install Cost	1
Subtotal, Measure Count	**30**
Street Lighting Standard	
LED <= 50W	9
LED 101W - 150W	2
LED 200+ Watt	1
LED 51W - 75W	9
Per Item Install Cost	5
Street Lighting Standard with Controls	20
Subtotal, Measure Count	**50**
Total Measure Count	**780**

B. Commercial/Industrial New Construction

Schedules E/G 251

1) Description

PSE works with designers and developers of any large or small new Commercial / Industrial facilities, or major remodels, to propose cost-effective energy efficient upgrades that exceed energy codes or standard practice where minimum efficiency requirements are not prescribed by code. Three paths may be followed to qualify for assistance and/or funding for New Construction energy efficiency Measures. New Construction Commissioning is also offered in addition to the building paths.

The first path is similar to the retrofit program where component Measures are evaluated individually and funding is based upon cost-effectiveness. Under this approach, customers may receive up to 100 percent of the incremental cost over a code-compliant baseline option.

The second path is a whole-building approach that utilizes building energy simulation to demonstrate improvement over energy code requirements. PSE will work with designers to incorporate Measures that produce at least 10 percent overall savings beyond applicable energy code, including local jurisdiction amendments. Given the time required for planning and construction, these projects typically take several years to complete.

The third path includes Prescriptive Basis incentives for Measures that are eligible for rebates under Schedule E262/G262, the Business Rebates Program. The incentive amount for a Measure is the same as that which is available under Schedule E262/G262, but energy savings may be calculated based on actual Site-Specific conditions and Code Baseline adjustments, if necessary.

New Construction Commissioning focuses on the post-occupancy phase of a new building, with the intent to lead owners and facility operators beyond Code required commissioning to expand their capability to operate the building efficiently by providing training, documentation of efficient operation (charts, performance targets, operating criteria, flags of inefficient operation, etc.), review and recommendations based on seasonal performance and strategies.

In addition to these paths for New Construction efficiency incentives, PSE makes Energy Smart Grocer program offerings available to new construction projects in the grocery sector. This service provides expert technical assistance and Measure-specific financial incentives to grocers who wish to purchase and install energy efficient lighting, refrigeration and HVAC systems that exceed Code minimum efficiency requirements or industry standard practice where Code requirements do not exist.

PSE provides a complete listing of available incentives in Exhibit 4: *Energy Efficiency's List of Measures, Incentives & Eligibility*.

Customers assume full responsibility for utilizing their design teams and contractors to provide information to PSE for evaluation of grant funding. Projects must be approved for funding prior to installation/implementation to be eligible.

2) 2015 Adaptation and Continuous Improvement

Leveraging PSE's energy modeling consultant, several projects were evaluated and modified as needed to quantify energy savings using whole-building energy models. This energy analysis process has continued to help reduce back-and-forth exchanges between PSE and the design team, and minimizing design team hours charged to the customer to participate in the program. This is enabling the New Construction Team to ensure that it has reasonable code baseline systems in the model as well as the ability to provide clean feedback to the energy modeler about what the team changed and why, which is a good learning opportunity for the energy modeler, and helps PSE get more accurate energy models in the future. This streamlined process also helps PSE keep up with an increasing number of projects due to the current construction boom.

3) 2015 Accomplishments and Activities

The New Construction team began an effort to increase collaboration with other PSE departments, such as Customer and System Projects ("C&SP"), in order to become aware of new construction projects earlier. This awareness gives PSE the ability to work with the customer to leverage the potential incentives to get the most cost-effective energy savings. It also helps plan the effective management of the grant project workload.

In addition, PSE began an incentive marketing plan to provide increased industry awareness of new construction programs, and to stimulate earlier contact by customers. Similar to C&SP collaboration, increased awareness of projects gives PSE the opportunity to capture a greater proportion of the industry savings. Earlier contact with possible projects allows us to have the greater energy savings impact on the project and to provide a better customer experience with a timely, proactive grant process.

The 2012-2013 Navigant Consulting Inc. evaluation for Commercial and Industrial Grant Programs Evaluation[24] recommended several market actors (such as local developers, lenders, etc.) to ensure these groups understand how PSE's New Construction Program fits into their new building process. Supported by the Integration Design Lab ("iDL"), PSE began creating an ongoing New Construction marketing plan for 2016 and beyond, focusing on raising awareness with key market actors, and on encouraging project designers to contact PSE early in design so that the new construction incentives can have the most valuable impact.

a. Electric

The electric program ended 2015 above target, and below anticipated spending. The savings were driven by the boom in the current construction market and the new horticulture lighting market segment, where PSE has incentivized the switch from high pressure sodium or metal halide technology to LED. The horticulture lighting projects are highly cost-effective and require less labor-intensive calculations compared to other new construction projects.

The spending was less than planned primarily due to the streamlined process with the energy consultant and the horticulture lighting grants. These two drivers reduced the overall labor and overhead costs in 2015.

[24] Provided as Exhibit 6, Supplement 1 in the 2013 Annual Report of Energy Conservation Accomplishments, filed February 14, 2014 in Docket No. UE-111881.

b. Natural Gas

The natural gas program ended above target and below budget. Condensing boilers are one of the biggest contributors to gas savings, and we have a simple, semi-prescriptive grant process for these. These lead to cost-effective savings with lower labor and overhead costs.

4) 2015 Project and Measure Type Summary

Table VI-6 shows a representative number of projects completed in 2015. Table VI-7 represents the number of electric and natural gas measures installed. It is important to note that indicated measures may include substantially more than a single unit. The table is intended to provide a sense of the program's scale, and is not a comprehensive list. Figures greater than 10 are rounded.

Table VI-6: Commercial/Industrial New Construction Projects[25]

PROGRAM	Project Count Per Program					
	Electric	Percent of Schedule 251 Electric Savings	Gas	Both Electric & Gas	Percent of Schedule 251 Gas Savings	All Projects Combined
Commercial New Construction	45	88%	3	8	100%	**56**
Energy Smart Grocer New Construction Program	4	12%	0	0	0%	**4**
Total Project Count	**49**	**100%**	**3**	**8**	**100%**	**60**

[25] Please see the measure table discussion in the BEM Sector Overview, page 77.

Table VI-7: Commercial/Industrial New Construction Measures

PROGRAM MEASURES	Measure Count Per Program		
	Electric	Gas	Total Measure Count
Commercial New Construction			
Boilers, Hot Water	0	1	1
New Construction Commissioning	3	4	7
Post Occupancy Commissioning	4	4	8
Lighting, Fixtures, Controls	45	0	45
HVAC, Controls	2	2	4
VFDs, Pumps	1	0	1
Whole Building Prescriptive	1	1	2
Other Process	1	1	2
Measure Count	**57**	**13**	**70**
Energy Smart Grocer New Construction Program			
Refrigeration, Cases, Controls	5	0	5
Lighting, Controls	5	0	5
HVAC, Controls	2	0	2
Measure Count	**12**	**0**	**12**
Total Measure Count	**69**	**13**	**82**

Custom Grant projects often consist of more than a single measure

Custom Grant measures are rarely prescriptive, with some defying traditional classifications.

C. Resource Conservation Management

Schedules E/G 253

1) Description

PSE offers Resource Conservation Management Services (RCM) to any school district, public-sector government agency, and Commercial or Industrial (C/I) customer with a minimum portfolio baseload to meet cost-effective thresholds. The RCM program targets larger customers with multiple facilities such that the cost of implementation can be recovered through savings achieved. Schedule 448, 449, 458, and 459 customers may utilize their Schedule 258 funding allocation for Resource Conservation Manager Services (RCM).

Customers qualify for the RCM program based on their annual PSE energy purchases. A typical customer baseline for a fulltime equivalent (1 FTE) program is 20,000,000 kWh for electric only or 2,700,000 therms for natural gas-only service from PSE. Funding levels are prorated based on the amount of staff a customer would need to allocate in order to achieve cost-effective savings from RCM efforts. At a minimum, the customer needs to qualify for 0.25 FTEs to participate in the program on their own.

An RCM customer employs, contracts, or designates existing staff to implement RCM responsibilities, including accounting for resource consumption, assessing facilities, recommending actions, monitoring progress, calculating savings and communicating program information to organization stakeholders.

Monetary grants include a "start-up" grant for completion of deliverables associated with building the program foundation. The start-up deliverables include hiring an RCM, setting up an energy-accounting database, writing a company resource management plan, and completing facility action plans. Once start-up deliverables are complete, the customer may qualify for "performance grants" based on achieving energy savings associated with RCM practices and “target grants” for meeting or exceeding pre-established energy-reduction targets.

The RCM agreement is valid for three years. Over this time, PSE anticipates a 10-12 percent reduction in overall energy use. Savings are calculated using industry standard practices and energy accounting methodologies.

Reported annual savings are a variance from the previous year. PSE may elect to renew a customer's RCM agreement in three-year increments to provide continued support and additional performance incentives.

PSE's RCM support program is comprised of a "menu" of services, which can be tailored to meet the specific needs of the customer. Typical RCM services include, but are not limited to, the following assistance and support:

a. Program Start Up

- Designing and implementing an RCM program.
- Hiring or contracting a Resource Conservation Manager.
- Developing baselines, policies and guidelines, and facility action plans.

b. Resource Accounting Software

- Implementation of resource accounting software.
- Audits of existing databases to review for inclusion of all facilities, accounts, meters, etc., sufficient facility details, missing data, and overall data integrity.

c. Technical Assistance

- On-site walk-through audits to train customer staff to identify waste and opportunities for improved efficiency.
- Analysis and reporting of savings relative to established baseline.

d. Education & Training

- Training in fundamental concepts for designated RCM and support personnel such as custodial, maintenance, and facilities staff.
- Educational materials for classroom or building occupant use including checklists, fact-sheets, and calculators.
- Training stipend to support professional development in Building Operation or Energy Management.

e. Energy Data Services

- Historical and on-going monthly PSE billing data in electronic format for import into resource accounting software.
- Energy Interval Services for internet viewing of facility natural gas and electric interval meter data.

f. Cash Incentives

- ”Start-up” incentive intended to share the cost of program start-up that is paid upon satisfactory completion of deliverables.
- Performance grants for customers who achieve energy savings after completing their deliverables.
- Target grants for customers who achieve a pre-established targeted amount of energy savings after completing their deliverables.

The RCM program has also assisted customers in establishing Energy Star Benchmarks for their facilities using EPA’s Portfolio Manager. PSE will continue to help customers to identify potential targets, improve energy efficiency to meet award qualifications, coordinate the application and inspection process, and submit material to EPA for Energy Star awards.

Additionally, access to energy accounting software has allowed PSE RCM customers to facilitate greenhouse natural gas accounting and other climate change and sustainability initiatives. The value of this service routinely exceeds those stated in the RCM program scope of work.

PSE continues to explore ways to make the RCM program cost-effective for smaller customers. One option is for “Shared RCM” services among a group of smaller organizations, which has generated interest from local governments and other organizations with smaller facility portfolios. With this approach, agencies can combine total portfolio consumption in order to meet the minimum qualifications of the program. A maximum of four organizations with a minimum portfolio of 0.125 FTEs can participate using the Shared RCM approach. PSE efforts will continue to work with RCM consultants, customers, and other support agencies to develop this market. Another option for smaller organizations is a program offering called the Strategic Resource Management (SRM) program.

2) 2015 Continuous Improvement through TQM

In 2014, the RCM program underwent a significant redesign in response to the findings of SBW Consulting Inc.'s 2013 independent evaluation. In 2015, a great deal of effort was spent on implementing those changes. The following discussions clearly demonstrate the program's commitment to adaptive management principles. The key highlights are:

a) The pay for performance ***incentive structure*** was implemented for all new customers and the majority of existing customers such that all customers will receive incentives under the new structure for the 2014-2015 performance year. Customers received $0.02/kWh and $0.15/therm up to a target savings amount. If the customer reached the target amount, they received a Target Incentive. Any savings beyond the target amount was incentivized at $0.035/kWh and $0.25/Therm.

   Savings achieved through efficiency projects receiving other PSE incentives counted towards the target amount but did not receive the per kWh/therm incentive. Also revised is the savings calculation. These modifications to the incentive structure reward the customer for ALL savings rather than a specific target amount that only includes RCM-specific savings. The new incentive structure also encourages customers to maximize their savings to receive a larger incentive.

b) Rather than use a rolling baseline energy use, each site participating in the RCM program has a ***fixed baseline energy use***. Each year savings are calculated using this fixed baseline with previously claimed savings removed. The use of a fixed baseline rewards customers for persistence of savings. The measure life for savings claimed through the RCM program is just three years. If a customer continues to see a reduction in energy use beyond those three years due to their O&M and behavioral efforts, PSE does not remove those savings as previously claimed.

c) The RCM program now requires ***Site Quarterly Checklists*** for sites in each customer's portfolio. This change is in response to the difficulty noted by the SBW evaluation when verifying savings based on annual reports provided by RCMs. Prior to the implementation of the Quarterly Checklists, annual reporting positioned the responsibility for tracking RCM activities throughout the year on the shoulders of the RCM.

Any deficiencies in tracking were not visible until the annual report was received, at which point it can be difficult to account for changes in energy use across the portfolio.

The Site Quarterly Checklist is a significant improvement, as it provides a format for the RCMs to track changes that may impact energy use at each site every three months. RCM program managers can provide feedback more frequently and will have better documentation for the annual savings analysis.

d) To implement the changes detailed above, program staff created a new Scope of Work for all RCM grants. As customers reach the end of their RCM year, they are transitioned from the old grant structure to the updated grant structure. The changeover of all RCM customers to the new grant structure continued in 2015.

e) PSE also developed a new ***energy tracking software*** for use by customers participating in the RCM program. PSE launched the software to customers in the second quarter of 2015; improvements are ongoing to increase usability for customers and program staff. This software enhances the ability of customers to track energy usage of their portfolio and makes energy savings calculations more robust by using multivariate regression analysis on daily energy usage data. The energy savings results for customers within a performance year ending in 2015 utilized the existing monthly data. The program plan is for customers with performance years ending in 2016 to use the daily data and regression analysis provided within the software.

3) 2015 Accomplishments and Activities

a. Overall

In 2015, the RCM program exceeded its annual gas savings targets, contributed significantly to the department's electric savings targets, implemented its new incentive and grant structure, rolled out a new software tool built in-house, and brought on two new program managers to replace departing staff.

The RCM program continued to support training opportunities for customers and program staff. In 2015, there were six training opportunities for RCMs on a variety of topics, including behavioral change programs, PSE's lighting and HVAC controls incentive programs, new technologies and business practices, and training on the new resource accounting software.

In addition, RCM customers and PSE team members participated in the Building Operator Certification program ("BOC").

b. Electric

The RCM program continued to align spending and savings, but did not achieve the full amount of savings expected.

There were a couple of factors contributing to the RCM program achieving 79 percent of expected savings. This lower savings amount, and associated lower spending, was due to the additional work required to roll out the new software and transition all customers to the new grant structure. The departure of the two program managers in the second half of the year also contributed to a lag in completing the energy analysis. The nature of the RCM program is such that savings are difficult to predict as they rely on behavioral-based improvements.

The RCM program spent 69 percent of planned expense amount. The decreased spending correlates to the decreased savings and associated incentives. Some categories, such as labor and overhead, saw an increase in spending. This was driven by the development of the in-house software by internal staff.

c. Natural Gas

The RCM program significantly exceeded forecasted gas savings and was on target for expected gas expenditures in 2015.

Many of the program's active RCM customers exceeded their expected gas savings in 2015. Customers found significant opportunities for improvement, as well as seeing savings achieved by capital projects that went beyond those claimed by PSE's other programs. This led to a savings 155 percent of target.

The RCM program was on target for gas expenditures. The Direct Benefit to Customers and the software development costs effectively used the planned amount.

4) Strategic Resource Management ("SRM") Description

Similar to the RCM program, PSE offers Strategic Resource Management ("SRM") to any school district, public-sector government agency, and Commercial or Industrial (C/I) customer with a minimum portfolio baseload to meet cost-effective thresholds.

The SRM program targeted mid-size customers with multiple facilities such that the cost of implementation can be recovered through savings achieved. Schedule 448, 449, 458, and 459 customers were able to utilize their Schedule 258 funding allocation for SRM services.

Customers qualified for the SRM program based on their annual PSE energy purchases. The minimum customer baseline to participate in the program was 1,000,000 kWh for electric service from PSE.

An SRM customer employed, contracted, or designated existing staff to implement SRM responsibilities, including accounting for resource consumption, assessing facilities, recommending actions, monitoring progress, calculating savings and communicating program information to organization stakeholders. The assigned person was then designated the green champion and served as the main point of contact for the program.

The SRM program then matched a pre-approved contractor with the green champion. The contractor spent time with the customer at the start of the agreement to: benchmark facilities,

- host an energy management workshop,
- Implement a resource management plan,
- Perform building walkthroughs,
- Create portfolio action plans, and
- Identify behavior, operation and maintenance (O&M), and capital projects.

The contractor then scheduled meetings to confirm progress and spent additional time with the green champion as the program progresses.

PSE established performance targets for the program based on the customer's consumption. Typically, targets were set for a 5 percent reduction each year.

After each milestone, the contractor billed PSE for 70 percent of the pre-determined expenses and the customer for 30 percent of the expenses. PSE provided an incentive to the customer based on energy saving performance, up to the 30 percent of contractor expenses. For savings greater than the target, PSE provided an additional performance incentive to the contractor.

The SRM agreement was valid for one year. A customer could participate in the program for multiple years as long as they continued to meet or exceed the performance targets. For each year, PSE anticipates a 5 percent reduction in overall energy use. Savings are calculated using industry standard practices and energy accounting methodologies. Reported annual savings are a variance from the previous year.

a. Total Quality Management

2015 was the second year of implementation for the SRM program. As such, recruitment activities continued, along with project implementation.

b. SRM 2015 Accomplishments and Activities

In 2015, SRM continued working with six customers and added one additional customer. The continued low enrollment despite increased outreach efforts led to a reconsideration of the program during biennium planning. In the fourth quarter of 2015, PSE announced to its customers that it was discontinuing the SRM program. Customers already enrolled in the program will be able to complete the program tasks in 2016, but no new customers will be accepted into the program. The RCM baseload qualifications were adjusted to accommodate SRM-eligible customers.

i. Electric

Despite low enrollment, the program met 75 percent of the savings target. Spending on the SRM program was much lower than expected at 12 percent of the expected cost. This was due to the lower than expected enrollment in the program.

ii. Natural Gas

Although this is an electric program, one of the sites realized gas savings associated with the measures undertaken during the SRM process. There was no spending associated with these measures, as the focus was on the electric savings, but the gas savings—an unexpected bonus—were captured.

5) 2015 Results by Customer Sector

Table VI-8 below shows the number of RCM program projects. Table VI-9 presents a representative summary view of 2015 measures installed. Measure totals are rounded.

Table VI-8: Number of RCM Projects[26]

PROGRAM	Project Count Per Program			
	Electric	Gas	Both Electric & Gas	All Projects Combined
Total Resource Conservation Management Project Count	6	12	25	**43**

Table VI-9: Representative RCM Measures Installed

CUSTOMER SECTOR	Measure Count Per Sector					
	Customer Count	Electric Measures	Percent of Schedule 253 Electric Savings	Gas Measures	Percent of Schedule 253 Gas Savings	Measure Count per Sector
Resource Conservation Management						
School Districts	20	35	45%	30	59%	65
Government	10	15	19%	25	35%	40
Higher Education	2	6	13%	3	5%	9
Property Management	1	5	4%	5	0%	10
Hospitals	1	3	3%	3	0%	6
Retail/Other	3	10	5%	5	0%	15
Non Profit	1	3	9%	0	0%	3
Total Measure Count	**38**	**77**	**100%**	**71**	**100%**	**148**

Custom Grant projects often consist of more than a single measure

[26] Please see the measure table discussion in the BEM Sector Overview, page 77.

D. Large Power User/Self Directed

Schedule E258

1) Description

This program solicits electric energy efficiency upgrades through a Request for Proposal (RFP) process. C/I customers receiving electric service under Schedule 40, 46, 49, 448, 449, 458, or 459 receive a funding allocation based on their electric usage and are responsible for proposing cost-effective project(s) to utilize their allocation. This is classified as the non-competitive phase.

Proposals are evaluated by PSE Engineering staff for technical soundness, cost-effectiveness and compliance with energy code and tariff requirements. Customers sign a standard PSE Conservation Grant Agreement, defining project cost, PSE incentive amount, and verification requirements prior to installation of project measures.

PSE implements the Large Power User Self-Directed program in cycles, with the current program cycle spanning January 1, 2015 to December 31, 2018. Customers have until March 31, 2017 to propose projects that utilize their incentive allocations under the non-competitive phase. Customers not designating projects that fully utilize their allocation forfeit their remaining balance to a competitive phase, in which remaining funds are available to all program participants via competitive bid.

In the Competitive Phase, eligible customers respond to an RFP in order to obtain remaining incentive funding that was not claimed during the non-competitive phase. In this phase, eligible customers may have access to funds beyond their original allocation. The competitive phase RFP will be issued May 15, 2017, with the submittal deadline being July 17, 2017. Received proposals will be ranked based on cost-effectiveness and other criteria specified in the RFP. Competitive funding will be awarded, in order of project ranking, until all funds are allocated to projects.

2) 2015 Adaptation through Total Quality Management

- Program staff created a project application sheet that can now be filled out and signed electronically. The application process is now more streamlined for the customer and PSE staff.

- Program staff filed a Schedule 258 tariff revision that allows eligible customers to participate in other efficiency programs before their individual allocations are completely used. This will result in less customer confusion about which programs customers are eligible for and when they may participate in these other programs.
- PSE began a process to document policies regarding the management and administration of the Large Power User/Self-Directed program. This documentation gives program staff and customers clear guidelines and are especially helpful in unusual scenarios.
- PSE included additional FAQs and answers in the 2015-2018 non-competitive RFP. This helped address common customer questions and streamline the process for customers.
- PSE created a new lighting workbook, which was released with RFP. This allowed for easier workbook completion and aligns with current non-Schedule 258 program lighting workbooks.

3) 2015 Accomplishments and Activities

The Large Power User, Self-Directed Program began a new cycle on April 1st, kicking off the 2015-2018 cycle with the release of the non-competitive phase request for proposals. Program participants were notified of their non-competitive phase allocations, and were provided updated program documentation. No new customers were added to the program in 2015.

Projects totaling 4.6 million kWh/yr in energy savings were closed in 2015, representing a total of $1.7 million in incentives. As 2015 was the first year of a new cycle, the number of projects and quantity of savings was lower than typically seen in a mid-cycle year. The length of time to plan and implement efficiency projects makes completing projects difficult in the first, shortened year of a RFP cycle.

4) 2015 Project and Measure Type Summary

There were five projects completed in 2015. Table VI-10 shows a representative number of projects.[27] Indicates the number of measure types installed to provide a sense of program scale. A project may include substantially more than one measure.

Table VI-10: Large Power User/Self-Directed Number of Projects[28]

PROGRAM	Project Count Per Program
	Electric
High Voltage Sch 40, 46, 49	5
High Voltage Sch 449	0
Total Project Count	**5**

Table VI-11: Large Power User/Self-Directed Measure Classifications

PROGRAM MEASURES	Measure Count Per Program
	Electric Measures
258 High Voltage	
HVAC, Controls, Unitary Equipment	3
Lighting	1
Whole Building	1
Total Measure Count	**5**

Custom Grant projects often consist of more than a single measure

Custom Grant measures are rarely prescriptive, with some defying traditional classifications.

[27] It is important to note that listed "O&M" or "Operations & Maintenance" projects do not indicate that these were funded by PSE O&M. Rather, these are projects that address and improve the customer's operations and maintenance functions within the project's structure(s).

[28] Please see the measure table discussion in the BEM Sector Overview, page 77.

