2018-2019
Biennial Conservation Plan

Overview

PSE PUGET SOUND ENERGY

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I. Executive Summary

Consistent with RCW 19.285.040(1), WAC 480-109-120, and requirements outlined in Appendix A of the Commission Order 01 of Docket UE-152058, Puget Sound Energy (PSE, or the Company) presents this 2018-2019 Biennial Conservation Plan (the Plan or BCP). The Plan represents programs that PSE is putting into place in order to achieve Portfolio conservation savings indicated in part 1) below. Pursuant to WAC 480-109-120(1)(b)(i), the Company requests that the Commission allow the Plan to become effective on January 1, 2016, and approve:

1) PSE's Portfolio Savings Targets of 519,994 Megawatt-hours (MWh), or 59.4 average megawatts (aMW), and 6,195,000 million therms,
2) PSE's EIA biennial Electric Penalty Target of 448,109 MWh, or 51.2 aMW, and its Natural Gas Penalty target of 6,155,000 million therms, and
3) PSE's electric decoupling savings commitment target of 23,658 MWh.

PSE's total 2018-2019 potential of 473,163 MWh—which is the basis for each calculated electric savings target[1]—represents all available conservation that is cost-effective, reliable and feasible, consistent with RCW 19.285.040(1), sections (a) through (f).

Table I-1: 2018-2019 Energy Efficiency Savings Targets and Budgets

2018-2019 Energy Efficiency				
Portfolio Amounts				
	Total Savings	Budgets	EIA & Natural Gas Penalty Target	TRC
Electric	519,994 MWh *59.4 aMW*	$182,864,617	448,109 MWh *51.2 aMW*	1.4
Natural Gas	6,195,000 therms	$29,587,671	6,155,000 therms	1.34
Total Budget		$212,452,288		

[1] Table I-3 and Table I-4 illustrate the steps that PSE applied to reach the electric and natural gas Penalty Targets.

A. 2018-2019 Savings, Budgets and Cost-Effectiveness

Table I-1 on the previous page presents PSE's Portfolio Savings Targets, budgets, and Total Resource Cost (TRC) ratio planned for its 2018-2019 electric and natural gas programs. Table IV-3 and Table IV-4 in Chapter 4: *Developing PSE's 2018-2019 Biennial Conservation Plan*, page 54, present additional summaries at the Sector level.

1. Developing the 2018-2019 Conservation Targets

Throughout the 2018-2019 conservation planning process, the Energy Efficiency department collaborated with PSE's Resource Planning team in determining the Company's ten-year conservation potential and two-year electric and natural gas conservation targets. PSE started this conservation planning process at the beginning of 2017.

PSE conducted an extensive examination of considerations in building the 2018-2019 conservation Portfolio. Planning teams scrutinized issues such as marketplace dynamics, externalities (for instance, utility actions and partnerships, regional initiatives, regulatory requirements), the potential for new offerings, and internal resources affecting PSE's electric and natural gas savings targets. A key element of program planning was the Integrated Resource Plan (IRP) Total Biennial Potential, as provided in the Conservation Potential Assessment (CPA).

The Energy Efficiency Portfolio, both electric and to a lesser degree, natural gas, includes specific programs and initiatives that were omitted from the CPA, but comprise the Portfolio total. Some of these are subsequently excluded from the EIA Penalty Target (also referred to as the EIA Target, Biennial Conservation Target, or Biennial Acquisition Target), and the Natural Gas Penalty Target.

a. 2017 IRP Guidance

As noted in Exhibit i: *Ten-year Achievable Conservation Potential and Two-year Targets*, PSE's EIA-filed electric conservation figures are based on its draft 2017 IRP[2] in compliance with RCW 19.285.040(1) and WAC 480-109-100(2) and (3). PSE set its natural gas target based on the draft IRP guidance as well.

[2] Consistent with Order 01 in Dockets UE-160918 and UG-160919, the final IRP is scheduled to be filed with the Commission on November 15, 2017, subsequent to the 2018-2019 BCP filing.

WAC 480-109-100 (3)(b) requires that the electric biennial target be "no lower than" the pro rata share of a utility's ten-year conservation potential. Accordingly, PSE compared the timing of 2018-2019 savings potential modeled in the IRP with the two-year pro rata share of the ten-year potential. It is noteworthy that, as a result of this comparison, PSE selected the higher electric- and natural gas-indicated savings values in both instances. This is a clear indication of PSE's adaptive approach and is consistent with the requirements.

For electricity, PSE selected the greater 2018-19 savings potential as modeled by the IRP, while for natural gas, PSE selected the greater two-year pro rata share. It should also be noted that, unlike previous biennia, PSE did not adjust the IRP Total Biennial Potential for savings from Home Energy Reports (behavioral savings), which were included in the CPA. PSE notes the resultant baseline figures determined by the IRP Total Biennial Potential in Table I-2.

Table I-2: 2017 IRP's Conservation Total Biennial Potential

	10-Year Potential	2-Year IRP Guidance
Electric	1,799,149 MWh (205.4 aMW)	473,163 MWh (54.0 aMW)
Natural Gas	30,778,000 therms	6,155,000 therms

b. Adjustments Made to the Total Biennial Potential to Build the Energy Efficiency Portfolio

Using the Total Biennial Potential as a starting point, PSE built its total Portfolio Savings Targets, EIA Penalty Target, and Decoupling Target by applying the following modifications.

i. Included in the Portfolio Savings Target total

PSE's electric and natural gas conservation programs that it implements as a part of Conservation Schedules 200 through 299 comprise the foundation of the Energy Efficiency savings programs, or the IRP Total Biennial Potential figure.

To this foundation, PSE added these programs to establish its complete Portfolio Savings Target:

- 449 Customers. PSE verified that the Conservation Potential Assessment (CPA) excluded retail wheeling customers from the 2017 analysis, and added the projected 2018-2019 savings from these customers into its Portfolio total. It should be noted that 449 customers are exclusively electric, and participate in the Large Power User/Self-Directed (Schedule 258) program.
- Pilots with uncertain savings. PSE includes these programs—that are often presented to PSE via its RFP/RFI solicitations—in its Portfolio savings goal (and expenditures) total.
- The decoupling target of 5 percent above the Commission-approved EIA Target. PSE developed the Portfolio savings goals and budgets with the additional 5 percent included. It is noteworthy that PSE chose to base its 5 percent Decoupling Target on the much higher IRP guidance amount, rather than the proposed EIA Target. PSE believes that this better represents the spirit of the decoupling agreement.

ii. Excluded from the penalty target

In both the electric and natural gas portfolio, programs or initiatives that are excluded from the Portfolio in order to determine the EIA Penalty Target are:

- Retail Wheeling, or "449"[3] Customers, who do not contribute to generation savings,
- NEEA Savings that are included in the IRP, and reported for their Program Measures category,
- Pilots with uncertain savings, and
- The 5 percent electric decoupling target, which is accounted for separately from the EIA Target.

[3] Retail Wheeling customers purchase their electric power from entities other than PSE, and use PSE infrastructure to transmit that power. Retail Wheeling, or Power Supplier Choice Schedules: 448 and 449, along with Back-Up Distribution Service: 458 and 459, are typically referred to as "449 Customers" for purposes of target-setting or discussions involving Energy Efficiency's Schedule 258: Large Power Users/Self-Directed program.

Table I-3 and Table I-4 provide outlines of the key calculation steps used to determine the electric and natural gas targets. PSE also presents these tables in the 2018-2019 Electric Portfolio Savings Target discussion of Chapter 4: *Developing PSE's 2018-2019 Biennial Conservation Plan* as a discussion reference.

Table I-3: Building the 2018-2019 Electric Target

Puget Sound Energy 2018-2019 Electric Portfolio Savings					
	Description	**MWh**	**aMW**	**Comment**	**Calculation**
	Colored cells correspond to indicated lines in Exhibit 1: *Savings and Budgets, 2-Year Portfolio View*.				
	Add			***These are specific elements that comprise the Portfolio View of Exhibit 1.***	
a	Total Biennial Potential *IRP & CPA Guidance*	473,163	54.0	Represents all available conservation that is cost-effective, reliable, and feasible, per RCW 19.285.040(1).	Figure *3*, Exhibit i
b	Add Decoupling Commitment (5% add)	23,658	2.7	Based on IRP Total Biennial Potential	= a * 0.05
c	Add 449 Customers	18,693	2.1	Excluded from CPA. Savings included in Large Power User/Self-Directed program	line *u* of Exhibit 1 Portfolio View
d	Add Pilots with Uncertain Savings	4,480	0.5	Commercial Pay For Performance pilot	line *aa* of Exhibit 1 Portfolio View
e	**Total 2018-2019 Portfolio Savings**	519,994	59.4	This figure is what Energy Efficiency is managing to.	= a + b + c + d: lines bb & be of Exhibit 1 Portfolio View
	Exclude			***Remove these elements in order to calculate the EIA penalty target.***	
f	Subtract NEEA Savings	-25,054	-2.86	(RV "codes & standards", "trackable" measures from NEEA forecast)	line ac of Exhibit 1 Portfolio View
g	Subtract Decoupling Commitment Amount	-23,658	-2.7		Provided by NEEA staff
h	Subtract 449 Customers	-18,693	-2.1		= c
i	Subtract Pilots with Uncertain Savings	-4,480	-0.5		= d
j	Total Exclusion	-71,885	-8.2		= f + g + h + i
	Resultant Targets				
k	**EIA Penalty Target**	**448,109**	**51.2**	$58.77/MWh shortfall penalty, based on 2016 inflation, per RCW 19.285.060.	**= e + j**
l	**Decoupling Commitment**	**23,658**	**2.7**		**= b**

Table I-4: Building the 2018-2019 Natural Gas Target

Puget Sound Energy 2018-2019 Natural Gas Portfolio Savings				
	Description	**Therms**	**Comment**	**Calculation**
	Colored cells correspond to indicated lines in Exhibit 1: *Savings and Budgets, 2-Year Portfolio View*.			
	Add		***These are specific elements that comprise the Portfolio View of Exhibit 1***	
a	Total Biennial Potential *IRP Guidance*	6,155,000	2-year pro rata, versus ramp rate in IRP	Page 24, July 16 CRAG meeting presentation
b	Decoupling Commitment	0	Order 07, Docket UG-121705 & UG-130138, no decoupling for natural gas.	
c	Add Pilots with Uncertain Savings	40,000	Commercial Pay for Performance pilot	line *z* of Exhibit 1 Portfolio View
d	**Total 2018-2019 Portfolio Savings**	6,195,000	This figure is what Energy Efficiency is managing to.	= a + b + c; line bb of Exhibit 1 Portfolio View
	Exclude		***Remove these elements in order to calculate the penalty target.***	
e	NEEA Savings	0		line ab of Exhibit 1 Portfolio View
f	Decoupling Commitment	0		
g	Pilots with Uncertain Savings	-40,000		= c
h	Total Exclusion	-40,000		= e + f + g
	Resultant Target			
i	**Total natural gas savings subject to penalty**	**6,155,000**	Penalty outlined in Stipulation Agreement, UG-011571 Section M43.	**= d + h**

c. The 2018-2019 EIA Electric and Natural Gas Savings Targets

Energy Efficiency program staff developed a considerable suite of programs and customer offerings that are designed to achieve the Portfolio Savings Targets of 519,994 MWh, or 59.4 aMW, and 6.195 million therms, indicated in Table I-1 on page 1.

Then, incorporating the factors in the previous discussion, PSE established the electric EIA Penalty Target of 448,109 MWh, or 51.2 aMW, and the Natural Gas Penalty Target of 6.155 million therms.

2. The 2018-2019 Budgets

PSE's electric Portfolio budget is $182.86 million, and the natural gas Portfolio budget is $29.59 million.

The electric budget includes $2.16 million for Other Electric Programs operations, which is only comprised of the Net Metering program for 2018-2019. PSE developed the budgets to support the indicated Portfolio savings and meet regulatory requirements. PSE presents the budget details in Exhibit 1*: Savings and Budgets*, and are consistent with requirements outlined in Section F.11, condition (4), and WAC 480-109-100(4).

In compliance with requirements noted in the Commission's decoupling Order,[4] PSE includes a $500,000 adder to its Low Income Weatherization[5] electric program budget, along with an added $100,000 in shareholder funding for low-income conservation projects.

3. Cost Effectiveness Considerations

PSE continues to apply all available RTF-established Non-Energy Impacts (NEIs) to prescriptive rebate programs. In order to provide a comprehensive offering for low-income customers, PSE will implement revisions to its cost-effectiveness calculation methodology for its electric and natural gas Low Income Weatherization (LIW) program measures. PSE calculated the LIW cost-effectiveness ratios, but excluded them from the overall Portfolio total.

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[4] Commission Order 07, Dockets UE-121697 and UG-121705 (consolidated) and Dockets UE-130137 and UG-130138 (consolidated).

[5] As discussed in Chapter 4: Residential Energy Management, Low Income Weatherization will also be referenced as Weatherization Assistance in some 2018 communications collateral.

This approach will allow program staff to continue a respectable range of measures to qualifying customers. It is also consistent with support from PSE's Conservation Resource Advisory Group (CRAG). PSE is also involved with the development of quantified Non-Energy Impacts for wood smoke reductions from applicable equipment in the coming biennium. It will apply this NEI to ductless heat pump installations in homes where electric heat is used, and the primary heat source is wood.

a. Electric

PSE calculates that the aggregate of electric programs will achieve a Total Resource Cost (TRC) benefit-to-cost ratio of 1.40 at the Portfolio level. PSE estimates its Portfolio Utility Cost (UC) benefit-to-cost ratio to be 1.54.

b. Natural Gas

PSE calculates that the overall natural gas Portfolio TRC benefit-to-cost ratio will be 1.34. PSE calculates that natural gas programs will achieve, in aggregate, an overall UC of 1.66.

B. Achieving the 2018-2019 Savings Targets

In 2018-2019, the Energy Efficiency team will maximize customer engagement and participation, while driving electric and natural gas conservation savings through innovation and adaptive management techniques, consistent with WAC 480-109-100(1)(a)(iv).

1. Electric

The Residential Energy Management (REM) Sector will retire its Fuel Conversion and appliance replacement programs in the coming biennium. Conversely, REM will restart the Single Family New Construction program and plans to pursue new Retail LED-related measures, Multifamily water-savings measures, and upgrades to ductless heat pumps. PSE may also employ new delivery methods for some measures that saw a reduction in UES values, such as a direct-install approach for advanced power strips. The Sector also plans to pursue a single family rental pilot in order to promote savings in that hard-to-reach customer segment, and will emphasize its focus on strategic trade ally partnerships.

In the Business Energy Management (BEM) Sector, program staff will continue to simplify lighting programs' qualifications, consistency, and application processes to increased customer participation and satisfaction.

In addition, the Resource Conservation Management program will be renamed Commercial Strategic Energy Management[6] (CSEM) to provide a regional nomenclature consistency. Although the Urban Smart Bellevue pilot will be retired in its current iteration, program staff will apply lessons learned to inform potential future community-based programs in the PSE service territory.

The Energy Smart Grocer program is retired; the custom grant and Small Business Direct Install programs will now manage grocer projects. BEM will combine the three Direct Install programs (Small Business, Lodging, and Agriculture) to provide economies of scale and program management expertise focus. Finally, new construction projects are forecasted to maintain their robust pace in the next two years, while Large Power User/Self-Directed projects' savings—at their end of their 4-year cycle in 2018—will see a substantial decrease in savings in 2019. BEM expects that its Pay for Performance pilot will produce a small amount of electric savings in the coming biennium.

2. Natural Gas

Despite the effects of energy code updates, continued difficult market conditions and product costs, and lower UES values, PSE's 2018-2019 natural gas conservation target remains healthy, with only a marginal reduction in savings from the 2016-2017 BCP. The Residential Energy Management (REM) Sector expects that an expansion of the web-enabled thermostats offering into other Channels, and potential new measures, such as Multifamily automatic tubspout diverters, will offset the downward savings pressures. REM is also restoring its natural gas water heat program, and the restored Single Family New Construction program will add a small amount of therm savings.

The BEM Sector will continue to provide expanded natural gas offerings through its Direct Install and Commercial Strategic Energy Management. BEM expects that the Pay for Performance pilot will produce a small amount of natural gas savings, while the Industrial Systems Optimization Program (ISOP) will also provide additional natural gas savings.

[6] CSEM is one program that will be offered under terms of the revised Schedule 253: Energy Performance Incentive Programs.

C. Regulatory Compliance

This Plan satisfies requirements outlined in RCW 19.285.040(1)(b) and WAC 480-109-120(1), and is consistent with several specific conditions and requirements enumerated in Appendix A of Order 01 in Docket UE-152058.

Consistent with condition (3)(e), PSE developed this BCP with ongoing Conservation Resource Advisory Group (CRAG) engagement, and provided the CRAG with:

- Draft savings targets by August 1, 2017,
- Draft budgets and program details by September 1, and
- Draft tariff revisions by October 1.

In accordance with WAC 480-109-110(3), PSE provided the CRAG with a draft 2018-2019 BCP on September 29, 2017.

Chapter 12: *Compliance*, includes an extensive discussion of rule fulfilment, condition background, conditions met with the filing of this Plan, and 2018-2019 conditions development. The Plan is also consistent with several applicable deliverables enumerated in the 2001 General Rate Case Stipulation Agreement, Exhibit F, Docket UG-011571.

D. CRAG Engagement and Reporting

As noted in Table I-3 and Table I-4, there is more than a single electric or natural gas savings Target. Consistent with CRAG requests, PSE commits to ensuring that tracking and reporting of savings forecasts and achievement are clear. PSE will renew its periodic CRAG newsletter "*CRAG Communications"* throughout the biennium to ensure that the CRAG is up-to-date with Energy Efficiency developments. It will continue to focus on conducting CRAG meetings that optimize effectiveness and productivity.

E. Following Chapters

In the following chapters of this Overview, PSE outlines a variety of new and updated programs, functions, and activities that program staff designed to exceed customer expectations, and meet electric and natural gas conservation targets. PSE appreciates the opportunity to engage with the CRAG on the development of these initiatives.

This document discusses the management steps that PSE put into place in order to achieve the indicated savings Targets while effectively managing expenses and providing exemplary stewardship of customer funds. PSE discusses assumptions and key drivers of budgets and savings Targets in Chapter 4: *Developing PSE's 2018-2019 Biennial Conservation Plan* and in the Sector Overview discussions.

The most detailed level of information is contained in the attached Exhibits, numbers i through 11. They contain budget and program details, cost-effectiveness calculations, measure tables, evaluation plans, and marketing and outreach overviews in a logical flow, reinforcing the business processes used to build the Plan.

With this 2018-2019 BCP, PSE continues its principle of providing a wide range of business information in a form that addresses Stakeholder needs and requests with a high degree of transparency. The Plan demonstrates PSE's long-standing application of adaptively managing its conservation Portfolio in a dynamic marketplace. As a courtesy to Stakeholders, PSE actively solicits, welcomes, and incorporates comments and suggestions on all of its filing documents.

II. Introduction

This document: the 2018-2019 Biennial Conservation Plan (BCP, or the Plan), will discuss Puget Sound Energy's (PSE's or the Company's) electric and natural gas conservation program objectives and plans for the upcoming biennium. The BCP fulfills the requirements of WAC 480-109-120, and several conditions, including (3)(e): deliverables associated with the BCP filing, (4): Annual Budgets and Energy Savings, (5): Program Details, (7): Program Design Principles, and (8): Cost-Effectiveness Tests. These requirements indicate that PSE must discuss its ten-year achievable potential and two-year conservation target, program details, and provide detailed budgets and tariff revisions for Stakeholder review.

In accordance with WAC 480-109-120(1)(b)(i), PSE requests that the Utilities and Transportation Commission (WUTC, or UTC) issue an Order, approving the savings Targets outlined in section II.B.1 and 2(a through c), along with their associated budgets as discussed in the Plan, with an effective date of January 1, 2018.

A. Overview of the BCP Contents

Where there are notable differences, or where it is applicable, PSE will discuss electric initiatives separately from natural gas initiatives. Where there is not a distinction, the Energy Efficiency program staff will apply similar strategies and focus. Many discussions will reference and summarize supporting Exhibits that provide a substantial amount of detailed, important information. PSE also includes its natural gas program initiatives in this 2018-2019 biennial plan.[7]

The 2018-2019 BCP will focus on strategies that PSE will employ in order to exceed customer expectations, prudently using the funds that they have entrusted to PSE, and be proactive in adjusting to ever-evolving market conditions while achieving its Commission-approved savings Targets.

[7] Inclusion of PSE's natural gas plans is consistent with Section H.21 of the 2001 Rate Case Stipulation Agreement, Docket No. UG-011571, which states in part (emphasis added):

> *"… After the first year,* ***PSE's conservation targets for*** *both* ***natural gas*** *and electric efficiency* ***programs will be revised periodically and determined by the updated conservation supply curves, current avoided cost values, program experience, and other relevant factors****. These targets will direct development of the mix of cost-effective programs that will establish the budgets for efficiency programs and once that mix has been developed, the targets will be determined. The Company will submit these targets through annual filings for Commission approval."*

Drivers of the Plan include the Integrated Resource Plan (IRP) Total Biennial Potential, customer participation, and feedback, and updated avoided cost calculations. PSE also considered Conservation Resource Advisory Group (CRAG) recommendations, RTF Unit Energy Savings (UES) value adjustments,[8] technology updates, and trade ally support, among others. PSE discusses these in further detail throughout the following chapters.

Throughout this Plan, references to WAC 480-109 and UTC conditions may be sited where applicable within program or function discussions. These include requirements outlined in: Appendix A of Order 01 in Docket UE-152058; Sections A through J of the 2010 Electric Settlement Agreement, Docket UE-100177; and applicable Sections of Exhibit F in the 2001 General Rate Case Stipulation Agreement, Docket UG-011571.

This discussion and the Glossary of Commonly Used Terms section contain the only citation of the complete, formal name of those orders and conditions. In the following discussions, the report will only reference "Section", "condition", or "order" to avoid unwieldy repetition and unnecessary verbiage.

B. 2018-2019 Areas of Key Focus

In order to establish robust customer programs that meet customer expectations, achieve savings Targets, and ensure that PSE can sustain conservation efforts well into the future, there must also be a focus on developing and enhancing supporting business functions and initiatives.

These are often not customer facing—with, of course, the exception of PSE's outreach, marketing, and digital experience initiatives—or savings-generating programs. Additionally, Regulatory Stakeholder requests shape a number of the 2018-2019 PSE areas of focus.

In pursuing its 2018-2019 key areas of focus, Energy Efficiency will:

- Maximize its customer participation in Energy Efficiency programs. Energy Efficiency will continue its efforts to engage customers with its innovative communications and outreach strategies. PSE will continue to develop innovative and exciting energy-efficiency marketing campaigns, and will make it easy for customers to participate in its programs. PSE will build on its leading edge and award-winning customer messaging and outreach.

[8] It is important to note that PSE aligns its RTF Deemed (UES) savings values to those outlined in the most recent version of RTF tables annually, rather than biennially, in order to reflect actual conservation savings in the most accurate manner.

- In concert with its communications and marketing efforts, Energy Efficiency will continue its long-standing initiatives to connect with customers in hard-to-reach and proportionately underserved market segments.
- Continuously innovate and adapt its efficiency programs and business processes, including augmenting its system capabilities. The 2018-2019 Plan includes discussions on adaptive program design that includes new measures and new delivery methods, as well as business process improvements designed to maximize productivity.
- Maximize program effectiveness with a focus on the direct benefit that PSE provides to its customers. This PSE-specific metric illustrates the concept that Energy Efficiency provides a value to its customers beyond simple remuneration, and is not a measure of operational efficiency.
- Continue to investigate the feasibility of a variety of options that make it easier for customers to finance energy-efficiency measures.
- Pursue pilots with uncertain savings levels. A new pilot for 218-2019 will be Business Energy Management's Pay for Performance initiative. PSE will also discuss other measures or programs that potentially fit into the category of "pilot", and how program staff integrate those initiatives into the Portfolio.
- Drive strategic integration of Energy Efficiency trade allies into the design and delivery of Energy Efficiency programs by promoting trade allies as an extension of the trusting relationship that the customer has with Energy Efficiency, and provide mutual benefit to PSE, its customers, and trade allies.
- Ensure compliance with regulatory requirements and address Stakeholder requests whenever possible.

PSE provides detailed discussion of these initiatives in Chapter 3: *Key Areas of Focus*.

C. Conservation Savings

The Plan provides details of PSE's implementation of a considerable suite of innovative programs and customer offerings. Program staff apply adaptive program design with a focus on customer satisfaction and participation, leading to achievement of four sets of conservation savings Targets. PSE established each set by evaluating program savings discussed in sections D.1 through D.6.

1. Portfolio Savings Target

Energy Efficiency develops its programs to achieve the total savings of the overall Portfolio. The total savings includes those constituting the EIA Penalty Target, the Decoupling Target, the Natural Gas Penalty Target, and programs excluded from the EIA Penalty Target. PSE plans to achieve the total Portfolio Savings Targets of 519,994 MWh, 59.4 aMW), and 6.195 million therms for 2018-2019.

2. Penalty Targets

PSE's 2018-2019 BCP includes three conservation targets that could be subject to potential penalty: the EIA Penalty Target, the Natural Gas Penalty Target, and the Decoupling Target. The basis for all savings calculations[9] noted herein—the Total Biennial Potential of 473,163 MWh—satisfies PSE's obligation to achieve all available conservation that is cost-effective, reliable and feasible, consistent with RCW 19.285.040(1), sections (a) through (f).

a. EIA Penalty Target

Excluding eligible program savings of 71,885 MWh, PSE's two-year EIA electric Penalty Target (also, Biennial Conservation or Biennial Acquisition Target) will be 448,109 MWh, or 51.2 aMW. This target is subject to a penalty[10] outlined in RCW 18.285.070(1) and WAC 480-109-070.

b. Decoupling Target

PSE's electric Decoupling Target of 23,658 MWh is based on a multiplying the Total Biennial Potential by 5 percent. PSE will be subject to the same penalty amount for achievement shortfall as the EIA Target.

[9] Table I-3 and Table I-4 illustrate the steps that PSE applied to reach the distinct targets.

[10] It is essential to note that PSE has 38,906 MWh of excess electric achievement available to apply to potential savings shortfalls in 2016-2017 and 2018-2019.

c. Natural Gas Penalty Target

There is one natural gas pilot with uncertain savings planned: Business Energy Management's Pay for Performance pilot, with potential savings of 40,000 therms. PSE will subtract that savings amount from its total Portfolio target of 6.195 million therms for 2018-2019. Therefore, the natural gas two-year penalty target will be 6.155 million therms. The Commission outlines PSE's potential penalty calculations in Section M.43 of Exhibit F, Order 01 of Docket UG-011571.