E. Energy Efficient Technology Evaluation

Schedules E/G 261

1) Description

The purpose of Energy Efficiency Technology Evaluation is to identify new, energy efficient technologies and products for PSE program offerings. Ideally, PSE would identify cost effective technologies and measures with significant savings potential, which are commercially available. However, there are many emerging technologies that range from "commercially available, but not used in the Northwest," to "conceptual" or "prototypical" technologies still in the development phase.

It is relatively simple to determine whether new, commercially available technologies are suitable, as long as generally accepted engineering calculations can be used, and manufacturers can provide reliable data. For example, vendors frequently approach PSE with new, improved products, claimed to save more energy than their older models, or their competition. Usually these proposals are evaluated by the Energy Management Engineer who is managing the project, who then shares his/her experience with others in the group.

Some technologies are not so simple to evaluate. Those that are truly new typically have little experiential history, or there is no generally accepted method to calculate the performance. Clearly, it would be risky to broadly offer incentives through PSE's programs - risky with regard to uncertain savings and risky for its customers due to unforeseen product issues. If the potential savings look significant, PSE may try the technology on a limited quantity of projects, especially if it is working with a customer who understands the risks and would like to be an "early adopter." Sometimes the most prudent approach is to monitor the progress of the technology, especially if the savings potential appears limited. PSE's effort is not intended for basic research, or product development, but to identify technologies that are available and suitable for its programs.

The most challenging situations arise when vendors propose products that are "too good to be true." Often their savings claims are supported by testimonials from satisfied customers, with little or no reliable test data.

Many technologies, such as transient voltage suppressors, power factor correction devices and paint with high R-Value, have been known for years to save little or no energy, but the vendor may insist their product is different, even though it may only have a different name on the box. Fortunately, PSE has experience with many of these products, or can readily find others who have had experience. It is important, however, to distinguish between inaccurate claims and those that might truly be the new emerging technology that deserves attention.

2) Adaptation through Total Quality Management

As the pilot program with Retrofficiency (outlined in the following section) is relatively new, minimal TQM activities have occurred. PSE has received minimal feedback and data to make adjustments by the end of 2015.

3) 2015 Accomplishments and Activities

In late 2014, PSE signed a contract with a third-party technology provider, Retrofficiency, in order to target 300 buildings through a remote energy audit. Over 300 customers were analyzed and engaged on the first round of outreach where an email was sent displaying the customer's potential for energy savings. Of those customers, 23 percent received an in-depth webinar to review the results. Some customers have committed to scoping and implementing the project.

The program continues in 2016 for the 2nd round of outreach and further leads for other PSE programs.

F. Business Rebates

Schedules E/G 262

1) Description

PSE offers fixed rebates for select, commonly applied measures to commercial and industrial customers. These rebate Measures have been developed where energy savings can be standardized over a wide variety of applications, and where a competitive market pricing structure exists to ensure cost-effectiveness. The following Measure categories are managed in-house by PSE Staff:

- Commercial HVAC (retrofit, demand control ventilation and controls),
- Commercial Kitchen Equipment,
- Commercial Clothes Washers,
- Commercial Kitchen & Laundry Water Heating,
- Business Lighting (Express) Rebates (lamps, exit signs and controls),

PSE contracts with industry experts to implement cost effective Measures tailored to the unique needs of target markets. The following Measure categories are offered through contracted programs:

- Premium HVAC Services,
- Direct Install Pre-rinse spray head valves, showerheads and aerators,
- Small Business Direct Install Measures.

PSE Program Staff monitors program performance, results, and trends. Programs are coordinated closely with the electric and gas Commercial and Industrial Retrofit Program. Program refinements and cost-effectiveness are reviewed with Engineering Staff, the Evaluation Team, and the Manager of Business Energy Management as necessary on an ongoing and adaptive basis. Incentive Measures, marketing and the fulfillment process may be modified, as needed, to respond to developments in technology, market conditions, customer acceptance and/or changes in supplier/contractor delivery and pricing.

2) 2015 Continuous Improvement through TQM

In addition to focusing on program delivery to customers and continuing to build trade ally relations, the Business Rebate team supported the integration and expansion of Measurement and Verification ("M&V") processes by incorporating additional rebate measures into PSE's Verification Team inspection portfolio.

Direct Install Pre-rinse spray head valve, showerhead, and aerator installations were added to the Verification Team portfolio, which yielded real-time feedback on installation persistence and program performance. This in turn allowed for internal planning steps to work to phase out the specific delivery of this stand-alone program in preparation for incorporation into the Small Business Direct Install measure mix and delivery model.

Rebate processing of Commercial HVAC measures were streamlined through the inclusion of alternate pre-inspection methods, allowing customers to integrate the rebate process better into construction timeline constraints.

The rebate processing of the Lighting To Go (Business Markdown) program is handled by a third-party company who implements the processing of rebates and incentives. That company's team is tasked with rebate processing, payment reimbursement, and account administration and reporting, with oversight by the Lighting To Go program staff.

3) 2015 Accomplishments and Activities

Similar to the Residential Sector's Single Family Existing Schedule (E/G 2015), the Business Rebates organization is comprised of several separate programs. Therefore, PSE presents a savings and expenditure breakout (Table VI-12 and Table VI-13 respectively) of the overall Schedule 262 programs to facilitate the appropriate level of reporting transparency.

The Commercial Rebates Program continued offering its successful prescriptive rebates in lighting, kitchen, commercial HVAC, hospitality and other programs. It also contracted the delivery of specialty programs such as the Small Business Direct Install Premium HVAC Service and low-flow pre-rinse spray head/aerator installations.

Table VI-12: Business Rebate Programs, 2015 Expenditures

2015 Expenditures

Schedule	Programs	Total	% of Budget	Budget
	Electric			
	Natural Gas			
E262	Business Rebates			
	Lighting to Go (AKA Business Lighting Markdowns)	$ 655,678		
	Commercial Kitchen & Laundry	$ 121,017		
	Commercial Direct Install (NON-SBDI)	$ 20,969		
	Commercial HVAC	$ 585,234		
	Business Lighting Express	$ 388,821		
	Small Business Direct Install	$ 2,738,317		
	Subtotals	**$ 4,510,037**		
G262	Business Rebates			
	Commercial Kitchen & Laundry	$ 293,092		
	Commercial Direct Install (NON-SBDI)	$ 311,177		
	Commercial HVAC	$ 50,600		
	Small Business Direct Install	$ 22,036		
	Subtotals	**$ 676,905**		

Table VI-13: Business Rebate Programs, 2015 Savings

2015 Savings

Schedule	Programs	Total	% of Goal	Goal
	Electric, MWh			
	Natural Gas, Therms			
E262	Business Rebates			
	Lighting to Go (AKA Business Lighting Markdowns)	4,508		
	Commercial Kitchen & Laundry	318		
	Commercial Direct Install (NON-SBDI)	201		
	Commercial HVAC	1,140		
	Business Lighting Express	1,914		
	Small Business Direct Install	7,193		
	Subtotals	**15,274**		
G262	Business Rebates			
	Commercial Kitchen & Laundry	122,109		
	Commercial Direct Install (NON-SBDI)	113,858		
	Commercial HVAC	10,546		
	Small Business Direct Install	26,070		
	Subtotals	**272,583**		

Based on the success realized in previous program years, the Small Business Direct Install ("SBDI") program conducted three community blitz campaigns in 2015, engaging small business customers in North Bend, Sumner and Kenmore through door-to-door efforts. The Energy Outreach Staff were key contributors to the effort's success. During the blitz activities, a total of 153 small businesses received on-site energy efficiency assessments, direct installation of efficiency measures, and in some cases additional retrofit installations requiring electrical permits,[29] all at no expense to the businesses. The SBDI program also conducted door-to-door outreach and completed assessments and projects at an additional 1,471 small business customer sites.

Following a similar model but with a greater focus on engaging the media and local business presence, PSE also delivered an extension of their Upgrades Campaign – tagged the "Brighter Business Campaign" – specifically targeted at business customers and aimed at increasing customer awareness of efficiency programs available to them. The campaign and culminating event were covered live by TV and Radio stations, in addition to numerous publications and online articles. The event was held at a local shopping plaza where customers received "toolkits" with program information and LED light bulbs, as well as the opportunity to participate in a short survey to qualify them for bigger energy efficiency prizes. The local shopping plaza is expected to save up to $12,000 a year on energy and water bills as a result of this campaign.

The Business Rebates portfolio for both gas and electric exceeded projected savings targets for the year.

Overall spending for gas programs slightly exceeded the planned amounts, while electric spending was less than expected in the plan. Factors related to targets and spending are explained in the respective discussions that follow.

a. Electric

The electric savings accomplishments were mainly due to the success of the Small Business Direct Install Program. For this reason, additional funds were also utilized by the program, which increased savings accomplishments and ensured that the Business Rebate portfolio exceeded electric targets.

[29] It should be noted that generally all work requiring modification of wiring requires an electrical permit, as established by the authority having jurisdiction (AHJ), which may vary throughout PSE's service territory.

Commercial HVAC programs, including Premium HVAC Commercial Retrofit and Hospitality, did not meet goal this year due to several reasons. The program transitioned program mangers going a couple months without a program manager. Once the new program manager was in place there were determined to be several tactics to implement that would allow the program to succeed in the future. Program knowledge among commercial contractors was determined to be lacking and the rebate process was determined to be too complicated for easy explanation to customers. A quarterly contractor round table was established in the fourth quarter to determine better ways to communicate rebate information to trade partners and customers.

Due to fluctuating market conditions and the high cost of new equipment, electric savings for the Commercial Kitchen & Laundry sector came in under target. The particular volatility of this markets trends to reactionary planning, and data is continuously being gathered to better inform future program planning.

Overall expenditures for the Business Rebates electric programs was below anticipated spending levels. This was the result of the final measure mix of direct-installed measures and lower in-house labor and overhead costs than planned due to vacancies in staffing.

i. Lighting To Go

PSE's Lighting to Go program provides instant point of sale rebate savings to lighting contractors who purchase qualified equipment from approved distributors. The Lighting to Go program covers screw-in LED measures as well as plug-and-play Tubular LED ("TLED") measures. The PSE Commercial Retail Lighting program did not meet its savings goal or budget target for 2015 due to slower than expected adoption of commercial LED measures. To energize the program, PSE engaged in a unique partnership with Snohomish PUD to create a limited time offer on specific lighting products within the third quarter to drive sales. This was promoted to distributors who in turn promoted it to their contractor base. The promotion was successful for both utilities, although it wasn't enough to overcome the savings shortfall for the year.

As outlined in the 2016-17 Biennial Conservation Plan, PSE is restructuring the program to make it easier for distributors and contractors to participate. PSE will also continue to look for unique co-promotional partnerships.

b. Natural Gas

The portfolio of Business Rebates programs exceeded gas targets for the year. The main driver of success was the Small Business Direct Install program, through the installation of aerators and pre-rinse spray valves. A concerted effort was made to install aerators in the City of Seattle, which contributed to achieving and exceeding gas targets.

The third party direct installation program for Pre-Rinse Spray Valve and Low-Flow Aerator measures was partially responsible for the Business Rebate portfolio coming in under savings target in part due to market saturation affected by the maturity of the program, and issues with program delivery by the third party installer. These issues specifically shaped plans for these measures in the future.

Due to fluctuating market conditions and the high cost of new equipment, gas savings for the Commercial Kitchen & Laundry sector came in under target. The particular volatility of this markets trends to reactionary planning, and data is continuously being gathered to better inform future program planning. Overall spending for the Business Rebates gas programs was below anticipated spending levels. This was due to the low cost of direct-installed measures, lower in-house labor and overhead costs than planned due to vacancies in staffing, and unanticipated reductions in gas savings from Premium Service HVAC program.

Table VI-14 shows the number of measures and projects, by category, installed in 2015. It is interesting to note that in this organization, more than one measure type may be installed in a single project. Additionally, some measures within this organization are calculated on a per-ton, by building type, (in the case of HVAC Retrofit, many variables factor into each measure) or by individual unit (such as the familiar “per lamp” for most lighting measures). Table VI-14 is clearly illustrative of PSE’s intent to provide a sense of program scale—rather than a comprehensive listing of all measures installed.

Table VI-14: Number of Business Rebate Measures Installed by Type[30]

Business Rebates Measure Counts			
Program Measure Type	Measure *(Unless otherwise noted, all figures represent units)*	Electric	Gas
Small Business Direct Install			
Linear Lamp Conversions	T12 to T8, T8 to LED, Refrigerated LED, etc.	8,100	
LED Lamps	MR-16, Omnidirectional, Par 20/38/40, etc.		
	All building types: school, retail, warehouse, etc.	29,200	
Spray Heads, aerators		1,800	
Commercial Shower Heads		10	
Device, HVAC controllers	Occupancy Sensors, programmable thermostats	50	
Signs	LED open, exit signs	300	
Fixtures, Wall packs		400	
Lamp conversions	HID to LED, HID to T8, etc.	200	
	Aerators		800
	Spray heads		10
Commercial HVAC	(Unless otherwise noted, indicates number of projects)		
	HVAC retrofit	100	
	Premium HVAC service	10	
	Package Terminal Heat Pump (Units)	400	
	Occ sensor (units)	600	
Business Lighting Rebates			
	TLED (Tubular LED)	149,000	
	Lighting occupancy sensor	147,000	
Linear conversions	T12 to T8, etc.	213,000	
Signs	Open, exit signs	12,000	
LED lamps	MR-16, omnidirectional, Par 20/30/40, etc.	1,390,000	
Lighting to Go			
	TLEDs	12,000	
	Hardwired recessed retrofit kits	2,100	
LED lamps	MR-16, omnidirectional, PAR 20/30/30, decorative, etc.	28,000	
Commercial Direct Install			
	Aerators	300	1,800
	Commercial showerheads	60	5,600
	Spray heads	5	10
	Coolermiser installation	3	
Commercial Kitchen & Laundry			
Cooking equipment	Ovens, fryers, steam cookers, etc.	30	150
Dishwashers		20	10
	Commercial washer		40
Refrigeration	Ice makers, refrigerators, etc.	20	
Water heat	Boiler, water heater		10

[30] Please see the measure table discussion in the BEM Sector Overview, page 77.

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VII. PILOTS

Schedule E249

A. Description

Pilot programs and demonstration projects may be undertaken to determine whether certain strategies and Measures are cost-effective in the long run. Pilots are employed to test cost-effective ways to demonstrate market opportunities for energy efficiency.

Pilots may include tests of Measure cost and performance, customer acceptance and delivery methods. In compliance with condition (7)(d), pilots will only claim energy savings that achieve energy savings sufficient to demonstrate cost-effectiveness by passing the TRC test.

Although Pilots appears in Exhibit 1 after REM and BEM Sectors, it is presented in the Report at this point because both REM and BEM share similar Pilot measures. Table VII-1 presents 2015 pilot program expenditures and Table VII-2 presents 2015 pilot program savings.

Table VII-1: 2015 Residential and Business Pilot Program Expenditures

2015 Expenditures

Schedule	Programs	Total	% of Budget	Budget
Electric				
E249	Residential Pilot: HER Expansion	$ 679,404	60%	$ 1,127,007
E249	Business Pilot: Business Energy Reports	$143,210		$ 140,704
Subtotal		**$ 822,614**	**65%**	**$ 1,267,711**
G249	Residential Pilot: HER Expansion	$ 323,425	138%	$ 233,902
G249	Business Pilot: Business Energy Reports	$ -		$ -
Subtotal		**$ 323,425**	**138%**	**$ 233,902**

Table VII-2: 2015 Residential and Business Pilot Program Savings

2015 Savings

Schedule	Programs	Total	% of Goal	Goal
	Electric, MWh			
	Natural Gas, Therms			
E249	Residential Pilot: HER Expansion	3,220	100%	3,219
E249	Business Pilot: Business Energy Reports	5,000	100%	5,000
Subtotal		**8,220**	**100%**	**8,219**
G249	Residential Pilot: HER Expansion	0		0
G249	Business Pilot: Business Energy Reports	0		0
Subtotal		**0**		**0**

B. Residential Individual Energy Report Pilot

In March 2014, the Residential Energy Management Sector launched a pilot based on its successful Home Energy Reports. The pilot is testing an expansion of individual energy reports in three classifications as listed below:

- Non-Urban Customers,
- High Relative User, Low Frequency,
- Electric-Only.

To account for attrition and maintain a total recipient population of approximately 100,000 customers, PSE implemented a refill group in mid-2015, which had an original population of 22,715 dual fuel customers selected to prioritize electric savings. In addition to the paper copy that customers have been receiving, PSE sent an electronic version of the Reports to customers who had an email on file. This was a new way in 2015 to engage this group of customers.

PSE's first independent evaluation of this program showed slightly lower than expected first year savings. However, savings per household continue to trend upwards as expected, and are following a similar year over year growth path as the previous legacy group.

This program's electric costs were lower, while the program's gas costs were higher than planned because the actual allocation split between the programs was adjusted to be more representative of the customer fuel types served. The lower costs were compounded on the electric side due to lower-than-targeted programmatic costs from PSE's contractor.

1) Report Marketing

In an effort to find new ways to market PSE's energy-efficiency programs, on a regular cadence, PSE deployed marketing modules as part of the program. These marketing modules were included within the report itself and included PSE programs such as, but not limited to; appliance rebates, refrigerator recycling, and PSE's HomePrint™ program.

2) Report Engagement & Opt Out vs Attrition

All three segments of the expansion group saw some attrition due to customer account numbers becoming inactive, or because of a customer move or cancellation of service for one reason or another. When compared to PSE's overall customer turnover and inactive rates, the expansion group saw attrition at roughly half the rate of PSEs larger residential customer base. Opt-out rates were very low, with less than 1 percent of customers requesting removal from the program; exceeding expectations when compared to the legacy group when launched in 2008. Table VII-3 shows total reports sent by segment, Table VII-4 shows attrition for the expansion pilot population and Table VII-5 displays Opt-out totals by month.

Table VII-3: Residential Pilot Energy Reports Sent by Segment

Segment	Reports Sent
2008 Legacy	175,165
Expansion Non-urban	184,181
Expansion Relative high user	93,680
Expansion Electric only	130,089
Expansion Residential HER 2015 Refill	112,452

Table VII-4: Attrition for Residential Energy Reports Pilot

	Non-Urban	Relative High User	Electric Only	Total
Original Population	42,000	31,500	31500	105,000
Attrition	10,567	9,512	9,369	29,448

Table VII-5: Cumulative Residential Energy Reports Pilot Opt-Outs

Month (2015)	Number of Opt Outs
January	59
February	18
March	44
April	32
May	49
June	36
July	67
August	30
September	59
October	20
November	62
December	16
2015 Total	492

C. Small to Midsize Business Pilot

The small to midsize business ("SMB") efficiency pilot seeks to evaluate the effectiveness of engaging a select group of business customers through direct-mailed energy reports, e-mail messaging, and a web portal to provide energy usage comparisons, segment-specific energy insights and targeted calls to action for SMBs to save money and improve energy efficiency.

1) SMB Program Description

The SMB pilot program may include the following elements:

- Direct-mailed Business Energy Reports which may include:
  - *Personalized introduction* announcing report's purpose to the SMB owner,
  - *Business comparison* enabling customers to understand what "normal" energy usage is for their given business type,
  - *Usage analysis* exhibiting use and expenses over time,
  - *Energy best practices* to encourage immediate energy-saving behavior,
  - *Targeted program marketing* of applicable energy efficiency programs,
  - *Case studies* of simple investments taken by similar businesses,
  - *Collateral materials* such as stickers, checklists, etc. to encourage efficient behaviors.
- Customer e-mail messaging via either an opt-in or opt-out approach to provide seasonal energy efficiency tips, provide electronic copies of direct-mailed reports, etc.
- Customer web portal which may provide:
  - *Usage & cost analysis* enabling SBMs to understand patterns in energy consumption and costs,
  - *Utility program promotion* to create awareness of available rebates and efficiency programs,
  - *Efficiency tips* tailored to SMB customers,
  - *Savings plan* implementation tools,
  - *Efficiency collateral* that can be downloaded and printed such as stickers, checklists, etc. to encourage efficient behaviors.

2) Primary Targets

This pilot targeted approximately 10,000 SMBs throughout PSE's service territory. Pilot participants will receive 10 direct-mailed reports over a period of 18 months. The energy usage of the participant group will be compared to control data and evaluated after conclusion of the 18 month period.

3) 2015 Results

PSE and OPower, the chosen vendor for the Business Energy Report program, successfully launched the SMB program in 2014, with the first report package being mailed on December 4, 2014. In 2015, PSE and OPower continued their 18-month pilot in providing Small/Mid-Size Businesses with business energy reports to raise awareness of the energy consumption, and to try to engage them in participating in PSE's multiple Energy Efficiency programs. Here are the highlights for 2015:

- Adaptive management through TQM
  - Refined marketing message timeline, content creation, and review process in coordination with Opower,
  - Created targeted message for the restaurant sector, using Opower's segmentation capability,
  - Incorporated eBER (email Business Energy Reports) to those SMB customers that and who are participating in the program and provided PSE with their email addresses.

- Accomplishments
  - Promising gas results, with an estimated 87,735 therms saved since program inception and an average savings rate of 1.6 percent. Note the program has not yet achieved electric savings as expected,
  - Engaged around 10,000 hard-to-reach SMB customers,
  - Promoted multiple SMB programs, including a targeted promotion for the restaurant sector.

VIII. REGIONAL EFFICIENCY PROGRAMS AND RELATIONSHIPS

A. Overview

Table VIII-1 and Table VIII-2 provide savings and expenditure results for two programs that PSE classifies as Regional; the Northwest Energy Efficiency Alliance ("NEEA") and Production and Distribution expenditures & savings. These programs are outside of the REM and BEM Sectors.

Table VIII-1: Regional 2015 Expenditures

2015 Expenditures

Schedule	Programs	Total	% of Budget	Budget
Electric				
Natural Gas				
E254	Northwest Energy Efficiency Alliance	$ 2,690,129	56%	$ 4,771,922
E292	Production & Distribution Facilities	$0		$ -
Subtotal		**$ 2,690,129**	**56%**	**$ 4,771,922**
	NEEA Natural Gas Market Transformation Initiative	$ 936,063	127%	$ 738,000
Subtotal		**$ 936,063**	**127%**	**$ 738,000**

Table VIII-2: NEEA and Production & Distribution 2015 Savings

2015 Savings

Schedule	Programs	Total	% of Goal	Goal
Electric, MWh				
Natural Gas, Therms				
E254	Northwest Energy Efficiency Alliance	22,338	100%	22,338
E292	Production & Distribution Facilities	0	0%	8,100
Subtotal		**22,338**	**73%**	**30,438**
	NEEA Natural Gas Market Transformation Initiative	0		0
Subtotal		**0**		**0**

B. Northwest Energy Efficiency Alliance

(PSE uses the NEEA trademark with permission.)

Schedule E254

1) Description

NEEA is a non-profit organization working to maximize energy efficiency to meet the future energy needs of the Northwest. NEEA is supported by, and works in collaboration with, the Bonneville Power Administration, PSE and more than 100 Northwest utilities on behalf of 12 million electric customers.

PSE and its customers benefits from NEEA's market transformation work to accelerate the market adoption of energy-efficient products, services and practices, and to fill the Energy Efficiency "pipeline" with emerging technologies. NEEA works "upstream" to expand the market for energy efficiency and complements utility programs without duplicating efforts. NEEA's regional advantage allows PSE and other Northwest utilities to leverage the market power of the entire region to realize economies of scale.

PSE also participates in NEEA's Cost-Effectiveness Committee to:

- Conduct an annual review of NEEA cost effectiveness and aMW savings information for reporting purposes.
- Review market transformation cost and savings measurement and estimation methods.