D. Developing the Electric and Natural Gas Targets

PSE conducted an extensive examination of considerations in building the 2018-2019 conservation Portfolio. PSE based the Energy Efficiency Portfolio on the draft 2017 IRP Total Biennial Potential, which it considers Energy Efficiency's "top-down" savings figure. PSE's Portfolio of electric savings, and to a lesser degree, natural gas savings, includes programs and initiatives that that the Conservation Potential Assessment (CPA) omitted.

Once PSE calculates the overall Portfolio total, it subsequently excludes some of these programs or initiatives to establish the electric and natural gas Penalty Targets.

Key among these variables for electric conservation are:

- The electric decoupling target commitment to achieve 5 percent more than the Commission-approved EIA Penalty Target (also, Biennial Conservation Target or Acquisition Target),
- Treatment of savings from Schedule 449 Retail Wheeling Service customers,
- NEEA savings,
- Treatment of pilots with uncertain saving values.

An adjustment for behavior changes—made in previous biennia—was unnecessary because residential behavior-based savings were included in the 2017 draft IRP. The only natural gas variable was the Business Energy Management Pay for Performance pilot, which BEM staff expect to produce electric and natural gas savings.

Once program staff have the "top-down" savings goals, they build savings programs consistent with condition F.11, which indicates that budgets must be developed from the bottom-up.

1. 2017 IRP Total Biennial Potential

PSE's electric and natural gas conservation figures are based on its draft 2017 IRP[11] in compliance with RCW 19.285.040(1) and WAC 480-109-100(2) and (3). WAC 480-109-100 (3)(b) requires that the electric biennial target be "no lower than" the pro rata share of a utility's ten-year conservation potential. PSE compared the timing of 2018-2019 savings potential, as ramped into the IRP, with the two-year pro rata share of the ten-year IRP potential and selected the greater of those values as the IRP guidance.

The 2017 IRP guidance for 2018-2019 was 359,830 MWh, using the 20 percent pro-rata approach. However, PSE decided to choose the higher two-year value of 473,163 MWh, indicated by the IRP annual ramp rates.

PSE selected the pro-rata share of its natural gas 10-year IRP potential (6,155,000 therms) which is higher than the 2018-2019 annual IRP ramp rate for natural gas (4,860,000 therms).

2. Decoupling Considerations

A key consideration for Energy Efficiency in PSE's amended decoupling petition[12] is that PSE must achieve an incremental 5 percent over its Commission-approved 2018-2019 EIA-specific electric savings target. It is important to note that, rather than applying a 5 percent calculation to the lower proposed EIA Penalty Target, PSE added 5 percent to higher IRP Total Biennial Potential figure—which also includes NEEA savings.

PSE voluntarily submitted to apply the same financial penalties enumerated in RCW 19.285.060 to this incremental amount. The 2018-2019 decoupling target is 23,658 MWh, or 2.7 aMW. PSE discusses strategies of adding incremental savings through additional marketing, promotions and retail events, along with one-time rebates and new measures in Chapter 4: *Developing PSE's 2018-2019 Biennial Conservation Plan*.

[11] Consistent with Order 01 in Dockets UE-160918 and UG-160919, the final IRP is scheduled to be filed with the Commission on November 15, 2017, subsequent to the 2018-2019 BCP filing.

[12] PSE and NW Energy Coalition decoupling petition in Dockets UE-121697 and UG-121705.

3. 449 Customer Savings

When PSE became aware that the Conservation Potential Assessment (CPA) excluded 449 customers (Retail Wheeling), Large Power/Self-Directed program staff calculated the 449 projected savings for 2018 and 2019, and added that value—18,693 MWh—to the Total Biennial Potential of 473,163 MWh to ensure that eligible savings are accounted.

4. Pilots with Uncertain Savings

Business Energy Management (BEM) will conduct a pilot with uncertain savings: its Pay for Performance initiatives. Program staff expect that the pilot may save 4,480 MWh for the electric initiative, and 40,000 therms for the natural gas initiative. As discussed in Chapter 3, PSE carefully considers programs and initiatives that may be considered pilots versus those that are pilot-analogous.

5. NEEA Savings

NEEA derives its forecasted 2018-2019 savings of 25,054 MWh, or 2.86 aMW from its "Program Savings" category. The projection for NEEA's natural gas savings is zero therms in 2018-2019.

6. Excluded from the EIA Penalty Target

In the electric and natural gas portfolios, programs or initiatives that PSE excludes from the Portfolio in order to determine the EIA Penalty Target are: [13]

- 449 Customers. Retail wheeling customers do not contribute to PSE's need for electricity supply or generation savings, although they may affect regional needs. Therefore, savings from these customers were not included in the IRP guidance. By not taking bundled electric service from PSE, these customers do influence capacity. Because of this, their conservation savings do not affect PSE's overall resources the way that all other PSE customers do.
- Applicable NEEA Savings. Operating within the methodologies outlined in the Joint Utility Proposal submitted to the Commission, consistent with Order 07 in Docket No. UE-100177, PSE excluded the savings from NEEA's 2018-2019 "Program Savings" category. PSE counts only those forecasted savings that are attributable to NEEA programs.

[13] PSE provides additional levels of the calculation detail in Table I-3 and Table I-4 on page 5.

- Pilots with uncertain savings. UTC Staff and the Investor Owned Utilities (IOUs) agreed that, in order to encourage utilities to engage in pilots whose projected savings may not be realized, it is acceptable for the IOUs to exclude pilots from their EIA Penalty Target.
- The electric Portfolio Savings Target includes the 5 percent decoupling target commitment. Upon completion of the biennium, PSE will subtract the amount from the Portfolio total and will count it separately from the EIA Penalty Target.

Table I-3 and Table I-4 in Chapter 1: *Executive Summary*, provide summaries of the key calculation steps used to arrive at the electric and natural gas targets. PSE also presents these tables in the 2018-2019 Electric Portfolio Savings Target discussion of Chapter 4: *Developing PSE's 2018-2019 Biennial Conservation Plan* as a useful reference.

E. PSE Examined all Required Savings Types

PSE provides the BCP location of the required savings types—listed in WAC 480-109-100(1)(b): types of conservation—that PSE investigated in building up the 2018-2019 savings programs in Table II-1.

Table II-1: 2018-2019 BCP Location of WAC 480-109-100(1)(b)

Requirement		BCP Location
(i)	End-use efficiency	All Residential (REM) and Business (BEM) programs
(ii)	Behavioral programs	Home Energy and Individual Energy Reports, REM and BEM sections
(iii)	High-efficiency cogeneration	No projects identified during 2018-2019 planning
(iv)	Production efficiency	Chapter 10: Regional Programs, Schedule 292
(v)	Distribution efficiency	Chapter 10: Regional Programs, Schedule 292
(vi)	Market transformation	Regional Programs, NEEA—Schedule 254
(c)	Pilots	Chapter 9: Pilots

PSE provides additional discussions on its 2018-2019 savings and budget development in Chapter 4: *Developing PSE's 2018-2019 Biennial Conservation Plan*.

F. 2018-2019 Budgets

Consistent with the requirement of condition F.11: *Budget Development*, Energy Effiency developed its electric and natural gas biennial budgets from the bottom-up.

The Portfolio electric budget of $182.86 million is approximately 8 percent lower from the 2016-2017 biennium, which was $198.9 million. The 2018-2019 electric budget includes $2.16 million for Net Metering administration and distribution accounting costs. The Portfolio natural gas budget is nearly 1 percent higher than the 2016-2017 budget: $29.59 million in 2018-2019, versus a 2016-2017 budget of $29.4.

Primary budget drivers are planned expenses directly related to conservation acquisition, including staff labor, Direct Benefit to Customers, and outside services performed by vendors, contractors, third-party implementers, etc. Other expenses are related to customer outreach, including marketing and community involvement. Energy Efficiency's emphasis on direct customer interactions account for expenses in the Energy Advisors, Verification Team, Rebates Processing, and Market Research organizations. Program support organizations, including systems maintenance, reporting, and data analyses also comprise Portfolio anticipated expenditures.

PSE provides detailed discussions of planned expenditure key drivers in Chapter 4, Section IV.G.

G. Potential Penalties

PSE is subject to potential penalties for falling short of its electric and natural gas targets.

If PSE exhausts its available excess conservation from eligible previous biennia, an electric shortfall penalty of up to $50 per MWh, adjusted for inflation from 2007 – 2017, could be applied, per RCW 19.285.060(1).[14] The same penalty amount would apply to a decoupling target shortfall.

A natural gas shortfall penalty could range from $200,000 - $750,000 per year of shortfall, as computed from PSE biennial achievement.

H. Potential 2018-2019 Incentive Mechanism

In its July 26 2017 CRAG meeting, PSE shared its intention to not propose a PSE-specific incentive mechanism, as described in WAC 480-109-100(9) in the 2018-2019 biennium.

[14] At the beginning of the 2018-2019 biennium, PSE has 38,906 MWh available excess conservation. This is the amount remaining following its 2014-2015 achievement. Per WAC 408-109-100(3)(c), PSE may apply a pre-defined proportion of that amount to potential shortfalls of either the 2016-2017 or 2018-2019 biennial achievement.

The incentive would be geared toward providing financial reward for PSE if savings exceeded the biennial conservation targets. Alternatively, PSE suggests that it would be beneficial to conduct workshops in a statewide collaborative setting, where Stakeholders could discuss the potential for balancing the current penalties with appropriately set incentive structures.

I. 2018-2019 Cost-Effectiveness Calculations

In compliance with WAC 480-109-100(8) and (10), and condition (8), PSE evaluated its programs using methodologies consistent with those used by the Northwest Power & Conservation Council. Its portfolio passes the cost-effectiveness test that is consistent with the Northwest Conservation and Electric Power Plan. It is important to note that PSE incorporates all applicable RTF-defined Non-Energy Impact (NEI) values for prescriptive measures, including electric and natural gas.

Consistent with its adaptive management principles, PSE is participating in the development of quantified NEIs for wood smoke reductions. PSE's role includes working with an environmental specialist consultant and other Washington state IOUs on NEIs resulting from the installation of efficient ductless heat pumps in homes that have electric heat, and primarily heat with wood. The consultant used a consistent methodology to quantify the impact for each utility service area. Table II-2 provides summary views of the portfolio cost-effectiveness calculations.[15]

Table II-2: 2018-2019 Portfolio Cost-Effectiveness Calculations

2018-2019 Energy Efficiency Portfolio Cost-Effectiveness		
	Total Resource Cost B/C Ratio	Utility Cost B/C Ratio
Electric	1.40	1.54
Natural Gas	1.34	1.66

[15] Indicated electric TRC values include a 10 percent adder, consistent with condition (10)(a). PSE also included a 10 percent adder to the natural gas TRC, consistent with concepts expressed in the Commission's Policy on Natural Gas Cost-Effectiveness, Docket UG-121207. The Low Income Weatherization UC and TRC, although calculated and presented in Exhibit 2: *Cost-Effectiveness Calculations*, are excluded from the overall Portfolio calculation.

J. Compliance

This 2018-2019 Biennial Conservation Plan is consistent with deliverables noted in RCW 19.285.040(1), prescribing that a utility must identify its conservation potential and develop and publish a biennial conservation target.

The BCP will demonstrate that PSE is committed to follow the principles of WAC 480-109-100(1) throughout the upcoming biennium. The BCP is also in compliance with rules that set forth its design, outlined in WAC 480-109-120(1).

Additionally, PSE complied with WAC 408-109-110(2), by conducting five formal CRAG meetings in 2017, leading to the development of this Biennial Conservation Plan.[16] These meetings were productive and integral to its ongoing planning processes.

The 2018-2019 BCP addresses applicable conditions in Appendix A of Order 01 in Docket UE-152058 relative to program design, cost-effectiveness tests, required involvement in preparation of the 2018-2019 biennium, etc.

The Plan is also consistent with condition (4)(a) and (b), which indicate that PSE's annual budgets must be provided in a detailed format and show projected savings, along with (3)(e), which outlines a BCP schedule of component deliverables. Lastly, the BCP is consistent with Applicable Sections of the 2010 Settlement Agreement in Docket UE-100177, and the 2002 Rate Case Stipulation Agreement, Exhibit F of Docket UG-011571.

PSE provides a complete compliance discussion in Chapter 14: *Compliance*. It also highlights additional conditions addressed in the BCP in Table XIV-1.

K. Conservation Tariff Schedule Revisions

Minor revisions were necessary for the 2018-2019 biennium: primarily Schedules 83 and 183 (electric and natural gas general conservation overarching rules), Schedule 201 (Low Income Weatherization) and limited Business Energy Management Schedules.

PSE provides summaries of those modifications in Table II-3 (electric) and Table II-4 (natural gas) on the following page.

[16] In Exhibit 9: Condition Compliance Checklist, which provides CRAG members with up-to-date status of compliance with Commission rules and conditions, PSE clearly indicates those conditions that are completed with their completion date, as well as requirements that are in progress. PSE also maintains lists of action items that arise in its CRAG meetings, email requests, and informational queries, tracking and reporting on their progress as well.

Table II-3: Summary of 2018-2019 Electric Conservation Tariff Schedule Revisions

2018-2019 Electric Conservation Tariff Revisions			
Program	**Tariff Sheet Number**	**Section**	**Revision Reason**
Electricity Conservation Service	83-f	9) Special Conditions	Revise requirement that Low Income Weatherization measures achieve a TRC of 0.667 for the upcoming biennium.
Electricity Conservation Service	83-G	10) Expenditures and 12) Termination	Update expenditures for 2018-2019 anticipated spending and update termination date to December 31, 2019.
Residential Low-Income	201-a	3) Funding	Add "Special Contracts" to funding source list.
Resource Conservation Management	253 and 253-a	All	Revise program name to Energy Performance Incentive Programs. Adjust Schedule section language to represent services offered more accurately. Commercial Strategic Energy Management (replacing Resource Conservation Management) will be one program offered under the revised Schedule 253.
Large Power User/Self-Directed	258	1) Availability	Add reference to "Special Contracts"
Large Power User/Self-Directed	258-B	6) General Conditions	Add reference to "Special Contracts"

Table II-4: Summary of 2018-2019 Natural Gas Conservation Tariff Schedule Revisions

2018-2019 Natural Gas Conservation Tariff Revisions			
Program	**Tariff Sheet Number**	**Section**	**Revision Reason**
Natural Gas Conservation Service	183-f	9) Special Conditions	Remove requirement that Low Income Weatherization measures achieve a TRC of 0.667 for the upcoming biennium.
Natural Gas Conservation Service	183-g	10) Expenditures and 12) Termination	Update expenditures for 2018-2019 anticipated spending and update termination date to December 31, 2019.
Residential Low-Income	1201-a	3) Funding	Add "Special Contracts" to funding source list.
Resource Conservation Management	1253 through 1253-b	All	Revise program name to Energy Performance Incentive Programs. Adjust Schedule section language to represent services offered more accurately. Commercial Strategic Energy Management (replacing Resource Conservation Management) will be one program offered under the revised Schedule 253.

The REM Sector Overview provides a discussion of the Schedule 201 revision. The BEM Sector Overview provides additional details for electric Schedules 250, 251, 253, and 258 revisions. PSE provided mark-up copies of all revised tariff sheets to the CRAG on September 29, 2017, consistent with the third deliverable of condition (3)(e).

It is notable that PSE only files the revised tariff sheets—not the entire Schedule—with the UTC. Although the revised documents are included as Exhibit 11 of the BCP as a courtesy to Stakeholders, PSE files the tariff revisions themselves separately from the BCP.

L. Key Plan Enhancements

Continuous improvement initiatives are not limited to Energy Efficiency conservation programs. PSE included a variety of noteworthy upgrades to its Plan standards in this 2018-2019 BCP. Readers will recognize that several enhancements resulted from Stakeholder comments and requests.

PSE appreciates Stakeholder comments relative to its documentation ease-of-use, presentation formatting, and ability to access the required information with maximum efficiency. PSE re-prioritized the information presented in the Plan that Stakeholders indicated isn't as valuable, expanded information that is useful, and organized the entire BCP package in a logical and consistent flow. This BCP Overview and all Exhibits now incorporate an outline structure in each chapter to facilitate easier reference for Stakeholders. Even with these improvements, PSE maintained the traditional chapter/section focus and presentation style to maintain continuity with PSE's other reporting and planning documents. Energy Efficiency staff continue to value and incorporate Stakeholder suggestions whenever possible.

Highlights of this BCP's upgrades include:

1. Throughout the BCP Overview and other pertinent Exhibits, PSE referenced RCW, WAC and Commission Order sections whenever possible.
2. The organization and naming tenets of the BCP make for easier Stakeholder reference when comparing Annual or Biennial Reports to this planning document; all Exhibits, program details, and layouts are the same. It also provides for reporting flexibility, allowing for new detail documents without requiring a re-naming exercise.
3. An updated index, providing references to key terms and acronyms used throughout the BCP Overview.
4. Numerous improvements to key Exhibits, including revisions to Exhibit 1: *Savings and Budgets,* Exhibit 2: *Cost-Effectiveness Calculations,* and Exhibit 4: *Measures, Incentives & Eligibility*. PSE discusses these enhancements in detail in Chapter 15: *Exhibit Summary*.

M. Biennial Conservation Plan Contents

Several elements comprise the overall 2018-2019 Biennial Conservation Plan (BCP). Each Exhibit and document within this BCP focus on a particular element, and is designed to provide the maximum value for the reader.

1. 2018-2019 Programs

This Overview document: Part 1 of the 2018-2019 Biennial Conservation Plan, provides general discussions relative to the development of the BCP, an overview of PSE's plans for executing its conservation programs, and other topics that may not be germane to the attached Exhibits (for instance, a review of PSE's compliance or Stakeholder engagement). The Overview provides readers with the sense of focus that Energy Efficiency's program staff employed to develop this considerable amount of detailed and thorough program planning for this impressive portfolio. PSE expects to convey its long-standing program management processes, with attention on continuous adaptation.

2. 2018-2019 Biennial Conservation Plan Exhibits

In this Plan, PSE references 12 Exhibits that provide details about key elements of Energy Efficiency operations. As has become standard practice, this Biennial Conservation Plan includes the Plan Overview and all BCP Exhibits.[17]

PSE organizes the Biennial Conservation Plan in the following manner:

Part 1

- Plan Overview

Part 2

- Exhibit i: Ten-year Achievable Conservation Potential and Two-year Targets,[18]
- Exhibit 1: Program-level budget and savings goals details,
- Exhibit 2: Cost-effectiveness tables,

[17] In its *Annual* Conservation Plans (filed in odd years), PSE excludes Exhibit i: *Ten-Year Potential*, *Two-Year Target*, Exhibit 7: *Marketing Plan*, and Exhibit 8: *The EM&V Framework.*

[18] Exhibit i: the *Ten-year Conservation Potential and Two-year Target* contains the several of the WAC 480-109-120(1)(b) deliverables. These include subsection (ii), (iv), and (v).

- Exhibit 3: Program details, with target market, marketing plans, and customer incentives descriptions,
- Exhibit 4: Energy Efficiency List of Measures, Incentives and Eligibility,
- Exhibit 5: Prescriptive Measure Tables, is excluded from annual Plans, as future measure savings data is not yet uploaded into its service tracking application, DSMc at the time of the Plan filings.[19]
- Exhibit 6: Program Evaluation Plan,
- Exhibit 7: Marketing Plan,
- Exhibit 8: EM&V Framework,
- Exhibit 9: Requirement Compliance Checklist, is excluded from annual Plans, as it is backward looking. It is more appropriately included in Annual Reports.
- Exhibit 10: Northwest Energy Efficiency Alliance (NEEA) Plan, and
- Exhibit 11: Conservation Tariff Updates.[20]

[19] PSE adds new measures and measure revisions to DSMc when they are approved and active, per established processes. Therefore, a complete listing of measure data is not available at the time the BCP is filed. However, the 2018 measure savings data is reflected in the program detail pages of Exhibit 1: *Savings and Budgets*. PSE will provide an updated Exhibit 5, reflecting actual 2018 measure savings value, concurrent with the filing of its Q1 2018 Exhibit 4: Measures, Incentives & Eligibility.

[20] Although PSE provides conservation tariff updates in Exhibit 11 as a courtesy to Stakeholders, it files the revised tariff sheets separately from the BCP.

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III. Energy Efficiency Areas of Focus for the 2018-2019 Biennium

In order to achieve the 2018-2019 savings goals and manage the budgeted funds that customers entrust to PSE with a high degree of prudence, it is essential that Energy Efficiency's program staff develop and implement impressive programs that meet customer expectations. Staff must establish cohesive partnerships with third-party implementers, contractors, property managers and developers, community leaders, resellers, and regional entities. They must collaborate with supporting PSE organizations, including IT, Marketing, Market Research, and Accounts Payable to name a few. There are varied and dynamic business elements that program staff consider in order to meet these goals.

In addition to a comprehensive design of savings goals and vetted anticipated expenditures, discussed in Chapter 4, the Energy Efficiency department maintained clear focus on its key 2018-2019 priorities throughout the year-long planning process. These include, but aren't limited to:

- Maximizing customer participation in Energy Efficiency programs, including continued attention to customers in Hard-to-Reach and proportionately underserved segments.
- Continue to create novel and exciting customer messaging through marketing and outreach initiatives.
- Continue Energy Efficiency's convention of adaptively managing through innovation and continuous improvement of its business processes and systems.
- Ensure the value of Energy Efficiency's programs by providing the maximum direct benefits to its customers.
- Enhance customers' ability to do business with Energy Efficiency, including the exploring the feasibility of financing options.
- Enhance and clarify Energy Efficiency's implementation of pilots.
- Integrate Trade Ally support into program design.
- Ensure regulatory compliance and address Stakeholder requests.

PSE discusses these priorities in the following sections.

A. Maximize PSE Customer Participation and Approval

One of the most critical elements of any successful conservation plan depends on maximized customer engagement and support; as stewards of customer funding, PSE's Energy Efficiency department treats this responsibility as a top priority. PSE plans to implement numerous customer-focused process refinements throughout 2018-2019.

A key focus for PSE in the upcoming biennium is the need to provide customers with a positive energy-efficiency experience. PSE will make it easy to participate in Energy Efficiency programs and provide the customer with an array of energy-efficiency options that meet their expectations.

Energy Efficiency also needs to raise customers' awareness and help them to understand the value of their conservation efforts. Energy Efficiency intends to help them become engaged in the process of contributing to the preservation of the environment. All of PSE's energy-efficiency marketing communications—its brochures, energy-efficiency web pages, and media broadcasts, for instance—focus customers' attention on this point.

The consistency of PSE's conservation messaging is reflected in Energy Efficiency's direct customer-facing activities (in-person field activities, such as retail events, community initiatives, telephone interactions with PSE energy advisors, email interactions, etc.). The importance of consistent messaging carries over into PSE's Portfolio Support activities, such as the Verification Team, program evaluations, rebate processing, etc.

PSE's targeted outreach strategies, including small business "blitzes", community events, and door-to-door outreach, along with its fun and engaging Energy Upgrade campaigns are additional ways in which PSE brings the energy efficiency experience directly to its customers. This emphasis on customer service is also prominent in PSE's dealings with trade allies: those contractors and third-party entities that represent PSE when installing or servicing energy-efficiency measures. PSE holds its trade allies to very high customer service standards, with Contractor Alliance Network (CAN) member performance regularly reviewed to ensure that they also meet customer expectations.

Throughout 2017, program staff conducted extensive market research to ascertain and ensure clarity of customer expectations to inform the 2018-2019 planning efforts.

1. Seeking Customer Involvement

In conducting its research and program planning, PSE carefully considered questions such as "What is PSE already doing well?" "What refinements would better maximize customer satisfaction?" "What type of outreach do customers prefer?" "What processes can Energy Efficiency perform more efficiently and cost-effectively to provide customers with the best service?" "How can PSE improve measure attribution in locations have primarily process rebates at the point of sale (POS)?"[21]

[21] Attribution is a key concern for PSE. The greater the customer's awareness that PSE provides a particular rebate, the greater their interest would be in other PSE energy-efficiency programs.

Program staff incorporated outcomes to these questions into all Energy Efficiency groups. The Plan's discussions reflect PSE's commitment to the development of appropriate and proactive responses. All program plans include a focus on surpassing PSE's customer energy-efficiency expectations.

2. Hard-to Reach and Proportionately Underserved Segments

The Northwest Power and Conservation Council's 7th Power Plan indicates that there may be eight hard-to-reach and potentially underserved customer segments:

1. Low Income
2. Moderate Income
3. Rural
4. Manufactured Home Dwellers
5. Multi-family Tenants
6. Small Business Owners
7. Commercial Tenants
8. Industrial

The Plan recommends that regional utilities undertake an analysis to determine which, if any, segments are being underserved, using readily-available data, and jointly issue a report to the Council. The Plan then recommends that the utilities work with Bonneville Power Administration (BPA or Bonneville) to devise strategies to close any service gaps.[22] In 2017, PSE took a leadership role in the efforts to coordinate the extensive analyses among the regional utilities and BPA. PSE shared the progress of its hard-to-reach market segments initiatives with the CRAG throughout the 2018-2019 planning process.

Energy Efficiency has a long history of offering programs in hard-to-reach customer segments, most of which were established prior to the publication of the 7th Power Plan. PSE created its comprehensive Low Income Weatherization (LIW) program two decades ago, and its ongoing Small Business Direct Install (SBDI) program targets small-to-medium and rural businesses that may otherwise not be aware of PSE's conservation programs. Energy Efficiency's Multifamily Retrofit program serves tens of thousands of apartment dwellers annually, many of whom are low-to-medium income customers.

[22] Paraphrased from MCS-1 in the 7th Power Plan's Chapter 4.

PSE's Manufactured Home-specific offerings have facilitated the installation of insulation and duct sealing in a large proportion of locations. PSE implemented rebate program incentive changes to benefit Manufactured Home owners in 2016 and 2017. Program staff are also considering additional modifications to serve this segment through contractor-delivered programs for 2018-2019.

Business Energy Management's programs emphasize strategies to engage commercial tenants and large, industrial customers, many of whom are automatically enrolled in PSE's Large Power User/Self-Directed program, administered under Schedule 258.

PSE also targets its program communications to customers who primarily speak a language other than English, and PSE has conducted several efficiency campaigns in locations that may be considered hard-to-reach.[23] Its small business communities "blitzes" consistently raise significant awareness of Energy Efficiency programs.

As of the filing of PSE's 2018-2019 Biennial Conservation Plan, Energy Efficiency continues to collect, analyze, and disseminate customer and savings data. PSE is collaborating with BPA, regional utilities, and the Power Council to more clearly define and identify hard-to-reach and potentially underserved segments. PSE will also continue regional discussions on devising strategies to improve customer participation in cost-effective conservation in any proportionately underserved hard-to-reach segments identified in the report presented to the Council. As it progresses through the upcoming biennium, PSE will share analyses results and any program adaptive steps with the CRAG.

The programs that Energy Efficiency designed for 2018-2019 incorporate many current understandings of these market segments. In designing their programs, Energy Efficiency staff carefully considered the potential effects on these segments in their planning marketing, outreach, and breadth of measure offerings. PSE discusses program initiatives in Chapters 6 through 10 of this document. PSE also provides detailed program plans in Exhibit 3: *Program Details*.

[23] For instance, in the second year 2011 of Energy Efficiency's Rock the Bulb campaign, program staff targeted English-as-a-second-language communities.

B. Continuous Innovation & Adaptation

Another PSE priority is to explore inventive methods of delivering outstanding customer service and cost-effective conservation. By consistently applying adaptive management principles to its iterative and robust program management decision-making throughout the year, PSE expects to realize continued improvement in department operations, with the intention of maximizing customer participation and conservation savings in 2018 and 2019.

1. Innovative Program Design

Employing these principles, program staff designed their 2018-2019 suites of energy-efficiency offerings based on a clear focus on making it easy for customers to engage in energy-efficiency programs and provide them energy-efficiency options, new technological innovations, economies of scale, and building on shared expertise between Business and Residential teams. PSE's RFP/RFI (Request For Proposal/Request For Information) process, which commenced in April 2017, was a good source for creative customer solutions. Responses often result in new measures or potential savings programs, new delivery methods, or enhanced methods of interacting with PSE customers.

Thanks to foundational plans that Energy Efficiency bases on adaptive management, program staff—in collaboration with Evaluation, Research, and Marketing Staff—are able to test new and advanced designs. They are able to optimize program execution throughout the year according to performance indicators. These include formal evaluation studies; vendor, retailer, and contractor feedback; and comments received directly from customers.

2. Adaptively Managing Program Execution

Because of efficient processes and collaborative relationships that break down barriers, program staff are able to deftly execute against strategies outlined in the BCP. In some cases, these principles result in the retirement of programs or measures that have become standard practice through market transformation, the adjustment of incentive values, bundling (cross-marketing, or cross-program in some cases) offerings, running limited-time promotions, increasing the visibility on the PSE energy-efficiency website, etc.[24]

[24] PSE ensures that all elements of program design and execution are consistent with condition (7)(a) through (7)(c), which outline requirements around sector inclusion, program outreach, and incentive levels.

Some examples include the retirement of:

- Fuel Conversion—ended for 2018-2019 due to potential conflicts with carbon reduction initiatives.
- Premium HVAC—ended as a consequence of program complexity and lack of contractor engagement, leading to cost-ineffectiveness.
- Appliance replacement programs—retired due to saturation and higher acquisition costs.
- Energy Smart Grocer in the Commercial/Industrial Retrofit and New Construction programs—due to measure saturation and lack of regional utility support.

Some examples of new programs and offerings may include:

- Single Family Rental program, designed to increase awareness to this potentially underserved customer segment.
- Business Energy Management's Pay for Performance pilot.
- The renewed Single Family New Construction program.
- The renewed Single Family water heater offerings.
- Updating the name of the Resource Conservation Management program to Commercial Strategic Energy Management, which PSE will offer under terms of the revised Schedule 253: Energy Performance Incentive Program.

3. DSMc

PSE's DSMc (Demand Side Management central) system became fully integrated in the second quarter of 2017. In 2018, The DSMc system is designed to potentially provide a portal for Energy Efficiency's trade allies and contractors to enter, view, and manage project information. It provides customers with a portal to view the status of their rebate applications and payment status. A significant value-add is the potential for a customer to, if they see that their application may be missing a piece of information, append their application with that information, and get the processing moving again—all in real time.

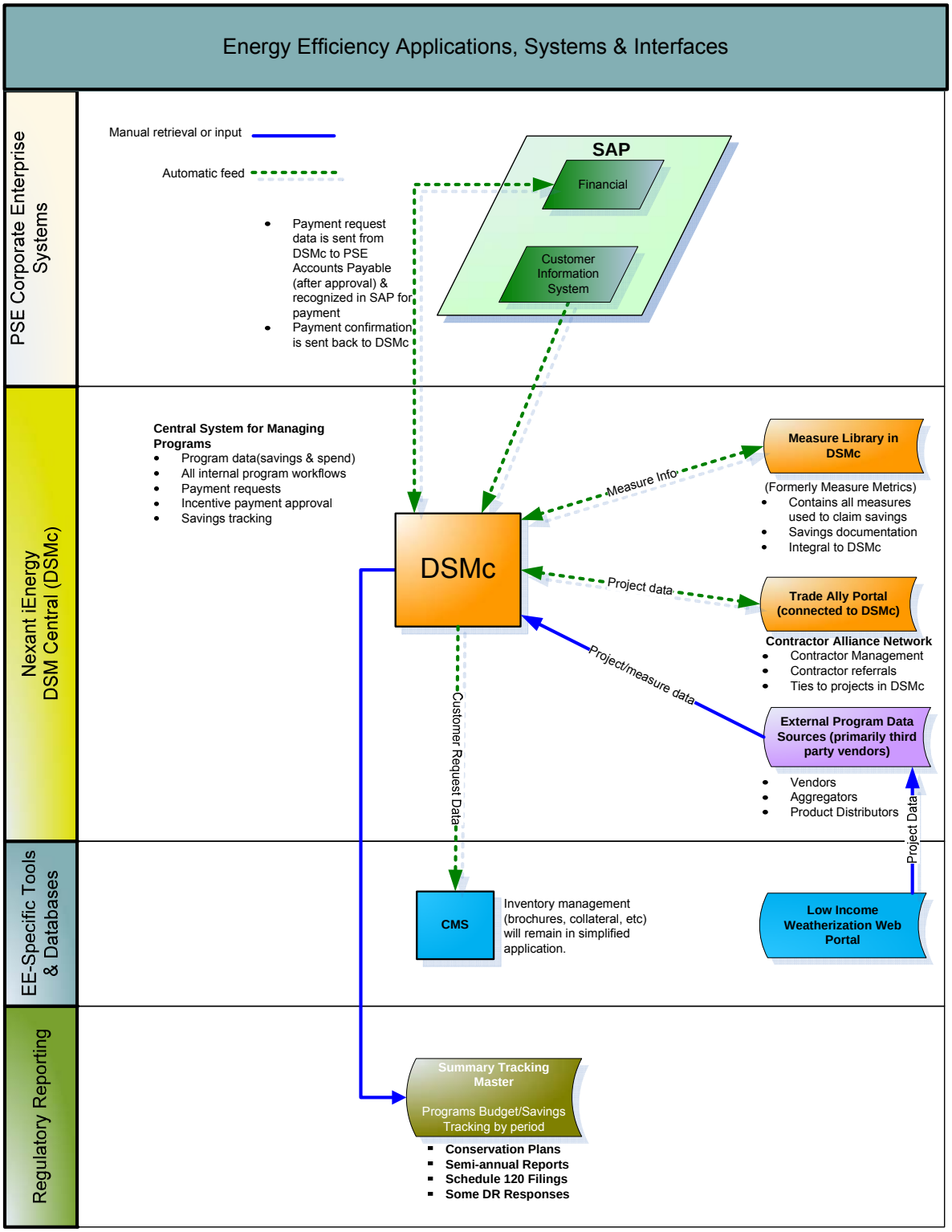
For historical archival purposes, Energy Efficiency will maintain conservation project and incentive data in their original database systems:

- Customer Management System (CMS),
- Customer Solutions sYstem (CSY),
- The EES Tracking and Forecasting System,
- The Source of Savings Database,
- The Low Income Weatherization portal.

Since DMSc was fully implemented for a portion of the 2017 period, PSE will need to rely on archived data within these systems for pertinent 2017 annual Schedule 120 audit inquiries.

PSE provides its current systems overview diagram in Figure III-1.

Figure III-1: 2018-2019 Energy Efficiency Systems Interface



4. Ensuring Accurate and Transparent Reporting

PSE has consistently demonstrated its commitment to providing accurate and transparent information to its Regulatory Stakeholders, in addition to its internal constituents and governmental agencies. The extensive and comprehensive collection of Exhibits and Supplements[25] provided in its compliance filings reflects this commitment. In 2018-2019, PSE will continue to implement and enhance processes throughout the Energy Efficiency organization that maximize its tracking and reporting accuracy; both for financial expenditures and savings archives.

Among several methods by which PSE provides Stakeholders with accurate and transparent information, two key examples are Exhibit 1, Supplement 2: *Savings Adjustments*, and Exhibit 1, Supplement 3: *Memberships and Sponsorships*. PSE provides these Supplements as a part of its Annual Reports of Energy Efficiency Accomplishments.

a. Exhibit 1, Supplement 2: Savings Adjustments

This Supplement provides a detailed and running log of every savings adjustment made throughout the previous year, regardless of whether the adjustment results in an increase or decrease of the to-date accumulated savings value. Energy Efficiency maintains a clear and rigorous process for requesting and approving these adjustments. PSE does not provide the Supplement in response to a regulatory requirement, but as an indication of its reporting accuracy commitment. The Supplement also demonstrates that program staff successfully implement its adaptive savings adjustment processes.

b. Exhibit 1, Supplement 3: Memberships and Sponsorships

PSE developed this Supplement in response to a Stakeholder informal inquiry, rather than a regulatory requirement. The Supplement lists all of the memberships and sponsorships that Energy Efficiency funded through the Conservation Rider. Energy Efficiency maintains a clear and rigorously enforced approval process for each membership or sponsorship request.

[25] The primary document containing Exhibit Supplements is the Annual Report of Conservation Accomplishments. For instances, Exhibit 1, Supplement 1 is a representation of actual-versus-planned expenditures by budget category. Exhibit 1, Supplement 4 lists the number of key measure types installed by program.

5. Process Enhancements

Without exception, every Energy Efficiency organization, as well as those that support Energy Efficiency continuously examines their business processes with the goal of enhancing the customer's conservation experience, reducing customer costs, and improving productivity. A few examples include:

- The Business Energy Management Sector created a streamlined business lighting strategy that will significantly simplify customer and contractor lighting grant application processes. Staff expect that the revision will increase the consistency of lighting grant amounts across all business customers. It will eliminate the need for the customers and contractors to navigate very different processes for projects that may be very similar with the exception of varying electric rate schedules.
- The Rebates Processing team will explore the potential to advance DSMc capabilities to provide customers with a rebate process that doesn't require a hard-copy form.
- The Verification Team will explore the potential to conduct remote product verifications, enhancing productivity and reducing rebate payment turnaround time.
- The Contractor Alliance Network (CAN) program will pursue a pilot to create a trade ally portal to enhance the effectiveness of trade ally communications and tracking.
- Align the Commercial/Industrial New Construction lighting incentive calculations with BEM's Business Lighting model.
- The Data and Systems Services team will create data-driven dashboards for program staff and Rebates Processing staff to assist continuous improvement efforts.

This commitment to constant innovation and proactive management has resulted in PSE consistently meeting conservation goals for the past decade while utilizing PSE customer funding contributions wisely and prudently.

C. Develop Novel and Exciting Customer Communications and Outreach

Energy Efficiency's communications and outreach initiatives will include a focus on specific, localized opportunities, which include addressing hard-to-reach and potentially underserved customer segments. These efforts will include targeted direct-mail pieces, media placements in cultural and language-specific medial channels, and presentation to customer groups.

The Energy Efficiency Marketing team will base promotions and communications on data-driven market research and propensity modeling.

PSE will collaborate with retails and manufactures to increase customer awareness of Energy Efficiency programs, and will design campaigns and promotions that utilize online and self-service tools that eliminate barriers and streamline processes. Targeted communications will include digital web banners and keyword search capabilities, and multi-channel integrated promotions and communications provide customers with a comprehensive view of the range of energy-efficiency offerings.

One of the Marketing team's primary focus points for 2018-2019 will be to increase PSE attribution in establishments where point of sale (POS) incentives are provided. They will also increase customer awareness by utilizing marketing collateral in prominent public areas and at local community events, and by engaging with distributors and retailers directly.

Building on the success of Energy Efficiency's small business and community blitzes, the team will collaborate with local community retailers to develop exclusive energy-efficiency offers for customers. Complex small business types, such as hospitality, agriculture, and grocery will also have custom marketing and communication approaches available in 2018-2019.

D. Enhance Customers' Ability to do Business with Energy Efficiency

During the 2018-2019 planning process, PSE considered various ways that customers could participate in energy-efficiency programs—particularly those with high-cost measures—who may not be able to if they didn't have a way to pay back the measure financing. The following discussions outline some of those considerations.

1. Assess the Feasibility of On-Bill Repayment

PSE thoroughly assessed the feasibility of offering customers the option of third-party financing for energy-efficiency measures with the ability to repay the loan through their utility bill. PSE examined other financing options as well. PSE discussed the issues and research results associated with on-bill repayment with the CRAG in March, May, July, and October of 2017. The following discussions summarize PSE's current research.

a. Review of PSE Leasing Filing

In the proceedings for PSE's equipment lease service filing, some intervenors supported alternatives for encouraging replacement of aging, inefficient equipment. For example, Public Counsel proposed that PSE engage the CRAG to develop new initiatives, aside from leasing, that might include "partnerships with credit unions and banks, on-bill financing, or further promotional efforts".[26]

In its final Order rejecting the leasing tariffs, the WUTC stated:

> "We agree with the other parties that PSE should explore new service options in conjunction with the Conservation Resource Advisory Group and other stakeholder groups and should file proposals with the Commission only when they are fully developed."[27]

Based on the Commission's interest in exploring new service options, as well as interest by the CRAG, PSE has examined the feasibility of offering on-bill and other financing options.

b. Request for Information Responses

In April 2017, PSE issued a Request for Information (RFI) for new and innovative demand-side products, programs, and support services. PSE specifically identified energy efficiency financing options as a key priority.

The responses received fell into three general categories:

- On-Bill Repayment/Financing: Responses targeted moderate-income customers as well as multifamily, government or non-profit retrofit projects. PSE would incur significant additional costs to integrate lenders with PSE's billing and financial systems, as discussed in the following section.
- Financing Concierge Service: Submissions addressed residential and small business customers. This service facilitates tailored matching of financing options with customer projects. Costs could exceed $100,000 for initial setup and more than $5,000 per month in vendor fees for ongoing management and administration.

[26] Direct Testimony of Mary M. Kimball on Behalf of Public Counsel (MMK-1HCT), WUTC Dockets UE-151871 and UG-151872 (consolidated), June 7, 2016.

[27] Order 06, WUTC Dockets UE-151871 and UG-151872 (consolidated), November 16, 2016.

- Revolving Fund with Deferred Repayment: Provides financing to moderate income residential customers where repayment is deferred until the home is sold, with payments used to replenish a revolving pool of funds. Establishing the initial pool of loan funds would require a multimillion-dollar contribution from PSE and would cover only part of PSE's service area.

c. Projected PSE Cost to Facilitate On-Bill Repayment

Developing the capability for PSE's billing and accounting systems to accommodate on-bill repayment of third-party loans will require an estimated $1.4 million investment to upgrade and test those systems. If approved, PSE could potentially complete the upgrade in 2019.

Unlike a program such as PSE leasing, on-bill loan repayment requires integration of PSE systems with an outside party. Additionally, the loan payments and terms will vary between customers, as opposed to a fixed flat fee that can be readily applied to every participating leasing customer. Finally, PSE can only transfer payments to the lender electronically. Therefore, a lower-cost process, even for a limited-scale pilot, is not feasible.

PSE would incur additional costs for ongoing customer service, contractor engagement, and IT. maintenance not included in this estimate. There is also a potential issue regarding whether the loan repayments would be treated as revenue for corporate income taxes, even though they are just passed through to the lender.

d. Experience at Other Utilities

Seattle City Light, Northwest Natural Gas (in Washington), and the Energy Trust of Oregon offer similar on-bill financing programs to moderate-income customers, with participation ranging from approximately 20 to 75 new loans issued in 2016. PacifiCorp will begin offering on-bill financing to its Washington customers in 2018 on a pilot basis, but has concerns about limited uptake. These organizations built their on-bill repayment systems with funding from the American Recovery and Reinvestment Act (ARRA) of 2009, which is no longer available.

On-bill financing programs are offered in other parts of the United States, where utilities provide zero-percent interest, credit enhancements, or other favorable loan terms, with relatively limited levels of participation. These favorable terms are created by subsidizing third-party lender costs or by utilities carrying the loans themselves; all of which add cost. These programs are also often enabled and implemented statewide.

PacifiCorp began offering an optional concierge financing service to its Washington business customers in 2017, with no additional savings or participation goals specified. California is piloting a residential concierge service program, with 30 loans issued statewide in 2016.

e. 2018-2019 Recommendation

PSE has explored several financing options in conjunction with the CRAG, consistent with the recommendations made by intervenors and the Commission in its leasing service filing. PSE has determined that it is not prudent to pursue on-bill repayment or any of the other financing concepts submitted through its RFI process at this time. PSE based this decision on the conclusion that these financing options were unlikely to achieve sufficient incremental customer participation and energy savings to justify the added cost.

Preliminary research, performed in conjunction with the Northwest Power & Conservation Council, indicates that customers comprising a key hard-to-reach segment—moderate-income—participate in Energy Efficiency programs at a rate that is commensurate with the overall PSE customer population.

In 2018-2019, PSE will continue to explore financing options, with input from the CRAG. Concepts may include additional facilitation of partnerships between equipment installation contactors and lenders. PSE will also look for opportunities to incorporate on-bill repayment functionality as part of any future technology upgrades that would result in reduced cost.

E. Enhance and Clarify Energy Efficiency's Implementation of Pilots

The purpose of developing pilot programs is to test new technology, test enhanced EM&V methodologies, discover ways in which evolving customer demands can be met, and demonstrate adaptive management. Pilots (programs and measures) help to inform future program design and potentially fill the technology "pipeline".

Where there was uncertainty about the savings potential of the potential 2018-2019 initiative or measure, PSE classified it as a pilot; otherwise, program staff incorporated the program or measure into their applicable Sector offerings. Many potential offerings were presented to PSE in response to its all-comers RFP/RFI process. This process is an exceptional opportunity to enhance PSE's Energy Efficiency portfolio and provides market research into industry trends. The 2017 RFI, distributed to potential bidders in April 2017, yielded over 70 responses, with more than 40 program concepts and 20-plus customer engagement ideas. In keeping with progressive adaptation principles, PSE also does not limit its screening of

potential pilots (services, measures, technologies, etc.) to this specific timeframe. Among other considerations, PSE examined the following references during the BCP planning process.

1. WAC Requirement

WAC 480-109-100(1)(c) indicates that a utility must implement pilot projects:

> "…when appropriate and expected to produce cost-effective savings within the current or immediately subsequent biennium, as long as the overall portfolio remains cost-effective."

2. Commission Staff Comments

Recent Commission Staff comments have corroborated the concept that it is appropriate for utilities to exclude pilots with uncertain savings from their EIA Penalty Targets:

> (From the July 22 staff comments on 2014-2015 BCR filing, UE-132043.) "Companies also achieve conservation savings from areas that are excluded from the Company-specific target, such as market transformation programs and pilots."
>
> (from the August 12 staff memo in 2014-2015 biennial report, UE-132043.) "In future biennia, staff believes the potential of any pilot program must be approved by the advisory group and may be as low as zero."

3. Risk Associated with Pilots

There is an element of potential risk associated with pilot measures and programs. If there is uncertainty about a pilots savings potential and that pilot is included in PSE's EIA Penalty Target (also, Biennial Conservation Target), or Natural Gas Penalty Target, PSE could be liable to supplant the savings if it is determined that the pilot did not generate the expected savings. Unfortunately, such a determination is sometimes made subsequent to the closing of the applicable biennium, when it is too late to make program adjustments.

In order to mitigate that risk, Commission Staff and the Investor Owned Utilities (IOUs) agreed that pilots with uncertain saving may be excluded from their EIA Penalty Targets, but would be included in their overall Portfolio savings mix.[28]

[28] Condition (7)(c) in Appendix A of Order 01, Docket UE-152058 indicates that PSE may spend up to 10 percent of its Portfolio budget on programs whose savings impacts have not yet been measured.

Considering the potential for direct impact on the EIA Penalty Target, PSE classifies only those programs or measures that have a degree of uncertainty as pilots, with the understanding that pilots are excluded from the EIA Penalty Target. PSE scrupulously works to vet its savings classifications, with great forethought, and with the CRAG fully engaged to avoid the appearance of unfairly influencing the EIA Penalty Target.

a. Savings Confidence

Throughout the biennial planning process, program staff assessed new and potential measures and programs.

If program staff have a degree of confidence in the savings potential, they may add that measure or program to its suite of services, rather than classifying it as a pilot. Although savings for these types of measures or programs are vetted and come with a degree of confidence, there is still a risk to PSE if the savings don't materialize.

If, however, there were a reasonable degree of uncertainty about the savings potential in the current or subsequent biennium, undefined scope of customer/retailer/contractor uptake, potentially low or no cost-effectiveness, etc., it would clearly be sensible to classify the measure or program as a pilot.

b. Excluding Potential Measures or Programs

PSE exercises great care when evaluating the savings potential of new, unproven technologies or innovative service offering ideas that may generate savings, and may potentially be classified as pilots. When there are cases where program staff, based upon their extensive experience and professional opinion, cannot justify the ratepayer expenditure on an offering that they don't expect to produce verified savings within several years, it is prudent to pass that product by and potentially consider it in a future biennium.

4. The Dynamic Process of Incorporating Pilot Measures and Programs Throughout the Biennium

PSE consistently demonstrates adaptive management by actively examining its measures and mix of measures throughout the year to ensure that they are effectively meeting customer expectations and driving conservation savings as planned. Periodically, circumstances reveal new measures. When appropriate, program staff may incorporate such a measure—bypassing the pilot process—immediately into their programs' suite of measures.

PSE also examines the energy-efficiency landscape, consults with its trade ally network, and partners with regional utilities for new technologies and new savings opportunities beyond the prescribed intervals.

5. Examples of Initiatives that are Analogous to Pilots

There are a number of initiatives that PSE doesn't classify as "pilots". However, many are new, innovative, and clearly represent PSE's application of adaptive management principles. In the following sections, PSE discusses a few examples.

a. Business Energy Management Technology and Pilot Assessments

PSE's Energy Efficiency Technical Evaluation program operates under the terms of Schedule 261, and screens potential commercial pilots each year.

Energy Management Engineers ("EMEs") receive occasional solicitations for potential energy efficiency projects. As discussed in the program's Exhibit 3: Program Details (page 74):

> "[…] 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. […]"

EMEs subject potential projects that they receive to rigorous assessments—most of which have not been performed by the applicant. As a result, many of these proposals' savings claims are unsupported, inaccurate, not cost-effective, or not market-ready.

When the program generates an opportunity, though, (for instance, Energy Management Information System ["EMIS"] pilot utilizing Retroficiency's software platform),[29] Energy Efficiency includes it in its Exhibit 1 documentation in the Energy Efficiency Technology Evaluation line of the BEM Sector, and presents it to the CRAG.

[29] Subsequently acquired by Ecova in 2015, Retroficiency Inc. conducted energy-efficiency data analytics.

One could also consider other BEM initiatives as "pilots", including BEM's Urban Smart Bellevue program,[30] integrating elements of Strategic Energy Management ("SEM") in the Industrial System Optimization Program ("ISOP"), and many cannabis industry projects can be considered pilots.

b. *Measures that are Added Directly to a Sector or a Program's Suite of Offerings*

There are sometimes new technologies that are so promising that program staff incorporate them directly into their suite of offerings, rather than term them "pilots". Heat pump clothes dryers, LED string lights, line-voltage web-enabled thermostats, and automatic tubspout diverters are good examples. The Business Energy Management (BEM) Sector also routinely adds new and promising measures, including demand control kitchen ventilation.

Program staff incorporated these measures directly into the program because they were already vetted with provisional savings values. Otherwise, PSE may have considered classifying them as pilots.

c. *Collaborating with Industry Partners on the Development of New Products*

Energy Efficiency staff continually work with a wide range of entities, including state agencies, regional utilities, industry experts, and other state organizations each year on the development of new and technologically-advanced potential measures, which could result in new measures or a pilot.

d. *Pilot Initiatives are not Limited to Conservation Measures*

Through the application of adaptive management, many Energy Efficiency supporting functions implement exciting and inventive methods of connecting with customers, tracking, reporting, and evaluating savings data, or demonstrating behavioral enhancements throughout the year. These include the Conservation Evaluation team, Energy Efficient Communities, Marketing, and other applicable organizations.

[30] Urban Smart Bellevue was a commercial behavioral program aimed at office, retail, lodging, and health care businesses in downtown Bellevue. The program uses strategic energy management (SEM), community-based social marketing (CBSM) and behavioral strategies to encourage stakeholders at all levels of an organization – building owners, property managers, facility managers and tenants – to take simple actions to change how and when equipment operates in order to save energy and achieve the goal of reducing collective annual energy use by five percent (16,000,000 kWh) in two years.

While not specifically conservation measure-related, staff undertake these efforts to enhance customer participation simplicity, increase the value of evaluation results, or improve reporting efficiency. They may also lead to cost-effective conservation by providing additional opportunities for customers to participate in Energy Efficiency programs.

e. NEEA initiatives

A large portion of NEEA's electric market transformation activities can be classified as pilots. Some Energy Efficiency staff are members of NEEA's Retail Product Portfolio ("RPP") committee, which assesses a substantial number of initiatives that could be deemed as pilots.[31]

On the natural gas side, PSE is the majority funder (more than 41 percent) of NEEA's five-year natural gas market transformation pilot. The Natural Gas Advisory Committee manages a portfolio of five pilot natural gas potential measures. The Committee's five-year plan is to test the technical viability, manufacturing, the potential to transform the natural gas market, and influence the remaining regional natural gas utilities to participate in the pilot.

f. Pilots with Uncertain Savings

PSE classifies pilot programs that have an uncertain or unproven level of savings for the upcoming or subsequent biennium in its Pilots line of Exhibit 1: *Savings and Budgets*. PSE discusses the details of these pilots in Chapter 9. PSE discusses the impact that pilots have on its savings targets in Chapter 4: *Developing PSE's 2018-2019 Biennial Conservation Plan.*

F. Effectively Managing PSE's Direct Benefits to its Customers

All PSE customers—whether participating in Energy Efficiency programs or not—derive benefit from cost-effective Energy Efficiency programs through delaying the need for more expensive energy resources. It is important to clarify that PSE's Direct Benefit to Customer (DBtC) metric represents the concept that participating customers derive benefits from PSE's Energy Efficiency programs other than simple remuneration (payment of rebates or grants). Additionally, PSE's DBtC metric is a conservative determination of that value. Lastly, the metric is useful in a year-to-year program-specific comparison, and is thus not useful to compare utilities to one another.