Exhibit 10 of this Report summarizes NEEA's 2015 value delivery to PSE for both its electric transformation efforts, as well as the new Natural Gas Advisory Committee. PSE extends its sincere appreciation to the NEEA staff for their extensive work to provide this level of detailed information outside of its normal reporting cycle.

For additional information about NEEA's unique value to the region, history, structure and recent initiatives, please visit www.neea.org.

2) 2015 NEEA Savings

NEEA provided its savings forecasts during PSE's Biennial Conservation Plan ("BCP") development in the latter part of 2013. In consultation with the CRAG, PSE-adapted the source figures provided by NEEA. NEEA's final 2015 electric savings results will include NEEA initiatives started in 2015 as well as codes and standards; the results from those initiatives aren't available at the time of this Report's publication, but will be finalized by NEEA by May 2016.

a. Adapting NEEA forecasts to PSE Baselines

As reviewed with the CRAG in the August 22, 2013, the CRAG meeting,[31] PSE made adjustments to NEEA's savings (for its 2014 savings figure, based on the 6th Power Plan baseline) forecast in order to align with PSE's IRP baseline. In that forecast, NEEA aligned components of its initiatives with measures in the Power Plan to establish a baselines from which to count savings. PSE adjusted the forecast, informed by Cadmus' "Comprehensive Assessment of Demand-Side Resource Potentials (2014-2033)". That assessment was used as a part of PSE's 2013 IRP development.

PSE adjusted NEEA's 2015 savings forecast using a proxy 7th Power Plan baseline, developed by NEEA, using three steps:

1) NEEA reviewed the market forecast of each product and behavior. Savings from measures that were projected to achieve their potential by 2014 could not count toward the 7th Power Plan baseline.

2) NEEA replaced its savings rates with the Regional Technical Forum (RTF) savings rates where available.

[31] PSE and the CRAG discussed the topic of NEEA savings in other CRAG meetings, however, not in context of adapting NEEA savings forecasts to PSE formats.

3) NEEA looked at the difference in market adoption between the date of the baseline and 2014—the date of the 7th Power Plan baseline. If the market share were forecasted at 70 percent in 2014 and 10 percent when the savings rate baseline was set, NEEA would assume 60 percent of the market adoption in 2015 is the change in baseline from 2010 to 2014. These baseline units cannot count in the 7th Power Plan.

It is important to recognize that NEEA compiles final electric savings figures for several months after the conclusion of a program year. Thus, final 2015 savings results attributable to NEEA efforts are unavailable until late May or early June 2016.

b. NEEA Expenses

The electric budget of $4.7 million was underspent as a result of (1) timing; in the fourth 2015 billing cycle, there was an unbudgeted true-up of $1.36 million (two NEEA invoiced were reduced by 50 percent), and (2) 2015 Journal Entries from Schedule 258 customers[32] of approximately $700,000 partially offset NEEA expenses.

c. NEEA's Natural Gas Market Transformation Collaborative

2015 also saw the first full year of operations for the NEEA Natural Gas Market Transformation Collaborative, of which PSE is a major funder. This initiative is the first regional natural gas effort in the nation.

Working in concert with Energy Trust of Oregon, Avista Utilities, NW Natural, and Cascade Natural Gas Corporation, NEEA is coordinating the evaluation, testing, manufacturing, marketing, and installation of five new energy-efficient natural gas measures.

[32] Consistent with Section F.13 of the 2010 Conditions, Electric Settlement Terms (Docket No UE-100177), 10 percent of funds paid by Schedule 449 customers participating in PSE's Large Power User/Self-Directed program (Schedule 258) are directed to the market transformation (NEEA) account.

The measures included in NEEA's 2015-2019 plan are:

- Natural gas-fired heat pump water heaters,
- Efficient hearth products,
- Rooftop HVAC,
- Natural gas dryers, and
- Water/space heat combination systems.

It is expected that over the long-term, the suite of measures will become cost-effective.

One of the five measures, natural gas-fired heat pump water heaters, started as a pilot program in the fall of 2014, with the first test units installed in three customer's homes[33] in the first quarter of 2015. Testing was completed in the fall of 2015. Analyses continue on the evaluation of the test units; from testing upgraded components that demonstrated a high failure rate during the pilot to developing alternate ways to vent refrigerant.

In the Collaborative's 2015-2019 business plan, PSE funds 41 percent of the $18.3 million budget. PSE included the first-year funding amount of $738,000[34] in its 2015 Annual Conservation Plan. However, PSE received and paid the Q1 2016 Collaborative invoice for approximately $270,000, in December 2015. This caused the actual 2015 expenses to exceed budget.

d. Exhibit 10: NEEA 2015 Report of Activities and Initiatives

Exhibit 10 of this Report summarizes 2015 activities, regional initiatives, and outcomes in the areas of emerging technologies, residential, industrial, commercial, codes and standards, partner services and evaluation by the Northwest Energy Efficiency Alliance in PSE's service area.

[33] One unit will be installed in Spokane WA, one in Portland OR, and one in Redmond WA.

[34] At the time of the ACP filing, a key natural gas utility hadn't enrolled in the Collaborative. Subsequent to the filing, that utility joined the Collaborative, which resulted in an approximate $90,000 reduction in PSE's actual first-year contribution.

C. Production and Distribution Efficiency

Schedule E292

1) Description

The purpose of the Production and Distribution Efficiency program is to evaluate and implement energy conservation measures that prove cost-effective, reliable and feasible within PSE's own generation and distribution facilities.

Within generation facilities, conservation measures reduce ancillary loads at the site and exclude efficiency improvements made to the generating equipment itself. The measures are focused on equipment powered by the grid when the site is not generating. These measures may include, but are not limited to, lighting upgrades, variable speed drives and compressor upgrades.

For distribution efficiency, PSE implements improvements at PSE's electric substations. These improvements can involve reducing the energy use within the substation itself and the distribution of energy from it. They can range from on-site measures like lighting and heat pumps to system measures like phase balancing and conservation voltage regulation (CVR), which is also referred to as voltage optimization (VO).

This program requires coordination between the Energy Efficiency program manager and staff in other PSE departments to collect project-specific details for program tracking and reporting.

2) Total Quality Management

Program staff Improved processes by realigning roles and responsibilities of different PSE departments that support the program.

3) 2015 Accomplishments

Even without conservation funding available, the Production and Distribution Efficiency program was able to implement multiple energy efficiency activities in distribution substations in 2015.

As a result of data collection and reporting compatibility issues[35] however, the program will recognize these savings in the 2016 calendar year.

For the distribution component of this program,

- Conservation Voltage Regulation ("CVR") was the measure implemented at three substations. Given the retirement of key members of CVR's data analysis team and the company's switch to a new data base system (SAP), the resulting loss of institutional knowledge delayed the CVR team's gathering of the energy use data for each substation where CVR was installed. Consequently, the review of metered data to estimate savings was delayed and the savings generated from these CVR projects were not recognized under the 2015 calendar year. These savings are expected to be reported in the 2016 calendar year.
- Meanwhile, at three other substations, phase balancing was done in order to get an accurate sense of the loading per phase, and the voltage drop was estimated to get a sense of how much the voltage can be lowed for CVR. The next step will be to install AMI (Automated Meter Infrastructure) meters at the end-of-line (EOL) for the three substations to allow for pre and post CVR EOL voltage monitoring. Depending on PSE's O&M budget available, that work will be completed either in 2016 or in 2017.

For the generation component of this program, program staff made a concerted effort to continue to identify and implement energy efficiency projects at power generation plants. These efforts included doing an energy audit of a generation station. Also, BEM's energy management engineer held recurring quarterly meetings with non-power generation facility staff. They discussed energy-efficiency related activities at each plant and document ongoing efforts by the engineering and technical staff to save energy at our generating plants. Maintaining this regular flow of communication has reinforced the energy-efficiency culture within PSE.

As a result, several lighting retrofit projects were implemented and others are planned. Due to the above-noted data collection and reporting compatibility issues, savings from these projects are expected to be reported by BEM in 2016.

[35] Most generating and distribution facilities utilize legacy PSE reporting systems. In order to ensure accurate recognition of conservation savings, program staff are working with PSE system experts to preserve data integrity as it's migrated to Energy Efficiency reporting systems. Program staff expect to have these issues resolved in the first quarter of 2016.

For pagination consistency, PSE purposely left this page blank.

IX. MEASUREMENT & VERIFICATION

The Energy Efficiency department provides a discussion of Measurement & Verification ("M&V") at this point in the Report as M&V relates directly to the savings programs reviewed in Chapters 4, 6, 7 and 8. It is important that readers understand the rigor with which PSE manages its two fundamental conservation metrics: savings achievement and financial prudence. Energy Efficiency and its supporting organizations devote staffing, processes, training, and systems with an eye toward consistently improving efficiencies, productivity and transparency, while ensuring the highest degree of savings and financial accuracy.

In addition to M&V functions and activities that REM and BEM staff perform, other supporting organizations are also responsible for executing elements of these functions, including Program Evaluation, Rebate Processing, Data and Systems Services, and the Verification Team.[36] The Report discusses Rebate Processing and Data & Systems Services activities in Chapter 10: *Portfolio Support*. Verification Team and Evaluation activities and accomplishments are reviewed in Chapter 11: *Research & Compliance*.

The remaining departments: Energy Advisors, Energy Efficient Communities, Strategic Planning, Marketing Research, etc., also contribute in varying degrees to Energy Efficiency's M&V efforts.

A. Measurement Activities: Accounting, Tracking, and Assembling Information

Energy Efficiency's Measurement and Verification processes—most of which are long-standing embedded elements of its programs—are consistent with and often exceed the requirements outlined in condition (6)(f):

> "Puget Sound Energy must spend a reasonable amount of its conservation budget on EM&V, including a reasonable proportion on independent, third-party EM&V. Puget Sound Energy must perform EM&V annually on a four-year schedule of selected programs such that, over the EM&V cycle, all major programs are covered. (…)"

[36] Another organization, the Budget, Evaluation, Administration & Regulatory Team, also significantly contributes to Measurement and Verification efforts. That team's costs (primarily labor) assess to the overall Energy Efficiency organization, and are not separately budgeted.

The following discussions highlight key areas of measurement and verification resources, tools, and processes implemented by Energy Efficiency staff to accurately measure and track electric and natural gas measure savings, along with their corresponding expenditures. Many of these resources include software systems that are incorporated into the Energy Efficiency operations.

Systems illustrated in Figure IX-1 are enterprise-level and proprietary systems, including tracking databases that the Energy Efficiency department developed. Where applicable, many conservation programs track the number of rebates processed, measures installed, grants paid, contracts or Memos Of Understanding ("MOUs") executed, and invoices paid using tools built specifically for those programs. A new system, "DSM Central", underwent a significant amount of development throughout 2015 and is scheduled to be fully deployed department-wide in 2016. PSE provides a more thorough discussion of DSM Central in Section D on page 145.

PSE intends that the following discussions provide general overviews, rather than comprehensive process reviews.

1) Conservation Savings

A key outcome of the Measurement & Verification function is the accurate representation of measures installed, and accounting for conservation savings as they are determined by:

- Prescriptively setting the savings value,
- Determining savings values using standard engineering calculations applied for a class of measures,
- Formally evaluating the actual savings realization rates or,
- Measuring savings at the customer meter or equipment locations (primarily associated with custom grants).

a. Measure Savings Values

Exhibit 5, Supplement 1 of this Report lists the savings values for all prescriptive, (RTF Unit Energy Savings ["UES"] and PSE Deemed) and selected calculated measures by program (most often associated with a Schedule number) and fuel type. Prescriptive measure values fall into two categories: RTF UES and PSE Deemed.

As applied by Energy Efficiency, both are consistent with WAC 480-109-100(5):

> (5) Energy savings. A utility must use unit energy savings values and standard protocols approved by the regional technical forum, unless a unit energy savings value or standard protocol is:
>
> (a) Based on generally accepted methods, impact evaluation data, or other reliable and relevant data that includes verified savings levels; and
>
> (b) Presented to its advisory group for review. The commission retains discretion to determine an appropriate value or protocol.

And conditions (6)(b) and (c):

> (b) Except as provided in Paragraph (6)(c) below, Puget Sound Energy must use the Council's Regional Technical Forum's ("RTF's") "unit energy savings" ("UES") and approved methods and protocols for electricity measures, and distribution efficiency. As of the date of this Agreement, the RTF maintains a Web site at http://www.nwcouncil.org/energy/rtf/.
>
> (c) If Puget Sound Energy uses savings estimates, methods or protocols that differ from those established by the RTF, such estimates, methods or protocols must be based on generally accepted impact evaluation data and/or other reliable and relevant source data that has verified savings levels, and be presented to the CRAG for comment.

All deemed measure source of savings documentation is archived and is available for query in the Source of Savings database, which comprises one element of Energy Efficiency's Measure Metrics system. Calculated measures are similar to deemed measures, in that their savings value can be determined on a per-unit basis. The step that differentiates them from Deemed (or UES) values is that there are one or more additional calculations that must be completed before an accurate representation of their savings value can be determined. These calculations, based on engineering analyses, samples, and industry standards, etc., can range from hours of operation, tonnage (in the case of an HVAC measure), building type (for instance, school, retail, restaurant), etc.

Due to their complexity and variability, these types of measures aren't archived in the Source of Savings database.[37]

[37] For instance, certain Commercial HVAC measures in the past had more than 300 permutations, causing database management to become unwieldy.

When an impact evaluation is performed and a prescriptive measure savings value is verified, Program staff will apply pertinent revisions in the following year, consistent with Energy Efficiency's *Measure Revision Guidelines*.

Measures installed as a part of Commercial/Industrial custom grants are unique, in that every grant project is evaluated by a PSE Energy Management Engineer ("EME").

EMEs use data loggers, meter data, engineering computations and other measuring tools to evaluate predicted savings. Every project's calculations are subsequently verified for confirmation of savings by a senior EME prior to grant payment.

b. Savings Tracking

After vetting a prescriptive measure's savings value and obtaining the director of Energy Efficiency's approval, the measure value and source of savings data is archived in the Measure Metrics databases.[38] Program staff then follow a rigorous process to report their measures' monthly installations in the applicable system. Program data is systematically uploaded to the EES Tracking and Forecasting Database, where the archived savings value is linked to the applicable measure quantity. The system then checks the entries; ensuring that an indicated measure count wasn't inadvertently entered in the previous month, etc.

To ensure accurate savings reporting,[39] program staff confirm the monthly savings and expenditure figures in the Database. After this check, the data is locked for entry, and is available for external reporting (discussed in the Savings Reporting section). Calculated and custom measure data is aggregated within the applicable program—typically CSY, discussed on page 142—and logged into the database as a single number.

[38] Primary Measure Metrics databases are CSY, EES Tracking and Forecasting System, and the Source of Savings database.

[39] Measure data originates from a variety of sources, including contracted vendors, third-party administrators, Low-Income Agencies, direct install reports, rebate applications, etc. Entities outside of Energy Efficiency only report measure counts. Savings values are only archived and reported from within the Measure Metrics database systems.

c. Savings Adjustments

Although Energy Efficiency's programs maintain robust processes and systems that undergo continuous improvements to ensure accurate savings and financial tracking, there are infrequent instances when an adjustment is necessary.

Exhibit 1, Supplement 2: *Savings Adjustments,* lists and describes each electric and natural gas savings adjustment, along with its respective adjustment value, and an aggregate total of all adjustments that were performed throughout 2015. Adjustments apply to all measure types. The savings adjustment process is outlined in the Energy Efficiency document *Guidelines for Ensuring the Accuracy of Electric and Natural gas Savings Claims*.

A key principle of proper savings accounting is that savings are not adjusted retroactively in a past month. Therefore, all adjustments, once approved, are made in the current reporting month, even if making the adjustment results in a negative value in the current month. Although very rare, there may be multiple adjustments for a single program or multiple programs in a single month. Adjustments may apply to either electric or natural gas values and may be positive (indicating that the originally-reported value was understated) or negative (indicating that the originally-reported value was overstated).

Savings adjustments are approved by a senior manager only after the applicable program manager has addressed five questions:

1. What is the reporting discrepancy?
2. How was the discrepancy discovered?
3. What was the effect of the discrepancy?
4. How is it corrected?
5. How will program staff ensure that the discrepancy is not repeated?

Once approved, an adjustment entry is made to all applicable tracking and reporting systems.

Archived savings values are revised only:

1. In the case of errors. If it is discovered that an archived savings value is incorrect (for instance, it is entered into a database as “43” kWh, when the actual savings is “34” kWh), the savings value is adjusted and all savings reported to that point—back to the beginning of the current year—are corrected.
2. In the case of an evaluation, industry study or RTF revision updating the savings value of a current measure. In this case, the value is adjusted at the beginning of the following year, consistent with Energy Efficiency’s *Measure Revision Guidelines*.

Since 2008, PSE has implemented several processes and guidelines to ensure that its savings reporting—both electric and natural gas—maintain the highest accuracy standards. The most significant of these outlines the methods of vetting, justifying, counting and reporting measure savings: *Guidelines for Ensuring the Accuracy of Electric and Natural gas Savings Claims*.

This comprehensive document ensures consistency across programs and Sectors, outlines rounding rules for savings values and measure counts, discusses applicable reporting periods, and how retired measures are tracked, reported and archived.

i. 2015 Accomplishments, Continuous Improvement and Adaptive Management

Through the continuous improvement efforts and focus of the Data and Systems Services Team, program staff, and the Budget & Administration Team, the number of savings adjustments declined from the 2014 total of 20. In 2015, there were 14 savings adjustments in total; 9 electric, 5 natural gas.

Many were the result of vendor or contractor training issues, and were addressed as a part of adjustment reporting process.

The Budget and Administration team collaborated with program staff to streamline the adjustment request process, enabling adjustments to be made in the same month that they’re requested. PSE provide the details of these adjustments in Exhibit 1, Supplement 2: *Savings Adjustments*.

This 35 percent improvement in overall savings adjustments continues PSE's positive trend of continuous improvement, reflecting customer-facing process and rebate application refinements, with continued emphasis on thorough data review prior to reporting. The overall savings reported in Exhibit 1 are reflective of those adjustments.

d. Savings Reporting

Subsequent to the data acquisition and reconciliation in the EES Tracking and Forecasting System and CSY, all figures are copied to the Summary Tracking Master workbook. After the Summary Tracking Master (noted in Figure IX-1 on page 144) is populated with the monthly savings and financial information, it is forwarded to program staff for a last double-check and vetting.

The aggregated monthly data is then compiled, and logged in the Energy Efficiency Exhibit 1: *Savings and Expenditures* spreadsheet, which also populates the various savings and financial tables within this Report.

Energy Efficiency routinely reviews its key recording systems, such as the EES[40] Tracking Database, the Source of Savings database, and the EES Summary Tracking Master. The systems are regularly upgraded, improved, and double-checked by program staff and the Data and Systems Services Team to validate their accuracy.

i. Accomplishments, Continuous Improvement and Adaptive Management

Data and Systems Services' monthly data reconciliation process captured and reconciled the majority of reporting errors before the errors made their way into the tracking systems.[41] PSE streamlined the process to reconcile measure database reference numbers, providing for easier and more accurate measure savings cross-references used in reporting Exhibits.

[40] Although the correct organization name is "Energy Efficiency," many systems, files, and network drives were built with the name "EES," which stands for "Energy Efficiency Services." Updating the names would result in broken links and invalid URLs. It is common to find the references interchanged.

[41] PSE discusses additional Data and Systems Services accomplishments in Chapter 10, *Portfolio Support*.

2) Conservation Expenditures

All Energy Efficiency staff are responsible for ensuring the accuracy of invoices and financial charges to their programs. These can include charges from other PSE departments: marketing department labor charges for Direct-to-Consumer Channel collateral development, for instance. Program staff are required to reconcile their program's SAP[42] records on a monthly basis to ensure accuracy.

Energy Efficiency staff are required to attend introductory accounting training. Refresher training is also made available throughout the year. Additionally, staff members who are authorized to approve invoices are required to attend annual training and sign a due diligence affirmation, consistent with PSE corporate accounting policies.

Expense accounting in SAP is used as the basis for PSE's annual Schedule 120 filing, PSE's funding mechanism for conservation programs. PSE hosts UTC Staff and welcomes CRAG member attendance each March-April timeframe to review Energy Efficiency expenses in preparation for its annual Schedule 120 Commission open meeting.

As noted in the Conservation Savings discussion in the previous section, Energy Efficiency intends that the below-referenced process discussions only provide an overview, rather than a comprehensive process review. The financial accounting applies equally to expenses incurred as a part of executing conservation programs (labor, incentives, employee expense, etc.), as well as paying third-party evaluators, vendors, printers, etc.

[42] PSE discusses SAP in more detail on page 142.

a. Expense Tracking

SAP accumulates charges and credits them to Energy Efficiency order numbers.[43] Within each order number, there are cost elements (sometimes referred to as an account numbers), that are used to log the specific type of account to which the expense is recognized.[44] SAP provides functionality that allows authorized users to "drill down" into expenses; accessing specific invoices, charges from supporting departments, etc.

b. Financial Adjustments

Similar to measure savings adjustments, expenses that have already been logged into SAP erroneously must be adjusted to reflect the correct accounting.[45] The process used to effect those infrequent adjustments is similar to that discussed in the measure savings adjustment section above.

Moving expenses from an incorrect account to the correct account is accomplished by the use of a journal entry ("JE"). This process is strictly controlled by the Company, and has rigid segregation of duties requirements. For instance, in the two-step JE process, a staff member who "parks" a journal entry may not also "post" it in SAP.

c. Expenditure Reporting

Each month, SAP records for all Energy Efficiency order numbers are downloaded and entered into the EES Summary Master Tracking workbook. The EES Tracking and Forecasting Database also archives expense data, using a feed from SAP.[46]

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[43] The order numbers used by Energy Efficiency programs are listed in the "Sector Views" of the 2014-2015 Biennial Conservation Plan's Exhibit 1: *Savings and Budgets* workbook. Order numbers, formatted according to FERC accounting requirements, are used to account for program costs in SAP.

[44] Cost elements can include, but are not limited to categories such as labor, overhead, outside services, employee expenses, etc.

[45] An example may be where a natural gas rebate was entered into CSY as an electric rebate. In this case, a savings adjustment (reclassify therm savings as kWh savings) and a financial adjustment are required.

[46] Figure IX-1 on page 144 illustrates these systems.

The two systems are intentionally separate to ensure segregation of duties, thus providing an additional point of reconciliation. When the Demand Side Management ("DSM") project is complete, DSM Central (DSMc) will be the replace the EES Tracking and Forecasting Database and its functionality.

i. Accomplishments, Continuous Improvement and Adaptive Management

The Budget and Administration team refined several steps and worksheet lookups in the EES Summary Tracking Master so that any data inconsistency is identified within the reporting month, eliminating the need for manual reconciliation and time-consuming review at year's-end.

3) Data and Systems Services

Data and Systems Services plays an important support role for all of Energy Efficiency, and is a key component of measurement and verification functions for the entire department. The group provides the department with the tools, data, reporting and analyses necessary for rigorous measurement and verification processes.

PSE provides a complete discussion of the Team's 2015 activities and accomplishments in Chapter 10: *Portfolio Support*, in the Programs Support section.

B. Program Verification Activities

The discussion here provides general highlights of additional verification activities that Energy Efficiency staff regularly perform. Apart from Verification Team-specific activities, Energy Efficiency verifies electric and natural gas conservation savings and expenditures using a wide range of processes, tools, systems, and reports. Energy Efficiency discusses specific descriptions and accomplishments of the Verification Team in Chapter 11: *Research & Compliance*, page 186. PSE discusses custom grant verification in section 2 below.

Data sources used in verification processes include but aren't limited to vendors, contractors, customer rebate and grant applications, program staff input, telephone surveys, and reseller invoices. Energy Efficiency also verifies that the savings values indicated by evaluation studies, engineering analyses, or the RTF are correctly applied, that the savings values are properly archived, that all tracking systems are accurately counting the number of measures installed, are applying the correct savings values, and—when corrections are required—they are recorded using generally-accepted accounting procedures.