[31] Approximately 10 percent of PSE's NEEA budget is directed toward the RPP.

1. DBtC Intent

PSE's intention of the metric is to make the point that a simple "administrative costs versus incentives provided" ratio is an incomplete analysis of a program's customer value or operational effectiveness.

PSE created its DBtC metric as a way to internally measure and compare the value that Energy Efficiency is returning to its customers year-over-year. DBtC is specific to PSE programs, and it does not use the metric for comparison to other utilities.

PSE does not classify certain expenditures related to customer benefits that are difficult or administratively onerous to quantify as "incentives," but clearly also carry a value to the customer, albeit not necessarily monetary in all cases. This distinction represents that most customers derive many more benefits than simply remuneration. PSE denotes these expenditures as "Direct Benefit to Customer" (DBtC). PSE created this nomenclature during the 2012-2013 BCP development period.[32]

2. Customer Value - Beyond Remuneration and Energy Savings

Energy Efficiency provides a value to its customers apart from rebates and grants in several instances. For instance, apart from energy-saving benefits,

- Commercial Retrofit customers realize a benefit of engineering evaluations and verifications in addition to any custom grant received. For example, an Energy Management Engineer saves a building owner or developer a substantial amount of time by verifying the specifications of installed equipment, the number of units installed, and confirming the resultant energy savings as part of a custom grant project completion.
- Customers who participated in PSE's refrigerator decommissioning program not only received a rebate check, but they also did not need to be concerned with transporting their old unit to the transfer station.
- Customers derive a value from consulting with an energy advisor before investing in a new heat pump or other major appliance.

[32] Although 2011 was the first published instance of the term "DBtC", PSE has been informally tracking this metric since before then.

- Efficiency Outreach efforts—especially during community "blitzes"—often result in customers signing up for the direct installation of measures.
- Quality Assurance Specialists provide customers with a variety of information to customers when verifying the installation of an energy-efficiency measure.

While these examples do not directly result in energy savings (in the earlier Efficiency Outreach "Blitz" example, measure savings attribute to the Small Business Direct Install program), there is some level of direct customer benefit beyond energy savings.

It would be impractical, artificially precise, and very inefficient to attempt to track the time a staff member 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.

3. PSE's DBtC Calculation

PSE attributes expenses to its DBtC that can be directly linked to customer benefits and directly linked to conservation savings. Direct benefit expenses currently exclude Labor (Program + Marketing Labor), Overhead, Marketing, and Employee Expenses. The two examples below are the most useful measures of DBtC. All methodologies excludes Other Electric Programs' expenses.

a. Sector-Level DBtC

PSE calculates its DBtC at the Sector level, comparing the DBtC of its Sectors to the expenditures of those same Sectors. Energy Efficiency Sectors are: Residential Energy Management (REM), Business Energy Management (BEM), Pilots, and Regional Programs. This view results in four individual ratios. This view compares the ratio of direct benefits provided to customers against the expenses of the programs that generated the commensurate electric or natural gas savings.

b. Programs-Level DBtC

The second ratio that PSE uses to compare year-to-year DBtC ratios is its Programs view, which sums the above-noted Sectors:

$$\frac{\text{(Total value of REM + BEM + Pilots + Regional Programs DBtC expenses)}}{\text{(REM + BEM + Pilots + Regional Programs total costs).}}$$

4. Portfolio-Level Expense Ratios

There is another potential method for calculating DBtC that is less suitable. It is prone to single-time charges, regulatory requirements, and outside influences. This ratio is therefore a less-useful view of PSE's DBtC because it does not represent direct benefit. Although some of these functions contribute some intrinsic level of customer benefit, year-to-year variances make direct comparisons less relevant.

The Portfolio view accounts for Energy Advisors, Market Integration, Strategic Planning, Market Research, and other Portfolio support costs (all part of the Portfolio Support and Research & Compliance Sectors), in addition to the Programs-Level view. This representation of DBtC only adds these functional groups' expenses to the already-calculated Programs-Level DBtC.

Rather than incorporate Portfolio Support and Research & Compliance in an overall DBtC ratio, it is preferable to compare these functions' year-to-year expenses directly instead, and separately from REM, BEM, Pilots and Regional Programs.

5. DBtC does not Express a Program's Operational Efficiency

Regardless of whether PSE calculates the DBtC ratio at the Sector, Programs, or Portfolio level, a number of factors affects PSE's DBtC ratio each year.

These include, but aren't limited to the following:

- One-time expenditures (for instance, the costs associated with upgrading to a new tracking system),
- Regulatory requirements (the BECAR, minimum spending requirements on evaluations, participating in regional Collaboratives, evolving reporting and data requirements, analyses of new supplementary services charged to the Rider, for instance),
- Measure cost adjustments (either increased or decreased costs, which are impacted by manufacturing costs, etc.), *[Continued on next page]*

- Hard-to-Reach market segments often require significantly more staff time, effort, and cost to have any measurable impact, and
- Marketplace circumstances. Saturation of certain measures leave only higher-cost measure availability, or increased or decreased customer demand may require lower or fewer incentives to move the market. Artificially keeping incentives high is not a prudent use of ratepayer funding, nor does it help ensure that customers have a stake in investing in energy-efficiency measures, (colloquially termed "some skin in the game"). Market saturation may make some measures no longer desirable, building codes make some measure obsolete, etc.

In developing the DBtC metric, PSE's belief is that it is necessary to ensure the consistency of the application of its direct benefit year-to-year. Energy Efficiency staff continuously perform careful review of DBtC calculations to ensure proper documentation and consistency across programs.

G. Integrate Trade Ally Support into Program Design

Energy Efficiency's relationships with its trade allies—contractors, vendors, distributors, retailers, and developers are critical to the achievement of its customer satisfaction and conservation saving goals. Energy Efficiency program staff will continue to support consistent interactions with its Trade Allies in 2018-2019. Throughout the 2018-2019 planning process, Energy Efficiency developed processes for and examined systematic solutions to engage these important partners. Concepts include:

- Promote trade allies as an extension of the trusting relationship the customer has with PSE,
- Proactively engage trade allies to be a steward of PSE's Energy Efficiency standards, reputation, and strategic objectives,
- Provide mutual benefit between trade allies and PSE through the exchange of ideas and information, and
- Culturally embed the concept of trade ally collaboration with internal stakeholders to ensure that they understand and promote trade ally resources.

One example of Energy Efficiency's application of these principles is the concept of a centralized system, or library, to catalogue trade ally participation. When implemented, it will allow greater visibility and flexibility in measuring trade ally performance across all programs and sectors. This project would take past participation data to provide visibility into associated rebate program activity. Staff could also determine whether the trade ally is a Contractor Alliance Network (CAN) member.

This approach provides for a more direct engagement with trade allies, and would serve as a potential outreach tool to encourage participation in the CAN program.

PSE knows that trade allies become instrumental in continuous improvement and adaptive management through their participation and feedback. From a marketing and messaging standpoint, PSE will look to train its trade allies on key communications strategies including seasonal initiatives, outage alert tools, connected home services, and unique offerings. From a measure delivery perspective, the CAN team will explore leveraging its relationships with trade allies to explore additional non-rebated, ancillary cost-effective product offerings such as crawl-space cleaning, electricians, and plumbers.

Another example of greater integration of broader trade ally management is through the proposed development of an enhanced trade ally portal. In 2017, the program team went out to market through an RFP for the development and deployment of an online platform. This proposal aligns with Energy Efficiency's concept of cataloging trade ally participation. The CAN team seeks to incorporate features that will allow options for service providers and other employees to provide referrals to approved contractors. As such, the tool is an important step towards culturally embedding trade ally resources into internal and external stakeholder customer interactions.

H. Ensuring Regulatory Compliance and Advancing Regulatory Initiatives

PSE's commitment to providing an excellent customer experience extends to its Regulatory Stakeholders. PSE is committed to ensuring that its Stakeholders have all of the information, program background, measure details, and process guidelines necessary to fulfill their advisory roles. PSE treats the satisfaction of their expectations with a high regard.

1. Program Communications

PSE consistently provides Stakeholders with in-depth discussions of important conservation program issues throughout the year. There are a wide variety of discussion and notification types, including Conservation Plans and performance reports on an annual basis. In 2018, PSE will resume its routine CRAG Newsletter, "CRAG Communications", which will keep CRAG members up-to-date on program developments outside of the CRAG meeting environment.

PSE regularly updates Exhibits 3 and 4 (program details and measure offerings, respectively), with the CRAG receiving mark-up copies at least 30 days in advance of their filing (consistent with WAC 480-109-110(3)). PSE reviews high-level program plans and strategies during routine CRAG meetings.

In order to provide Stakeholders with a clear understanding of PSE's program strategies and tactics, PSE provides regular updates of its Condition Compliance Checklist, Exhibit 9. Although excluded from Biennial Conservation Plans, the Checklist is included in PSE's Annual Reports of Energy Conservation Accomplishments.

PSE also provides information that isn't required in its Annual Reports of Energy Conservation Accomplishments:[33]

- "Continuous Improvement" discussions,
- Appendices, Exhibits, and Supplements providing details on prescriptive measures; their savings values and types,[34] and all revisions and revision reasons throughout the year,
- Detailed savings adjustments that occurred throughout the year,
- Lists of memberships and sponsorships, and
- Tables that highlight measure installation by program.

PSE has demonstrated that it welcomes questions, conversations, and Stakeholder interest. Such interactions are often quite productive and place a much lower administrative burden on Energy Efficiency staff than formal data requests.

PSE is pleased to have hosted several topic-specific meetings throughout the past several years, providing an opportunity for interested Stakeholders to review programs or strategic operations in-depth. Energy Efficiency program staff continue to enthusiastically welcome CRAG members' input on a variety of conservation topics in 2018-2019.

[33] The Commission incorporated some features that PSE has provided for several years into WAC 480-109 in April 2015.

[34] "PSE Deemed", "RTF Deemed", etc.

I. 2018-2019 Key Initiatives Summary

PSE commitment to adaptive management and ongoing continuous-improvement are reflected in the business enhancements that PSE has put into place—or will within the 2018-2019 biennium—that will have a positive impact on Energy Efficiency's success.

In addition to process improvements noted in previous Chapter 3 sections, highlights of Energy Efficiency's efforts include but aren't limited to the following initiatives:

- PSE renewed its Single Family and Manufactured Home New Construction program.
- PSE will apply the lessons learned from the Urban Smart Bellevue pilot to develop new and exciting community challenges.
- Expanding the number of small business "blitzes", combining them with community outreach.
- After a thorough 2017 introductory period, Energy Efficiency will actively promote DSMc's Public User Interface (PUI) feature to further enhance the customer energy-efficiency experience.
- BEM program staff consolidated the three Direct Install programs to achieve economies of scale and program expertise in order to focus additional attention on potentially underserved customer segments.
- The Residential Energy Management (REM) Sector plans to add several pioneering new measures, delivery methods, and cross-Channel offerings, including string lighting, automatic tubspout diverters, and the direct installation of advanced power strips.
- PSE will continue utility partnerships, such as one with Seattle City Light, which helped create their Building Tune-Up Accelerator program, modeled after PSE's CBTU program.
- The Residential Sector will also focus on increasing its penetration into the rental marketplace by pursuing its Single Family Rental pilot program.
- The Energy Efficient Communities team will focus on designing updated and new outreach tactics to address hard-to-reach and potentially underserved customer segments, and increase focus on maximizing local partnerships.

PSE discusses these initiatives in more detail in the coming chapters and in Exhibit 3: *Program Details*.

IV. Developing PSE's 2018-2019 Biennial Conservation Plan

In this chapter, PSE will discuss the elements that it considered in developing its savings targets and anticipated spending, or budgets. Chapters 5 through 10 will outline the steps that PSE will take to achieve its goal of ensuring that customer participation in energy-efficiency programs is easy and rewarding. Program overviews will provide an indication as to how Energy Efficiency will implement programs consistent with a wide-ranging examination of planning variables, and the energy-efficient options that PSE provides customers while recognizing their confidence in PSE's stewardship of their conservation funding. The order of discussions align with the BCP Exhibit 1 Schedule numbers (noted in parentheses). PSE provides complete program details in the BCP's Exhibit 3: *Program Details*.

The plan discussions will elaborate on PSE's adaptation to evolving market conditions, RTF savings value updates, and improved delivery methods. They will outline the considerations of avoided costs impact, the integration of RTF-determined Non-Energy Impacts (NEIs), impact and process evaluation results, engineering analyses, and a wide range other considerations.

In previous chapters, PSE presented its Sector-level savings and anticipated expenditures, highlights of key considerations that the 2018-2019 BCP must address in order to achieve the objectives, and an overview of the BCP organization. In this chapter, PSE will focus specifically on how it developed its 2018-2019 electric and natural gas targets and corresponding budgets. PSE will discuss some of the key drivers of the 2018-2019 savings and anticipated expenditures, along with an examination of anticipated 2018-2019 cost-effectiveness attributes.

A. Building the 2018-2019 Conservation Savings Targets

The 2018-2019 Energy Efficiency savings and budgets are contained in Exhibit 1: *Savings and Budgets*. This document is over 120 pages, and PSE recommends that Stakeholders review it in its Microsoft® Excel™ format to maximize effectiveness. Hyperlinks and hyperlink buttons on each page makes navigating this formidable workbook much more straightforward. Pursuant to condition (4)(a), detailed budgets by program, classified by budget category, are presented in the Exhibit 1 electric and natural gas Sector views.

PSE provides a summary view of the calculation elements that PSE applied in developing its electric Portfolio Savings Targets in Table IV-1. Table IV-2 provides the same steps applied to the natural gas target. The tables then outline the categories that PSE excluded to reach the final 2018-2019 EIA Penalty Target (also sometimes referred to as the Biennial Conservation Target) and Natural Gas Penalty Target.

These tables are duplicates of Table I-3 and Table I-4, presented in Chapter 1: *Executive Summary*, and PSE provides them here as a reference courtesy to readers.

Table IV-1: Electric Portfolio Savings Target Calculation Summary

Puget Sound Energy 2018-2019 Electric Portfolio Savings					
	Description	**MWh**	**aMW**	**Comment**	**Calculation**
	Colored cells correspond to indicated lines in Exhibit 1: *Savings and Budgets, 2-Year Portfolio View*.				
	Add			***These are specific elements that comprise the Portfolio View of Exhibit 1.***	
a	Total Biennial Potential *IRP & CPA Guidance*	473,163	54.0	Represents all available conservation that is cost-effective, reliable, and feasible, per RCW 19.285.040(1).	Figure *3*, Exhibit i
b	Add Decoupling Commitment (5% add)	23,658	2.7	Based on IRP Total Biennial Potential	= a * 0.05
c	Add 449 Customers	18,693	2.1	Excluded from CPA. Savings included in Large Power User/Self-Directed program	line *u* of Exhibit 1 Portfolio View
d	Add Pilots with Uncertain Savings	4,480	0.5	Commercial Pay For Performance pilot	line *aa* of Exhibit 1 Portfolio View
e	**Total 2018-2019 Portfolio Savings**	**519,994**	**59.4**	This figure is what Energy Efficiency is managing to.	= a + b + c + d: lines bb & be of Exhibit 1 Portfolio View
	Exclude			***Remove these elements in order to calculate the EIA penalty target.***	
f	Subtract NEEA Savings	-25,054	-2.86	(RV "codes & standards", "trackable" measures from NEEA forecast)	line ac of Exhibit 1 Portfolio View
g	Subtract Decoupling Commitment Amount	-23,658	-2.7		Provided by NEEA staff
h	Subtract 449 Customers	-18,693	-2.1		= c
i	Subtract Pilots with Uncertain Savings	-4,480	-0.5		= d
j	Total Exclusion	-71,885	-8.2		= f + g + h + i
	Resultant Targets				
k	**EIA Penalty Target**	**448,109**	**51.2**	$58.77/MWh shortfall penalty, based on 2016 inflation, per RCW 19.285.060.	**= e + j**
l	**Decoupling Commitment**	**23,658**	**2.7**		**= b**

Table IV-2: Natural Gas Portfolio Savings Target Calculation Summary

Puget Sound Energy 2018-2019 Natural Gas Portfolio Savings				
	Description	**Therms**	**Comment**	**Calculation**
	Colored cells correspond to indicated lines in Exhibit 1: *Savings and Budgets, 2-Year Portfolio View*.			
	Add		***These are specific elements that comprise the Portfolio View of Exhibit 1***	
a	Total Biennial Potential *IRP Guidance*	6,155,000	2-year pro rata, versus ramp rate in IRP	Page 24, July 16 CRAG meeting presentation
b	Decoupling Commitment	0	Order 07, Docket UG-121705 & UG-130138, no decoupling for natural gas.	
c	Add Pilots with Uncertain Savings	40,000	Commercial Pay for Performance pilot	line *z* of Exhibit 1 Portfolio View
d	**Total 2018-2019 Portfolio Savings**	**6,195,000**	This figure is what Energy Efficiency is managing to.	= a + b + c; line bb of Exhibit 1 Portfolio View
	Exclude		***Remove these elements in order to calculate the penalty target.***	
e	NEEA Savings	0		line ab of Exhibit 1 Portfolio View
f	Decoupling Commitment	0		
g	Pilots with Uncertain Savings	-40,000		= c
h	Total Exclusion	-40,000		= e + f + g
	Resultant Target			
i	**Total natural gas savings subject to penalty**	**6,155,000**	Penalty outlined in Stipulation Agreement, UG-011571 Section M43.	**= d + h**

B. Key 2018-2019 Savings Assumptions

Energy Efficiency planning teams examined several considerations throughout 2016 and 2017 in developing the 2018-2019 BCP, including the IRP conservation potential guidelines, dynamics of PSE's and the region's marketplace, trade ally support, customer requirements, internal and external resources, actions taken by other utilities, and the potential for new and untested customer offerings, among others. The following discussions highlight some of the key assumptions and factors that program staff used to guide their planning processes.

Program staff consider long-term assumptions indicated in PSE's 2017 IRP, and are particularly aware of indicated conditions and circumstances that they understand and agree will affect their ability to immediately acquire conservation savings. These are necessary in pursuing conservation to meet savings targets and goals. The key consideration for each program design is to prudently manage customer funding to drive customer participation and satisfaction in order to achieve the Commission-approved savings targets.

Throughout the upcoming biennium, program staff will continue their application of adaptive management principles to ensure that they meet performance objectives are met by validating, adjusting, and re-evaluating these assumptions in an effective and resourceful fashion.

1. PSE's 2017 IRP

As discussed in detail in Exhibit i: *Ten-year Achievable Conservation Potential and Two-year Targets*, the 2018-2019 electric conservation potential of 476,163 MWh, or 54.0 aMW is based on several well-established design attributes. The draft 2017 IRP also provides the basis for PSE's natural gas 2018-2019 Total Biennial Potential of 6.155 million therms. The attributes that the IRP incorporates include, but aren't limited to the following:

- PSE's updated load forecast, including 2014-2015 efficiency accomplishments, resulted in a lower value.
- Updated Commercial Building Stock Assessment (CBSA) data.
- Behavior change—in the past two biennia, this attribute of PSE's Home Energy Report program—is now included in the CPA.
- Measure savings and ramp rates consistent with the Seventh Power Plan of the Northwest Power and Conservation Council.
- Incorporation of new codes and standards.
- New and expanded measures were incorporated. For instance, behavior change, smart thermostats, and LED string lights.

- Updated data and assumptions with the latest PSE and regional data.
- Lower electric energy and peak avoided costs reduced the cost-effectiveness threshold for conservation potential in the 2017 IRP. Gas avoided costs are relatively unchanged from the previous IRP.

PSE addressed these considerations for the CRAG in the May 31, and July 26, 2017 CRAG meetings, and used them as PSE's baseline guidance throughout the 2018-2019 target-setting process. The Company shared updates with the CRAG in the remaining 2017 meetings. PSE conducted 15 IRPAG meetings between 2016 and 2017. Several CRAG members are also members of the IRPAG, and some participated in the IRPAG sub-committee, the Demand-Side Resource Advisory Committee, which conducted two meetings in 2016.

2. Economic and Market Assumptions

The energy-efficiency marketplace is dynamic and difficult to forecast. For instance, it was noted in the May 31, 2017 CRAG meeting that the manufacturing costs of LED lamps continues to decrease, while new energy-efficiency products continue to be introduced at an accelerated rate. Planning teams considered other factors:

- Another recession may have a dramatic effect on PSE's conservation efforts.
- Rated life and price are the two primary drivers for consumers interested in purchasing Value LED's; customers are interested in color temperature and Energy Star® ratings to a lesser extent.
- As the economic recovery continues its momentum, concerted effort will be necessary to maintain an engagement with trade allies. In the past, trade allies have done business with PSE only if it is efficient and convenient.
- Avoided costs are routinely in flux.
- LEDs are now the majority of lighting incentives. Innovations will continue the downward price trends, leading to a broader range of offering types, and putting additional downward pressure on incentive levels.
- As conservation baselines and market saturation continue to increase, it becomes more difficult to offer customers incentives for lower-cost measures.
- PSE has a limited customer exposure window, and must use that limited time to ensure that it makes its energy-efficiency messaging as valuable and impactful as possible.

3. Technological, Codes & Standards Assumptions

LED lamps are a clear representation of the technological advancements that affect PSE's energy-efficiency programs. There are now a much wider array of LED lamp types, with broader color rendering, shapes, and applications. Continued innovation in this market, and codes and standards will play a significant role in determining the cost-effectiveness of future products.

Water-savings measures such as showerheads and faucets are evolving to meet customer expectations for comfort and style. Planning teams also considered other technology elements:

- New construction—state energy codes affect residential single family, multifamily, and commercial New Construction programs.
- Energy modeling applications will become more advanced and accurate, leading to the implementation of streamlined custom grant processes in both REM and BEM Sectors.
- New technologies in existing measure types may affect potential cost-effectiveness.
- Third-party vendor applications and processes are growing more sophisticated, allowing them to provide services that were previously unavailable.

4. Regional & Utility Actions and Partnerships

Actions that other utilities take have an effect on PSE energy-efficiency programs, as do regional market transformation initiatives.

- Partnerships with other utilities provide customers with a more consistent suite of services, which will drive increased participation.
- When other utilities adjust or retire their programs, economies of scale are lost, causing upward pressure on some of PSE programs' administrative costs.
- It is always necessary to be cognizant of, and coordinate with regional market transformation initiatives to ensure that PSE prevents double-counting or duplicating program offerings.

5. Regulatory Environment Assumptions

Regulatory requirements—including those from a variety of agencies—consist of reporting and documentation requirements, accounting for new measure classifications, application of new and updated cost-effectiveness elements and tests, revised measure life attribution, and Stakeholder engagement, among others. PSE's ability to effectively implement conservation programs include other key factors:

- As the RTF moves to expand the application of the Current Practice baseline to account for rapid market changes and increasing energy code standards, it becomes more difficult to offer the applicable measures cost-effectively.[35]
- WAC requirements for accelerated documentation submission affect all BCP planning and forecasting elements.
- Since the Supreme Court's stay of the Clean Power Plan on February 9, 2016, and the President's Executive Order on Energy Independence on March 28, it seems that there is a potential that the Plan's proposed section 111d will have little effect on Energy Efficiency's overall 2018-2019 portfolio design.

C. 2018-2019 Savings Components

In the 2018-2019 biennium, several considerations affected PSE's savings goal development, including accounting for the decoupling target savings, the treatment of NEEA savings, incorporating ever-changing RTF UES values, treatment of pilot savings, and strategic and tactical program challenges. The following discussions align with the Portfolio Savings Targets outlined in the "Building the Electric (and Natural Gas) Savings" tables, noted in Chapter 1 and section IV.A of this chapter, and illustrate the differences between the Portfolio Savings Targets and Penalty Targets (EIA, Natural Gas,[36] and Decoupling penalties).

[35] A case in point is the LEDs' tiered measure life approach, precipitated by Federal EISA standards that incorporates an RUL (Remaining Useful Life: the useful life of the base case existing measure being replaced before burn out) and EUL (Estimated Useful Life: the measure life of the new energy efficient equipment being installed. This creates a dual-savings baseline, and complicates cost-effectiveness calculations.

[36] It is noteworthy that the natural gas penalty is established in Section M.43 of Exhibit F, Docket UG-011571, and enumerates different penalty amounts that the electric penalty in RCW 19.285.060 and WAC 480-109-070, and the decoupling penalty in the Amended Accounting Petition, as a part of Order 07 in Dockets UE-121697 and UG-121705 (consolidated) and UE-130137 and UG-130138 (consolidated).

A key element of program planning was the IRP guidance, as provided in the Conservation Potential Assessment (CPA). Once program staff have an idea of the "top-down" savings goals, they build savings programs consistent with condition F.11, which indicates that budgets must be developed from the bottom-up. Building upon the IRP Total Biennial Potential and examining the remaining considerations and variables, PSE's vision of the 2018-2019 biennial conservation savings figures came into focus in the third quarter of 2017. Planning teams scrutinized issues such as marketplace dynamics and externalities (for instance, utility actions and partnerships, regional initiatives, regulatory requirements). Additionally, they considered potential for new offerings—incorporating applicable RFP/RFI proposals—and internal resources affecting PSE's electric and natural gas savings targets.

Unless otherwise noted, each component discussion applies to both electric and natural gas savings targets.

1. IRP Guidance

WAC 480-109-100(3)(b) requires that the electric biennial conservation target be no lower than a pro rata share of a utility's ten-year conservation potential. PSE's 2017 IRP indicates a more rapid ramp rate for some measures, primarily LED technologies, than using the pro rata approach. PSE selected the greater of those values as the IRP guidance. The non-adjusted 2017 IRP guidance for 2018-2019 was 359,830 MWh, using the 20 percent pro-rata approach. However, PSE decided to choose the higher two-year value of 473,163 MWh: almost 32 percent more than required.

PSE also selected the higher value for its two-year natural gas conservation target. Relative to PSE's natural gas ten-year potential, the 20 percent straight-line pro-rata share was higher than the IRP ten-year ramp rate—4,860,000 therms—and PSE selected that value: 6,155,000 therms, which is almost 27 percent higher.[37]

2. Decoupling

In the Commission's Order 07, Docket UE-121697 and UG-121705 (consolidated), approving the PSE/NW Energy Coalition decoupling petition, PSE committed to achieve 5 percent above its Commission-approved EIA targets. This commitment extends through the 2018-2019 biennium.

[37] It is important to note that PSE chose to develop its natural gas conservation portfolio in a manner consistent with the principles in WAC 408-109.

Order 07 excludes natural gas savings from this requirement, in consideration of the low avoided costs for natural gas.[38]

In its 2018-2019 electric savings target calculation, PSE added 5 percent to its IRP Total Biennial Potential figure of 473,163 MWh. This is significant because (1) The IRP guidance amount is 31 percent higher than the WAC-required pro-rata share of its ten-year conservation potential, (2) The IRP Total Biennial Potential amount includes NEEA savings, which PSE excludes from the final EIA Penalty Target calculation. This resulted in a proposed Decoupling Target for 2018-2019 of 23,658 MWh, which reflects PSE's commitment to accurate representation of compliance with the Order.[39]

PSE intends to achieve the required incremental savings using a variety of strategies that demonstrate its adaptive management techniques. These may include:

1) Expanded marketing, promotional, and retail events, such as marketing opportunities at McLendon®'s, and The Home Depot®, etc. PSE will continue to participate in and sponsor a variety of energy-efficiency events, such as the Energy Upgrade event during the peak buying seasons. These will also provide excellent opportunities to affect savings achievement.

2) New programs and program initiatives, which seek to expand customer awareness of savings opportunities and participation in Energy Efficiency programs. New initiatives include the consolidation of Small Business Direct Install programs, a focus on rental markets, and simplified Business program application process, with the intent of increasing the quantity of measures installed and savings achieved.

3) Identify incremental savings opportunities. In some instances, opportunities won't present themselves until the program cycle is underway. PSE excels at listening to and understanding customer needs and market conditions. Its responses are consistently proactive and effective.

4) Expanded Energy Efficient Communities outreach, comprised of leveraging community awareness of residential and commercial programs, direct customer contact--including door-to-door and Small Business blitzes.

[38] ¶ 108, page 49 of Order 07, Section D.2.c.: "..[ ] The Company will accelerate its acquisition of cost-effective electric efficiency resources to achieve 105 percent of the targets set by the Commission. Considering current conditions in natural gas markets, a similar commitment is not feasible. [ ].."

[39] PSE discusses NEEA electric and natural gas savings values in sections IV.C.5 and IV.C.7.a.

It is notable that it isn't possible for PSE to distinguish between "EIA-compliant savings" and "decoupling" electric savings in its tracking and reporting. PSE will report all conservation achieved in its standard timing and formats.[40] PSE will base its reporting on comparison to the electric MWh EIA Penalty Target and Decoupling Target approved by the Commission.

3. 449 Customers

It is important to note that 449 customers only take electric service. When PSE confirmed that "449 customers" (Retail Wheeling customers who are on rate Schedules 448, 449, 458, or 459) were excluded from the Conservation Potential Assessment, planning staff took the initiative to add those customers'[41] projected 2018-2019 conservation savings of 18,693 MWh to the IRP Total Biennial Potential amount of 473,163 MWh.

4. Pilots with Uncertain Savings

Some 2018-2019 potential pilots and initiatives analogous to pilots originated from responses to PSE's Requests For Information (RFI) and Requests For Proposals (RFP), which PSE let in April 2017. Program Support and Evaluation staff conducted exhaustive reviews of responses in order to select the best fit for Energy Efficiency's Portfolio.

Staff also conducted significant assessments as to what initiatives could be classified as "pilot" and which were "pilot- equivalent". If staff were able to determine, with a high degree of confidence, that the savings estimates of the new initiatives were relatively well-supported, they incorporated the proposed measure or program directly into the Portfolio. This strategy does not eliminate PSE's risk; although the current understanding of the proposals indicated that PSE could count on reported savings in the new offerings, there is a chance that those savings won't come to fruition.

It is important to note that the savings indicated in line *ab: Subtotal, Pilots* in Exhibit 1: *Savings & Budgets* represent only those pilots with uncertain savings—as discussed in Chapter 3, Section III.E.5.f on page 45. PSE will exclude these pilot programs from the proposed EIA Penalty calculation (discussed in the following section).

[40] These include Annual Reports, Biennial Conservation reports, Department of Commerce EIA reporting, CRAG meeting updates, responses to data requests, planning documents, etc.

[41] 449 customers participate in PSE's Large Power User/Self-Directed program under terms of Schedule 258.

PSE will discuss other pilot measures and programs in which program staff have a degree of savings certainty within the program-specific chapters to follow. Another pilot that does not have an associated savings value—EM&V 2.0—is discussed in Chapter 12: *Research & Compliance*.

a. 2018-2019 Planned Pilots with Uncertain Savings

Business Energy Management expects that its Pay for Performance pilot will generate both electric and natural gas savings. BEM will target several customers with large building footprints and large savings potential to produce a combination of capital, O&M, and behavior savings. The program will provide the customers incentives on an escalated-performance basis. Savings will be "source blind", originating from any of these savings initiative types.

Based on PSE's current understanding of electric and natural gas savings estimates for the Pay for Performance pilot, it expects that 2018-2019 first-year savings acquisition will be 4,480 MWh and 40,000 therms, respectively.

5. NEEA Savings

The 2017 IRP takes into account NEEA savings in the conservation potential, and thus, NEEA savings do not have a separate addition line in the "Building the 2018-2019 Target" tables, as they had in the 2016-2017 BCP.

Although the NEEA electric savings are excluded from the EIA Penalty Target, they are included in and reported as a separate line item in PSE's Portfolio performance in PSE's Annual Report of Energy Conservation Accomplishments and its Biennial Conservation Report. [42] PSE's two-year Portfolio electric savings target incorporates the NEEA 2018-2019 savings forecast of 25,054 MWh.

At the present stage of 2018-2019 planning, no savings are anticipated for NEEA's natural gas market transformation initiative.

[42] For the 2018-2019 biennium, the BCR will be filed with the WA Department of Commerce and the UTC by June 1, 2020.

6. Total Portfolio Savings

Adding the elements discussed in sections IV.C.1 - 5 results in the overall Portfolio Savings Targets of 519,994 MWh and 6.195 million therms. PSE builds its anticipated expenditures[43] to achieve these levels of savings. PSE then disaggregates the Portfolio target by following the steps outlined in sections IV.C.7 through 10 to determine the (1) EIA Penalty—or Biennial Conservation Target—(2) the Decoupling Commitment Target, and (3) the Natural Gas Penalty Target.

7. Components Excluded to Determine the EIA, Decoupling, and Natural Gas Penalty Targets

Once PSE has built up programs to meet the total Portfolio Savings Targets, it then removes applicable components in order to reach the final target on which the Commission will, upon its review and BCP approval, set penalties for shortfall, per RCW 19.285.060, WAC 480-109-070, and Section M.43 of the 2001 Rate Case Stipulation Agreement, Exhibit F in Docket UG-011571.

a. Exclude NEEA Savings

In calculating its EIA Penalty Target for electric savings, PSE excludes NEEA savings, consistent with PSE's reporting methodology, provided in the Joint Utility Proposal, filed under Docket UE-100177, and approved by Commission Orders in past biennia.

PSE will subtract its proportion of NEEA's applicable 2018-2019 savings forecast, 25,054 MWh, from the Total Biennial Potential.[44] As noted in section IV.C.2, the 2017 IRP conservation potential already accounts for NEEA savings. For the 2018-2019 period, Avista, PacifiCorp, and PSE requested NEEA to provide its savings estimate segregated into categories.

[43] Section IV.D provides a discussion on the primary considerations made in developing its 2018-2019 conservation budgets.

[44] The Total Biennial Potential is outlined in the 2017 IRP's Conservation Potential Assessment and discussed in Exhibit i: *Ten-Year Achievable Conservation Potential and Biennial Conservation Acquisition Targets*).

The three categories of NEEA electric savings are:

NEEA Savings Type	NEEA Description	NEEA Savings Forecast, aMW/ MWh	Disposition
Program Measures	These savings come from measures NEEA worked on.	2.86 aMW/ 25,054 MWh	PSE will incorporate these savings in its overall Portfolio reporting.
Codes and Standards Measures	These savings come from codes and standards that NEEA worked on.	1.15 aWM/ 10,074 MWh	Codes and Standards are incorporated into the IRP as a "Must Take" bundle.
Trackable Measures	Through it work, NEEA often collects additional data in othe markets.	4.66 aMW/ 40,821 MWh	These are not attributable to NEEA initiatives.

PSE's initiative to count only the portion of NEEA savings that are directly attributable to NEEA initiatives ("Program Measures"), rather than the entire NEEA savings amount is significant. Doing so shifted a proportional amount of overall Portfolio savings responsibility to Energy Efficiency program staff.

b. Exclude the Decoupling Target Savings

The decoupling target savings of 23,658 MWh is subtracted from the Portfolio total in order to calculate the EIA Penalty Target. At the time of the 2018-2019 BCP filing, there is no natural gas decoupling amount.

PSE reports the decoupling savings total separately once it reports and verifies overall savings, and are subject to a penalty—calculated differently for electric versus natural gas—for achievement shortfall. PSE does not make modifications to the decoupling figure in calculating the EIA Penalty Target; it is the same value that PSE added to develop the overall Portfolio total in section 6 above.

c. Exclude 449 Customers

PSE will subtract the 449 customer projected savings of 18,693 MWh from the Portfolio total as a step in calculating the EIA Penalty Target. This target-setting step met with the general agreement of the CRAG.

449 Customers—or retail wheeling—savings are excluded because these accounts do not contribute to PSE's electric system loads,[45] even though they have a capacity impact.

PSE revised the Exhibit 1 Portfolio View to separate out the 449 and non-449 customer subtotals in the Large Power User/Self-Directed, Schedule 258 line, to enable Stakeholders to more clearly identify those excluded savings.

d. Exclude Pilots with Uncertain Savings

To encourage utilities to accept the risks associated with implementing pilots with uncertain savings, IOUs and Commission staff agreed that the utilities may exclude applicable pilot endeavors from the EIA Penalty Target.[46] Therefore, PSE will subtract 4,480 MWh from the electric Portfolio total. In the natural gas Portfolio, PSE will subtract 40,000 therms from the overall savings total. There are no natural gas savings planned for the NEEA Natural Gas Market Transformation pilot in 2018-2019.

8. Total 2018-2019 Savings Exclusions

The resulting total exclusion from PSE's 2018-2019 electric Portfolio Savings Target of 519,994 MWh is 71,885 MWh.

The remaining total of 448,109 MWh is the electric total that PSE requests the Commission to approve as its 2018-2019 EIA Penalty Target. The decoupling amount of 23,658 MWh carries forward as its own subtotal, subject to the same penalty calculation as the EIA Penalty Target.

PSE's natural gas Portfolio Savings Target excludes 40,000 therms from the total of 6.195 million therms. The resulting proposed 2018-2019 Natural Gas Penalty Target is 6.155 million therms.

[45] Retail Wheeling customers do, however, have a positive impact on regional system capacity.

[46] PSE provides a significant discussion on how PSE incorporates pilots and pilot-like measures and programs into its Portfolio in Chapter 3's section III.E.

D. RTF Measures' Impact

As a proportion of Residential Energy Management's (REM's) overall conservation goal (and also contributing to a portion of Business Energy Management's [BEM's] savings goal), another key consideration of PSE's 2018-2019 conservation goal is the examination of RTF UES measures.

The 2018-2019 savings and budget figures are substantial in light of continued downward revisions of many key prescriptive measure UES values, both electric and natural gas. Energy Efficiency program staff demonstrated creativity and adaptive management in developing innovative solutions and services that will sustain 2017's momentum in light of these adjustments. Very few programs, both in REM and BEM, were unaffected by these UES value revisions.

To varying degrees, adjustments included LED lamps, several appliance types, insulation, window, and air-sealing measures, as well as some measures adjusted as a result of evaluations and the 2014-2015 Biennial Electric Conservation Achievement Report (BECAR). Some adjustments resulted in measures becoming cost-ineffective. PSE put these measures on hiatus or cancelled them, and PSE will not offer them in 2018.

Prescriptive measure elements, including savings values and unit count projections are noted in the applicable program detail pages of Exhibit 1. The 2018-2019 BCP reflects, when applicable, RTF UES values that were in effect and published on the RTF website as of September 1, 2017. To accommodate program planning needs and WAC requirements,[47] Energy Efficiency's Measure Revision Guidelines indicate that when a prescriptive measure's UES value is in effect and published by September 1 of one year, PSE will align to that value in January of the following year. In applicable cases, PSE will follow accepted methodology and protocols to develop a PSE UES value[48] that is consistent with WAC 480-109-100(5)(a).

This policy is unique; to PSE's knowledge, it is the first Washington utility to follow this guideline. It is noteworthy that the Commission did not require PSE to implement such a policy. It did so because the policy is sensible—for the Company's resource planning needs and to ensure that its savings reporting is as accurate as possible.

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[47] WAC 480-109-110(3) requires utilities to provide their advisory groups with a draft conservation filing 30 days in advance of the filing. This requirement significantly compresses the planning process. Thus, the time to lock measure savings values is moved up a month.

[48] In cases where PSE pursues the conversion of a measure from RTF UES to PSE Deemed, the measure cannot be used until the evaluation, engineering analysis, or actual usage studies are completed and approved. This affects PSE's ability to meet its savings targets and goals.

PSE was aware that the current circumstances were a possibility when it implemented its policy in 2008 and is prepared to adapt to the change in conditions—as is demonstrated in the following program discussions.

PSE appreciates the Stakeholder recognition that its policy is a trend-setter, and particularly appreciates the CRAG's support and acknowledgement of the challenges that such a policy creates.

1. RTF Prescriptive Measures

WAC 480-109-100(5) requires PSE to use the Regional Technical Forum's (RTF) UES[49] measure savings values; unless, as indicated by (5)(a), evaluation data, engineering analyses, or other reliable sources substantiate the use of a different savings value.

PSE consistently complies with these requirements, and presents its measures and their savings values in Exhibit 4: *Energy Efficiency Measures, Incentives & Eligibility*, and Exhibit 5: *Prescriptive Measure Values* for CRAG review (as required by WAC 480-109-100(5)(b)).

2. RTF Measure Revisions - Timing

The RTF adjusts the savings values of measures throughout the year. Each year, PSE tracks the RTF revisions as program staff set their upcoming biennial savings target and natural gas goal. The savings targets are established in July of a planning year, consistent with requirements, using (where applicable) the RTF UES values in place at that time. Program staff have an opportunity to make final adjustment to RTF UES measures employed at the end of August of the planning year. When the RTF adjusts UES values after PSE locks the target on September 1, it will adjust the savings reported in the year following the next program year.

For example, a hypothetical RTF UES LED lamp savings value is 35 kWh/year in July 2017 and the RTF adjusted the savings value for that same lamp to 32 kWh/year in November 2017. PSE presents the draft BCP to the CRAG by October 1, 2017, by which time the savings values are locked, in readiness for the November 1 filing.

[49] The current RTF designation for prescriptive measures is UES: Unit Energy Savings.

PSE will therefore report savings for that lamp of 35 kWh during 2018. PSE will then adjust the savings to 32 kWh/year,[50] consistent the Energy Efficiency *Measure Revision Guidelines*, on January 1, 2019.

PSE believes that this application of measure revision rules is best-in-class and yields a higher degree of savings reporting precision, versus applying the original savings value over the entire biennium.

3. Using Every RTF Measures is Administratively Unrealistic

PSE employs only those RTF measures that it can accurately track, meet cost-effectiveness expectations,[51] achieve a sustainable customer demand, are supported by contractors and trade allies, and lend themselves to effective verification. PSE evaluates the potential impact of these measures, regularly reviewing those that can be offered to customers and effectively managed.

There are far more measures in the RTF database than can be effectively managed or accounted for with a high degree of accuracy within a program's suite of offerings. For instance, a perusal of the RTF website provides the below figures:[52]

- Commercial appliances and cooking equipment—the RTF lists 18 clothes washers, 20 refrigerators and freezers, 2 combination ovens, 2 convection ovens, 1 fryer, 2 hot food holding cabinets, and 5 steamers.
- Commercial showerheads—over 150 variants, including fitness centers, schools, health care, and hospitality, with efficiencies ranging from 1.75 gallon per minute (gpm) to 1.5 gpm or less.
- Commercial Grocery—18 grocery display case variants, 2 anti-sweat heater controls, 4 door gaskets, 1 ECM for display cases, 2 ECM for walk-in refrigerators, 4 strip curtains.

[50] Unless that value is revised again prior to September 1, 2018.

[51] Although the RTF indicates expected cost-effectiveness in the measure table of a particular measure's workbook, PSE delivery methods, incentive levels, regional differences, etc. may change the final actual cost effectiveness.

[52] These examples reflect measures listed on the RTF website in August 2017. All noted measures are electric. Readers should not infer that the indicated measures are omitted from Energy Efficiency programs. To the contrary, many of these examples are, in fact, incorporated into PSE's Portfolio.

- Residential appliances—12 residential clothes dryers, vented and ventless. Multifamily and single-family have 25 single family clothes washer variants. There are four different combinations of water heat and dryer fuel types, in addition to an "any water heat/any dryer" type. There are 10 refrigerators and freezers.
- The 81 residential showerhead variants range from 2.0 gallons per minute to 1.5, primary, secondary, or any shower, single or multi-family, each with a different delivery method.
- 72 lamp variants (excluding fixtures), globe, reflectors, decorative, with ranges of lumen classifications.
- There are over 120 variants of single family insulation and air sealing alone: attic, floor, and wall, with a wide variety of R-values, insulation classes, and heating zones. There are more than 80 variations of single family windows.

Given the number and considerable variety of different RTF measures, the key management consideration for incorporating RTF measures is, "Can program staff accurately track every measure variant at the risk of incurring a disallowance?"

It is important to note that a significant number of the above examples are, in fact, included in Energy Efficiency's measure portfolio.

The range of variables that a program manager must administer makes it clear that it isn't possible to manage a suite of offerings effectively, and with a degree of accuracy that includes every RTF measure. Since the RTF updates its measure tables at irregular intervals, keeping track of each iteration for every measure table becomes administratively burdensome. Furthermore, program staff must consider the engagement of its vendors and trade allies.

a. Measure Offering Complexity can affect Accuracy and Constituency Participation

Program staff must also consider trade allies. As measures are added, Energy Efficiency staff must assess the ability to clearly discern unique measure attributes by customers and in the field—by contractors and Verification Team staff. "R-0 to R-19" versus "R-0 to R-11" insulation is very difficult to differentiate in the field, for instance. As previously noted, an increase in product complexity is a disincentive for PSE trade allies.

An unwieldy catalog of measures also presents challenges for customer presentation. In order to spur customer action to engage in energy-efficiency programs, it is necessary to maintain simple and easy-to-understand brochures, rebate applications, digital tools, and other collateral. Increasing the complexity of measure offerings makes developing effective tools more difficult and costly.

In light of these issues—for some RTF measures—it becomes cost-ineffective to offer them.

4. Implementing RTF Measures

To ensure the highest degree of accuracy and mitigate the risk of potential disallowances and potential resultant penalties, PSE's follows a thorough strategy for implementing RTF UES measures:

a) Selecting those RTF measures that can be implemented, tracked and accurately reported,
b) Regular review of RTF measure tables for potential offering inclusion,
c) Participation in RTF meetings to ensure that PSE program staff are engaged in measure development and planning,
d) Choosing the most conservative value if the actual measure cannot be accurately classified,[53]
e) Actively managing all tracking and reporting data, systems and databases to ensure accuracy,
f) Actively manage the savings adjustment process, as outlined in the Energy Efficiency *Guidelines for Ensuring the Accuracy of Electric and Gas Savings Reports,*
g) Implement measure revisions at the beginning of each year, consistent with PSE's *Measure Revision Guidelines, and*
h) Adopt suitable new RTF measures throughout the year, compatible with adaptive continuous improvement principles.

Energy Efficiency's comprehensive list of all prescriptive measures—RTF UES and PSE UES—is Exhibit 5: *Prescriptive Measure Tables*.

[53] For instance, if a customer omits a piece of information on their rebate application form. This occurrence has become more limited, with Rebate Analysts' process improvements and Verification Team management.

Because Exhibit 5 is intended to be a list of all measures currently available, PSE will provide the 2018 Exhibit 5 to the CRAG when it updates the first quarter 2018 filing of Exhibit 4: *Measures, Incentives & Eligibility*.

Until then, planned prescriptive measure UES values are available in each program's detail page of Exhibit 1: *Savings and Budgets*.

E. 2018-2019 Program Challenges and Opportunities

As the 2018-2019 BCP development progressed, Energy Efficiency program staff incorporated strategies to address several challenges and opportunities they faced. Two key issues are Low Income Weatherization cost-effectiveness, and potentially hard-to-reach, proportionately underserved customer segments. New construction projects will continue to have an impact in the PSE service territory, and LED lighting advancements and lower prescriptive UES values have challenged program design. The evolving energy-efficiency market and the need to develop enhanced contractor engagement strategies, and the potential loss of the Single Family Space Heat program are examples of additional hurdles that Energy Efficiency staff will overcome.

1. Low Income Weatherization Cost-Effectiveness Challenge

The Low Income Weatherization (LIW) program faces several cost-effectiveness challenges to its suite of electric and natural gas offerings. [54] Natural gas measures continued the trend of low cost-effectiveness, very low uptake from CAP agencies, and lower UES values. To ensure access to comprehensive offerings for low-income customers in 2018-2019, PSE will revise several elements of its LIW cost-effectiveness considerations for both the electric and natural gas LIW program. PSE provides a detailed discussion of these steps in section IV.I.2.

2. Hard-to-Reach and Proportionately Underserved Segments

PSE provides additional discussion on this customer segment classification in Chapter 3, section III.A.2. Energy Efficiency will continue to collect, analyze, disseminate customer and savings data, and collaborate with BPA and regional utilities to clearly define hard-to-reach and potentially underserved segments. As it progresses through the upcoming biennium, PSE will share analyses results and any program adaptive steps with the CRAG.

[54] It is important to recall that PSE does not limit LIW agency spending for any conservation projects.

In the following program discussions, PSE summarizes several initiatives that it will add to its already-robust complement of initiatives designed to address the needs of this customer segment.

3. New Construction Impacts

In spite of updated energy codes, activity in the new construction market continues to be strong. The Residential Sector plans to resume the single-family new construction program, and the Business Sector continues to see robust activity, particularly in the horticultural segment. The two Sectors are aligning multifamily and commercial/industrial projects to provide a more unified, single point-of-contact for customers, contractors, and developers.

On the natural gas side, the multifamily new construction market's natural gas potential is limited by builder and developer first-cost considerations, versus long-term conservation payback forethought. The New Construction teams have developed communications strategies designed to engage builders and developers early in the design process.

4. Lighting Impacts

Lighting measures, a key and considerable contributor to the overall Energy Efficiency savings, continue to undergo savings and measure life revisions in both the Residential and Business Sectors. Customer expectations for LED product quality is constantly evolving; there is no longer a requirement that all LED bulbs be Energy Star® qualified. LED bulb costs continue to rapidly decline, for which PSE continues to adaptively manage its lighting incentives. In the Business Sector, program staff are integrating new technology into its Business Lighting program, adding Luminaire Level Lighting Controls (LLLC). As it has consistently demonstrated, PSE will also continue to add leading-edge technology to its suite of offerings throughout the biennium.

5. Lower UES Values

Program staff must address constantly evolving RTF and PSE UES values that occur as measures achieve market saturation, as evaluation studies verify realization rates, and as energy codes make some measures obsolete. In addition to addressing program measure mix concepts, product delivery alternative, and innovating marketing approaches, program staff incorporated RTF Non-Energy Impacts (NEI or NEIs) for all applicable and available prescriptive measures. The RTF did not assign NEIs to all measures.

6. Market Conditions and Contractor Engagement

Certain programs, such as the Premium HVAC service, have become cost-ineffective. Because of program complexity, the overwhelming tendency of contractors to extoll a replacement versus repair & maintenance approach to customers, and the long application process, PSE will end the program in 2018. PSE's appliance replacement programs have now encountered the market saturation point, along with increasing acquisition costs, and have become cost-ineffective. Consequently, PSE will end its Residential appliance replacement programs in all Residential Channels at the beginning of 2018.

7. Potential Loss of Single Family Space Heat

As noted in a previous section, UES revisions have an impact on program design. In the Single Family Space Heat program, UES revisions made the overall program cost-ineffective. Program staff sustained the program, however, by adaptively managing the suite of measure offerings. They also included a conservative wood smoke NEI—currently under statewide development—to ductless heat pumps where electric heating is available, and the customer uses wood as the primary heat source.

F. Key Considerations Shaping PSE's 2018-2019 Program Savings

The majority of conservation programs that Energy Efficiency has successfully managed over the past biennia remain intact. Consistent with its established adaptive continuous improvement business development process, program staff examined their entire suite of measure offerings. They then incorporated applicable new measures, innovative delivery methods, and suggestions received through the Energy Efficiency RFP/RFI process to build a savings portfolio designed to meet the 2018-2019 electric and natural gas savings goals.

1. Highlights of Key Electric Savings Drivers

a. PSE expects that the Residential Home Energy Reports program will realize a sizable increase in savings from the last biennium, as it subsumed last biennium's expansion pilot program into the legacy program.[55]

b. The Residential Water Heat program will also see a significant savings jump from its 2016-2017 level, resulting from PSE's agreement with NEEA to support a region-wide promotion of heat pump water heaters.