The range of verification activities are executed by several groups within Energy Efficiency, including program staff, who review and verify measure installations, grant status, and sales reports[47] for measure type and measure count accuracy. Data and Systems Services staff, rebate analysts, Budget & Administration staff, and third-party reviewers also perform critical verification tasks.

Some of the activities are unique to one particular team or function; for instance, the Verification Team. Some departments, though, perform more than one verification activity throughout the course of managing Energy Efficiency operations.

1) Measure Verification

Two of the most critical verification elements necessary to ensure savings accuracy are the verification of measure installation and the verification of the savings associated with those measures.

[47] It is difficult to verify the installation of consumer lamps sold through retailers, for instance.

The following measure verification discussions pertain primarily to prescriptive measures, although the concepts also frequently apply to some calculated measures[48] and custom grants.

a. Measure Count Verification

All measure counts processed by Data and Systems Services and by the Rebates Processing Team are reconciled against CSY and the EES Tracking and Forecasting Database through a careful review of monthly data prior to its reporting. Program staff regularly review the measure count data, providing a double-check and corroboration with projections.

b. Measure Savings Verification

A key reference in the assurance of measure savings verification is PSE's reliance on the information archived in the Measure Metrics system, including the Source of Savings database, the EES Tracking & Forecasting Database and CSY. The savings figures archived in the Source of Savings database are routinely compared against the savings data residing in the EES Tracking & Forecasting Database, which is used to accumulate and record year-to-date aggregate savings. Similarly, those Deemed and Calculated savings values that are archived in these databases are also compared to measure savings values in CSY to verify accurate reporting of savings values. When necessary, PSE follows a rigorous savings adjustment process if it is discovered that certain savings values disagree between the databases.

c. Rebate Processing

Rebate application processing and analysis is another vital verification component. A complete discussion of this organization's activities and accomplishments is included in Chapter 10: *Portfolio Support*, on page 168.

[48] Measures that have a fixed savings value that is modified in some way; by number of usage hours, building type, tonnage (in the case of HVAC equipment), etc.

2) Business Energy Management Custom Project Verification

The full range of verification activities is conducted when an energy management engineer (EME) manages a custom grant; either in the Commercial/Industrial (C/I) Retrofit, C/I New Construction, Resource Conservation Management, or Large Power/Self-Directed programs. EMEs verify project elements such as measure quantity, baseline energy consumption, potential savings, projected and actual equipment performance, and actual conservation results.

Every custom grant project includes a peer review by a more senior EME. A large number of Business Lighting Rebate projects are selected for EME review, and the Verification Team inspects a calculated number of projects and commercial prescriptive rebates. Before a customer grant is authorized for payment, it must meet verification requirements.

Business Energy Management staff use several functions within the CSY system to manage the processing steps for custom grants, from the initial customer discussion, through the grant creation, work progress and savings measurement, final verification, and grant payment.

C. Final Presentation of Energy Efficiency Information

As briefly referenced in the previous discussions, Energy Efficiency employs a combination of proprietary and enterprise software applications and tools to accumulate, validate, report, and where necessary, adjust financial and energy savings figures with a high degree of integrity and accuracy. Figure IX-1 is a high-level graphical representation of key Energy Efficiency system relationships as they operate today.

Each application plays an integral part in producing the entire contents of Energy Efficiency's Annual Reports.

SAP (originally named "Systeme, Anwendungen, Produkte", German for "Systems Applications and Products") is an enterprise system and is used throughout PSE. SAP provides all financial information, including vendor contracts, material orders,[49] staff pay and expense reporting, and overhead allocations. SAP will continue to operate as it does today with respect to program operations, program spending, and incentive check distribution when DSM central (discussed in the following section) is fully implemented.

CSY tracks projects—custom, calculated, and those using prescriptive measures—with the associated customer incentives paid and the electric and/or therm savings. Energy Efficiency policies strictly limit access to CSY to authorized staff only. The type of access ("reporting only", "data entry only", "approval only", etc.) is also limited according to PSE strict segregation of duties rules. CSY will become a read-only application after the DSM project, so that the data will be available as needed, but the functionality it provides today will be located in DSMc.

The EES[50] Tracking & Forecasting Database tracks measures installed and expenses incurred, primarily for Residential programs. It also, though, accumulates BEM savings and financial information, used for internal forecasting and monitoring, along with expenditure data from supporting functions. The EES Tracking & Forecasting Database will become a read-only application after the DSM project, so that the data will be available as needed, but the functionality it provides today will be located in DSMc.

[49] Material orders sometimes include lamps used in Energy Efficiency events, carbon monoxide detectors used in weatherization projects, etc.

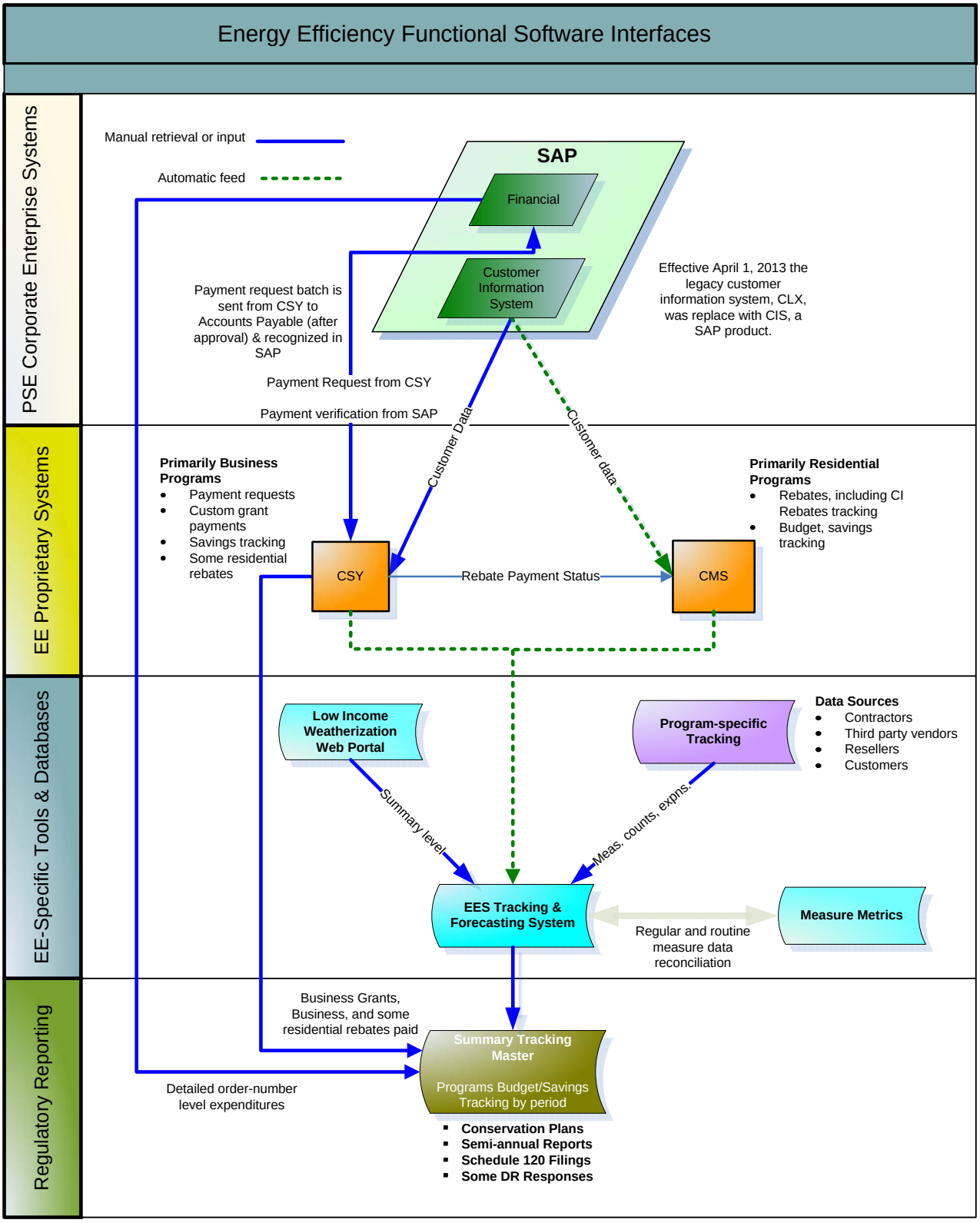
[50] Prior to 2012, the Energy Efficiency department was named Energy Efficiency Services. In some databases, this name carried throughout system updates, avoiding complicated table/query/report revisions and re-programming.

CMS (Customer Management System) is a proprietary system used to inform PSE customers as to the status of a rebate application, energy-efficiency measure installation history (as determined by rebates paid) and other useful, customer-centric information. CMS interfaces with the EES Tracking & Forecasting Database, CSY, and SAP. CMS will become a read-only application after the DSM project during 2016, so that the data will be available as needed, but the functionality it provides today will be located in DSMc.

The Source of Savings database serves both a Measurement and Verification role in Energy Efficiency and is a key database in Energy Efficiency's Measure Metrics archival system. It is important to note that the Source of Savings database does not track savings throughout the year; it only serves as a repository of savings values and their justification documentation. This database will also become a read-only reference following the complete implementation of DSM central.

Measure tables included in Exhibit 5, Supplement 1 and Supplement 2 are generated from the EES Tracking and Forecasting Database and the Source of Savings database, respectively. The database archives all prescriptive and some selected calculated rebate measures; those that have deemed savings values, in addition to other factors that make them "calculated". For instance, hours of operation, tonnage (some HVAC systems), system controls, business type (retail, school, office), etc.

Figure IX-1: 2015 Energy Efficiency Management Tracking and Reporting Interface



D. DSM Central Implementation

As the DSM project moves through the different waves of functionality (programs, measures, reporting, etc.) that are currently provided by largely custom in-house applications, the systems model will change. The goal of the project is to migrate programs and data into a single system for tracking and reporting purposes. An additional goal is to enable customers and contractors to submit applications online rather than using email or standard mail.

The DSM project began in the first quarter of 2015, with heavy design/build activities happening in DSMc with the product provider, Nexant, in the spring and summer. To focus the team and others, in July, a change was made to only focus on similar program groups simultaneously. As a result, Energy Efficiency now has most of its data-focused program groups (vendor provided program data, externally processed) in the production environment, at year end. Requirements gathering for the Rebates, Verification, Energy Advisors, and Contractor Alliance Network (four major focus areas) was in full force in December 2015. Deployment of these will be in the first and second quarters of 2016. Remaining programs including custom programs will be targeted subsequently.

In 2016, the system relationships will transition as we bring the DSM project to a close, centralizing our programs systems into a single system provided by Nexant, called Demand Side Management Central, or DSMc. A modified systems diagram is included, Figure IX-2, that highlights how systems will interact after the project is complete.

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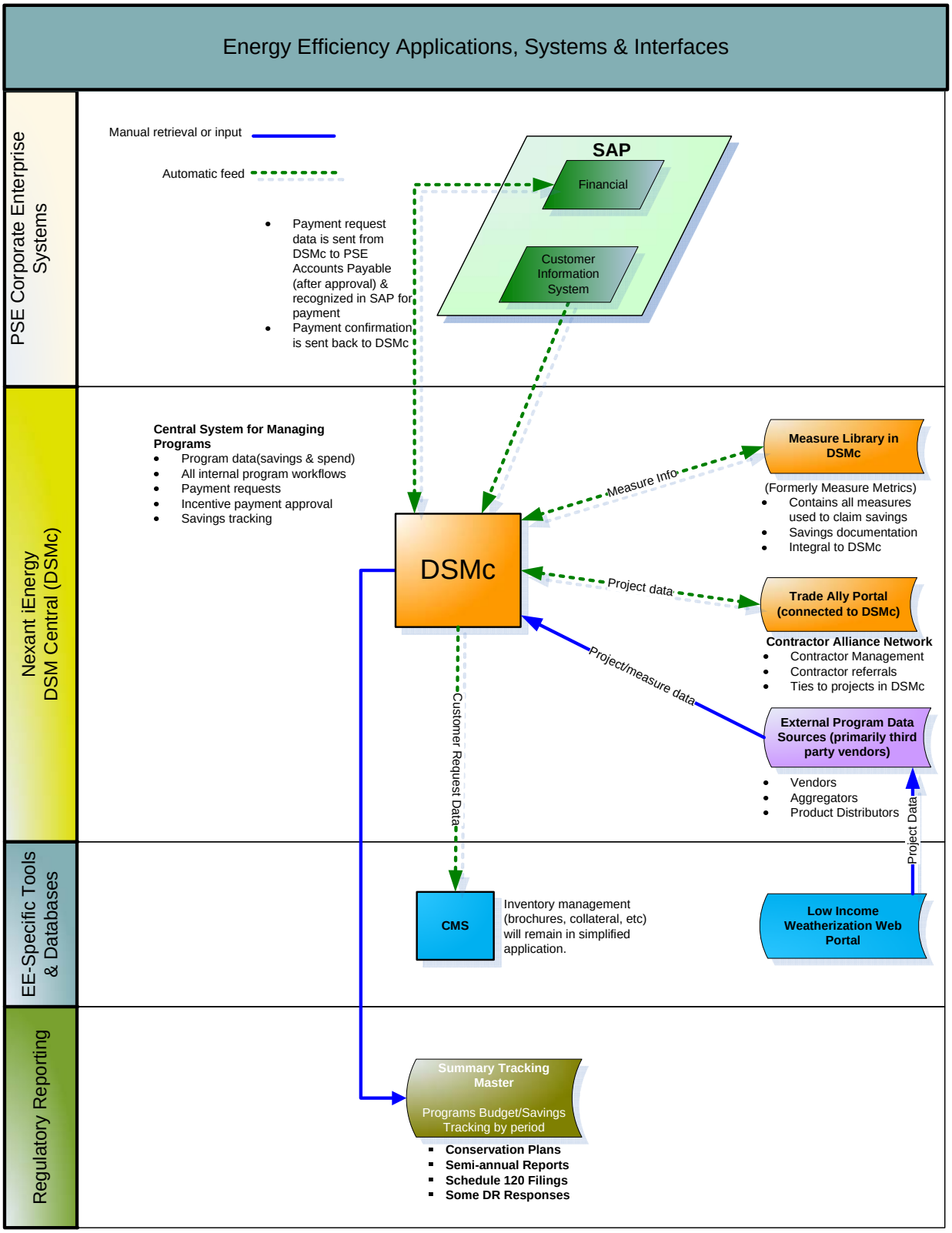
Figure IX-2: Energy Efficiency Management Tracking and Reporting Interface, Post-DSMc



X. EFFICIENCY PORTFOLIO SUPPORT

A. Overview

The organizations that comprise the Portfolio Support group play a critical role in Energy Efficiency's success of consistently achieving conservation targets within expected cost parameters. Much of what Residential Energy Management and Business Energy Management (who make up key elements of the Energy Efficiency department) implements and offers to customers depends on the work performed by these teams.

The teams' activities do not directly result in electric or natural gas savings, although the Portfolio Support activities expenses are spread over the portfolio for purposes of calculating cost effectiveness. The groups collaborate with program staff to ensure that they engage and represent all customer classes, that incentives are properly set, and that program staff are targeting their efficiency communication effectively. Through market research and planning, the establishment of compelling messaging, easy-to-navigate and intuitive web content, and visible conservation presence within the communities that PSE serves, and with its trade allies, the teams' contributions cannot be overstated.

1) Functional Group Performance

Table X-1 provides a 2015 year-to-date summary of expenditures for the Portfolio Support organizations.

Table X-1: Portfolio Support, 2015 Expenditures

2015 Expenditures

Schedule	Programs	Total	% of Budget	Budget
	Electric			
	Natural Gas			
	Customer Engagement and Education	**$ 1,070,201**	***61%***	**$ 1,752,121**
	Energy Advisors	*$ 696,652*	*66%*	*$ 1,060,385*
	Events	*$ 260,235*	*49%*	*$ 530,379*
	Brochures	*$ 50,211*	*63%*	*$ 80,222*
	Education	*$ 63,102*	*78%*	*$ 81,135*
	Web Experience	**$ 1,615,933**	***174%***	**$ 928,838**
	Customer Online Experience	*$ 426,559*		*$ 562,455*
	Customer Awareness Tools	*$ 441,840*		*$ -*
	Automated Benchmarking System	*$ 102,434*		*$ 67,586*
	Market Integration	*$ 645,099*	*216%*	*$ 298,797*
	Rebates Processing	$ 565,953		$ 740,193
	Programs Support	**$ 2,066,642**		**$ 1,279,676**
	Program Development	*$ 402,426*		*$ 453,836*
	Data and Systems Services	*$ 744,135*		*$ 825,840*
	DSM Central	*$ 920,081*		
	Energy Efficient Communities	$ 543,144	67%	$ 814,516
	Trade Ally Support	$ 142,559	60%	$ 235,922
	Contractor Alliance Network	$ (111,953)		$ (175,589)
	Total Electric	**$ 5,892,479**	**106%**	**$ 5,575,677**
	Customer Engagement and Education	**$ 171,162**	**65%**	**$ 264,482**
	Energy Advisors	*$ 101,052*	*64%*	*$ 158,556*
	Events	*$ 49,754*	*61%*	*$ 81,547*
	Brochures	*$ 7,593*	*60%*	*$ 12,752*
	Education	*$ 12,763*	*110%*	*$ 11,627*
	Web Experience	**$ 249,232**	**182%**	**$ 136,853**
	Customer Online Experience	*$ 63,031*		*$ 84,045*
	Customer Awareness Tools	*$ 69,385*		
	Automated Benchmarking System	*$ 22,517*		*$ 26,404*
	Market Integration	*$ 94,299*	*357%*	*$ 26,404*
	Rebates Processing	*$ 115,948*	105%	*$ 110,214*
	Programs Support	**$ 245,550**		
	Program Development	*$ 42,837*	*25%*	*$ 171,099*
	Data and Systems Services	*$ 108,027*	*89%*	*$ 121,592*
	DSM Central	*$ 94,686*		
	Energy Efficient Communities	$ 131,179	65%	$ 200,854
	Trade Ally Support	$ 20,930	164%	$ 12,792
	Contractor Alliance Network	$ (46,287)		$ (182,756)
	Total Natural Gas	**$887,715**	**121%**	**$ 731,782**

B. Customer Engagement and Education

This Energy Efficiency Sector performs functions and activities that are customer-facing; via telephone, PSE's web portal, literature, or various forms of media. For a large part, the organizations and the staff initiatives discussed in the following sections are the first exposure that customers have to PSE's energy-efficiency programs.

1) Energy Advisors

The Energy Advisor Department is a unique, customer solution operation within Energy Efficiency. The energy advisors are often the first contact that a customer has with PSE's Energy Efficiency department, and to customers, the energy advisors *are* PSE.

An energy advisor's focus is to ensure that both residential and business customers have a positive impression of PSE and its energy-efficiency suite of services, and feel that all of their energy-efficiency questions are addressed by a trusted source.

All energy advisors must be knowledgeable about the full scope of energy-efficiency programs and offerings; the expertise of this talented group brings efficiency into PSE customers' homes by guiding them to make energy efficient choices, in addition to providing energy advice such as low-cost and no-cost savings tips. Unlike transaction-based customer care departments, the energy advisors provide expertise and deliver solutions tailor-made for customers' homes.

There are slight differences in how energy advisors process residential- versus business-customer inquiries. Energy advisors field questions and help customers with commercial inquiries specific to Business Lighting, the Pre-Rinse Spray Head Program, the Vending Miser Program, and Commercial Rebate Programs, for instance. Special Energy Advisor assignments also include billing history requests.

Customers have access to speak directly to an Energy Advisor through a toll-free number, **1-800-562-1482**, Monday through Friday, 8am to 5pm.

e. 2015 Adaptation and Continuous Improvement

To keep up with customers' growing expectations and the complexity of inquiries, the energy advisors are encouraged to broaden and expand their knowledge base and skills. Most of the energy advisors are Building Performance Institute (BPI) certified home energy auditors. Four energy advisors received certifications in 2015. The energy advisors learn critical skills for energy auditing, weatherization, insulation, heating and air conditioning, home construction, home inspection, air quality abatement, as well as energy efficient design and engineering.

The Regional energy advisors continue to increase PSE employee awareness of energy efficiency across the company with cross-departmental training and presentations. Currently there are four regional energy advisors located in the Freeland, Bellingham, Tacoma, and Olympia business offices to increase visibility and offer an on-site contact for Energy Efficiency. An energy advisor is also working closely with Business Services to provide PSE's Business and Commercial customers with Energy Efficiency offerings. The energy advisor also provides billing and energy analysis, and cross-departmental training and energy-efficiency related process improvement opportunities with the Business Services Department. The Energy Advisor department finished the year substantially below its anticipated spend as a result of being understaffed for much of the year by up to three positions at one time.

Table X-2 presents highlights of key energy advisor metrics.

Table X-2: Key Energy Advisor Metrics

Energy Advisors	
Metrics	**Number**
Phone Calls	Over 82,000
Email responses	Almost 6,000
Events staffed	Over 60

The metrics noted in Table X-2 denote:

- Phone calls are both Residential Sector, and a portion of Business Sector incoming activity.
- Events staffed are those home shows, municipal gatherings, etc., where energy advisors are on-hand during all or a portion of the event to share a wide range of Energy Efficiency information directly with PSE customers. Event metrics are presented in the following section.
- Email responses include a wide variety of actions taken by energy advisors in response to emails sent to the general energy advisor email link.

b. 2015 Accomplishments

In 2015 the Energy Advisor team answered over 82,300 customer phone calls and responded to almost 6,000 email inquiries. The team generated almost 16,000 referrals for PSE CAN contractors. Over 60 community events were staffed by the energy advisors.

Throughout 2015 the Energy Advisor Team:

- Improved call tracking by implementing a post-call wrap code process. This process provides detailed call type data for each customer contact.
- Supported the design and launch of the Opower Billing Advisor tool. This tool provides detailed energy usage data allowing the Energy Advisors to diagnose usage issues with greater accuracy. It also provides enhanced insights on energy usage solutions.
- Provided Energy Efficiency support through PSE's social media profile.

2) Events

The Energy Efficiency department participates in community, local, and regional events annually to promote our residential and commercial programs to customers. These events include home shows, trade shows, seminars, corporate events and community fairs. The event audience consists of general public, businesses, builder/contractors, multifamily property owners, city leaders and students/teachers. PSE business objectives include; energy-efficiency program leads, customer awareness of PSE's programs and services, education, establishing partnerships with other utilities and communities, among others.

This provides unique opportunities for Energy Efficiency staff to interact directly with customers and discuss a variety of products, programs and services that the department offers. Energy Efficiency staff can also match customer interests and needs with Energy Efficiency programs.

The Event Strategy Team provides specific criteria for event participation that matches overall business and strategy of the Energy Efficiency programs they support with emphasis on presence, affiliation and relevance. Each event holds a particular value to stakeholders and relates to objectives of PSE Energy Efficiency programs.

The Events Team organizes events using an event management data system to improve communication and customer experience. The Events strategy team—including representatives from marketing, outreach and programs—assesses event requests, and reviews event opportunities in advance, with a focus on tactical planning for and vetting events.

Along with a dedicated full-time Events staff, PSE employs a third-party vendor to augment its events staffing to ensure the maximum energy-efficiency exposure. The goal of the project is to increase awareness and uptake of PSE EE programs, drive energy savings and reach a broad and diverse audience base through door-to-door, open houses and community events.

a. 2015 Adaptation through TQM

Throughout 2015, the Events Team:

- Improved its event management data system structure through launching the SharePoint event calendar. This resulted in an improved event request process for easier access to request event collateral, staffing support and online event resources.
- Collaborated with the Energy Efficiency program teams and the Marketing team to distribute redesigned event banners to ensure there is companywide consistent messaging at events to maximize efficiency and have a positive impact on energy savings.