[55] As indicated in an earlier discussion, the 2017 CPA now included behavioral savings.

c. Single Family and Manufactured Home New Construction, as renewed programs, will generate conservation savings once again.

d. Residential Lighting, the largest contributor to Energy Efficiency savings, anticipates a 14 percent drop in savings from its 2016-2017 plan. LED sales are trending down due to market saturation, with the increase in multipack products, value LEDs and a reduction in overall retail prices being key factors. As a result, program staff foresee a gradual decrease in savings over time.

e. The Residential Showerhead program electric savings is more than 60 percent lower than 2016-2017 levels, due to the saturation of produce in the retail market, and a resistance on the part of retailers to engage in PSE rebates when there are manufacturer rebates.

f. As a retired program, Residential Energy Management will lose approximately 3,500 MWh from its Fuel Conversion program's 2016-2017 BCP amount.

g. The commercial horticulture market will continue to drive significant savings increases in the Commercial/Industrial New Construction program.

h. The Urban Smart Bellevue (USB) pilot program fell short of its anticipated 2016-2017 savings. Thus, while program staff will apply lessons learned to other Energy Efficiency commercial programs and potential future community-based programs, PSE does not forecast any savings for that element of the Commercial Strategic Energy Management program.

i. As the Large Power User/Self-Directed program finishes one 4-year cycle in 2018 and begins another in 2019, saving will dip substantially between the two years.

2. Highlights of Key Natural Gas Savings Drivers

a. In spite of efforts to bolster the LIW program's natural gas offerings by revising the cost-effectiveness considerations, natural gas savings are more than 40 percent lower than the 2016-2017 BCP amount.

b. The Residential Showerhead program's natural gas savings is 80 percent lower than 2016-2017 levels, due to the saturation of product in the retail market, and a resistance on the part of retailers to engage in PSE rebates when there are also manufacturer rebates.

c. Multifamily Retrofit expects natural gas savings to finish the upcoming biennium 30 percent lower than 2016-2017 levels, because of the saturation of natural gas measures in this market. It is increasingly difficult to locate multifamily properties that are heated with natural gas and that PSE hasn't already served in the last several years.

d. An apparent increase of over 500 percent in the Web Enabled Thermostat program is the result of re-distributing the savings allocations between electric and natural gas customers from their 2016-2017 values.

e. Commercial/Industrial New Construction natural gas savings will be lower primarily due to increased code requirements for domestic water heat and an expectation of a general slowdown in the current new construction boom.

f. All Business Energy Management Direct Install programs' natural gas savings are lower—some significantly—as a result of revised UES values and market saturation of aerators, which have been significant contributors to natural gas saving in past biennia.

G. Key Considerations Shaping PSE's 2018-2019 Portfolio Anticipated Expenditures

The primary driver of electric and natural gas Portfolio expenditures is the cost to acquire the targeted savings, and will be somewhat commensurate with the variations of savings by program in Residential Energy Management and Business Energy Management Sectors, Pilots and Regional Efficiency Programs.[56]

It is important to note, when comparing 2018-2019 anticipated expenditures to 2016-2017 budgets, that a direct savings-to-spending correlation isn't possible. This is due to a variety of factors, including but not limited to energy code revisions, market saturation, customer measure acceptance, and other circumstances that account for a dynamic energy-efficiency marketplace. PSE bases its anticipated expenditures in the Portfolio Support, Research & Compliance, and Other Electric Programs on calculations that account for, but are not limited to:

- Number of staff necessary to support data and accounting systems needed to collect, archive and report on energy savings and expenditures,
- Number of staff required to create, update, and maintain digital energy efficiency customer portals,
- Staff required to provide direct interfacing with Energy Efficiency customers; at events, in outreach efforts, and on the telephone,
- System enhancement needs,
- Marketing and communications required to drive energy-efficiency participation, and
- The number and scope of required evaluations and savings reviews.

[56] The exception is Conservation Voltage Regulation and Generation/Transmission savings projects. In accordance with condition (9)(c), these costs are recovered through PSE's general rate case process.

1. 2018-2019 Electric Budget Key Drivers

The majority of the electric anticipated expenses of $182.86 million are directly related to program savings and customer incentives. Energy Efficiency forecasts that some programs' anticipated expenditures would increase, while others' will decrease or will be eliminated altogether, relative to the previous biennium.

Overall, the Portfolio electric budget reflects a decrease from the 2016-2017 budget of over 8 percent ($198.9 million, versus a 2018-2019 total of $182.86 million).

The increases in the electric budget consider, but are not limited to the following key drivers:

a. The Large Power Users/Self-Directed program is in the fourth year of its cycle in 2018, when savings projects have historically sharply increased with a commensurate spending escalation. Program staff forecast that 2019 anticipated expenses will drop by approximately $12 million from their 2018 level.
b. All budgets reflect corporate labor overhead rates for the 2018-2019 period: 68.8 percent for 2018 and 2019. Micro-overhead[57] rates will be 24 percent.
c. The significant increase in Strategic Planning spending is the result of PSE shifting two staff members from other support areas. Additionally, PSE will charge $200,000 for the NEEA Commercial Building Stock Assessment (CBSA) and $700,000 for the PSE share of the NEEA regional end-use load study.
d. Low Income Weatherization's Funding Commitment. The decoupling Order 07 to add $500,000 in funding to the Low Income Weatherization baseline budget for 2018 and 2019[58] also affects its electric savings goal by creating a commensurate volume of agency measure installations.

[57] This budget category reflects assessments (both labor and non-labor, such as office supplies, departmental meetings, group trainings, etc.) that were formerly calculated, aggregated, and then represented in the Labor category. A result of PSE accounting revisions implemented in 2017, this enhancement will provide a more direct view of expenditures that assess over a cost center, rather than directly to an order number. With 2017 actual costs now available for this budget category, it is possible to make a more accurate representation of anticipated future allocations.

[58] It is noteworthy that this amount is not incremental year-over-year.

e. PSE is restarting the Residential Single Family New Construction programs (Single Family and Manufactured Home New Construction) in 2018, when the programs plan to offer customer incentives once again. This added approximately $1.5 million to the Residential Energy Management anticipated expenses.

f. Net Metering distribution system accounting[59] increased approximately $300,000 from the 2016-2017 biennium.

Highlights of key Energy Efficiency electric budget decreases are:

a. The Residential Fuel Conversion program, Schedule 216, is retired, resulting in a reduction of approximately $1.6 million.

b. Web-Enabled Thermostats re-balanced the anticipated spending to reflect the products' distribution between electric and natural gas customer installations more accurately. This reduced the program's electric anticipated expenses over 50 percent.

c. The Conservation Rider-paid Electric Vehicle Charger incentives ended in 2017, removing over $800,000 from the Rider budget.

d. The Demand Response program development paid through the Conservation Rider also ended in 2017. Although not budgeted in the 2016-2017 BCP, the $300,000 planned expenditure noted in the 2017 ACP is no longer present.

2. 2018-2019 Natural Gas Budget Key Drivers

Similar to the electric Portfolio anticipated expenditures, savings acquisition costs are the primary driver of the natural gas budget of $29.59 million. These are largely a result of the continued low natural gas avoided costs, energy codes, and standards updates. These affect measure cost-effectiveness, and PSE's concerted efforts to maintain a robust suite of natural gas offerings. In addition to eroding per-measure prescriptive savings values, there are also fewer available measures. In some cases, some measures become cost-ineffective—while the cost of implementing those measures continues to increase. Unlike the electric portfolio, natural gas low-cost prescriptive measures are meager.

[59] As required by the Commission's accounting order in Docket UE-990016, which authorizes PSE to collect unbilled distribution services used by Customer-Generators.

PSE's adaptation to these ongoing requirements resulted in a natural gas budget that is relatively flat from the 2016-2017 BCP: $29.59 million, versus a 2016-2017 BCP figure of $29.4 million. This is an increase of approximately 1 percent. The natural gas budget increases consider, but are not limited to the following key drivers:

a. All budgets reflect corporate labor overhead rates for the 2018-2019 period: 68.8 percent for 2018 and 2019. Micro-overhead rates will be 24 percent.
b. Costs of participating in NEEA's natural gas market transformation pilot increase from year-to-year. The budget for this pilot increased over 79 percent from the previous biennium: $2.34 million in 2019, $2.01 million in 2018, $1.39 million in 2017, $1.087 in 2016, and $827,000 in 2015. These amounts exclude PSE staff costs.
c. As noted in the Electric Budgets Key Drivers discussion, PSE is restoring the Residential Single Family New Construction programs (Single Family and Manufactured Home New Construction) in 2018, when the program will offer customer incentives once again. This will result in an anticipated expense increase of $680,000 from the 2016-2017 level.
d. PSE's Automated Benchmarking System ("MyData") will undergo a software update in 2018, with a spending increase of approximately $130,000.
e. The Web Enabled Thermostat program's distribution of electric-versus natural gas installations resulted in a 200 percent increase in the anticipated 2018-2019 expenditures.

Highlights of key Energy Efficiency electric budget decreases are:

a. The Residential Showerheads and Multifamily Retrofit programs forecast more than a 30 percent reduction in savings from their 2016-2017 levels, with an expected reduction—although not proportional—in expenses.
b. The Commercial Direct Install programs also expect a significant reduction in anticipated expenses, primarily due to the limited number of prescriptive no-or low-cost natural gas measures.

H. 2018-2019 Sector-Level Savings and Budgets

Table IV-3 and Table IV-4 present the electric and natural gas budgets and savings goals by Energy Efficiency Sector. The electric savings values noted represent goals necessary to achieve the additional 5 percent required in the approved decoupling mechanism, which PSE discusses in further detail in Section IV.C.2. PSE presents detailed savings goals and budgets by program in Exhibit 1: *Savings and Budgets*.

Table IV-3: 2018-2019 Savings Goals by Exhibit 1 Sector Grouping

2018-2019 Energy Efficiency				
Sector Savings Goals				
	REM	BEM	Pilots	Regional (NEEA + Generation)
Electric	227,799 MWh *26.0 aMW*	261,623 MWh *29.9 aMW*	4,480 MWh *.5 aMW*	26,554 MWh *3.0 aMW*
Natural Gas	3,511,182 therms	2,643,818 therms	40,000 therms	0

Source - Exhibit 1: *Savings and Budgets*

Table IV-4: 2018-2019 Budgets by Exhibit 1 Sector Grouping

2018-2019 Energy Efficiency							
Sector Anticipated Expenditures							
	REM	BEM	Pilots	Regional (NEEA + Generation)	Portfolio Support	Research & Compliance	Other Electric Programs
Electric	$76,846,897	$72,731,142	$434,000	$10,400,000	$13,239,192	$7,055,608	$2,157,779
Natural Gas	$15,619,935	$6,488,401	$61,613	$4,440,380	$2,130,777	$846,564	$0
Sector Total	$92,466,832	$79,219,544	$495,613	$14,840,380	$15,369,969	$7,902,172	$2,157,779

Source - Exhibit 1: *Savings and Budgets*

1. Potential Penalties

PSE is subject to potential penalties for falling short of its Commission-approved electric and natural gas targets.

a. Electric Penalties

The EIA financial penalty of $58.77[60] per MWh of savings shortfall applies to the Commission-approved EIA Savings Target (or Biennial Conservation Target). The decoupling penalty of $58.77 per MWh of savings shortfall applies only to the specific incremental decoupling amount.[61]

PSE adjusted the penalty amounts annually—beginning in 2007—for the rate of change in the inflation indicator, gross domestic product-implicit price deflator, per RCW 19.285.060(1). Penalties would apply only after PSE exhausts its available excess conservation from eligible previous biennia.[62]

PSE will exclude 71,885 MWh from its Portfolio Savings Target to reach a proposed EIA Penalty Target of 448,109 MWh. Additionally, PSE proposes a Decoupling Target of 23,658 MWh, which will be subject to the same financial penalty approach that is used for the EIA Penalty Target.

b. Natural Gas Penalty

PSE's potential penalty range in the case of a natural gas conservation shortfall is outlined in Section M.39 and M.43 of the Stipulation Agreement, Exhibit F of Order 01 in Docket UG-011571:

> "39. Achievement of annual targets for savings from cost-effective electricity conservation programs and from cost-effective natural gas programs, as established in Section D, shall be subject to a penalty mechanism. …*(Electric discussion replaced by Docket UE-100177)*…PSE shall compute, every two years, the total natural gas savings captured through PSE natural gas efficiency programs during each two-year time period, and divide this total by two, to determine an average annual natural gas savings achievement for that period. *[Continued on next page]*

[60] The indicated potential penalty amount is based on the 2016 rate of inflation—the latest available at the time of the 2018-2019 BCP development. The actual penalty amount will change, depending on the 2017-2019 inflation rates.

[61] PSE's Amended Petition for Decoupling Mechanisms, Docket Nos UE-121697 and UG-121705, page 17, Section G.31: "[…] Specifically, while the electric decoupling mechanism is in place, PSE will agree to achieve electric conservation five percent above the biennial targets set by the Commission, **and PSE will agree to voluntarily submit to financial penalties for failing to meet this higher level of conservation achievement.** […]" (emphasis added)

[62] At the beginning of the 2018-2019 biennium, PSE has 38,906 MWh of excess conservation available. This is the amount remaining following its 2014-2015 achievement. Per WAC 408-109-100(3)(c), PSE may apply that amount to potential shortfalls of either the 2016-2017 or 2018-2019 biennial achievement.

These computations shall determine whether the Company achieved each of the minimum savings targets, on average. If the Company achieves its average annual savings goals, as determined with the Advisory Committee, during a two-year period, then no penalty will be applied for that two-year period. If the average annual savings targets are not achieved during a two-year period then a penalty is assessed according to Paragraph 43; the penalty applies only to each individual year in which that year's actual annual target is not met."

"43. The financial penalties for failure to achieve the annual conservation savings targets are as follows.

- Achieve savings that are 90 to 99% of the goal: $200,000 penalty applies
- Achieve savings that are 75% to 89% of the goal: $500,000 penalty applies
- Achieve savings that are less than 75% of the goal: $750,000 penalty applies"

PSE will subtract the natural gas pilot total of 40,000 therms from its Portfolio savings goal to arrive at its proposed Penalty Target of 6,155,000 therms.

I. Portfolio Cost Effectiveness

Table IV-5 on page 88 presents the projected 2018-2019 electric and natural gas program cost-effectiveness estimates, as measured using the Total Resource Cost (TRC) test and the Utility Cost (UC) Test. It is important to note that cost effectiveness calculations performed for planning purposes rely on measure cost, customer incentive, and savings projections. PSE finalizes definitive cost-effectiveness rates only after actual costs are accumulated and reported. PSE will provide the 2018 actual cost-effectiveness results, based on 2018-2019 biennial estimates presented in this BCP in the Annual Report of Conservation Accomplishments in March 2019.

1. Application of Non-Energy Impacts

PSE's approach to cost-effectiveness incorporates RTF-calculated Non-Energy Impacts (NEIs) into the TRC calculation for the majority[63] of electric prescriptive measures using RTF UES values. RTF-calculated NEIs now extend beyond simply water savings, as well; they include environmental impact, societal impact, as well as water savings.

[63] A very limited number of measures, such as faucet aerators, did not have RTF-calculated NEIs at the time that the BCP was developed. In these cases, PSE used RTF methodologies to calculate water-saving NEIs, as it has successfully done in the past.

There are also Non-Energy Costs for a limited number of measures (heat pump water heaters installed in conditioned spaces,[64] for instance), where the installation of a measure actually results in reduced benefits.

PSE applied this approach to its suite of natural gas measures as well.

The RTF indicates the first-year value of the applicable NEI,[65] and that value could be based on square footage or per unit (for instance, attic insulation versus showerheads). In its Exhibit 2 cost-effectiveness calculator, PSE then applies that first-year NEI value to the measure life to determine the total NEI value for each measure. It is important to note that PSE uses only RTF-calculated NEIs and those validated in evaluation studies. PSE is also collaborating with a statewide team of stakeholders to develop a region NEI for ductless heat pumps that replace wood as a home's primary heating source.

For its suite of prescriptive natural gas measures, PSE incorporated NEIs through (1) using the kWh-to-therm savings conversion tool for natural gas weatherization measures that are based on RTF electric UES values, then (2) applying the RTF-calculated electric first-year NEI figure.

2. Low Income Weatherization Cost-Effectiveness

In the upcoming biennium, the Low Income Weatherization (LIW) program faces a challenge to offer cost-effective measures. As this circumstance could possibly affect eligible customers' access to needed measures, program staff took the initiative to revise LIW cost-effectiveness considerations in order to sustain the program's offerings and maximize the benefit that PSE provides to low-income customers. PSE proposes to implement the following steps to its LIW-specific cost-effectiveness methodology. PSE reviewed and received general support of these proposals with its CRAG during its July 26, 2017 meeting.

[64] The Residential Water Heat program requires that heat pump water heaters be installed in non-conditioned spaces.

[65] In many RTF workbooks, non-energy attributes—benefits or impacts—are referred to as Non-Energy Values in the Input/Output worksheet.

a. Revise Schedules 83 (Electric Conservation Service) and 183 (Natural Gas Conservation Service)

Historically, the LIW program had the latitude to offer a suite of measures which, taken in aggregate, were allowed to achieve a Total Resource Cost (TRC) of 0.667, per the special conditions in Schedules 83 and 183.

This was consistent with two Sections of PSE's Schedule 83, Electricity Conservation Service, and Schedule 183, *Natural Gas Conservation Service*. Section 4: Definitions, number aa (electric Total Resource Cost Test) and y (natural gas Total Resource Cost Test):

> … [ ] Where there are a significant amount of Non-quantifiable Benefits (or Costs), then Total Resource Cost may be up to 150 percent (150%) of the Energy Efficiency Cost Effectiveness Standard, with a Total Resource Cost benefit/cost ratio of 0.667 or greater.

Non-quantifiable Benefits (or Costs) are defined in number p (electric) and o (natural gas) of Section 4:

> Benefits (or costs) of undertaking energy efficiency improvements, as determined by society and the utility. Benefits (or costs) may include, but are not limited to: legislative or regulatory mandates, support for regional Market Transformation programs, low income health and safety, low income energy efficiency or experimental and pilot programs. The Company may use these Non-quantifiable Benefits (or Costs) to demonstrate cost-effectiveness based on the Total Resource Cost Test.

The Energy Efficiency Cost Effectiveness Standard is defined as Avoided Cost in number a. of the Definitions Section of both Schedules. Furthermore, Section 9.a *Special Conditions* in both Schedules provided that LIW may provide funding to agencies that would result in a minimum measure TRC of 0.667.

For the 2018-2019 biennium, PSE proposes to suspend the 0.667 TRC stipulation in Section 9.a of Schedules 83 and 183 for the LIW program, and revise the Sections to allow for a broader application of cost-effectiveness.

The revised language in electric Schedule 83 would read:

9. Special Conditions

a. Low Income: Low Income Customers are qualified by government agencies, using federal low-income guidelines. Approved Low Income agencies may receive Measure funding equal to the less of one hundred percent (100%) of the Measure Cost or the value that will result in a Total Resource Cost Benefit/Cost ratio of a minimum of 0.667. *[Continued on the next page]*

During the period of January 1, 2018 through December 31, 2019, measures will be deemed to be cost-effective if they meet either the Department of Commerce Weatherization Guide cost-effectiveness requirements, consistent with WAC 480-109-100(10)(a) or meet a TRC test of 0.667, whichever provides the greater benefit to qualifying Low-Income Customers. Funding is in accordance with funding described in Electric Energy Efficiency Schedule 201.

The revised language in natural gas Schedule 183 would read:

9. Special Conditions

a. Low Income: Low Income Customers are qualified by government agencies, using federal low-income guidelines. Approved Low Income agencies may receive Measure funding equal to the less of one hundred percent (100%) of the Measure Cost or the value that will result in a Total Resource Cost Benefit/Cost ratio of a minimum of 0.667. During the period of January 1, 2018 through December 31, 2019, measures will be deemed to be cost-effective if they meet either the Department of Commerce Weatherization Guide cost-effectiveness requirements, or meet a TRC test of 0.667, whichever provides the greater benefit to qualifying Low-Income Customers. Funding is in accordance with funding described in Electric Energy Efficiency Schedule 201.

This revision will benefit eligible customers by allowing PSE to fund projects that either achieve a 1.0 SIR test ***or*** a 0.667 TRC, whichever results in the maximum measure value for the customer. PSE filed this revised tariff sheet language contemporaneously with the 2018-2019 BCP.

b. Exclude LIW from Portfolio-Level Cost-Effectiveness Calculations

PSE proposes that its LIW electric and natural gas program be excluded from the Portfolio cost-effectiveness calculations. LIW electric and natural gas saving and expenditures, though, would continue to be reported. In its July 26, 2017 CRAG meeting, members were generally supportive of this approach. Exhibit 2: *Cost-Effectiveness Calculations*' Summary page electric and natural gas tables reflect this approach.

3. Assessing the Future of Potential Cost-Effectiveness Methodology Revisions

The National Standard Practice Manual (NSPM) provides a thoughtful review of the challenges associated with traditional conservation cost-effectiveness tests and provides a framework to guide Conservation Program Administrators and Regulators as they seek to address these challenges going forward. A key element of the NSPM's seven-step framework includes the completion of a Resource Value Test (RVT) test questionnaire. PSE performed an initial evaluation of that form in late 2017. At this time, some RVT inputs are currently not quantified, poorly-defined, embedded in other TRC/RVT inputs, or are included as a part of PSE's IRP process.

PSE believes the NSPM intends that jurisdictions follow this framework deliberately and sequentially. It is important to be mindful that there are six steps ahead of the RVT input template, all of which need a thoughtful and transparent review.

There has been limited review and regional discussion of the NSPM to date. PSE is unable to assess the potential value or ramifications of implementing a revision to its current cost-effectiveness calculation methodologies applicable to the 2018-2019 biennium. PSE therefore cannot endorse its use at this time.

PSE recommends that Commission Staff engage the utilities and other stakeholders in a collaborative process to discuss cost-effectiveness calculation policy goals that should be incorporated. These discussions could also address how to implement potential revisions, should they be deemed warranted. PSE also expects that the applicability to other resources would be addressed in this collaborative process.

4. 2018-2019 Portfolio Electric Cost-Effectiveness

Energy Efficiency's electric portfolio's cost-effectiveness considerations remain intact, with very little change from previous biennia. Reductions in RTF UES values and market saturation increase pressure on program staff to balance their programs' measure mixes. Electric avoided costs have been relatively stable since the last biennium. PSE estimates that all electric programs have a TRC benefit-to-cost ratio of over 1.0, with the overall Portfolio TRC estimate of 1.40. PSE calculates the overall electric Portfolio UC to be 1.54 for the coming biennium.

PSE's initial calculations indicate that the Large Power User/Self-Directed (non-449) program will achieve a biennial total TRC of less than 1.0: 0.98. When program staff receive and evaluate 2018-2019 projects however, this value is likely to increase. The newly-restored Single Family New Construction program is projected to achieve a TRC of 0.98, and the Small Business Direct Install program anticipates a TRC of 0.83.

5. 2018-2019 Portfolio Natural Gas Cost Effectiveness

Natural gas avoided costs continue to be low, and codes and standards have made many natural gas measures cost-ineffective. The majority of natural gas measures are high-cost, with very long measure lives. Thus, Energy Efficiency program staff exercise skillful management in every program in order to sustain the Portfolio's natural gas offerings.

In the natural gas portfolio, only the Residential Sector's Home Energy Reports (0.61 TRC) and Single Family Weatherization (0.90 TRC) are anticipated to achieve a TRC of below 1.0. The Commercial HVAC program in Business Energy Management (BEM) is estimated to finish the biennium with a TRC of 0.78, and Small Business Direct Installs is forecast to finish 2018-2019 slightly below a TRC of 1.0, at 0.81.

The Regional Natural Gas Market Transformation Initiative, administered by the Northwest Energy Efficiency Alliance (NEEA), is expected to have no therm savings by the end of the biennium, and so will be hard-pressed to achieve cost-effectiveness in 2018-2019.

a. Adaptive Management Applied to Natural Gas Cost-Effectiveness Considerations

In addition to the LIW-specific steps discussed earlier in this section, PSE took several other actions to sustain a viable natural gas Portfolio.

Key highlights of those steps include:

- Integrating the principles discussed in The Commission Policy Statement on the Evaluation of the Cost-Effectiveness of Natural Gas Conservation Programs.[66]
- Consistent with the principles outlined in the Commission's Policy Statement, some of PSE's Business Energy Management programs will continue to provide custom grants for projects that may achieve a TRC of less than 1.0, as long as the Utility Cost Test achieves a 1.0 benefit-to-cost ratio or above and the overall program TRC remains at or above a B/C of 1.0. BEM implemented this strategy in the 2014-2015 biennium.

[66] Docket UG-121207.

- Program staff also applied RTF-calculated NEIs—as discussed in Chapter 4, Part IV.I.1: Application of Non-Energy Impacts section on page 81—to applicable natural gas measures.
- PSE's 2018-2019 natural gas program cost-effectiveness tests are consistent with Sections F.15, F.16, and F.17 of Exhibit F in the 2001 Stipulation Agreement, Docket UG-011571, which discusses the calculation of avoided costs and the application of those calculations to natural gas programs.

b. Conservation Benefit Adder

PSE also applied a 10 percent conservation benefit and risk adder, consistent with the electric program requirement discussed in condition (10)(a),[67] which states in part that PSE must demonstrate that the cost-effectiveness tests incorporate quantifiable non-energy benefits, a risk adder, and a 10 percent conservation benefit adder, consistent with the Council's approach.

The topic of a incorporating a 10 percent conservation credit and other adders was discussed in a Commission open meeting in November 2012, and at the April 2013 Commission workshop. The Commission issued no decision or Order on the topic.

By incorporating all of the allowable and available cost-effectiveness attributes for its natural gas programs, Energy Efficiency can to continue to offer a respectable suite of natural gas programs and incentives for its customers with an overall estimated Portfolio TRC benefit-to-cost ratio of 1.34. PSE calculates that the Portfolio UC will be 1.66 for 2018-2019.

6. 2018-2019 Cost-Effectiveness Estimates

As indicated in Table IV-5, the overall Portfolio exceeds an estimated TRC of 1.0 for its electric programs, consistent with the requirement of WAC 480-109-100(8).

[67] Although condition (10)(a) applies only to electric programs, PSE has consistently applied the conditions related to the EIA to its natural gas programs. The condition does not specifically indicate that the overall portfolio must achieve at least a TRC of 1.0, it is generally understood that "… Puget Sound Energy's portfolio must pass the TRC test. …" means a TRC benefit-to-cost ratio of at least 1.0.

PSE's natural gas conservation programs also exceed an overall TRC of 1.0.

Table IV-5: 2018-2019 Sector Energy Efficiency Cost Effectiveness Estimates

Sector	Type	TRC	UC
Portfolio	Electric	1.40	1.54
	Natural Gas	1.34	1.66
Residential[68]	Electric	1.74	1.95
	Natural Gas	1.42	2.23
Business	Electric	1.45	1.73
	Natural Gas	2.19	2.25

J. Implementing Energy Efficiency Programs

Chapters 5 through 11 provide, by Sector (following the organization of Exhibit 1's Portfolio View), details of 2018-2019 Biennial Conservation Plan strategic initiatives that will be put into effect to meet PSE conservation targets.

[68] The indicated Residential cost-effectiveness ratios exclude the Low Income Weatherization figures. LIW cost-effectiveness is calculated and noted in the electric and natural gas program detail pages of Exhibit 2: Cost-Effectiveness Calculations.

V. Residential Energy Management Sector Overview

Consistent with its application of its adaptive management approach, the Residential Energy Management (REM) Sector has demonstrated exceptional results for over a decade. With a focus on maximizing customer participation and continuous improvement, the Sector will continue to offer its proven comprehensive mix of offerings to a wide range of customers throughout the PSE territory. Program staff will also make enhancements and revisions to several program strategies and measure offerings, consistent with its continuous improvement principles. It will also implement new and advanced programs in order to meet its 2018-2019 savings goals.

Program staff made many of these revisions to adapt to updated RTF and PSE Deemed electric UES values: LEDs, heat pumps, advanced power strips, showerheads and insulation are noteworthy examples.[69] The issue of continued low natural gas avoided costs presented a particular challenge for REM's natural gas programs, in addition to the low uptake of natural gas measures in the multifamily new construction market. Natural gas measures are particularly affected, with some insulation measures becoming cost-ineffective.

Market saturation of some retail products—notably LED lamps and showerheads—along with energy code updates, cost-effectiveness challenges, and rising customer expectations are among the hurdles that REM program staff addressed in designing their 2018-2019 offerings. The following discussions will focus on several significant revisions that REM will implement in 2018-2019.

A. Program Revisions

As a part of its consistent application of adaptive management principles, REM is making the following revisions to its programs.

1. The Residential Fuel Conversion Program is Retired

PSE discussed some of the considerations that it examined in determining the need to retire the Fuel Conversion program, offered under the terms of Schedule 216, with the CRAG in the July 26 CRAG meeting. Key rationale included a potential carbon tax (making the conversion from electric to natural gas potentially not economic for participating customers, and create the perception of an unwise investment for PSE customers in the long-term).

[69] Program staff make prescriptive measure savings adjustments consistent with PSE's *Measure Revision Guidelines.*

There are also technical issues that add customer costs to the conversion, and the poor fit of the program with potential state and local government strategies also resulted in a declining uptake. The CRAG was generally supportive of PSE's decision to retire the program at the start of 2018.

2. The Single-Family New Construction Program Returns

REM has maintained a nominal level of involvement with the single family new construction market since it became cost-ineffective to offer incentives in 2013. However, improved market conditions, community and developer awareness, and updated approaches to calculate savings values provide a renewed opportunity to acquire electric and natural gas conservation in the single family new construction market. Among municipalities, developers, and building associations, NEEA is a key market constituent.

3. Some Residential Appliance Replacement Measures are Retired

Due to high saturation rates, (there are significantly fewer qualifying appliances in the marketplace now), high acquisition costs, and reduced UES values, PSE will no longer offer appliance replacement, Energy Star® Freezers, and leave-behind Advanced Power Strips.

4. REM May Conduct a Single-Family Rental Pilot

The new Single Family Rental pilot would leverage the Home Energy Assessment, Weatherization, Water Heat and Space Heat programs to target customers in the rental market segment. PSE would engage large rental portfolio property owners and managers, and provide bundled retrofit services at prescriptive price points.

5. Low Income Weatherization Cost-Effectiveness Considerations

To maintain comprehensive offerings in the LIW natural gas and electric program, PSE proposes qualifying measures be identified using Washington State Department of Commerce cost effectiveness standards. PSE also proposes to suspend the minimum TRC requirement in Schedules 83 and 183 for a minimum of two years during the 2018-2019 biennium. PSE will continue to calculate cost-effectiveness of electric and natural gas offerings. LIW will continue to track and report savings and spending for both programs.

B. Attention to Hard-to-Reach/Proportionately Underserved Segments

Many of Residential Energy Management's (REM's) ongoing programs affect and provide services for several of the segments identified in the Council's 7th Power Plan,[70] including Low Income Weatherization (LIW), Multifamily Retrofit, Single Family Weatherization, Retail Lighting, and Retail Appliances. LIW in particular has been serving qualifying PSE customers for over two decades.

In 2017, PSE assumed a leadership role in bringing together key regional stakeholders to identify underserved segments, perform gap analyses, report on the findings, and to develop action plans to address those gaps. Concurrent with these activities, and incorporating available understandings, program staff will build on the already-successful strategies to connect with the hard-to-reach/proportionately underserved segments. Three key examples are noteworthy.

1. Adjusted LIW Cost-Effectiveness Thresholds

As discussed in the upcoming LIW program highlights, the program will adjust its cost-effectiveness evaluation criteria for both electric and natural gas measures. This will ensure a continued suite of services that PSE can provide to this key constituency.

2. Emphasis on the Rental Market Segment

PSE's Single Family Rental pilot will focus on building relationships with property portfolio owners and managers, and provide a bundled measure approach with predictable price points. The pilot would leverage the successful Home Energy Assessment, Residential Water Heat, Space Heat, and Weatherization programs. PSE believes that the pilot will provide services for a range of potentially hard-to-reach customer segments, including moderate- and low-income, and rural customers.

3. Enhanced Multifamily Offerings

As another potential hard-to-reach, proportionately underserved segment, REM will continue to explore opportunities to reach multifamily customers, some of whom are categorized as moderate-income.

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[70] PSE provides a more extensive discussion on Hard-to-Reach/Proportionately Underserved segments in Chapter 3: Key Focus Areas, on page 29.

The Multifamily Retrofit program will simplify its eligibility requirements to reduce customer confusion, and incorporate single family measures to ensure a consistency of offerings. Program staff expect that new measures, and new approaches to its Multifamily Strategic Energy Management implementation will generate additional customer participation.

4. Manufactured Home Dweller Offerings

PSE will continue to make beneficial rebate program incentives—developed and enhanced in 2016 and 2017—available to manufactured home dwellers. Program staff are also considering additional modifications to serve this segment through contractor-delivered programs for 2018-2019.

C. Trade Ally Integration Strategy

From an organizational standpoint, the Contractor Alliance Network (CAN) team is integrated within REM, although the budget accounting falls within the Portfolio Support grouping in Exhibit 1: *Savings and Budgets*. Since trade allies are sometimes considered Energy Efficiency's "boots on the street", they are often the first to learn of marketplace trends, customer expectations, and product issues. Trade allies play a particularly integral role in REM's customer relationships. Trade ally relationships are managed within the Dealer Channel of REM, and program staff work closely with the Contractor Alliance Network (CAN) to interact with trade allies.

As discussed in Chapter 3: *Key Areas of Focus*, the CAN team will work to put into place a trade ally portal and participation database to maximize trade ally integration with residential conservation programs. They will also work to train trade allies on communications strategies, and will explore the possibility of expanding cost-effective offerings into non-incentive value-add services for customers receiving conservation measures.

D. Cost-Effectiveness Considerations

Program staff applied RTF-developed qualifying Non-Energy Impacts (NEIs) to evaluate the Total Resource Cost (TRC) of applicable measures. As a notable addition, PSE also will incorporate wood smoke NEIs for its ductless heat pump offerings for homes that have electric heating, and heat primarily with wood. Although the calculations are still in development at the time of the BCP publication, PSE employed a conservative value in order to continue offering Space Heat program measures.

Program staff will implement new program solutions and customer engagement strategies designed to maximize natural gas savings. REM is able to continue offering a respectable suite of natural gas incentives for PSE customers, with only a marginally lower gas goal than in 2016-2017.

In addition, as discussed in various sections of the BCP, the LIW program's cost-effectiveness criteria are adjusted to ensure that PSE can continue to offer a range of services for that customer segment.

1. REM Total Resource Cost B/C Ratios

The overall REM electric Total Resource Cost (TRC) benefit-to-cost ratio is 1.74 and the Utility Cost (UC) ratio is 1.95. With the exception of Single Family New Construction, all electric programs are expected to achieve a TRC ratio above 1.0. [71]

On the natural gas side, REM's Single Family Weatherization (0.90) and Home Energy Reports (0.61) programs are estimated to achieve a TRC of less than 1.0 in 2018-2019. As these are all crucial components of REM's overall suite of conservation offerings, and because they do not negatively affect REM's overall natural gas TRC of 1.42, these are acceptable ratios.[72] PSE calculates that REM's UC ratio will be 2.23.

E. Tariff Schedule Adjustments

Residential Energy Management has minimal adjustments to its Conservation Scheduled in 2018-2019. It should be noted that although the Residential Fuel Conversion program is retired in 2018, it is unnecessary to cancel the Schedule 216. Similarly, because PSE did not cancel Schedule 215 when it suspended Single Family New Construction incentives, the program may resume operations without a tariff revision. The following Tariff Schedules are revised effective January 1, 2018:

- Schedule E/G 201, Low Income Weatherization: add references to Special Contracts in funding discussions.

[71] Although it is excluded from the REM Sector electric UC and TRC subtotals, LIW is also expected to achieve a TRC of 1.01, with a UC of 0.63.

[72] Also excluded from REM's natural gas UC and TRC subtotals, the LIW program is expected to achieve a TRC of 0.85, with a UC of 0.46.

F. Sector Highlights

For 2018-2019, notable REM highlights include:

- At over 50 percent, Retail Lighting makes up the majority of the Sector electric savings.
  - LED lamps and fixtures comprise the majority of these savings. Fixtures will make up a dwindling proportion, however.
- REM may incorporate new and pilot measures, which include Multifamily tubspout diverters and line-voltage web-enabled thermostats, Retail LED string lighting, and the re-introduction of natural gas water heat measures.
- New delivery methods may include the direct installation of advanced power strips, the proposed vendor management of design-phase intervention in Multifamily New Construction projects, the extension of Strategic Energy Management concepts in the Multifamily programs, and a focus on measure delivery consistency across REM Channels.

Table V-1 provides a summary of the Residential Energy Management Sector's 2018-2019-savings goals, specific budgets, and cost-effectiveness estimates.

The following program discussions note several constituents of these figures. PSE thoroughly reviews details of specific budget and savings changes in the budget detail sheets for each program in Exhibit 1: *Savings and Budgets.*

In addition to the following program planning overview discussions, Exhibit 3: *Program Details*, contains comprehensive reviews of program offerings, customer incentives, target markets, and marketing and outreach initiatives.

Table V-1: 2018-2019 REM Conservation Targets, Budgets & Cost-Effectiveness Estimates

2018-2019 Residential Energy Management			
	Electric	**Natural Gas**	**Total Budget**
Targets	227,799 MWh *26.0 aMW*	3,511,182 Therms	
Budgets	$76,846,897	$15,619,935	$92,466,832
TRC/UC	1.74/1.95	1.42/2.23	

VI. Residential Energy Management Program Discussions

Chapter 6 provides program-specific discussions of plans that program staff put in place to meet customer expectations, achieve 2018-2019 savings goals, and ensure the prudent application of PSE customers' funding. PSE presents discussions in order of their Conservation Schedule order.

A. Low Income Weatherization

Schedules E/G 201

One of the key factors affecting the LIW program is that of cost-effectiveness. As discussed in Chapter 4, there are now a limited number of cost-effective measures available to the program. This circumstance puts eligible customers' access to needed measures at risk, and makes offering a cost-effective natural gas LIW program a potentially untenable proposition without a substantial revision to its cost-effectiveness calculation methodology. For the 2018-2019 period, PSE proposes steps that will sustain the LIW customer offerings.

Another element affecting the Low Income Weatherization program is the Special Contract that PSE and a large retail wheeling customer developed in the middle of 2017, which provides that this customer make certain payments to PSE, including those that will benefit low-income customers in PSE's service territory.

Lastly, PSE made LIW-specific commitments in its decoupling Amended Petition, which was subsequently supported by the Commission's Order 07 in Dockets UE-121697 and UG-121705 (PSE Amended Petition for Decoupling Mechanisms, consolidated), and UE-130137 and UG-130138 (PSE's ERF, consolidated) Granting (PSE's decoupling) Petition and its associated Attachments.

1. Proposed Revisions to the Low Income Weatherization Cost-Effectiveness Accounting

PSE proposes to apply the following steps (also discussed in Chapter 4, Section E.2) to its electric and natural gas offerings.

a. Revise Schedules 83 (Electric Conservation Service) and 183 (Natural Gas Conservation Service)

For the 2018-2019 biennium, PSE proposes to suspend the 0.667 TRC stipulation in Section 9.a of Schedules 83 and 183 for the LIW program, and revise the Sections to allow for a broader application of cost-effectiveness, making more measures available to qualifying customers.

The added language, applicable to the 2018-2019 biennium in both Schedules is:

> (…) During the period of January 1, 2018 through December 31, 2019, measures will be deemed to be cost-effective if they meet either the Department of Commerce Weatherization Guide cost-effectiveness requirements, consistent with WAC 480-109-100(10)(a) or meet a TRC test of 0.667, whichever provides the greater benefit to qualifying Low-Income Customers. (…)

The complete revised language in electric Schedule 83 and natural gas Schedul 183 is provided in Chapter 4, Section I.2.a.

This revision is expected to make more measures available to qualifying customers by allowing PSE to fund projects that pass either the SIR test ***or*** a TRC of 0.667. PSE will file this revised tariff sheet language contemporaneously with the 2018-2019 BCP.

b. Exclude LIW from Portfolio-Level Cost-Effectiveness Calculations

PSE proposes that it excludes its LIW program from the overall Portfolio cost-effectiveness calculations. LIW saving and expenditures, though, would continue to be tracked and reported.

With the implementation of these steps, PSE foresees a viable LIW program through the 2018-2019 biennium.

2. Retail Wheeling Settlement Agreement Special Contract

Stipulations outlined in the special contract between Microsoft and PSE indicate that Microsoft will make an additional payment of $0.000307 per delivered kWh for the 20-year term of the Special Contract. The Special Contract was established as a part of the Settlement Stipulation and Agreement in Docket UE-161123, Paragraph 17 in part 3 of the Commission's April 7, 2017 Settlement Stipulation and Agreement in Docket UE-161123.

PSE's Low Income Weatherization manager will manage the funds, paid into a separate account. PSE projects that, for the 20-year life of the contract, the LIW program will manage funds of approximately $145,000 per year[73] for the intended projects.

As the purpose of the commitment is to expand energy efficiency services and renewable energy technology to benefit eligible low-income customers in PSE's service territory, funds may be used for:

- Installation of advanced energy efficiency equipment in low-income weatherization projects, including but not limited to energy monitoring equipment and equipment capable of using "smart grid" technology,
- Distributed generation resources, including but not limited to on-site renewable energy resources, such as photovoltaic, community solar projects that benefit low-income customers, or
- Repairs needed for the installation of WA State Department of Commerce-approved efficiency upgrades.

3. 2013 Decoupling Order Affecting LIW

PSE's decoupling amended petition indicated that it would contribute an additional $100,000 annually to its LIW Shareholder funding. In addition, PSE would add $500,000 to its annual electric Conservation Rider LIW funding. It is important to note that PSE did not add an incremental $500,000 each year since decoupling's approval (for example, $500,000 in 2014, $1 million in 2015, $1.5 million in 2016, etc.). That was not the intention of the language in the petition.

While it isn't possible to delineate these amounts from within the overall budgets, Stakeholders can be confident that program staff developed the 2018-2019 plan with a great deal of attention to the requirement, and that the amounts are indeed included.

4. LIW Program Plans

LIW will provide electric and natural gas incentives to partnering agencies that are the higher of either the PSE deemed measure cost or statewide average measure cost.

[73] $145,000 is based on current, 2017 estimates. There is potential that, given the timing of the execution of the Special Contract, the 2018 contribution may be substantially different. Funds will be managed with a high degree of rigor and stewardship, regardless of the amount.

The program will continue to make available a comprehensive electric measure mix, incorporating the full range of insulation measures, including duct sealing and structural sealing. It will continue to offer refrigerator replacements, heat pumps, heat pump water heaters, and aerators. The array of LED lamps offered in 2018-2019 will remain stable, and advanced power strips will be included.

Program staff expect that SIR measures[74] installed as a result of agencies using TREAT modeling, will add more than 1 million kWh of savings, with the majority of savings resulting from ductless heat pumps.

By expanding the cost-effectiveness parameters, LIW will continue to offer a range of natural gas measures, including a variety of insulation, and duct and structure sealing. The program will also continue to offer showerheads, water heaters, and natural gas furnaces.

Throughout the 2018-2019 planning process, LIW program staff collaborated with the Customer Connected Solar (CCS) program staff to start initial discussions that addresses the intention of the Microsoft Special Contract payments to fund a renewables project. One idea that program staff is pursuing is that of a multifamily solar installation that potentially leverages available solar incentives or existing CCS initiatives to maximize the positive impact on low-income customers.

The LIW program will provide measures for approximately 1,400 customers per year, and contribute approximately 2 percent of the overall REM electric savings. The program's natural gas savings contribution will be less than 1 percent of the overall Sector total.

[74] The discussion on incorporation of SIR calculations, as applicable to Low Income Weatherization savings, begins on page 83.

B. Single Family Existing

Schedules E/G 214

This Sector group is the largest contributor of savings in REM and is made of the programs that operate under terms of Schedule 214, Existing Residential Single Family:

- Direct to Consumer Channel
  - Residential Lighting,
  - Home Appliances,
  - Showerheads, and
  - Home Energy Reports.
- Dealer Channel
  - Space and Water Heat,
  - Weatherization,
  - Home Energy Assessment, and
  - Business Rebates.[75]

1. Direct to Consumer Channel

In 2018-2019, the Direct to Consumer Channel—one of three customer-focused organizations in Residential Energy Management—will focus on the quality of measures and initiatives while maximizing customer participation. The Channel will maximize customer value through market research intelligence, measuring success, assessing, refining, and testing. This adaptive management approach is intended to:

- Increase energy-efficiency equity within stores (attribution issue).
- Leverage rebate and product pricing structures.
- Enhance knowledge of the real barriers to customer participation.
- Provide programs designed to meet PSE customers' needs.

[75] Although the Business Rebates programs operate under the terms of Schedule 262, the program staff are a part of the Dealer Channel in the REM Sector.

a. Retail Lighting

The primary focus of the Direct to Consumer Channel's Retail Lighting program is residential consumers, participating in the Company's program offerings at retail establishments, community events, and electronic channels such as ShopPSE for instance. Management of the Retail Lighting program includes the Lighting to Go program. Although Energy Efficiency considers the Lighting to Go program a retail offering, its primary focus is the commercial market. Accordingly, PSE discusses Lighting to Go in more detail in the Business Rebates section of the Business Energy Management chapter, Section VIII.F.1., page 127.

For the 2018-2019 biennium, PSE will continue to monitor the lighting market for retail pricing and customer adoption trends. The vast majority of the program's savings will originate from LED measures, although program staff expect outdoor LED fixtures to have a lower uptake. With the reduced costs of LEDs, PSE has adjusted its incentives accordingly, making the program more cost-effective, while still maintaining the same level of funding for customer education and marketing to sustain product adoption. PSE will place additional emphasis on the various lamp shapes and functions to educate customers on the range of solutions, including string lights LEDs.

PSE will implement a highly-focused marketing and promotional plan[76] that focuses on providing customers options to help choose the best energy-efficient products for them. Some strategies includes the creation of materials to encourage the adoption of specialty LEDs, limited-time offers, in-store events and signage, paid advertising (ferry and bus transit ads, for example), web banners, etc. The program will continue its implementation of the sales associate education guide that it launched as an additional asset in PSE's in-store signage in 2017.

Due to the nature of this business model, where retailers provide a vast array of product in various configurations, it isn't possible to track and report the number of actual customers served through Retail Lighting. The program does expect, though, to provide incentives on more than 3.8 million units annually. The Retail Lighting program will contribute over 50 percent of the total Residential Energy Management Sector electric savings for 2018-2019.

[76] Detailed marketing plans are included in the Exhibit 3: *Program Details* discussions and Exhibit 7*: Marketing & Outreach Executive Summary.*

b. Home Appliances

PSE will retire its appliance replacement offerings, because of market saturation and increasing costs make the program no longer cost-effective. It is important to note that Energy Efficiency plans to continue the refrigerator decommissioning measure throughout the biennium.

In order to continue product adoption, staff have developed a bundled new appliance purchase-and-decommissioning rebate pilot to supplant the removed appliance replacement savings. REM's proposed Single Family Rental pilot program could also leverage the pilot. Another measure being retired is the Advanced Power Strip, which, because of a 2017 PSE evaluation, saw a UES value reduction of more than 65 percent. Energy Star® electric clothes dryers—both vented and ventless—now become standard program offerings.

PSE will also report natural gas savings for appliances installed in PSE gas-only territories where natural gas is the primary water heat fuel source (for instance, a qualifying clothes washer installed in the Seattle City Light service territory).

The program's marketing will focus on limited-time offers, in-store events, and signage, social and earned media, direct mail and email, website and paid advertising.

In the coming biennium, Home Appliances will provide incentives for approximately 25,000 customers per year. The program will comprise almost 5 percent of the total REM electric and approximately 1 percent total REM natural gas savings.

c. Showerheads

In this biennium, PSE will communicate a variety of showerhead purchasing options to electric and natural gas customers, and streamline the purchasing process with clear point-of-sale materials and improved online functionality. Examples include retail stores and online at ShopPSE.

PSE's customer engagement of its customers will focus on a quality high-efficiency showerhead. This engagement occurs at outreach events throughout our electric and electric-natural gas combined service territory. Unlike the direct-mail delivery, this delivery gives PSE a personal touch where it is able to answer customer questions and engage in other energy-efficiency messages.

Customer communications will emphasize customer choices and that high-efficiency showerheads do not necessarily equate to a low-quality shower. Staff are also investigating the potential implementation of a mail-in rebate model from distributors with whom PSE does not have an upstream showerhead program.

In addition to a variety of showerheads and showerstart adaptors, the program will continue to offer WaterSense faucets (including efficient aerators), offered through retail delivery, online, mail-in request and leave-behind.

Program staff project an electric anticipated showerhead savings reduction of approximately 30 percent from the previous biennium, and approximately 60 percent savings reduction in natural gas. This is a result of market saturation and retailer resistance to engage with PSE rebates. Some retailers will not participate in the PSE program when there is a competing rebate from a manufacturer, and other cannot "stack" rebates (adding a manufacturer's rebate to a PSE rebate). In order to compensate for these impediments, program staff are designing a downstream rebate process.

PSE expects to serve approximately 42,000 customers per year in the coming biennium. The showerhead program will contribute approximately 1 percent to the REM electric savings, and 3 percent of natural gas savings in 2018-2019.

d. Web-Enabled Thermostat

PSE will offer incentives on web-enabled thermostats that control electric heating in addition to gas heating in residential structures. The $75 incentive—that customers can process via either mail-in or online forms—remains unchanged from the previous biennium.

PSE projects that the number of web-enabled thermostats installed controlling natural gas heat will be substantially higher than those controlling electric heat—a five-fold difference. The program may add an instant rebate option for purchases made through online channels, maximizing the ease of program participation for customers.

As a result of declining costs and increased market awareness, program staff forecasts that the volume of thermostats installed will increase markedly from the 2016-2017 period, after accounting for an electric-to-natural gas re-balancing from the previous biennium.[77]

PSE forecasts that the program will serve approximately 4,000 customers annually. Savings for this measure will constitute 1 percent of the overall REM electric savings. The program's natural gas savings will make a up a large percentage of total REM savings—approximately 20 percent—as gas is the primary heating fuel for the majority of eligible PSE customers.

e. Home Energy Reports

In the upcoming biennium, PSE will expand its Home Energy Reports (HER) program in Schedule 214, providing approximately 115,000 reports to participating customers, with an electric to natural gas ratio of approximately 4-to-1. The increase in participants results from the 2017 Conservation Potential Assessment (CPA) integrating behavior-based savings. Thus, the Individual Energy Report pilot that PSE conducted in the last biennium is now a full part of the overall HER program, adding approximately 100,000 customers to the program.

PSE will continue to enhance and adapt the energy saving messaging provided to customers based on their input and feedback. PSE will also evaluate this program on an annual basis, as it has since the program's inception. For planning purposes, a deemed value, based on the previous year's actual is used, while the verified savings trues up the reported savings in the following year.

Home Energy Reports will make up more than 5 percent of REM electric savings and almost 3 percent of REM natural gas savings in 2018-2019.

f. Channel Savings Contribution

The Direct to Consumer Channel will contribute over 65 percent of the overall REM electric 2018-2019 savings, and will provide over 27 percent of the overall REM 2018-2019 natural gas savings.

[77] In the 2016-2017 BCP, PSE forecast a fairly even electric-to-natural gas split. In comparison, the 2018-2019 forecast indicates that the natural gas installations of web-enabled thermostats may be five times more than thermostats controlling electric heat.

2. Dealer Channel

The Dealer Channel is the second customer-focused group within REM. Channel staff work together with organizations that sell, install and service equipment for PSE customers, including HVAC, water heating, and shell measures, including sealing, insulation, and windows.

a. Single Family Rental Pilot

Although termed a pilot program, the Single Family Rental pilot does not rely on uncertain savings. It is therefore excluded from the Pilots with Uncertain Savings line of Exhibit 1. In fact, the program will not attribute any savings at all; savings generated from this initiative will be reported through the Residential Water Heat, Space Heat, or Weatherization programs. The intent of the program is to generate follow-on conservation work resulting from a completed Home Energy Assessment. The optimal program operation will be in conjunction with property portfolio managers or owners. Retrofit services will be bundled. Program staff expect that Home Energy Assessments may produce approximately 300 referrals, which would result in almost 75 contractor follow-on projects.

PSE may implement this pilot as one component of its overall efforts to address potentially underserved residential market segments.

b. Space Heat

The Space Heat program will comprise a significant portion of the Dealer Channel 2018-2019 electric and natural gas savings.

In addition to its ongoing suite of air source heat pumps, forced air furnace-to-heat pump conversion, geothermal heat pumps, and heat pump sizing and lockout measures, the Space Heat program will add a heat pump upgrade measure. This measure aligns better with how customers are using ductless heat pumps, and will encourage adoption of even higher efficiency units.

It is important to note that PSE is applying a Non-Energy Impact (NEI) value for ductless heat pumps that replace wood-burning appliances as the primary heat source. This “wood smoke” NEI is still under development, and PSE assigned a conservative value for planning purposes. Using this newly created NEI allowed the overall program to maintain its cost-effectiveness, and provided program staff with a more robust suite of measure offerings.