- Leveraged a third-party outreach staffing contract to provide door to door outreach and event staffing for its residential and small commercial energy efficiency programs. PSE utilizes an effective method—"blitzes", discussed in the Energy Efficient Communities and Small Business Direct Install program overviews—of outreach by which staff go door to door in targeted neighborhoods to engage and educate customers. The purpose of this outreach is to achieve on-the-spot customer sign ups for participation in PSE programs (such as HomePrint™ home energy assessment), increased customer awareness of PSE's programs, and greater customer appreciation for the personalized service and for PSE's commitment to energy efficiency. Such outreach may also seek to drive customers to additional special events and on-line opportunities.
- Identified ways to engage customer in conversation to continue a relationship with PSE by enhancing the customer experience while at an event. This type of customer engagement draws customers to the event booths, provides customers a longer term relationship with PSE's programs, and builds awareness of energy efficiency messaging.

b. 2015 Accomplishments

In 2015 the Events team added value to the event deployment functions by coordinating outreach activities, including over 150 customer-facing events and an additional 500 activities by our partnering contractors. The Events team worked in partnership with the Energy Efficient Communities Team[51] by supporting community events.

[51] The Energy Efficient Communities organization is discussed later in this chapter.

c. Highlights of Residential Events

The Events team supported the Multifamily Existing program in hosting a booth at the annual TRENDS event, which is the largest rental housing ownership/management conference and trade show on the West Coast with over 1,600 attendees. TRENDS is a keystone event for the Multifamily Existing program that always generates a significant number of leads and the opportunity to debut new program offerings in the coming year.

In 2015, the Events team partnered with the Community & Customer Engagement Department (CCE) and Energy Efficiency throughout PSE's service territory to have a presence at a substantial number of diverse community event opportunities. Through this internal partnership, PSE was able to reach out to over 460,000 people to share the message of Energy Efficiency programs.

Reaching into PSE regions:

- Whatcom and Skagit county home shows,
- Snohomish County YMCA series,
- Kittitas County customer appreciation events and Farmers markets,
- King County – Community summer festivals and Holiday events,
- Kitsap community safety fairs and Bremerton City Hall event,
- Thurston Multi-family Energy Fair and Capital Mall month.

d. Highlights of Business Events

PSE sponsored the biannual Powerful Business Energy Conference with regional partners and utilities to educate and inspire our business communities with new technologies. Over 400 customers attended.

Reaching into PSE businesses:

- TechniArt Corporate Fairs in business campuses and offices,
- Customer Employee events: Boeing plants, Fred Meyer Distribution Center, City Halls,
- Open house community tabling at our Small Business Direct Install blitz events.

Table X-3 provides a summary of 2015 events in which PSE presented energy-efficiency information.

Table X-3: Total Events

Type	Count
Residential Energy Management	70
Business Energy Management	15
Residential Door-to-Door	8
Efficient Community / Customer Outreach	65
Contractor partners in the community	500
Total	**658**

The Energy Efficiency Events Support team accomplished its 2015 goals in spite of being a staff member short for the year. This vacancy resulted in an underspend in several areas of the budget. Projects that would have been carried out by this role were either distributed back to the Energy Efficiency programs or were temporarily shelved. In August, the Events team was further reorganized and merged with the Customer Outreach department. The team continued to carry out its energy-efficiency outreach with a larger team and added responsibilities while maintaining the original personnel allocation count.

3) Energy Efficiency Brochures

PSE provides brochures and how-to guides on numerous energy efficiency opportunities, including low-cost equipment, weatherization measures, major weatherization improvements, and equipment upgrades. This information includes investment and savings estimates where appropriate. PSE also provides materials highlighting its Contractor Alliance Network ("CAN") of vetted professional energy efficiency contractors.

The brochures provided as part of this program are general energy efficiency in nature, whereas program-specific (for example, residential heat pumps or mobile home duct sealing), are budgeted within those specific programs.

These brochures are available to customers in paper form and online at the PSE website. Where required by tariff, brochures are included as bill inserts. Table X-4 provides a view of 2015 brochure distribution.

Table X-4: Brochures and Mailings Distributed

Energy Efficiency Brochures	Number
Brochures Mailed	8,000
Brochures Downloaded from PSE.com	2,000
Brochures Distributed at Events	75,000
2015 Sampling of Mailings ***(Includes brochures indicated above and letters)***	
Post CAN Work completion letters	5,660
Contractor Alliance Network - (CAN)	3,900
HomePrint Letters	1,650
Electric Heating	850
Natural Gas Heating	800
Windows & Insulation (Wx)	670
Electric Water Heating	150
Customer LED Lighting - (Thank You Kits)	140
Gas Conversion	80

4) Energy Education

Schedules E/G 202

a. Description

The Energy Efficiency Education program provides opportunities to broaden knowledge of conservation and renewable energy, and increase participation in efficiency programs.

PSE's energy education provides a forum for positive customer and community interaction and involvement that will inform, inspire, and empower with the understanding that individual choices do make a difference.

Energy Education is a key component in furthering consumer energy efficiency and renewable energy awareness so that customers and PSE employees are adequately informed to make wise energy decisions.

Energy Education creates a forum to provide information to leaders and educators who can leverage the knowledge to a greater audience and will also tie directly to the company's existing energy efficiency opportunities, active resource conservation efforts, and commitment to the community channel. The programs focus on strengthening community actions by developing and preserving local relationships with customers and other education and community-based organizations.

Energy Education provides information to leaders and educators who can share the knowledge with a broader audience, which also ties directly to the company's existing energy efficiency opportunities, active resource conservation efforts, and commitment to the community. The programs focus on strengthening community actions by developing and preserving local relationships with customers and other education and community-based organizations.

b. 2015 Accomplishments and Activities

Independent Colleges of Washington (ICW) Efficiency Education is an energy-efficiency initiative that manages research projects related to energy efficiency and conservation. PSE has provided annual energy-efficiency grants to this college association for a number of years. Through an RFP process, provided to Washington college students and administered through ICW, projects are selected for a utility grant consideration.

In 2015, PSE presented an energy-efficiency grant of $10,000 to a student research team from a PSE-territory college. The students conducted energy efficiency research to develop a prototype "smart" thermostat that not only learns from user behaviors, but will also provide homeowners with information on its readout indicating financial benefits and consequences of temperature setting adjustments – short term and long range. The students provided a presentation of a scaled model heat-loss test structure and sample thermostat at their half-way point. PSE is proud to support student interest in energy efficiency pursuits.

C. Customer Online Experience

The Customer Online Experience group is designed to improve customer awareness of energy-efficient home and business solutions and inform customers about energy-efficient products and services they can apply to their properties. The Web Experience and Market Integration groups comprise Customer Online Experience, which are detailed in the following paragraphs.

1) Description

Web Experience and Market Integration are designed to significantly improve Energy Efficiency's ability to communicate the "how and why" of energy efficiency, using new technologies and engaging interactive content.

Customer Online Experience consists of the initiative to make PSE's energy efficiency web tools effective in delivering electricity and natural gas savings. Research has shown that PSE customers are more web-savvy than average and have high expectations when doing business on the web.

The program continues to invest in new technologies and in making improvements to PSE's online content delivery—making it easier for customers to get the information they need to actively participate in PSE's energy efficiency programs.

a. Customer Online Experience: Investment in New Online Tools

In 2015, Customer Online Experience continued to finance the myPSE account Energy Center tools for residential and small business customers, and supported the development of PSE's tailored email program.

These enhanced tools help customers understand the specifics behind their energy usage, show neighbor comparisons (residential customers),[52] notify customers of higher than usual usage, and provide new ways to encourage efficient behaviors, by suggesting personalized tips, tools, ideas and checklists, based on a customer's automated energy usage profile and self-assessment information.

[52] Specific customer details; addresses, names, account information, etc. is rigorously protected. Instead, only general, non-specific comparisons will be provided.

Customer Online Experience also supports interactive content development and social media promotion, e-newsletters and the fees for other miscellaneous software applications, such as online form, database and web hosting services and image licensing to support energy efficiency marketing programs.

b. Market Integration

Market Integration consists of salary costs of employees and contractors working on energy-efficiency marketing and promotional support activities. This is to make marketing efforts more transparent: tasks include the enhancement of online energy-efficiency tools and features, as well as traditional marketing executions that center on promotional channels used across all programs, such as advertising, events, collateral and websites.

Variances occurred in Market Integration's Outside Services budget category due to the development of two television and digital video commercials to promote PSE's online energy center tools and general energy efficiency tips. The ads can be viewed here:

- Incredible Bill-shrinking Lightbulb: https://www.youtube.com/watch?v=yFvih_2XILU
- Cold Hard Cash: https://www.youtube.com/watch?v=ovOpxPTPlQI

i. Customer Engagement and Impact

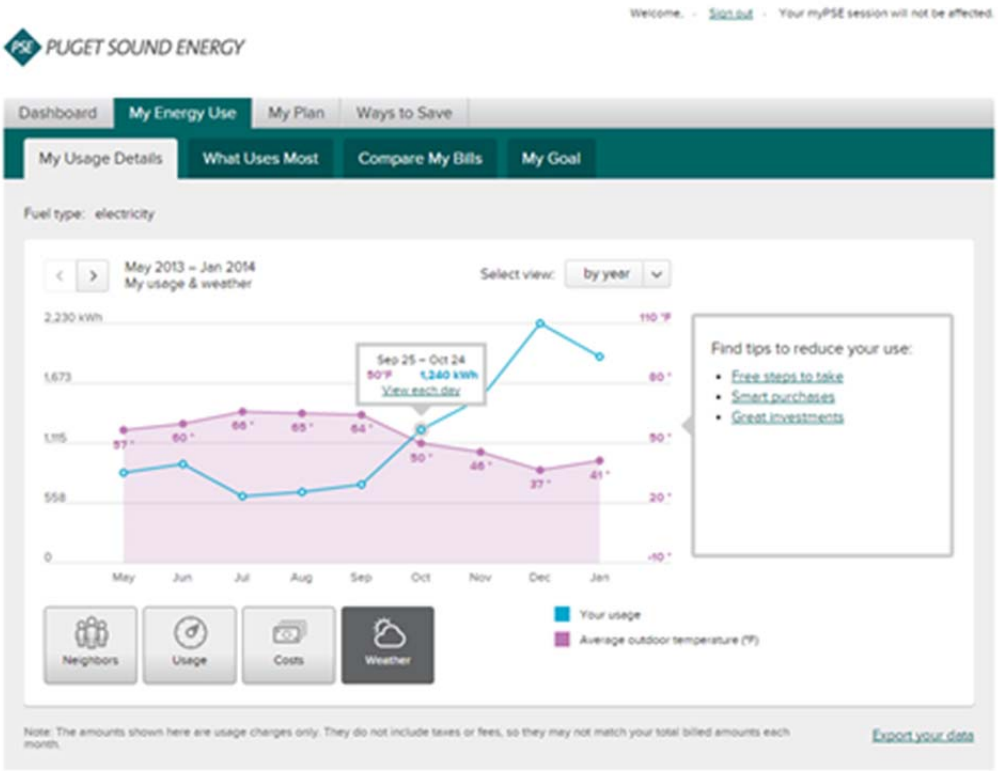
Since the pse.com re-launch in 2011, the "Savings & Energy Center" has seen a significant uptick in page traffic and overall engagement with customers. Table X-5 provides several highlights of PSE's 2015 online metrics.

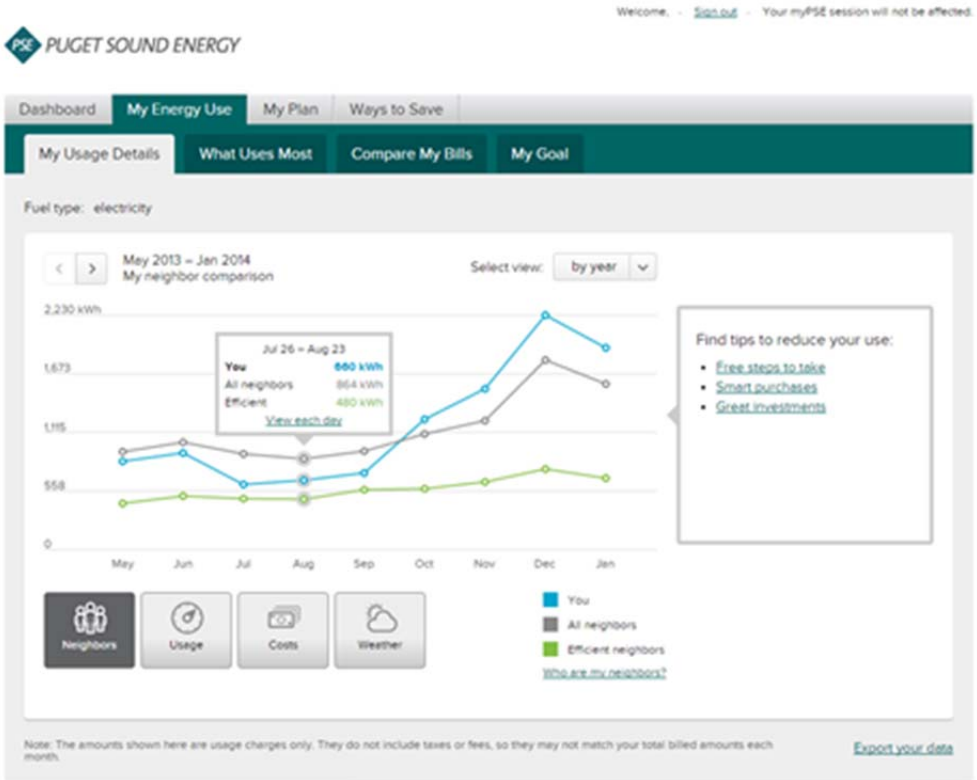
Table X-5: Energy Efficiency On-Line Metrics

2015 Customer Online Experience Metrics
The Savings & Energy Center received more than 1.89 million page views.
There were 299,084 views of the myPSE account Energy Center tools.
There were more than 1.25 million views of the residential Rebates & Offers pages.
The business Rebates & Incentives pages received almost 89,000 page views.
There were more than 22,000 views of the Ask an Energy Advisor inquiry form page.
There were nearly 51,000 views of the Contractor Referral Service referral page, an increase of more than 11% over the year prior.
More than 1.18 million energy-efficiency email news blasts were delivered to more than 407,000 opt-in subscribers.

Figure X-1 presents a screen image of PSE's new myPSE Account Energy Center Tools web page.

Figure X-1: Screen Images of Updated myPSE Account Energy Center Tools





c. Automated Benchmarking System: MyData

Launched in the autumn of 2013, this new web service, called *MyData*, provides building owners an easy to use, self-service portal that will allow them to set up automated monthly reporting of their building's energy usage. This data can be used to:

- Track energy usage for a portfolio of buildings,
- Track the results of energy efficiency projects,
- Develop Energy Star® ratings, and
- Comply with city of Seattle reporting requirements.

Approximately 75 percent of the whole-building energy usage requests PSE receives come from building owners (or their contractors) that are tracking their energy usage or are tracking the results of energy efficiency projects outside the city of Seattle.

i. Accomplishments

The administration of MyData was transferred from the leasing team to the building performance team in July of 2015. The position on the Building Performance Team within Energy Efficiency allows MyData to sync with other software and efficiency programs that target the same customer base. The MyData team continued to work with IT and the City of Seattle to maintain the flow of customer data. In May, the team was honored in Washington DC for the work done to make energy data easily available to customers and easy to integrate with Energy Star's Portfolio Manager.

d. Customer Awareness Tools

Beginning in the third quarter of 2015, PSE's Customer Awareness Tools provide customer-specific electronic communications—energy management messaging (currently emails, PSE's first initiative)—when and where customers want to hear from PSE.

As described in PSE's July 16 CRAG meeting and in PSE's CRAG Communications newsletter on January 23, 2015, the communications are sent to customers with a valid email address at three specific instances: (1) When the customer is experiencing unusual usage levels midway through their billing cycle, (2) When the customer's energy statement is ready, and (3) Seasonally, as equipment needs to be inspected or serviced.

As noted in the overview of Customer Awareness Tools 2015 activity in the Single Family Existing 2015 Accomplishments and Activities, section IV. A. 3) c., starting on page 38, PSE began implementing two of the three communications in late 2015. Applicable customers received email notifications that their heating equipment needed to be checked or serviced, and applicable customers received email notifications that their monthly bill was ready, along with links to energy-efficiency programs.

D. Programs Support

1) Data and Systems Support

The Data and Systems Services ("DSS") group plays an important support role for all of Energy Efficiency. As noted in Chapter 9: *Measurement & Verification*, the Team plays a vital role in the department's measurement & verification functions.

This group provides the department with the right tools, resources, and people to assist in pro-actively managing their respective businesses, allowing Program staff to make management decisions that optimize their business. Program data management, savings reporting, system development and ad-hoc analyses are some of the critical services this team provides.

a. 2015 Accomplishments and Activities

These significant DSS accomplishments illustrate the team's focus on continuous improvement and adapting to evolving program and customer needs through inventive solutions. Some examples of key contributions include:

- The DSS Team played a significant support role in the 2016-17 Biennium planning process. Common templates are provided to all the program teams so they can project their expenses, determine savings targets, and estimate program cost effectiveness for the upcoming biennium. The use of these templates has greatly simplified the process of generating PSE's biennial plan, improved data consistency, provides a basis for PSE's Exhibit 1: *Savings and Budgets*, and prepares Energy Efficiency's reporting systems for the upcoming year.

- Three of PSE's municipal customers – Bellevue, Bellingham, and Anacortes – are participating in the Georgetown University Energy Prize competition. As part of this competition, the DSS Team worked with these municipalities to determine how to accurately report their "municipal" and residential usage required for the competition. The team created two-year baseline usage reports for each of the cities and is responsible for providing quarterly usage updates to the competition's sponsors.

- Over the course of 2015, the DSS Team supported a variety of program initiatives with the data necessary for successful implementation and ongoing management. The team helped update the department's energy efficiency propensity scoring model to better target various program promotions. In addition, the team prepared targeted outreach lists to support all the Homeprint™ door-to-door campaigns that took place over the course of the year. This information was instrumental in the successful execution of these campaigns.

- Since the early months of 2015, the DSS team has also been intimately engaged in supporting the implementation of Energy Efficiency's "DSM Central" system, which will be used across the entire department in 2016. Through the consistent application of TQM, the team has been actively involved gathering requirements, ensuring data models were aligned, built out the measure library, assisted with the reporting requirements, and more. The team collaborated with program staff on program flows and processes in this new system to provide a common platform for processing rebates, store program data, provide higher level of customer service, and provide accurate program activity reporting for years to come. This work was in addition to ensuring the 2015 programs were supported in the day to day program operations.

2) Programs Support

This organization provided ongoing research, planning, and development work. Their functions support management planning and implementation needs of Residential and Business Energy Management customer programs. The group's budget line moved from the Research & Compliance section of the 2015 Exhibit 1 to the Portfolio Support section.

Programs Support costs are predominantly labor and include training, planning, and development contract costs. 2015 electric and gas actual costs were less than targeted in Exhibit 1 budgets due largely to the Manager of Programs Support retirement in August. This position was backfilled by the end of the year.

3) Cost-Effectiveness

Cost-effectiveness modeling and calculations are also conducted within the Programs Support Team. PSE's program-level detailed view of electric and natural gas cost-effectiveness results for 2015 are attached to this report as Exhibit 2.

a. 2015 Accomplishments and Activities

Staff roles included performing internal and external research relative to planning and development; biennial and strategic program planning support; participation in regional organizations including NEEA and RTF; assessment, development and implementation of Measurement & Verification protocols and methodologies; developing and managing IRP, and related Energy Efficiency new program RFP bidding processes; and staying abreast of and conveying best practices and continuous improvement methodologies.

Programs Support staff facilitated the RFPs for biennial planning, including requests for new programs and renewal of existing programs. Staff organized trainings with PSE's Purchasing department to kick off the planning process with Energy Efficiency program managers.

Staff updated PSE's vendor list and released a new program RFP with 18 program descriptions and an existing program RFP with 11 program descriptions. PSE received more than 100 total proposals in both email and hard copy format. Staff coordinated with program managers to answer over 300 total bidder questions, and distributed answers to all vendors who had submitted an intent to bid form. Typically, at least two vendor interviews were conducted for each program that was selected for the portfolio. Staff then sent out emails to every bidder notifying them of their proposal's status, either accepted or rejected.

In 2015, Programs Support completed a technology assessment study with Enbala Power Networks. The assessment specifically focused on large commercial/industrial customers and the types of resources that could be obtained with dispatchable load technology including capacity, reserves, balancing and energy arbitrage. The assessment established a qualification of value for dispatchable load resources, and evaluated load enablement coast, integration with the load office, and the dispatchable load resource potential in PSE's service territory.

While the business case for a dispatchable load pilot program was positive, Programs Support has decided to pursue a broader strategy for Demand Response programs. In response to the 2015 IRP Electric Action Plan, the team will develop and implement a demand response acquisition process and issue an RFP in 2016.

The IRP forecasts acquiring 121 MW of demand response by 2021 in a range of program categories. Programs Support is establishing this acquisition process and developing a 5-year strategic plan to meet the resource need.

Since the untimely retirement of a long-time analyst in early 2014, PSE has not had an active voting member at the RTF. However for 2016- 2018, the department's senior market analyst has been accepted as an RTF voting member. This will, and already has, significantly improved communication and information sharing between these entities. The senior market analyst is fully engaged in providing a robust pathway to accelerate adaptive management of PSE programs based on RTF decisions, as well as prioritize and communicate Utility needs at the RTF.

E. Rebate Processing

As noted in Chapter 9: *Measurement & Verification*, the Rebates Processing Team perform a critical verification step in Energy Efficiency. While a selected sample of applications are directed for onsite inspection by the Verification Team, all must go through several verification steps prior to payment authorization. Key attributes include:

- Is the applicant a PSE customer?
- Is this the correct fuel type?
- Is the customer receiving service under the applicable Rate and Conservation Schedule?
- Did the customer submit a valid receipt (rather than one that's been used before)?
- Is the equipment eligible?
- Etc.

Table X-6 provides a summary of rebates processed by Energy Efficiency Rebate Processing staff. The totals are not inclusive of all rebates, instant point of purchase markdowns, etc. paid within the REM sector. As with program measure counts, the totals are rounded and are intended only to provide a sense of the scale of activity within the Rebates Processing group.

Table X-6¨ 2015 In-House Residential Rebates Paid

Rebate Processing 2015				
Program	**Fuel Type**	**Count of Projects**	**Incentives Paid**	
Fuel Conversion Rebate	Electric	200	$	311,000
Space Heat	Electric	3,900	$	3,884,000
Water Heat	Electric	900	$	455,000
Space Heat	Natural Gas	4,600	$	1,172,000
Windows	Electric	1,500	$	841,000
Windows	Natural Gas	2,800	$	1,782,000
Weatherization	Electric	500	$	273,000
Weatherization	Natural Gas	4,400	$	1,836,000
HomePrint Assessement	Electric	8,300	$	2,334,000
	Totals	**27,100**	**$**	**12,888,000**

1) 2015 Continuous Improvements and Accomplishments

In 2015, the Rebate Processing team added three new members after losing previous analysts to promotions within PSE. Two of the new employees were temporary hires that backfilled the vacant positions and the third came from PSE's Customer Care Center. While supporting the transition to the DSM Central system for the majority, the Rebates Processing Team was also able to implement several incremental efficiencies, such as establishing work flow and process subject matter experts, re-distributing work assignments, and maximizing cross-functional support. The focus on continuous improvement allowed the group to support the transition while also maintaining a quick payment turnaround for PSE customers.

The Rebates Processing Team collaborated with the DSM Central (discussed in several sections of this Report; most notably in Chapter 9, Measurement & Verification) project team to gather business requirements and map work flows to prepare for the new system implementation.

The Energy Advisors and the Rebates Processing Team collaborated to improve the customer inquiry process. As a result, customer inquiries regarding the status of their rebate are now directly handled by the Rebates Processing team. This improvement cuts down the number of touch points the customer goes through and subject matter experts provide a detailed explanation to resolve the customer's inquiry.

F. Energy Efficient Communities

1) Description

Energy Efficient Communities (EEC) is a program-support Channel to deliver Energy Efficiency program information direct to residential and commercial customers and through partnerships with community organizations and municipalities. The program works to leverage local community resources to collaborate with, educate and move customers to Energy Efficiency program participation. The team works to discover locally-appropriate outreach mechanisms to engage with customers by leveraging PSE's resources, community knowledge and partner support.

The EEC team works closely with the Energy Efficiency programs to determine whether a broader partnership with a community organization or a more targeted, direct-to-customer approach is needed. As an outreach team for both residential and commercial sectors, the EEC team also works on cross-program promotion, where appropriate.

2) 2015 Continuous Improvement and Adaptation

Significant program enhancements included continuing to hone our approach to residential and commercial community "blitzes"[53] as well as increasing the direct to customer outreach for more programs, as described in the following discussion.

[53] Community Blitzes are also mentioned in the Small Business Direct Install (SBDI) program discussion in Section F. of Chapter 6, the BEM Program Details chapter on page 110.

A community blitz is a concentrated effort to reach customers within a very focused timeframe; face to face in their homes or businesses to promote energy efficiency programs that are applicable to them. Residential blitz efforts include a flyer mailed to the customers living in the targeted area before the door to door outreach starts, letting them know PSE will be coming to their neighborhood. Commercial blitzes include the outreach team visiting the businesses a couple weeks beforehand to discuss what will happen during the blitz with flyers to leave behind.

By providing customers information ahead of time, they will be anticipating PSE's arrival, allowing them to determine their interest participating. This can ensure the applicable decision-makers have the information ahead of time to make sign up on the day of the blitz easier. Blitzes are conducted by both PSE employees and contractors providing its energy efficiency services on PSE's behalf.

3) 2015 Accomplishments and Activities

In 2015, the EEC team conducted outreach to contractors, community groups, local nonprofit organizations, government entities, PSE employees and direct to customers on behalf of the various residential and commercial efficiency programs. The team also worked with other PSE departments to leverage corporate initiatives to promote energy efficiency programs, as appropriate. This provides increased exposure to programs and improved customer service.

The EEC Team accomplished outreach for various EE programs through a combination of:

- Hosting information at the regional PSE offices,
- Over 50 presentations to community groups,
- Staffing at community events,
- Direct outreach to community groups to promote the programs,
- Door-to-door to customers' homes and businesses,
- And other methods.

The EEC team underspent in a couple budget areas in 2015 as we did in 2014 as the team adapted to working with a larger budget than in previous years. Many of the marketing and material expenses were covered by program teams instead of the EEC team and many outreach materials were repurposed over the activities, resulting in increased efficiencies by eliminating the need to recreate them.

The Team hired on an Outreach lead for Kitsap County later than expected in 2015 and ended up conducting more outreach in electric areas than gas areas, so labor, overhead and associated employee expenses ended the year below anticipated spending levels.

a. Customer Outreach

In partnership with a wide range of programs, EEC staff promoted the Upgrades Campaign, the Appliance Replacement and Decommissioning programs, the Small Business Direct Install (SBDI) program, Commercial Kitchen rebates, rebates for laundromats, HomePrint™, Commercial Grants, Electric Vehicle charging station rebates and Weatherization among others. Specifically, outreach includes working with community partners, municipalities and other local contacts to help deliver these programs.

For example:

- The EEC team utilized the low season for tourism to go door to door to over 60 hospitality businesses (hotels and restaurants) on Whidbey Island to promote applicable rebates. This valuable in-person contact provided customized information about programs that customers were eligible for and increased awareness of the programs for the future.

- For the SBDI program, the EEC Team partnered with cities and business organizations (chambers, downtown associations, rotaries, etc.) to help spread the word about efficiency programs and engage the business community prior to a focused community blitz.

  Two weeks before the blitz, the EEC team canvassed the businesses to let them know PSE will be coming with a PSE-engaged contractor to provide assessments, direct installation of energy-saving equipment and initiate larger grant projects, as applicable. During the blitz, the program team members, the contractor and the EEC team members were able to efficiently go door-to-door to implement the program, made easier by the businesses knowing this was coming.

  This type of multi-faceted engagement increasing customer receptivity and trust, and increases participation by customers who normally would not seek out this information on their own due to their busy schedules as small business owners and operators.

- The HomePrint™ direct-to-customer outreach in 10 targeted neighborhoods included creating a "buzz" about the program by a combination of sending direct mail, setting up A-frame signs ("A-boards") in neighborhoods to provide broader visibility, presentations to city councils, and going door-to-door to customer homes and signing them up to participate. Similar to the small business approach described above, by contacting customers multiple times in various formats, they are more apt to get their questions answered and then sign up to participate.

- As part of its adaptation through continuous improvement, the EEC Team hired on a third party contractor to conduct the door-to-door efforts with customers. The canvassers were trained on PSE's HomePrint™ program, other residential efficiency programs and in customer service tactics.

Throughout the 10-neighborhood effort, the contractor was gathering data about what days and times were most likely to find customers at home in order to increase the number of conversations and program sign ups. The team adapted their schedule to improve effectiveness.

These partnership efforts are also noted in the program discussions in Chapter 4: Residential Program Details and Chapter 7: Business Program Details.

b. Maximizing PSE Staff Awareness

Part of the EEC Team work is to educate PSE employees on the energy efficiency programs available so they are able to better serve customers who could potentially be interested in participating in one of the programs.

One way they achieved this was through delivering short presentations to various employee groups, where energy efficiency program information is provided and question-and-answer sessions allow for employees to truly understand the programs in which they and the customers they work with can participate.

The team also included various articles in employee newsletters and the Company intranet site which highlighted Energy Efficiency programs and the customer impact they have. Another employee engagement initiative was a mini Upgrades event, where we brought the Upgrades experience to our employees with advertising in the office, having a booth with information and talking to employees about the Energy Efficiency programs.

G. Trade Ally Support

Trade Ally Support manages PSE membership costs in energy efficiency trade associations. These organizations stand apart from other trade association memberships in that they provide comparatively broad-based energy efficiency research, training and/or implementation support services.

1) Description

Trade Ally Support organizations provide education, information and related services for:

- The adoption or expansion of energy-efficiency products, services, and practices; and
- Conducting research toward the development of new, or improved validation or delivery of existing conservation measures, programs and services.

The Trade Ally Support line item budgets and tracks only annual membership dues PSE pays to broad-based industry trade and research organizations who perform and support ongoing development and implementation of Residential and Business Energy Management programs. PSE participates in and utilizes the services of many such organizations to support delivery, management, and promotion of energy efficiency services. Utility, customer, and service provider benefits primarily include education and information exchange on end-use technologies, energy legislation, customer engagement, efficiency services, and related energy efficiency industry trends. Other Trade Ally expenses not related to dues, for example conference attendance, are budgeted and tracked with the pertinent efficiency program(s) receiving the benefit.

2) Memberships and Subscriptions

As discussed in Chapter 9: *Measurement & Verification*, PSE applies a great deal of rigor to ensure that Conservation Rider customer funds are used appropriately to add value to Energy Efficiency conservation offerings when considering memberships.

Memberships paid from the Trade Ally Support account in 2015 focused mainly on local or regional conservation efforts. A key addition in 2015 was the China-U.S. Energy Efficiency Alliance. This membership provides insight into a much broader scope of energy efficiency potential. 2015 memberships included:[54]

- Association of Energy Services Professionals – AESP,
- Building Owners and Managers Association of Seattle & King County – BOMA,
- China-U.S. Energy Efficiency Alliance,
- Consortium for Energy Efficiency – CEE,
- Electric League of the Pacific Northwest,
- Energy Solutions Center – ESC,
- Northwest Energy Efficiency Council – NEEC,
- Washington Association of Maintenance and Operation Administrators – WAMOA.

PSE also enhanced its resources by subscribing to eSource in 2015. This extensive industry database provides an additional insight for program staff to ensure that they maintain awareness in utility and efficiency developments. The subscription wasn't factored into the original 2015 Annual Conservation Plan budget, which resulted in an expenditure variance.

[54] These are included in Exhibit 1, Supplement 3 of this report, which provides a high-level view of 2015 expenditures for memberships and sponsorships.

H. Contractor Alliance Network

The Contractor Alliance Network ("CAN") connects PSE customers with pre-screened, independent contractors committed to helping customers make safe, dependable and efficient energy choices. This ensures their business and home energy improvement projects are successful and handled with a high level of customer service.

3) Accomplishments

In 2015 CAN had 215 quality vetted contractors enrolled in the network. These contractors were responsible for over 36,000 rebates processed in 2015. The combination of satisfied customers and energy savings provided by CAN contractors has been instrumental in the success of the PSE's Energy Efficiency portfolio. In 2015 a focus was placed onto expanding CAN's commercial offerings. PSE's Multifamily Existing program contractor enrollment increased by 39 percent (from 17 to 28) and its Commercial/Industrial HVAC program contractor enrollment increased by 25 percent (from 18 to 24).

Referral payments from CAN contractors resulted in a net revenue balance of $111,000 and $46,000 in the electric and natural gas sectors, respectively.

XI. EFFICIENCY RESEARCH & COMPLIANCE

A. Overview

Functions of this group include:

- Conservation Supply Curves,
- Strategic Planning,
- Market Research,
- Verification Team,
- Program Evaluations.

In addition to playing a critical role in Energy Efficiency's overall measurement and verification functions, the work of these teams assists Energy Efficiency Program staff in designing innovative conservation offerings, evaluating processes and savings calculations, verifying cost-effectiveness, and building the Company's biennial IRP. They ensure that there is a regular schedule of program performance review, consistent with applicable conditions. It is notable that the Program Support organization's name evolved in 2015 from Program Development & Support to its current name. Table XI-1 provides a 2015 summary of expenditures for the Research & Compliance group.

Table XI-1: Research & Compliance 2015 Expenditures

		2015 Expenditures		
Schedule	**Programs**	**Total**	**% of Budget**	**Budget**
	Electric			
	Natural Gas			
	Conservation Supply Curves	$ 141,251	72%	$ 196,761
	Strategic Planning	$ 109,251	69%	$ 158,393
	Market Research	$ 121,569	38%	$ 316,165
	Program Evaluation	$ 2,184,327	85%	$ 2,567,563
	Verification Team	$ 447,323	98%	$ 457,749
	Biennial Electric Conservation Achievement Review	$ 61,281	56%	$ 110,000
	Total Electric	**$ 3,065,001**	**81%**	**$ 3,806,631**
	Conservation Supply Curves	$ 20,179	69%	$ 29,397
	Strategic Planning	$ 15,600	66%	$ 23,663
	Market Research	$ 17,212	36%	$ 47,246
	Program Evaluation	$ 352,872	112%	$ 313,714
	Verification Team	$ 135,877	199%	$ 68,399
	Total Gas	**$ 541,740**	**112%**	**$ 482,419**

B. Conservation Supply Curves and Strategic Planning

The purpose of the Conservation Supply Curve function is to complete a Conservation Potential Assessment for the company's Integrated Resource Plan (IRP). The

1) Description

The purpose of the Conservation Supply Curve function is to complete a Conservation Potential Assessment for the company's Integrated Resource Plan (IRP). The Conservation Potential Assessment identifies the amount of energy savings potential that is technically and economically achievable over the 20-year planning horizon of PSE's IRP. The IRP, which is filed every two years, is the basis for PSE's electric and natural gas energy resource acquisition strategy, as well as the targets for its energy efficiency programs. The IRP analysis is also used to derive the ten-year conservation potential and two year electric conservation target required to comply with the Washington Energy Independence Act.

PSE's completed its IRP and Conservation Potential Assessment in 2015. The Company conducted an assessment of the long-term market potential for energy savings from energy efficiency and other demand-side resources, covering the twenty year period 2016-2035. PSE used a consultant to perform the analysis of achievable technical potential and then applied its own resource portfolio analysis models to determine the amount of economic conservation potential. The budget includes costs to complete the conservation potential assessment and incorporate the results of that assessment in the resource portfolio analysis. This analysis was a key component for establishing program savings targets for 2016-2017.

The Strategic Planning function conducts a variety of research studies and analyses to support regulatory compliance proceedings and other strategic initiatives.

The Strategic Planning function is responsible for providing support and guidance to a variety of regulatory and other strategic initiatives. Responsibilities include regulatory compliance filings, federal and state legislative review, policy analysis, or other strategic efforts related to energy efficiency.

2) 2015 Accomplishments and Activities

This function supported completion of the 2015 IRP's conservation supply curve assessment and subsequent incorporation into the 2016-2017 conservation targets.

The Strategic Planning area continued to provide IRP and program planning support, regulatory filings and legislative review, as well as high level oversight of the Biennial Electricity Conservation Achievement Review ("BECAR").

The group's labor expenses were less than planned, and its outside services expenditures were lower than anticipated.

C. Market Research

Market Research conducts a variety of research studies and analyses to support program design, marketing strategies, and development of effective program promotion and customer communications for energy efficiency.

1) Description

The focus of the Market Research function is on acquiring information about customers that is relevant for the development of energy-efficiency programs, educational materials, and promotional campaigns that will be effective in encouraging program participation.

Through various techniques such as surveys, focus groups, and analysis of existing databases, Market Research provides understanding of customer perceptions, motivations and barriers to adoption of energy-efficient applications and behavior, as well as tracking customer awareness of program offerings and satisfaction with non-program specific education and information services. Market Research is also called upon for analysis of localized characteristics, attitudes, behavior, and energy usage trends, necessitating more geographically targeted research. Market Research expenses are driven by the customized nature of the work and the large sample sizes required in quantitative studies for results to be valid for multiple market segments and geographic areas.

The Market Research staff works closely with program evaluation, marketing communications, and program implementation staff to identify research needs that support the effective development, delivery, and evaluation of energy efficiency programs. These research needs are then coordinated and leveraged to result in a slate of research projects that are responsive to internal client needs, eliminate duplication of effort, and are cost-efficient.

PSE's conservation market research activities are divided into two basic components:

Baseline Research with Broad Applications: This type of research provides foundational information about PSE customers that will be a common source of knowledge for the general planning and design of all energy efficiency programs and promotional campaigns.

Application-Specific Research: This research is focused on specific programs or promotional initiatives. It includes research that supports specific energy efficiency program promotion and communications campaigns, such as message testing, target markets, and campaign effectiveness studies. Other research efforts will be focused on tracking customer satisfaction with information services, such as the Energy Advisors. Finally, research may be conducted to provide customer input on the design and implementation of specific programs, primarily using qualitative methods such as focus groups.

2) 2015 Accomplishments and Activities

In 2015, PSE Energy Efficiency Market Research efforts focused on customer awareness of PSE energy efficiency offerings, preferred communication channels regarding energy efficiency products & services, and Customer satisfaction with PSE energy efficiency program details such as rebate submission and payment mechanisms. Energy Efficiency Market research also participated in a number of spatial analyses to support energy efficiency programs. The department allocated a portion of its budget for any additional outside services, but none were needed during the past biennium. This resulted in the function's 2015 electric and natural gas over budget variances. Research efforts included:

- Comprehensive surveying of residential customers that either called for a referral of products and services offered, or participated and received a rebate.
- Survey of business customers identifying communication preferences, market barriers to participation, preferred program offerings, desired payment mechanisms for rebates.
- Conducted survey and provided baseline and monitoring metrics for the Energy Efficiency Services "Energy Upgrades" campaign to gauge whether it raised awareness of PSE Energy Efficiency offerings.
- Provided support to the Energy Efficient Communities campaign through Global Information System ("GIS") analysis of appropriate scale of door to door and mailing campaigns for specified residential areas within PSE's service area.
- Provided technical support to Energy Efficiency Evaluation and Low-Income programs in the development of a GIS tool targeting low-income energy efficiency opportunities.

- Provided comprehensive map of mobile home customers throughout PSE's service area identifying those within and outside of mobile home parks.
- A number of smaller ad-hoc projects supporting specific inquiries into energy efficiency program attributes, technical support for survey design and data dashboards.

D. Program Evaluation

This organization is a key element of PSE's overall Evaluation, Measurement & Verification (EM&V) initiative. PSE Evaluation staff are committed to the evaluation of energy savings and the continual improvement of energy-efficiency service delivery to customers.

1) Description

PSE program implementation teams work together with the Evaluation Team to inform the development of evaluation scopes of work. The Evaluation Team then develops and maintains a strategic evaluation plan, in accordance with the guiding Evaluation Framework, ensuring that all programs receive review on a four-year cyclic basis. PSE also considers the level of energy savings, significant program changes, and whether a program is new or never been evaluated before in prioritizing programs for evaluation. Adjustments to the evaluation plan may be made during the biennium, with CRAG review and advice.

PSE frequently shares the results of its evaluations with the RTF to ensure continuous improvement of measure energy savings values that are widely used in the region. In addition, PSE monitors the Regional Technical Forum (RTF), NEEA, and the Northwest Research Group (NWRG), as well as directly reaching out to neighboring utilities, for opportunities to collaborate on common evaluation needs.

Along with UTC Staff, the Evaluation Staff managed the 2014-2015 Biennial Electricity Conservation Achievement Review. The cost of the independent third party consultant was lower than anticipated to complete the planned scope of work in 2015.

2) Evaluation Studies

The Evaluation Team completed the following Residential programs in 2015:

- Residential/Commercial Lighting Split
- HomePrint™
- Web-enabled thermostats
- Home Energy Reports
- Multifamily Existing
- Multifamily Air Seal
- Manufactured Home Duct Sealing
- Fuel Conversion

Commercial/Industrial Programs under way in 2015 include:

- Lighting
- Aerators
- HVAC
- Data Centers
- Large Power User, Self-Directed

The Evaluation team also developed and released requests for proposal for evaluations of the following energy efficiency programs to be completed in 2016:

- Single Family Existing, including Low Income Residential
- Single Family Retail
- Industrial Systems Optimization
- Home Energy Reports
- Small and Medium Business Pilot – Evaluability Study
- Bellevue Urban Smart Pilot – Evaluability Study

The evaluability studies for the two pilot programs (Small and Medium Business and Bellevue Urban Smart) were shifted to from 2015 to 2016 to accommodate changes in timing of the pilots.

3) Continuous Improvement through TQM

In 2015 Evaluation staff improved the efficiency and value of program evaluation by actively engaging program staff throughout the evaluation process to ensure that evaluation findings were well founded and actionable.

To prevent program rejection of evaluation findings on methodological grounds, in the program planning phase of an evaluation there is program acceptance of the PSE impact evaluation methodology and techniques to be applied. Further, any methodology that is applied is consistent with accepted evaluation practices.

At the regional level, Evaluation staff also actively served on technical and policy committees of the Regional Technical Forum.

E. Verification Team

Energy Efficiency's Verification Team serves as another key element of its EM&V efforts. The Verification Team provides PSE program staff with an overarching process to improve the quality of program implementation and validate energy savings with a high degree of rigor by incorporating higher levels of measurement and verification activities.

1) Composition

The Verification Team consists of three quality assurance specialists and one business analyst. The QA verification inspectors are responsible for conducting on-site inspections and related activities to verify installation of Energy Efficiency measures for rebated equipment. This team confirms installed measure quantities, model numbers, site qualifications, equipment settings, and other related installation parameters through review of primary documentation, phone surveys, and onsite inspections.

Energy Efficiency measures include those installed and reported by trade allies, PSE contractors, and other third parties. The team's Business Analyst is responsible for data and systems, forecasting and working closely with Energy Efficiency program staff on a regular basis. The Business Analyst is also responsible for preparing the reporting, tracking, and communicating program findings and other related information from the field verifications to the program staff.

2) Objective

The team strives to positively contribute to program quality implementation and validate energy savings by combining detailed and documented statistical methods of analysis and sampling[55] with individualized field inspection protocols and documentation requirements tailored to each specific program.

[55] Sampling methods for randomly identifying measures or projects for verification, and a sampling tool to determine sample size for verification of each program was developed in collaboration with DNV KEMA and deployed throughout 2015.

Additionally, the Verification Team assists with other quality assurance interests in residential and business efficiency programs; including non-random visits and reviewing retail stores' advertisements and inventory in the stores. Non-random visits, typically performed at the request of program managers for case-specific interests, are considered quality assurance reviews, and may also result in documented findings for program management follow-up.

When performing onsite inspections, QA verification inspectors routinely engage customers in several Energy Efficiency elements about which the customer may not have been aware. For instance, the QA verification inspector may provide a referral to a CAN contractor, alert the customer that they may be eligible for a weatherization rebate, etc. These efforts lead to increased customer satisfaction and raise customer awareness.

3) 2015 Continuous Improvement through TQM

In 2015 the Verification Team implemented several system and process enhancements, leading to further efficiencies and team effectiveness. Highlights of key accomplishments are discussed below.

a. Data, Systems & Organization

In 2015, the team:

- Identified tracking and reporting elements in the Verification Database that will integrate with DSM Central in 2016. This will continue to streamline verification scheduling and result in a central management reference.
- Improved verification field forms to better align with program requirements and enhance communication between program and verification teams.
- Implemented program integration guidelines, which raised awareness of the verification requirements, defined clear roles of the QA verification inspectors and program staff, escalation processes and turnaround expectations, and identified areas needing improvement.

b. Verification Scope

In 2015, the Verification Team inspected a wide range of both Residential and Business measure installations, including Retail and Weatherization applications, business lighting and multifamily projects. Some of the latter included a substantial number of measures.

The team also conducted additional phone surveys—over 100—in an effort to enhance customer satisfaction, maximize their time between onsite inspections, and to supplant Ecova surveys.

4) 2015 Accomplishments & Activities

Midway through the year, the Team faced the challenge of resource shortages. These personnel adjustments provided the team the opportunity to observe and collaborate with program staff, and take a fresh look at process improvement opportunities for 2015.

The electric Verification expenditures were higher than planned due to temporary Rebates Processing employees charging the Verification Team order number. This error was discovered and corrected mid-2015.

In 2015 the Verification Team completed over 1,900 on-site field verifications, including random verifications, and additional phone verifications discussed in the previous section. The team also conducted additional verifications in response to program manager requests (considered QA reviews), and some intermittent oversampling.

Table XI-2 represents on-site project inspections completed by the Verification Team through 2015. It is important to note that verification by a home, project, business or dwelling can involve a significant number of individual measures.

Please note that PSE rounds the indicated figures to provide a sense of scale and scope. The figures are not comprehensive; only key highlights are indicated. They are not intended to be comprehensive or used for audit purposes.

Table XI-2: Summary of Verifications by Measure Type

Measure Category	Total Verifications
Business Lighting Program	160
Commercial Cooking Equip	40
Commercial Direct Installs	20
Commerciall Laundry	3
Ductless Heat Pump	170
Duct Sealing- Manufactured Home	10
Forced Air Furnace to Heat Pump Conversion	120
Fuel Conversion	70
Gas Boiler	20
Gas Furnace	110
Gas Fireplace	80
Heat Pump Water Heater	110
Heat Pumps	180
Heat Pump-Lockout Control	120
High Efficiency Heat Pump & Air Conditioner	30
Home Print Assessment- Phone	100
Hospitality Rebates	10
Integrated Space & Water Heat	40
Lighting to Go	100
Low Income Weatherization	10
Multi Family Retrofit	20
Single Family Weatherization- Windows	260
Single Family Weatherization- Insulation	50
Water Heater- Storage, electric	60
TOTAL	**1,900**

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XII. OTHER ELECTRIC PROGRAMS

A. Overview

There are four electric Energy Efficiency programs for which conservation savings are not claimed: Net Metering, Energy Renewable Energy Education and the Electric Vehicle Charger Incentive programs. Net Metering and Renewable Energy Education primarily focus on customer-side generation, including solar, wind, anaerobic digesters (bionatural gas, etc.) and small-scale hydro. These systems are smaller than five megawatts (MW).[56] Only Other Electric Programs are excluded from Energy Efficiency's cost-effectiveness calculations.

1) Sector Performance

Table XII-1 provides a 2015 summary of expenditures and energy savings for Other Electric Programs.

Table XII-1: Other Electric Program 2015 Expenditures

2015 Expenditures

Schedule	Program	Total	% of Budget	Budget
	Electric			
E150	Net Metering	$ 947,430	125%	$ 760,196
E195	Electric Vehicle Charger Incentive	$ 657,960	23%	$ 2,878,146
	Total Other Electric Programs	$1,605,391	44% 0	$ 3,638,342

[56] Larger systems fall under the considerations of PSE's Schedule 91: Cogeneration and Small Power Production.

B. Net Metering

Schedule E150

PSE's Net Energy Metering (NEM) program provides interconnection services for qualifying customer-generators in accordance with State legislation enacted into law in February 11, 1999 and amended June 8, 2000 (see RCW 80.60).

1) Description

PSE provides interconnection services to qualifying Customer-generators who operate fuel cells, hydroelectric, solar, wind, or bionatural gas generators of no more than 100 kilowatts ("kW"). PSE must offer at least 22.4 Megawatts ("MW") of cumulative nameplate generating capacity under this Schedule, of which no less than 11.2 MW of cumulative nameplate generating capacity shall be attributable to renewable energy net metering systems that use as a fuel either solar, wind, hydroelectric power, or biogas from animal waste. In 2014, capacity moved from 11.2 to 22.4 MW. Customer generation can be used to offset part or all of the Customer-generator's electricity use under Schedules 7 through 49 of Electric Tariff G.

At the time a customer enrolls in the Net Energy Metering program, they are also provided the necessary information to receive annual benefits from the Production Metering, or Renewable Energy Advantage Program (REAP) , which is the state's performance based incentive described in Schedule 151.

While the schedule applies to customers who operate fuel cells or hydroelectric, solar or wind generators of no more than 100 kW, in 2015, over 99 percent of net metering systems were solar PV with a median size of 6.7 kW.

No direct customer incentives are provided by PSE as a part of these programs. As described in the following section, the Conservation Rider only funds administrative expenses, as provided by the indicated requirements.

Energy produced by customer-generator systems directly reduces energy used in the home or business from the grid. When energy generated exceeds home or business electrical loads, the excess energy flowing to PSE is separately metered and credited to the customer at the retail rate.

The Net Metering Program's year runs May 1 to April 30. Any excess credit each month is rolled forward to the following month. When the new program year ends on April 30, the credit is reset to zero.

2) Net Energy Metering Expenses

The 2002 Stipulation Agreement, Exhibit F, UE-011570 and UG-011571, Section H.25 provides the authority for PSE to charge reasonable Net Metering administrative costs to its Conservation Rider:

> "Tariff-rider funds shall only be used on programs and their associated administrative costs that result in energy savings through Energy Efficiency investments or fuel switching. This may include reasonable administration costs for PSE's net metering program."

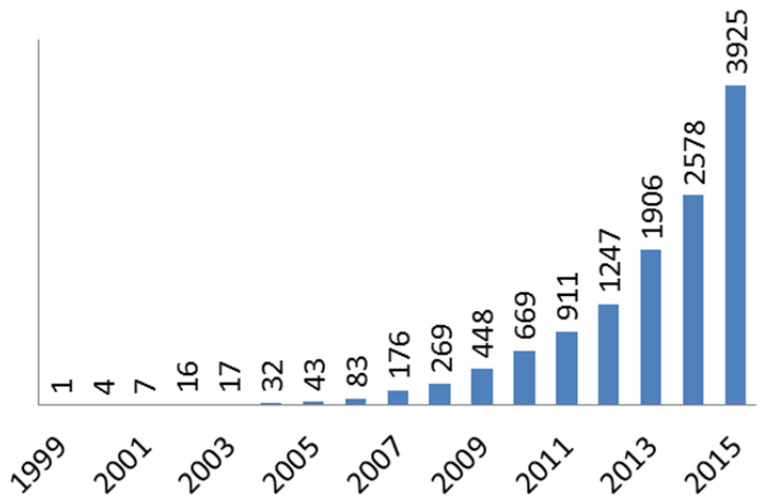
Further, in January 1999 the UTC issued an accounting order under docket No. UE-990016 which requires the collection of unbilled distribution costs from all customers through Schedule 120.

3) 2015 Accomplishments and Activities

The program grew at a rate of over 50 percent in 2015, with the addition of over 1,300 new customers. Even with such a high level of growth, PSE has been able to maintain service levels – interconnecting customers in under 10 days from receipt of the completed application. Further growth will require new processes and integrated software solutions to automate the interconnection process.

Figure XII-1 provides a look at the historical growth of the program.

Figure XII-1: Net Energy Metering Customer-Generators, 1999-2015



C. Production Metering

Schedule 151

PSE's Renewable Energy Advantage Program provides qualifying Customer-generators with production payments in accordance with State legislation WAC 458-20-273. PSE receives tax credits for renewable production payments, as outlined in RCW 82.16.

Production Metering is operated in conjunction with, and in addition to, the Net Metering program. At the time a customer enrolls in the Net Metering program, they are also provided the necessary information to receive annual benefits from Production Metering when enrolling with a qualifying renewable energy technology. Rapidly accelerating solar installation numbers, the adoption of Washington-made solar equipment, and higher production, have led to PSE approaching its payment cap. Under current rules of the state law governing the program, PSE anticipates that it will reach its roughly $10 million cap for production payments in the 2015-2016 production year. Given no change to that law, PSE will adjust the fiscal year 2016 payments to all customers in order to remain under the $10 million annual limit as prescribed by state law.

D. Electric Vehicle Charger Incentive

Schedule E195

PSE's Electric Vehicle Charger Incentive program ("EVCI") is a pilot program to study charging use in PSE's electric service territory. The program collects data on charging behavior and patterns for PSE electric customer charging their electric vehicles at home, and compares this information against PSE's other load shapes and resources. Customers driving electric vehicles are provided a $500 incentive towards the purchase of a Level 2 charger for their home as an incentive to participate in the program and use Level 2 charging, which is more energy efficient than Level 1 charging.

1) Description

There are currently just over 7,000 electric vehicles registered in PSE's electric service territory, most of which have been registered in the past four years. Some customers are known to be using Level 1 charging, which is a wall outlet, while others are using Level 2 charging at home, which uses specific charging equipment that can use between 3 and 19 kW of power.

EVCI monitors the electric use of customers with electric vehicles to determine the amount of load and load shape that electric vehicles place on PSE's system, compare these loads to PSE's other loads and resources, and identify impacts to peak load on the system. Data collection is occurring using multiple sources including PSE's existing meter system PSE has started whole-house interval data collection for 760 customers and is also adding end use data monitoring to a subset of customers to monitor just the EV chargers to compare that with whole home usage.

2) 2015 Accomplishments and Activities

Currently, PSE has paid about 1,000 customer rebates for Level 2 chargers and has started 760 customers on interval metering. In 2015, the UTC approved the program and it was launched in the latter half of the year. Specific tasks were:

- Development of program rules and design,
- Set up of rebate receipt and processing systems,
- Collection of initial interval metering data from customers to inform broader data collection design,

- Program launch and marketing on PSE's website,
- Outreach to channels for likely vehicle or charger purchase, including auto manufacturers, auto dealers, charging station manufacturers, and charging station installers,
- Evaluation of means to reach EV drivers not participating in the program.

In 2015, PSE:

- Continued to enroll customers in the program,
- Added more customers to interval metering,
- Updated and ran marketing of the program,
- Completed several trials of data analysis techniques,
- Installed some end-use monitoring, and;
- Evaluated different "smart chargers".

2016 will include further data collection and analysis and smart charger trials.

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XIII. 2015 COMPLIANCE

By the end of 2015, PSE achieved significant progress in meeting its regulatory requirements, including laws, rules, Commission Orders, CRAG requests, and conditions. In fact, only those conditions with 2016-specific deliverables remained outstanding[57] at the end of the 2014-2015 biennium. This chapter presents an overview of PSE's compliance with conservation-specific requirement deliverables provided in 2015.

A. RCW 19.285 and WAC 480-109

In 2015, PSE complied with the applicable sections of RCW 19.285 and WAC 480-109, including revisions put into effect in April 2015. Consistent with RCW 19.285.070(1), the Company filed its mid-term Biennial Conservation Report with the Washington State Department of Commerce on June 1, 2015. On October 29, 2015, PSE filed its 2016-2017 Biennial Conservation Plan in compliance with RCW 19.285.040(1)(a) and (b).

During the second quarter of 2015, in compliance with the Commission's General Order R-578 in Docket No. UE-131723, outlining the implementation requirements of the WAC 480-109 revisions, PSE reviewed its tariffs and Commission Orders to identify any potential redundancies or conflicts with any requirements outlined in the revision. In April, PSE filed a petition to update certain sections of Order 01, Appendix A in Docket No. UE-132043 and the 2010 Electric Settlement Agreement in Docket No UE-100177. These revisions modified the WAC numbers referenced in the specific requirements. No tariff revisions were required as a result of the WAC revisions.

In compliance with WAC 480-109-130(1), PSE filed an updated Schedule 120, which now includes a description of its Conservation Rider procedures.

Subsequent to the enactment of the revised WAC 480-109, PSE incorporated those rules that are unique (relative to potential redundancy with Commission Orders) into its Exhibit 9: *Condition Compliance Checklist*, discussed in more detail in Section XIII, D. on page 203. It is noteworthy that four WAC requirements pertain to deliverables due in the following biennium.

[57] The majority of these pertain to the completion of the 2014-2015 Biennial Electric Conservation Achievement Review (BECAR), and subsequent Commission review of PSE's reported savings for the biennium.

B. Commission Orders

By the end of 2015, Energy Efficiency completed the conditions enumerated in the applicable Orders and Agreements, with the exception of three that are specifically required in 2016.[58] This 2015 Energy Efficiency Report of Conservation Accomplishments is consistent with WAC 480-109-120(3), and condition (8)(b) of Order 01, Docket No. UE-132043.

C. 2015 Compliance Results

PSE tracks and reports to its Stakeholders compliance with Commission requirements outlined in the documents listed in Table XIII-1. In addition to notations and references in PSE's reporting and planning compliance documents, a key reporting vehicle is Exhibit 9: *Condition Compliance Checklist*. Each requirement type (according to Docket No.) is highlighted in a different color in Exhibit for easier reference.

Several key deliverables that were satisfied in 2015 are highlighted in Table XIII-2. Please note that PSE only listed key or significant deliverables satisfied in the interest of brevity. Please reference Exhibit 9 for the comprehensive list of satisfied requirements.

[58] The requirements outlined in WAC 480-109 and conditions in Appendix A are noted individually in Exhibit 9. However, there may be instances where the requirements overlap; for instance, the requirement to file a biennial conservation report in even years is discussed in both the WAC and Appendix A. For sorting and reporting purposes, those are tracked separately. There is also one requirement in the 2001 Stipulation Agreement that pertains to the year following the completion of the current biennium.

Table XIII-1: Tracking Compliance Requirements

Requirement Documents Tracked in Exhibit 9: Condition Compliance Checklist			
Docket Number	**Name**	**Pertains To**	**Exhibit 9 Color Code**
UG-011571	2001 General Rate Case, Exhibit F to Settlement Stipulation	Original set of conservation conditions; only natural gas requirements now apply	Yellow
U-072375	Multiparty Settlement Stipulation	2008 merger agreement: two low-income requirements pertaining to conservation	Purple
UE-100177	Conditions for Approval of PSE's 2010-2011 Conservation Targets and Settlement Terms	2010 electric settlement agreement: Sections A - J and L still apply	none
UG-121207	Commission Policy Statement on the Treatment of Natural Gas Cost-Effectiveness	Three recommendations for IOUs	Blue
UE-121697 and UG-121705 (consolidated) and UE-130137 and UG-130138 (consolidated)	Order Granting Decoupling Petition	Two conservation-specific requirements	Beige
UE-131723	WAC 480-109 revisions	2015 requirements updates	Taupe
UE-132043	Order 01 Appendix A	2014-2015 conditions	none

Table XIII-2: Highlights of Key 2015 Completed Requirements

Section	Requirement, UG-011571	Applicable Compliance Vehicle
F.16	Completed -- PSE shall develop avoided costs for natural gas efficiency programs, with review from the Advisory Committee	2015 IRP, 2016-2017 Exhibit 2: Cost-Effectiveness Calculations
H.25	Completed -- (Rider) funds may include reasonable administration costs for PSE's net metering program.	2016-2017 Exhibit 1: Savings and Budgets
Section	**Requirement, UE-100177**	**Applicable Compliance Vehicle**
C.5	Completed -- PSE shall set the ten-year potential and the biennial targets consistent with RCW 19.285 and WAC 480-109.	2016-2017 Exhibit i: Ten-Year Potential, Two-Year Target
F.11	Completed -- The annual budget of the program will be built up from the bottom.	2016-2017 Exhibit 1
G.14	Completed -- PSE will continue to honor Commitments 22 and 23 from U-072375 with regard to future funding levels.	2016-2017 Exhibit 1
Section	**Requirement, UE-130137 & UG-130138**	**Applicable Compliance Vehicle**
pgs. 76, 77, ¶178	Completed -- PSE will add $500,000 in Rider funding and $100,000 shareholder funding annually to its Low Income Weatherization program	2016-2017 Exhibit 1, LIW program detail pages
Section	**Requirement, UE-121697 & UG-121705**	
pg. 17, G.31	Completed -- PSE will agree to achieve electric conservation 5 percent above the Commission-approved biennial target	Exhibit 1, "Building the Electric Target"
Section	**Requirement, UE-132043**	**Applicable Compliance Vehicle**
(3)(a)(vii)	Completed -- (Review with the CRAG) considerations of issues related to low-income customers.	CRAG meetings, Exhibit 3: Program Details, Exhibit 1
(3)(c)	Completed -- PSE will provide the CRAG with an electronic copy of all conservation tariff filings at least two months prior to their effective date.	CRAG meeting, 2016-2017 Exhibit 11: Tariff Revisions
(4)(a)	Completed -- PSE must submit annual budgets that include program-level detail	2016-2017 Exhibit 1
(5)	Completed -- PSE must maintain its program descriptions on file with the Commission.	2016-2017 Exhibit 3
(6)(b) and (c)	Completed -- PSE must use RTF values for prescriptive measures when available.	2016-2017 Exhibit 5: Prescriptive Measure Values
(8)(d)	Completed -- PSE must file its ten-year potential and two-year conservation target by November 1	2016-2017 Biennial Conservation Plan
Section	**Requirement, WAC 480-109**	**Applicable Compliance Vehicle**
100(1)(a)(ii)	Completed -- Develop a portfolio that includes all available, cost-effective, reliable and feasible conservation.	2016-2017 BCP
100(1)(b)	Completed -- Types of conservation	2016-2017 BCP
100(3)	Completed -- (PSE) must establish (its) biennial conservation target	2016-2017 BCP
120(1)(a)	Completed -- On or before November 1 every odd-numbered year, (PSE) must file with the Commission a biennial conservation Plan.	2016-2017 BCP

D. Exhibit 9: Condition Compliance Checklist

PSE continued to demonstrate its adaptive management through the application of TQM principles by providing Stakeholders with a single representation of compliance. In 2015, PSE merged the conservation-specific requirements listed in each of these documents into one spreadsheet, Exhibit 9: *Condition Compliance Checklist*.

Exhibit 9 of this Report provides detailed information on PSE's deliverable compliance for the complete 2014-2015 biennium. The Exhibit lists all deliverables; actionable and otherwise, and is a "living" document. It is periodically updated and reconciled throughout its applicable biennium. In keeping with its continuous improvement/TQM principles, PSE continued the evolution and utility of Exhibit 9 while maintaining its reporting format simplicity in 2015.

It is interesting to note that PSE classifies some requirements as "Standard Business Practice". These include obligations such as describing the need for line extension policies, requiring PSE to continue to honor Commitments 22 and 23 from U-072375,[59] describe the makeup of the Conservation Resource Advisory Group ("CRAG"), etc. They describe no set deliverable date, or have no specific CRAG role. Energy Efficiency routinely reviews these to ensure that there are no updates or revisions. Where there are none, the conditions are notated as "completed". In the attached Exhibit 9: *Condition Compliance Checklist*, these are noted in the "Deliverable Provided Date" column as "ongoing," or "No specific deliverable—ongoing business practice."

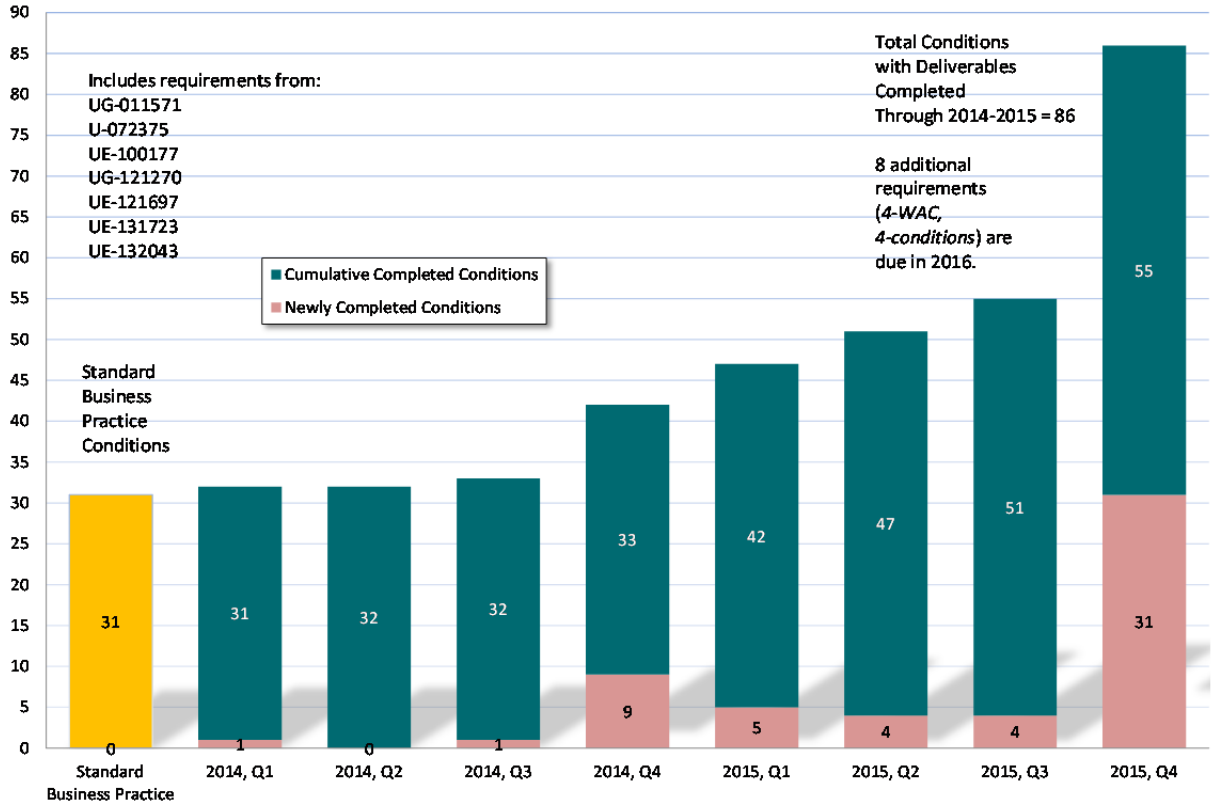
Readers may quickly ascertain the status of any deliverable through the use of these icons:

[59] This requirement is regarding funding levels for Low Income Weatherization programs in the 2008 PSE Merger Agreement.

Figure XIII-1, extracted from the Exhibit 9: *Condition Compliance Checklist* workbook, provides an overview of the cumulative progress of PSE's achievement of regulatory requirements. Due to the nature of some deliverables, there are many requirements that aren't completed until the final quarter of the biennium.

Readers should not infer from this that PSE delays requirement completion until the end of the biennium; rather, many of these are "In Progress" (noted by the hourglass symbol in the iterative Exhibit 9 publications) throughout a portion of the biennium. PSE then classifies these as "Completed" once it makes a filing or satisfies a deliverable.

Figure XIII-1: 2015 Condition Compliance Progress



E. Compliance Controls

Energy Efficiency's application of compliance controls is a key success, reflecting its of adaptive management through TQM. PSE sustains its emphasis on regulatory compliance throughout the biennium. Energy Efficiency management and staff regularly review and discuss regulatory requirements, whether RCW, WAC or Commission Orders.

Energy Efficiency staff consider compliance elements during CRAG meeting planning, staff meetings, and especially throughout the year-long biennial planning process. Energy Efficiency's regulatory compliance staff actively participate in planning functions, and ensure that program staff are familiar with tariffs and rules that pertain to their programs.

Regulatory compliance staff also monitor the compliance progress throughout the biennium and alert management of upcoming key deliverables to ensure that the deliverables are met in a timely fashion. In addition to the publication of Exhibit 9 throughout the year, the regulatory compliance staff also provides an annual calendar, with key regulatory deliverables highlighted for quick reference.

It is also important to consider that Energy Efficiency staff must also operate their programs within Company guidelines and policies; SoX reporting requirements, safety processes, cyber-security, and Purchasing department requisites, for instance.

The successful integration of the revised WAC 480-109 rules was a significant accomplishment for Energy Efficiency, especially considering that the rules' adoption came during the 2016-2017 biennial planning process. PSE's completion of all 2014-2015 requirements is a reflection of the attention paid to this key element of Energy Efficiency's operations.

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XIV. 2015 STAKEHOLDER RELATIONS

PSE, along with its primary constituents, the Commission Staff and the Conservation Resource Advisory Group ("CRAG") sustained the momentum that this Collaborative established in 2010. In keeping with PSE's emphasis on meeting customer expectations, Energy Efficiency staff continuously improved the clarity, timeliness, and transparency of information provided to Commission Staff and the CRAG throughout 2015. One example is the CRAG Communications newsletter, implemented in January 2015.

Throughout 2015 PSE reduced redundancies and optimized the value of each Stakeholder interaction. Accomplishments included tailoring PSE's required filing documentation to the needs of its constituents. PSE received feedback, both directly and through casual reference, that its efforts were recognized and appreciated. Similarly, PSE recognizes that Commission Staff and the CRAG expended significant effort to understand, become involved with, and help resolve strategic and policy issues in 2015.

A. Washington Utilities and Transportation Commission

Energy Efficiency values its working relationship with Commission Staff and appreciates their level of thoroughness, thoughtfulness, and adaptability. PSE was able to complete its 2015 initiatives as a result of the cooperation between its Energy Efficiency staff and Commission Staff. Especially useful was Staff's assistance with key deliverables associated with the implementation of the WAC 480-109 revisions, and suggestions for improving the PSE CRAG Communications newsletters. PSE also appreciated Staff initiating a NEEA savings treatment discussion with the other IOUs prior to the 2016-2017 BCP filing.

The following discussion outlines the key conservation-related UTC filings that PSE made in 2015. In the list, PSE presents the date and description of each filing the UTC Docket Number for straightforward reference.

1) Energy Efficiency-Specific Filings

February 27, 2015: 2014 Annual Report of Conservation Accomplishments, UE-132043

On February 27, 2015, PSE filed its annual review of 2014 conservation savings and expenditure results, consistent with condition (8)(b).[60] This report represented the evolution and continuous improvement in providing Energy Efficiency program accomplishments, activities, and value-add information for PSE's Stakeholders.

April 9, 2015: Filed replacement pages for 2015 ACP, resulting from an $80,000 budget spreadsheet error, UE-132043

April 16, 2015: Filed petition to modify Order in UE-132043 and Settlement Agreement in UE-100177 to align with newly-adopted rules in WAC 480-109.

June 10, 2015: Amended Schedule 120 to add a summary of Conservation Rider cost recovery procedure, in compliance with WAC 480-109-130(1), enacted in General Order R-578, UE-151208.

June 25, 2015: Filed updated Exhibit 3: *Program Details*, UE-132043

October 29, 2015: 2016-2017 Biennial Conservation Plan
UE-152058 and UG-152075

PSE filed the 2016-2017 BCP in compliance with RCW 19.285.040(1) (a) and (b), WAC 480-109-120(1), and condition (8)(d). The Plan includes a total electric conservation savings target of 605,194 Megawatt-hours, or 69.1 average MegaWatts, with planned electric expenditures of $198.98 million. The EIA penalty target approved by the Commission is 537,078 MWh, or 61.3 aMW. The 2016-2017 overall natural gas savings goal is 7.43 million therms, with planned natural gas expenditures of $29.48 million. The commission-approved natural gas penalty target is 6.96 million therms.

[60] It is interesting to note that, although the revised WAC 480-109 had not yet been enacted (in General Order R-578, which was issued in April, 2015), the 2014 Annual Report of Conservation Accomplishments complied with each requirement outlined in WAC 480-109-120(3).

2) Additional Filings and Presentations

In addition to these rule-and condition-specific requirements, PSE made two other noteworthy filings that may have an ancillary impact on Energy Efficiency.

June 1, 2015: provided the "mid-term biennial EIA Workbook to Department of Commerce.

September 18, 2015: filed Leasing Services Schedule 75, UE-151871 and UG-151872.

3) Tariff Schedule Revisions

As part of its on-going continuous improvement practices, all Conservation Schedules receive routine review and updating. Energy Efficiency Schedule revisions filed in 2015 were:

February 27, 2015: Schedule 120, Electric Conservation Service Rider UE-150341 and UG-150342

Consistent with condition (8)(c), requiring PSE to file its (2015) electric cost recovery Schedule on March 1, with an effective date of May 1.

October 27, 2015: Updated Conservation Schedules 83, 183, 250, 251, 258, 262 in Docket Nos UE-152042 and UG-152043.

B. Conservation Resource Advisory Group

PSE acknowledges and is very appreciative for the amount of work and committed engagement demonstrated by the Conservation Resource Advisory Group (CRAG) throughout 2015. Through PSE's collaborative process, it achieved significant milestones during the past year, as discussed throughout the Report and in the following sections.

1) Background

PSE formed the Conservation Resource Advisory Group (CRAG) in response to Section D of Exhibit F in the 2001 General Rate Case Stipulation Agreement, Docket No UE-011570 and UG-011571. The CRAG consists of up to 15 Stakeholders and represents a wide variety of interests, including consumers, industry, and regional concerns. It also includes two members of Commission Staff. The CRAG works closely with Energy Efficiency on a variety of conservation initiatives, most notably conservation tariff filings, savings goal setting and long-term conservation strategies.

2) CRAG Vision

Throughout 2015, the CRAG consistently demonstrated qualities of the CRAG vision, established in May 2010:

> Members actively participate in CRAG processes and advise on PSE decisions so that ratepayer funds are being used to achieve all cost-effective energy conservation in the most prudent, beneficial manner.

PSE and the CRAG review the Vision Statement at the first CRAG meeting of the year to ensure its applicability and value. PSE also provides laminated copies of the Statement for each CRAG meeting. PSE and CRAG members conducted all CRAG interactions with the utmost respect for potentially alternative views, and participants were engaged, with the clear vision of customer benefit and continuous improvement uppermost in mind.

3) 2015 Adaptation through TQM

Consistently building on efficiencies that PSE initiated in 2010, Energy Efficiency executed a number of new steps to maximize transparency and improve efficiencies for CRAG members including:

- Developed a "*CRAG Communications*" newsletters to keep members apprised of Energy Efficiency developments apart from formal CRAG meetings.
- Comprehensive preparation for the March Schedule 120 Commission review at the PSE Bothell offices.
- PSE incorporated CRAG member suggestions for Annual Report and Conservation Plan documents, including section outline references.
- The Annual Report's Exhibit 1 is now presented on two pages (with a grand total summary at the bottom of page 1) for more comfortable reading.
- Developed new navigation tools within the 2016-2017 Exhibit 1: *Savings and Budgets*.

4) CRAG Activities

In 2015, PSE welcomed three new CRAG members. PSE always provides new members with a *CRAG Reference Manual*, containing a substantial number of useful references, such as PSE conservation Schedule numbers, Conservation Plan and Annual Report highlights, and Energy Efficiency and CRAG contact information. Apart from CRAG meetings and various sub-committee meetings, PSE provided filings background and workpapers, data, opinions, references, comments, etc., and data request responses to CRAG members throughout the year. Ad-hoc CRAG meetings included a review of the interim 2014 Biennial Electric Conservation Achievement Review (BECAR) LED measure savings in late November. CRAG members were also invited to the above-noted Commission Staff discussion on NEEA savings treatment.

5) Publication Updates

PSE provides the CRAG with several document drafts prior to filings. For instance, the *List of Measures, Incentives & Eligibility* (Exhibit 4) and the draft 2016-2017 Biennial Conservation Plan, as required by condition (8)(d), and WAC 480-109-110(3).

It has been a long-standing practice to provide the CRAG with a mark-up version and clean version of the documents, which enhances the ability to quickly view the applicable modifications. PSE also provides a summary of the changes in the notifying email.

As required by WAC 480-109-130(6), PSE updates these documents on the PSE.com website following Commission acknowledgement or issuance of an approval order.

6) CRAG Meetings

In 2015, PSE met the requirements of WAC 480-109-110(2) and condition (3)(b) by convening four CRAG meetings during the year. PSE places emphasis on ensuring that it maintains an accurate meeting record, where meeting attendees can reference agreements, action items, and issue resolutions. PSE also provides a very long lead time for meeting schedules to avoid potential scheduling conflicts. Every CRAG meeting includes several standing agenda items, including:

- Activities that have occurred since the previous meeting,
- CRAG meeting action item status, and
- PSE emails meeting materials to attendees participating via conference call prior to the meeting call to order.

2015 was a biennial planning year. The last three meetings of the year coincided with the development of the 2016-2017 Biennial Conservation Plan. PSE structured the timing of those meetings to align with the key deliverables in condition (8)(d), as discussed in the following meeting synopses. PSE provides detailed meeting summaries to CRAG members following the meeting conclusion.

a. May 21 Meeting Highlights:

PSE held this meeting in the Summit room of the PSE building. With an eye toward new CRAG members, the attendees reviewed the CRAG Vision Statement, Meeting Guidelines and Measures of Success. Everyone agreed that each were still valid and had merit to be carried forward.

PSE presented key points on the effects on PSE and the CRAG of implementing the WAC 480-109 revisions, and its petition to update all conditions that would require revision to reference the updated WAC numbers.

PSE also added the WAC rules (that do not replicate existing conditions) to Exhibit 9: *Condition Compliance Checklist.*

The primary topic for this meeting was a review of the inputs and considerations used to develop PSE's 2015 Integrated Resource Plan (IRP). There was an extensive discussion on how PSE and its consultant developed the Conservation Potential Assessment and how the CPA drives Energy Efficiency's 2016-2017 savings targets. PSE noted that several CRAG members participated in the IRP development group ("IRPAG"), and some also participated in the Technical Advisory Group ("TAG") sub-committee meetings throughout 2014 and 2015.

PSE then reviewed the upcoming BCP deliverables and the need for CRAG engagements throughout the BCP development process. PSE also reviewed several program updates with the CRAG.

Key Outcomes

1) PSE presented a thorough overview on the development of the 2015 Conservation Potential Assessment, a key component of the 2015 IRP and Energy Efficiency's 2016-2017 conservation target guidance.
2) The CRAG started work on drafting the 2016-2017 conditions, which were modified in the 2016-2017 BCP to account for WAC 480-109 revisions.
3) It was agreed that henceforth, Exhibit 9: *Condition Compliance Checklist,* which is a backward-looking document, will be included with Annual Reporting, rather than planning documents.

b. July 16 Meeting Highlights:

The July 16 meeting focused on how PSE would establish its 2016-2017 electric and natural gas conservation targets, which is the first deliverable of condition (8)(d). This was the first CRAG meeting of the year that was attended by representatives of the other two Washington Independently Owned Utilities (IOUs). PSE provided background on its IRP guidance, with an extensive discussion on the potential effect of market reliance analysis, which at the time had the potential of significantly impacting the overall electric target. PSE emphasized that its conservation savings targets are important to the Company primarily as a power planning resource.

There was also a discussion on some other key attributes, such as Legacy Home Energy Reports, NEEA savings, and Energy Report pilots, that impact the overall savings targets.

The attendees spent some time discussing the idea of adding NEEA savings to the overall EIA penalty target,[61] with PSE and the other IOUs in attendance arguing against such an approach.

PSE indicated that it planned to structure the natural gas savings target in the same manner that is used for the electric target.

PSE provided some background for CRAG members on its program planning considerations, and provided the first draft of modified 2016-2017 conditions.

Key Outcomes

1) PSE continued its analyses on market reliance impacts.
2) The attendees agreed that a meeting was necessary to resolve the treatment of NEEA savings, and that the Energy Reports pilots should continue to be excluded from the EIA penalty target.

c. August 20 Meeting Highlights:

The key topic of this meeting was the second deliverable of condition (8)(d), which is to provide the CRAG with draft 2016-2017 budgets and program descriptions. After a review of the previous meeting's outstanding issues, PSE presented detailed draft program plans, along with their corresponding draft budgets for the coming biennium. The majority of the discussions focused on key drivers of savings potentials (including how savings values are calculated) and anticipated spending. Attendees reviewed potential new Residential programs and measures. A common theme was that many prescriptive measure savings values continue to decline.

Business Energy Management initiatives for 2016-2017 included the simplification of its lighting program incentives, and the evolution of the Energy Smart Grocer program. PSE also pointed out that there were no feasible cost-effective generation facility measures identified for 2016-2017.

[61] "EIA penalty target" is a colloquialism, rather than a formal term, used to denote the Commission-approved biennial electric conservation target, on which PSE may be fined $50 per megawatt-hour for any shortfall. The term is used to distinguish the value from other sub-totals within the overall Energy Efficiency savings Portfolio.

PSE also made CRAG members aware of two name changes within the Customer Engagement and Education sector; “Electronic Media Tools & Marketing” (replacing Web Experience), and “Customer Digital Experience” (replacing Customer Online Experience). There was also significant discussion around the line-use charges, required in Docket No. UE-990016, attributed to the Net Metering program

Key Outcomes

1) PSE took the action item to provide CRAG members with additional new program details in the subsequent (September 17) CRAG meeting.
2) PSE agreed to provide the CRAG with 2014/15 to 2016/17 budget comparisons (Included in the Sector views of Exhibit 1).
3) It was agreed that a Large Power User/Self-Directed (Schedule 258) refresher would be valuable. PSE will schedule this meeting for an early 2016 CRAG meeting.

d. September 17 Meeting Highlights:

This meeting’s key topic was the third deliverable of condition (8)(d), which is to provide the CRAG with draft tariff Schedule revisions. PSE provided an overview of the Schedule revisions, along with a rationale for those revisions. The majority of these focused on simplifying the acquisition of prescriptive rebates for customers who participate in the Large Power User/Self-Directed program, Schedule 258.

PSE also presented updated 2016-2017 budget and savings figures, along with a view of current 2015 performance. In this meeting, CRAG members heard from subject matter experts in the Portfolio Support and Research & Compliance Sectors, who discussed support functions such as Energy Advisors, marketing, and evaluation. CRAG members learned about improvements in the presentation of several key Biennial Conservation Plan contents, including smoother navigation in Exhibit 1, and PSE’s efforts to improve the document references in key Exhibits.

Finally, PSE presented a foreshadowing of customer rates that PSE will propose in the 2016 filing of its Schedule 120 Conservation Rider. PSE clarified that the figures were only estimates at the time of the meeting, and subject to a number of variables prior to the actual Schedule 120 filing.

Key Outcomes

1) The attendees agreed that it would be useful to be involved in applicable evaluation design, and that the suggested revisions to Schedules that impact Large Power Users/Self-Directed were appropriate.
2) It was also agreed that it is a good idea for the Commission to review its Order in UE-990016 (directing accounting practices associated with Net Metering) in the future.
3) CRAG members agreed to review issues that led to confusion over LED savings values indicated in the 2014-2015 BECAR interim report.

XV. GLOSSARY OF COMMONLY-USED TERMS

Unless otherwise noted in a specific Conservation Schedule, the following commonly-used terms, used throughout and applicable only to this document[62] have the below noted meanings. Definitions or glossaries contained in other Energy Efficiency documents, policies or guidelines referring to specific processes or unique functions shall have the meanings noted in those documents, policies or guidelines.

A. Definitions

A-line	A bulb with a rounded cover that has the same basic appearance as a standard incandescent bulb. A-line bulbs are a good option if you have a light fixture that doesn't conceal the bulb or a lamp with a shade that attaches directly to the bulb. A-Line bulbs disperse light at a wide angle and are ideal for fixtures used to spread light throughout the room. LED A-line bulbs are a good choice for: • Room area lighting • Reading lamps • Hallways The "A" itself stands for arbitrary.
Calculated Savings	This savings type is different than deemed or UES values (described below). This term indicates that there is a pre-approved, stipulated input savings value (or cost) per measure. This value (or cost) is then multiplied by site-specific input values to arrive at the overall savings value (or cost). This term is used in the Savings Type field in Appendix B, List of Measures.
Channel	Within an Energy Efficiency Residential or Business sector, an organization that is established to focus on the value chain—consisting of manufacturer distributor, dealer, contractor to the end-use customer—with the most similar market, delivery methods and ultimate purchasers or product users.

[62] Some acronyms, such as "ECM" have a different connotation outside the purview of PSE or conservation activities. For instance, beyond Energy Efficiency, "ECM" may mean "Electric Conservation Measure". In context of PSE conservation programs, though, it means "Electronically Commutated Motor".

Definitions, continued

Conditions	Also "2010 Electric conservation Settlement Agreement Terms conditions", "Energy Independence Act conditions" or "Order 01, Docket No. UE-111881 conditions". Specific deliverables and stipulations by which the Company must operate or produce through the course of operating and managing Energy Efficiency programs during a specified biennium. In addition to compliance requirements outlined in Sections A through J and L, of the 2010 Settlement Agreement, the conditions are listed under Section K of the Agreed Conditions for Approval of Puget Sound Energy, Inc.'s 2010-2011 Biennial Electric Conservation Targets Under RCW 19.285 Docket No. 100177, and paragraphs 30 through 41 of Order 01. There are also additional sections that regulate the Company's Energy Efficiency operations.
Custom Savings	This savings type applies to conservation projects where a PSE EME performs specific evaluation and review of a unique customer site to determine savings values—therms or kWh—that apply only for that site. For this type of measure, there is insufficient information, the occurrence is too infrequent or it cannot be specifically defined to justify development of a Calculated or Deemed protocol.
Deemed Measure	As in a measure's deemed value; A savings (or cost) value that applies to a unit of specific measure, regardless of where or how the measure is installed. Measures for which it is possible to "deem" per unit energy savings, cost and load shape based on program evaluation data and engineering estimates. (For instance, one residential interior CFL lamp has a hypothetical deemed value of 23 kWh per year.) This classification applies to both RTF and PSE deemed.
Direct Benefit to Customer (DBtC)	Rebates, grants, credits or services that are of value to customers. Services can include, but aren't limited to, credits on a monthly bill, upstream incentive provided to channel partners or trade allies—either within PSE's service territory or regionally—and free energy efficient devices available by mail.
Direct-Install Measure	A conservation measure that is installed by a PSE representative; either a PSE staff member, a PSE contractor or PSE contractor—rather than a PSE customer—into a qualifying structure.
Electric Savings	Savings are defined and reported as those recognized in the first year of a measure's total expected life. PSE reports the total savings for the year that the measure was implemented, regardless of when it is installed. Savings are counted at the customer meter, not the busbar.
Energy Efficiency	A department of Puget Sound Energy that implements energy conservation programs. Formerly referred to as Energy Efficiency Services or Customer Solutions.
Hydronic	A system of heating using fluid (usually water) as the conductive material to transfer heat to the desired area. This type of system is usually applied in a radiant floor system.

Definitions, continued

IntoLight	A division within PSE that manages all street lighting projects in the PSE territory.
I-937	An informal reference to the 2006 voter initiative, The Washington Clean Energy Initiative. The vote resulted in the creation of RCW 19.285 and WAC 480-109, which is now referred to as the Energy Independence Act.
Measure	A product, device, piece of equipment, system or building design or operational practice used to achieve greater Energy Efficiency or to promote Fuel Conversion and Fuel Switching. Unless specifically enumerated in a specific Energy Efficiency Program, all Measures, proposed by Customers or otherwise, shall meet or exceed the efficiency standards set forth in the applicable energy codes, or, where none exists, "standard industry practice" as determined by the Company. Measures will meet common construction practices, and meet industry standards for quality and Energy Efficiency.[63] Measures must also meet cost-effectiveness standards.
Program	Programs may consist of a single measure, an assortment of related measures or a suite of measures that are related strictly by delivery type or customer segment.
PSE Deemed	Relative to measure savings types (Custom, Calculated, PSE Deemed or RTF Deemed), these measures are supported by PSE engineering calculations or evaluation studies, in compliance with condition (6)(c). This term is used in the Savings Type field in Appendix B, List of Measures.
RTF Deemed	Former reference to the RTF's UES (Unit Energy Savings). Relative to PSE savings types (Custom, Calculated, PSE Deemed or RTF Deemed), supported by RTF analyses, in compliance with Settlement Agreement condition (6)(b). This term is used in the Savings Type field in Exhibit 5, Supplements 1 and 2.

[63] Schedule 83, section 4, Definitions, #m. Schedule 183, section 4, #l.

Definitions, continued

System	In this document, System may have the following meanings: 1) Any software program—supported by PSE's IT department or otherwise—or physical apparatus used to record, track, compile, report, archive, audit energy savings claims or financial data. 2) Electrical, and/or natural gas equipment that is either attached together or works in concert to provide space conditioning, plumbing functions or other end-uses associated with structures, such as HVAC systems, pumping systems, etc.

B. Acronyms

The below-listed acronyms are found throughout program discussions in this report. Where possible, PSE has defined these acronyms within the discussion. As a courtesy, PSE also provides them in the below list for easy reference.

ACEEE	American Council for an Energy-Efficient Economy
AEE	Association of Energy Engineers
AESP	Association of Energy Service Professionals
AIA	American Institute of Architects
AMI	Automated Meter Infrastructure
aMW	Average MegaWatt. An expression of energy (versus "power"). It is used to express very large amounts of energy. The term represents an average of power (Megawatts [MW]) used over time (the standard term being one year or 8,760 hours). Thus, 1 aMW = 8,760 MWh.
ARRA	American Recovery and Reinvestment Act
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
BOMA	Building Owners and Managers Association
BPA	Bonneville Power Administration
CEE	Consortium for Energy Efficiency
CEEP	Commercial Energy Efficiency Program
CMS	Customer Management System. A PSE proprietary software application that tracks customer activities, inventory and rebate processing.
CPA	Conservation Potential Assessment
CRAG	Conservation Resource Advisory Group
CVR	Conservation Voltage Regulation
DSM	Demand-Side Management. Typically used as an acronym for energy conservation.
EC Motor (ECM)	Electronically Commutated Motor
EME	Energy Management Engineer
EM&V	Evaluation, Measurement and Verification
ERR	Evaluation Report Response. A form used to complete an evaluation study's resultant actions.
GPM	Gallons Per Minute

Acronyms, continued

HID	High Intensity Discharge (lamp type)
HVAC	Heating, Ventilation and Air Conditioning
IOU	Independently Owned Utility
IR	InfraRed. A technology typically used in remote-control devices.
kWh	Kilowatt Hour. 1,000 watt-hours = 1 kWh, which is equivalent to 10 100-watt incandescent lamps being turned on for one hour.
LED	Light Emitting Diode (lamp type)
LEED	Leadership in Energy and Environmental Design
MOU	Memo Of Understanding. MOUs outline deliverables and agreements apart from contracts, but are treated with the same degree of rigor.
MWh	Megawatt-hour. 1,000 kWh = 1 MWh
NEEA	Northwest Energy Efficiency Alliance
NEEC	Northwest Energy Efficiency Council
NPCC	Northwest Power and Conservation Council (also, "Council")
NWEEA	
O&M	Operations & Maintenance
PTCS	Performance Tested Comfort Systems
PV	PhotoVoltaic. Primarily applies to solar renewable energy generation systems. PV converts solar energy into Direct Current (DC) electricity.
RCW	Revised Code of Washington
RTF	Regional Technical Forum, an advisory committee and a part of the Northwest Power and Conservation Council. The RTF develops standardized protocols for verifying and evaluating conservation.
SAP	Systems, Applications, Products in data Products. A very large, enterprise-wide financial, HR, workflow-tracking accounting system.
SPIF	Also "SPIFF" or "SPIV". A slang term associated with sales incentives, sometimes considered a "Sales Performance Incentive Fund"; any of the acronyms refer to a small bonus or award, usually paid to a sales staff, in recognition of achieve a certain sales goal.
TRC	Total Resource Cost: The cost to the customer and/or other party costs to install or have installed approved Measures plus Utility Costs and minus Quantifiable Benefits (or Costs).[64]

[64] Schedule 83, section 4, Definitions, #z. Schedule 183, section 4, #x.

Acronyms, continued

UC	Utility Cost: The Company's costs of administering programs included, but not limited to, costs associated with incentives, audited, analysis, technical review and funding specific to the Measure or program and evaluation.[65]
VO	Voltage Optimization
WAC	Washington Administrative Code
WAMOA	Washington Association of Maintenance and Operations Administrators
WRUN	Western Regional Utility Network
WSEC	Washington State Energy Code
WUTC	Washington Utilities and Transportation Commission. Also referred to as UTC.

[65] Schedule 83, section 4, Definitions, #bb. Schedule 183, section 4, #z.

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XVI. CONCLUSION

This concludes the Energy Efficiency 2015 Annual Report of Energy Conservation Accomplishments.

Please refer to the Report's Exhibits and Supplements for additional Energy Efficiency details:

A. Exhibits Included in the 2015 Report of Conservation Accomplishments

Exhibit 1: 2015 Conservation Targets and Budgets versus Actual Achievements and Spending

Exhibit 2: Program Cost Effectiveness

Exhibit 9: Condition Compliance Checklist

Exhibit 10: NEEA 2015 Report of Activities and Initiatives

B. Supplements

Exhibit 1 *(Table of savings and expenditures)*

- Supplement 1: Expenditures by Cost Element Group
- Supplement 2: 2015 Savings adjustments
- Supplement 3: 2015 Sponsorships and Memberships
- Supplement 4: Portfolio Measure Category Counts

Exhibit 5 *(Prescriptive & selected calculated measures)*

- Supplement 1: PSE Prescriptive and Selected Calculated Measures Offered during 2015
- Supplement 2: 2015 PSE Prescriptive Measure Revisions

Exhibit 6 *(The Evaluation Plan is excluded from this report)*

- Supplement 1: Evaluation studies with their associated Evaluation Report Responses (ERRs) performed in 2015

Energy Efficiency looks forward to a productive and successful 2016.

Respectfully submitted,

The Men and Women of Energy Efficiency