Among its measure offerings, key drivers of the Space Heat program's electric savings will be ductless heat pumps, forced air furnace-to-heat pump conversions, and ductless heat pumps for manufactured homes. Natural gas savings will primarily result from installation of 95 percent furnaces, efficient fireplaces and integrated space & water heat measures.

PSE will utilize direct customer marketing and collaborate with its Contractor Alliance Network (CAN) to maximize customer awareness. The Space Heat program is a key component of the Single Family Rental pilot, and is forecast to provide services to almost 18,000 customers per year, apart from the Single Family Rental pilot participants. The program will contribute approximately 7 percent to overall REM electric savings, while the natural gas savings will comprise over 35 percent of the overall REM achievement.

c. Water Heat

In 2018-2019, PSE will re-introduce its natural gas water heater incentives. Lower product costs and changes to the energy code have made these measures once again cost-effective. Heat pump water heaters will continue to comprise the majority of the program's electric savings. In partnership with NEEA, PSE's tier 3 heat pump water heaters are forecast to significantly exceed their 2016-2017 savings.

The program will utilize data analytics to drive customer referrals to PSE's Contractor Alliance Network (CAN), and ensure that customers understand their energy-efficiency options through clear and concise messaging. Program staff will also collaborate with manufacturers, distributors, and contractors to provide special discounts and limited-time customer offers.

The Water Heat program is another key component of the successful implementation of the Single Family Rental pilot. PSE anticipates that it will provide Water Heat services to approximately 3,000 customers annually, apart from the Single Family Rental pilot. Program staff expect it to generate 1 percent of REM's total electric savings, and 5 percent of REM's overall natural gas savings.

d. Home Energy Assessment

In addition to increasing the number of LED lamps installed per home (from 20 to 30—a revision made in the second half of 2017), the Home Energy Assessment program will add specialty lighting, including MR 16 and candelabra, to the lamps installed during an assessment.

Assessments may also include the installation of an Advanced Power Strip (APS). Although UES values declined for leave-behind APS as a result of a 2017 PSE evaluation,[78] the UES value for APS units that are directly installed remains at its previous level. Additional products that PSE will leave with customers for later installation include faucet aerators and showerheads.

The Home Energy Assessment will be the trigger to activate implementation of the Single Family Rental pilot process for applicable circumstances. It is expected that PSE—through its vendor or CAN partner—will assess more than 25,000 homes over the course of the biennium.

This electric-only offering will contribute approximately 5 percent of the overall REM electric 2018-2019 savings.

e. Weatherization

PSE's Single Family Weatherization is one of REM's long-standing programs, and remains largely unchanged from the last biennium. Similar to other programs affected by RTF UES value adjustments, the Weatherization program has adapted its complement of measure offerings for the coming biennium. The Weatherization program also incorporates all of the shell measures installed in manufactured homes—including duct sealing—as well as its standard suite of insulation, sealing, and window measures.

There is a fairly even distribution of electric and natural gas savings across the wide variety of offerings, with Prescriptive Duct Sealing and Insulation, and Single-Pane Windows garnering the higher savings quantities. Most weatherization measures are calculated on a square-foot basis. However, some prescriptive measures are reported on a per-home basis.

The Weatherization program will be central to the success of REM's Single Family Rental pilot program. The Weatherization program will rely on its CAN partners to install the qualifying measures and provide instant rebates, and expects to install one or more measures in approximately 6,000 customers' homes annually.

The Weatherization program will contribute approximately 2 percent to the overall REM electric 2018-2019 savings. On the natural gas side of the program, contributions to the overall REM Sector savings will be over 20 percent.

[78] Previously discussed in the Retail Appliance section.

3. Dealer Channel Savings Contribution

Overall, the Dealer Channel will contribute roughly 13 percent of the total 2018-2019 electric savings for the REM Sector, while its natural gas savings make up a substantial 63 percent of the 2018-2019 total.

C. Residential Business-to-Business Channel

The third customer-focused Channel in the REM Sector is Residential Business-to-Business (RB2B). This group focuses on Low Income Weatherization (discussed in Section VI.A., on page 95), Residential New Construction, and Multifamily Retrofit markets. Single Family and Multifamily New Construction groups comprise the Residential New Construction market.

1. Residential New Construction

Schedules E/G 215 and E/G 218

The Residential New Construction group consists of Single Family and Multifamily customer segments. 2018-2019 will mark the return of the Single Family suite of offerings.

a. Single Family New Construction

In recent biennia, updated energy codes caused the program to become non-viable. However, program staff worked with NEEA to refine the REM/Rate™ modeling database in order to provide accurate whole-house savings models. Doing so allowed PSE to offer prescriptive whole house—versus component—incentives. This approach will also align well with Built Green® certification standards, and provide for potential new measures in the future, based on their models. In response to the current construction boom, program staff designed the incentive to encourage builders to bring the entire structure to better-than-code efficiency prior to construction completion. If efficiencies can't be designed into the structure, it represents a lost opportunity.

PSE will offer four whole-home electric prescriptive measures: two all-electric homes, and two dual-fuel homes. Each is split between four-and five-star Built Green standards. Its natural gas offerings will be for natural gas-heated homes.

PSE will also offer two manufactured home incentives: one for Energy Star®, and one for NEEM (National Energy Efficient Manufactured homes) 2.0 standards. PSE is coordinating its efforts to influence customer's purchase of efficient manufactured homes with NEEA. PSE expects to provide over 100 Single Family New Construction incentives per year in the coming biennium.

PSE expects that the Single Family New Construction program will add less than 1 percent of the overall electric savings (approximately 600 MWh), and 3 percent of REM's natural gas savings.

b. Multifamily New Construction

For 2018-2019, program staff are considering vendor-implemented efforts to maximize market penetration, including facilitating charrettes with members of the design community. These will provide technical energy efficiency assistance and assure that efficiency is designed into structures.

PSE increased its incentives for affordable multifamily new construction that will help builders meet "total development cost per unit" loan requirements. Affordable housing is another potential hard-to-reach, proportionally underserved market segment.

The program will also create greater awareness through in-person and online presence with developers, renters, condominium buyers, and communities, concentrating on engaging decision-makers early in the design process. It will also develop post-construction marketing collateral that identify energy efficiency upgrades, and create letters to new residents, in-unit upgrades information, project completion plaques, and on-site project celebration events.

As is the case with commercial new construction projects, savings are often based on construction that may be underway for a period of more than one or two years, and can often be thought of as "lumpy"; a project with potentially considerable savings may be delayed or scaled back with little warning. The program's electric measures will primarily consist of common-area and calculated measures, along with prescriptive showerhead, and stairwell and garage lighting. Lighting Power Density measures will comprise the bulk of the program's electric savings.

PSE anticipates that natural gas measures, including condensing water heaters and boilers, showerheads, and calculated whole-building measures will see limited installation in this market, primarily due to the efficient equipment's first-cost considerations for developers and builders. Additionally, gas acquisition costs are higher than for equivalent electric equipment.

The Multifamily New Construction program expects to serve almost 40 buildings, representing almost 7,500 units over the course of the biennium. The program's contribution to overall REM 2018-2019 electric savings will be approximately 3 percent and approximately 3 percent in natural gas savings.

2. Multifamily Retrofit

Schedules E/G 217

In 2018-2019, the Multifamily Retrofit program will provide comprehensive whole-building and property design services that aggregate both residential and commercial (common area) conservation opportunities. Multifamily campuses may consist of a combination of building types, and may include two to four buildings. Program staff developed this approach to reduce customer confusion and create residential program consistencies.

Similar to all programs using RTF UES values, several measure revisions—including refrigerator decommissioning and LEDs—resulted in program staff adaptively managing its overall suite of offerings. One such revision was the addition of Ductless Heat Pumps to the program's measure mix, for which PSE will use provisional savings, based on a recent Ecotope study.

LED cost reductions led to an adjustment of the Common Area Lighting incentives, and like the Retail Appliance program, the Multifamily Retrofit program will discontinue clothes washer replacements, due to high saturation rates and increased appliance costs. The program will add a tankless 0.90 EF (Efficiency Factor) and storage tank 0.67 EF natural gas water heater. Multifamily Retrofit has also designed an Envelope Bonus of $1 per square foot of window area to encourage comprehensive air sealing, insulation, and window upgrades.

The Multifamily Retrofit program is considering the addition of new, pilot-analogous measures, including an auto-diverting tubspout and showerhead combo, a line-voltage web-enabled thermostat, and a revised Tier 2 Advanced Power Strip delivery mechanism. In addition to the direct install measure, this new mechanism—which counteracts a 50 percent lower savings UES—consists of a move to opt-in versus opt-out, and encourages the use of a Bluetooth app to validate installation.

The extensive array of electric measures would be comprised of both calculated, custom, and prescriptive measure types, including LED lamps, showerheads, line-voltage web-enabled thermostats, tubspout auto-diverter, ventilation, insulation, windows, and sealing measures. Natural gas measures are expected to include boilers, water heaters, showerheads, aerators, insulation, windows, and fireplaces.

The Multifamily Retrofit program partners with several multifamily associations who manage industry events to generate energy-efficiency leads. The program will also work with the Energy Efficient Communities team to develop and implement target outreach strategies for both business partners and customers. Program staff will communicate with property managers, owner, and tenets through quarterly e-newsletters, and they are investigating the potential of providing energy-use monitoring devices.

The program typically uses a bundled approach to provide print advertisements in trade publications, direct mail and E-blasts, social media, television advertisements, and contractor advertising, among others.

a. Strategic Energy Management

The program will continue its Strategic Energy Management offering, which it implemented in the last biennium. Leveraging the concepts established in the Resource Conservation Management program,[79] the innovative service would engage property owners, managers, maintenance staff, and residents to achieve electric energy cost reductions of 5 percent over the property portfolio baseline. Program staff will manage the activities of a third-party implementer in a controlled rollout to a limited number of qualifying properties.

PSE will offer customers who meet the minimum consumption standards—at no cost to them—the development of a portfolio baseline, a portfolio energy management plan, energy management workshops, performance monitoring, and tenant gamification (contests, challenges, etc.). This interaction would also raise awareness of PSE energy efficiency initiatives in general, and create sustainable energy management practices.

Multifamily Retrofit is also piloting a “battle of the buildings” energy competition to motivate behavior change even further. Program staff will develop an array of prizes, and hopes to leverage Energy Star® resources. They are also exploring the continuation of portfolio benchmarking, which has proven to be a valuable gates to retrofit projects outside of SEM efforts.

[79] The Resource Conservation Management program name will be revised to the Commercial Strategic Energy Management program in 2018-2019.

The Multifamily Retrofit program expects to serve approximately 36,000 units annually, with approximately 50 percent of those receiving directly-installed measures. It will provide 15 percent of the overall REM 2018-2019 electric savings, while its natural gas efforts will comprise approximately 5 percent of the Sector savings.

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VII. Business Energy Management Sector Overview

The Business Energy Management (BEM) Sector has consistently achieved superior results through its proactive application of continuous improvement and adaptive management principles for almost two decades. By implementing strategies outlined in this Plan, PSE anticipates that this trend will continue in the next biennium. For 2018-2019, BEM program staff responded to customer feedback, technology advancements, process efficiencies, input from other regional utilities, and marketplace dynamics in designing wide-ranging programs, PSE forecasts that these will meet savings targets while prudently applying its customers' funding.

The Sector will continue to offer its proven comprehensive mix of offerings to a wide range of customers throughout the PSE territory. Program staff will also make enhancements and revisions to several program strategies and measure offerings, consistent with its continuous improvement principles.

A. Program Revisions

BEM program staff applied creative adaptation to their programs during the 2018-2019 planning process. A key electric program enhancement is the Sector's continued focus on adaptation to evolving market technologies and streamlining of business lighting processes. This initiative will significantly reduce customer confusion and application paperwork required of business customers. Program staff expect that the improvement will yield additional savings, maximize customer satisfaction, and improve trade ally relations. In fact, in the 2018-2019 biennium, business lighting will comprise almost 33 percent of all BEM electric savings. While the majority of BEM program offerings remain stable into 2018-2019, several key developments are noteworthy.

1. Bellevue Urban Smart Pilot is Retired in 2018

The 2016-2017 Bellevue Urban Smart pilot did not yield the expected savings of 16,000 MWh, but PSE gained valuable insight into future program design and customer needs as a result of the pilot. In 2018-2019, BEM may continue its partnership with the city of Bellevue, targeting commercial customers that will participate in the city of Bellevue's proposed benchmarking program. PSE also envisions using lessons learned to develop "Community Energy Challenges".

2. Resource Conservation Management Becomes Commercial Strategic Energy Management

The name Commercial Strategic Energy Management (Commercial SEM) better aligns with the current industry terminology. PSE will offer the CSEM program under terms of the revised Schedule 253, which will be renamed Energy Performance Incentive Programs. CSEM program staff will manage current industrial RCM customers through PSE's ISOP (Industrial Systems Optimization Program). There will be no revisions to kWh or therm savings thresholds or program incentives. This name change also unifies the terminology for all of PSE's SEM offerings (Industrial SEM, Multifamily SEM, and Commercial SEM).

3. Energy Smart Grocer is Retired in 2018

This market has been saturated, and as a result, the other Puget Sound utilities will discontinue their Energy Smart Grocer offerings at the end of 2017. A key benefit of the program was regional collaboration with other Puget Sound utilities, and so, PSE will retire this offering. Beginning in 2018, the CI Retrofit Channel and Direct Install programs will manage medium-to-small grocer projects.

4. Key Incentive Calculations are Updated in 2018

PSE will align its CI New Construction lighting incentives to its standard business lighting incentive structure. Approximately 40 percent of CI New Construction electric savings are related to indoor horticulture energy efficiency measures.

5. PSE will retire its Premium HVAC Service Program

PSE's Premium HVAC Service,[80] offered under terms of Schedule 262, will be retired as a result of several factors. These include, but aren't limited to the complexity and number of measure types associated with the program, lack of contractor and vendor support of the program's value proposition (many contractors focus on sales versus service), and long application periods. These factors have caused the program to become cost-ineffective.

[80] Although Premium HVAC service is considered to be a Business-focused program, the management of the program resides in the Dealer Channel of REM.

6. PSE will Pilot a Commercial Upstream Initiative

PSE will work with HVAC distributors to make high-efficiency equipment more readily available to customers. The initiative is expected to increase regional stocking of qualifying equipment, and better aligns with market operations.

7. Leveraging Relationships with "I-5" Utilities

BEM staff collaborated with Seattle City Light, who developed their own version of PSE's CBTU (Comprehensive Building Tune-Up) program. As a benefit to PSE's natural gas customers, they can leverage the two CBTU programs to maximize savings.

B. Attention to Hard-to-Reach/Proportionately Underserved Segments

Many of Business Energy Management's (BEM's) programs address several of the hard-to-reach, potentially underserved segments identified in the Council's 7th Power Plan,[81] including the Agriculture, Small Business, and Lodging Direct Install programs. BEM's Business Lighting program also provides valuable services to commercial tenants, and PSE's Community Blitzes[82] call on several businesses that may be unfamiliar with how to participate in Energy Efficiency's programs. BEM's ISOP program and Large Power User/Self-Directed program also target industrial customers by providing specific services for this potentially hard-to-reach customer segment.

Throughout the 2018-2019 planning process, BEM and Dealer Channel[83] program staff integrated considerations for how PSE would optimally serve these segments into their program designs. Although discussed in more detail in the coming program discussions, PSE provides brief highlights here.

[81] PSE provides a more extensive discussion on Hard-to-Reach/Proportionately Underserved segments in Chapter 3: Key Focus Areas, on page 29.

[82] PSE discusses its Community Blitzes in Chapter 11: Portfolio Support, on page 145.

[83] As noted in the Chapter 5: *REM Program Discussions*, the Dealer Channel staff manages relationships with retailers, distributors, contractors, and vendors. The small business rebate team is a part of the Dealer Channel.

1. Small Business Direct Install Programs

New for 2018-2019, the Small Business Direct Install, Lodging Direct Install, and Agriculture Direct Install programs will combine program staff management expertise. In so doing, staff expect to bring consistent messaging, comprehensive measure offerings, and broad outreach strategies to these specific, potentially hard-to-reach customer segments. Program staff are thoroughly familiar with the unique requirements of each sector: from the specific needs of small to medium hospitality operations, to small farms that are typically in rural locations and have limited windows to evaluate and install efficient equipment, PSE has energy efficiency solutions that will address their needs.

Program staff will also expand the successful small business "blitzes", integrating visits to smaller, more geographically adjacent locations, visiting small business owners who may also be commercial tenants. Measure applications will also be easier for customers to complete, and Energy Efficiency will gear its communications to the customers' business needs, facilitating potential for sector partnerships, and providing information for those English-as-a-second-language customers.

2. Commercial Kitchens

Owners and operators of commercial kitchens are another hard-to-reach, potentially underserved customer segment, especially considering their very limited windows of opportunity to discuss energy-efficiency upgrades. Quite often, the most opportune period for discussing and evaluating equipment upgrades is at trade shows. Because their time is so limited, commercial kitchen customers often cannot take advantage of custom efficiency grants. This is a primary driver of program staff's initiative to implement the Demand Control Kitchen Ventilation (DCKV) prescriptive rebate.

These very complicated energy-savings systems have been—until now—available primarily through the custom grant application process. It is PSE's goal to perform as much analysis as possible, and remove the calculation tasks from the customer's responsibility to make the application process as smooth as possible.

3. Industrial Customers

PSE provides a comprehensive suite of offerings for this customer segment. In addition to custom grant and prescriptive measures provided by its Large Power User/Self-Directed program, qualifying customers may also participate in the C/I Retrofit program. Additionally, those interested in Industrial Strategic Energy Management and industrial tune-up services can utilize BEM's Industrial Systems Optimization Program (ISOP).

C. Trade Ally Integration

As the Business Energy Management sector primarily focuses on commercial projects led by developers, building engineers, architects, municipalities, etc., trade ally interfacing consists more of a custom project basis and is direct between BEM's Energy Management Engineers (EMEs) and the trade ally representative.

CAN members are integrated in some of BEM's small business initiatives, and many of the trade ally initiatives discussed in Chapter 3: *Key Areas of Focus* apply equally to trade allies with a residential focus, or those serving PSE's commercial/industrial customers.

Moving into the 2018 – 2019 program years, the BEM team will also be engaged in developing and leveraging the potential for an enhanced online Trade Ally platform, as outlined in the REM Overview chapter. The intended design of the platform will allow greater visibility into the project activities associated to trade allies and the EME representative working with them. Economies of scale can be gained by this increased visibility leading to better analytics regarding the performance and activities of these trade allies.

For instance, the BEM team will have better insight into the volume of activity and engagement a trade ally has with PSE through the variety of custom grant projects being completed at any given time. This increased visibility can lead to improved coordination along the project roadmap including M&V activities, grant procedures and approvals, program design elements, communications of changes, and the development of a recognition process.

D. Cost-Effectiveness Considerations

PSE calculates that the overall BEM Sector electric TRC will be 1.45, with a calculated UC of 1.73. With the exception of the High Voltage/Self-Directed (non-449) program, with an estimated TRC B/C ratio of 0.98, and Small Business Direct Installs, at an estimated 0.83 TRC, all BEM electric programs will achieve a TRC benefit/cost ratio of over 1.0. The Sector will apply Non-Energy Impact figures in the Resource Conservation Management (renamed Commercial Strategic Energy Management in 2018) program, commensurate with the findings in SBW Consulting Inc.'s 2013 evaluation study.[84]

[84] This study, *Resource Conservation Manager* [sic] *Program Evaluation, November 25, 2013*, indicated that a ratio of 37 percent per project is appropriate. NEIs in RCM projects account for environmental benefits other than water savings. Sewage, garbage, recycling reduction and lower operations & maintenance costs, for instance.

BEM expects to finish the 2018-2019 biennium with a natural gas TRC of 2.19, and a UC of 2.25. Natural gas offerings are impacted by the continued low avoided cost of natural gas in 2018-2019. The Sector will be consistent with the Commission's policy statement on the treatment of natural gas cost-effectiveness calculation,[85] and will apply Non-Energy Impact figures in the Commercial Strategic Energy Management program, commensurate with the findings in SBW Consulting Inc.'s 2013 evaluation study.[86] As a result, only the Commercial HVAC program (0.78 TRC) and Small Business Direct Install program (0.81 TRC) will finish the biennium with a TRC below 1.0 in the BEM sector. The program's calculated TRC is 0.78, which does not negatively affect the overall Sector.

E. Tariff Schedule Adjustments

The following Tariff Schedules are revised effective January 1, 2018:

- Schedule 253: Resource Conservation Management: Change the Schedule's name to Energy Performance Incentive Programs. A program that will operate of terms of Schedule 253 is the Commercial Strategic Energy Management (CSEM) program, formerly Resource Conservation Management. The updated Schedule language more accurately reflects the program offerings and industry standards.
- Schedule E258, Large Power User, Self-Directed: add language that accounts for the Microsoft Special Contract, going into effect in 2018.

F. Sector Highlights

Table VII-1 provides a summary of BEM's 2018-2019 BCP budgets, savings goals, and cost-effectiveness estimates. PSE provides program plan discussions in the following sections, with comprehensive reviews of target markets, marketing and outreach initiatives, and customer incentives contained in Exhibit 3: *Program Details*.

PSE provides comprehensive information on specific savings and budget data in the detail sheets for each program in Exhibit 1: *Savings and Budgets*.

[85] Docket UG-121207, Policy Statement on the Evaluation of the Cost-Effectiveness of Natural Gas Conservation Programs.

[86] This study, *Resource Conservation Manager* [sic] *Program Evaluation, November 25, 2013*, indicated that a ratio of 37 percent per project is appropriate. NEIs in RCM projects account for environmental benefits other than water savings. Sewage, garbage, recycling reduction and lower operations & maintenance costs, for instance.

Table VII-1: 2018-2019 BEM Conservation Targets, Budgets & Cost-Effectiveness Estimates

2018-2019 Business Energy Management			
	Electric	**Natural Gas**	**Total Budget**
Targets	261,623 MWh *29.9 aMW*	2,643,818 Therms	
Budgets	$72,731,142	$6,488,401	$79,219,544
TRC/UC	1.45/1.73	2.19/2.25	

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VIII. Business Energy Management Program Discussions

Chapter 8 provides program-specific discussions of plans that program staff put in place to meet customer expectations, achieve 2018-2019 savings goals, and ensure the prudent application of PSE customers' funding. PSE presents discussions in order of their Conservation Schedule number.

A. Commercial/Industrial (C/I) Retrofit

Schedules E/G 250

The team of EMEs, supervisors and contract administration staff will engage with customers, developers, contractors and engineers to develop, evaluate, manage, and verify custom grants for both lighting-specific and other retrofit projects during this upcoming biennium. In addition, the staff will provide outside evaluation support, participate on RTF subcommittees and inter-utility initiatives, and contribute to NEEA advisory committees.

In 2018-2019, PSE will consider funding any cost-effective measure that provides quantifiable energy savings. PSE may grant electric incentives for non-lighting projects up to 30¢ per kWh up to 70 percent of the project or incremental cost, and $5.00 per therm up to 70 percent of the project or incremental cost. Typical measures include variable frequency drives, chiller upgrades, boiler replacements, compressed air system upgrades, and industrial process improvements.

In 2018-2019 C/I Retrofit Custom Lighting Grants will manage custom lighting grants for upgrades to commercial, industrial, agricultural, and street lighting projects. The program will adjust their custom lighting incentives to align with market conditions and standards more closely. Program staff will also adjust the administration of the Luminaire Level Lighting Controls (LLLC) incentive. In response to a very low uptake in the previous biennium, PSE will offer incentives of up to $75 for LLLCs added to lighting projects.

PSE customers with a building larger than 50,000 square feet are eligible to participate in the Comprehensive Building Tune-Up (CBTU) program. A qualified commissioning provider must conduct assessments. PSE maintains a database of qualified building commissioning providers for eligible customers' reference. PSE will fund—as a combination of grant plus a one-year performance incentive—up to 100 percent of the provider costs. In 2017, BEM collaborated with Seattle City Light in assisting to create a new version of PSE's CBTU program. As a result, the shared customers are able to leverage the two programs for both their natural gas and electric conservation efforts.

Contractors, who indicate that PSE is one of the only utilities to offer such an incentive, laud PSE's Major HVAC Controls Upgrade offering. In addition to a base incentive, there is also a performance incentive, which will pay the customer an additional amount (for a total incentive amount of up to 50 percent of the controls upgrade) after one year of measure installation.

The Industrial System Optimization Program (ISOP) is the only third-party implemented C/I Retrofit program for 2018-2019. The program will provide electric and natural gas services. The program serves a particular hard-to-reach, potentially underserved segment in PSE's service territory by providing low-and no-cost operational and management improvements. The program also provides engineering support at no cost to the customer. Electric or natural gas industrial customers who are currently participating in the Commercial Strategic Energy Management (CSEM) program will now be referred to ISOP.

As noted in the BEM Overview chapter, PSE plans to phase out its electric and natural gas Energy Smart Grocer program in 2018. This is the result of the market saturation and regional utilities suspending their similar offerings.[87] PSE will continue to support grocer conservation efforts through its custom grant program and through its Small Business Direct Install programs.

The remainder of Commercial/Industrial Retrofit activity will be comprised of commercial non-lighting projects, predominately consisting of HVAC and controls upgrades, as well as data center energy efficiency measures. The bulk of industrial savings will be delivered via third-party programs and Schedule 258 Large Power User/Self-Directed activity.

The C/I Retrofit team will primarily rely on internal PSE Channels, including Business Services, Energy Efficiency Communities contacts, trade ally relationships, and engineering design firms to generate a significant portion of its project leads. The group's marketing materials and communication pieces will be more awareness-driving than project-generation focused; its internet focus will be on providing more effective program offerings communication. Program staff are also considering the development of web-based applications, and the Energy Efficient Communities team will conduct presentations to a range of constituents, including local governments.

The C/I Retrofit team expects to manage electric and natural gas projects affecting approximately 1,800 sites annually.

[87] When other regional utilities offered grocer programs, there was a consistency and economies of scale, as some grocery chains spanned utility boundaries.

1. Savings Contribution

The Commercial/Industrial Retrofit group will contribute 45 percent of the 2018-2019 electric savings to the BEM Sector. C/I Retrofit will produce over 30 percent of the overall BEM natural gas savings in 2018-2019.

B. Commercial/Industrial New Construction

Schedules E/G 251

Electric and natural gas customer incentives will include:

- **Component Measures:** That include custom analysis funding of individual, non-lighting measures, and may be up to 100 percent of incremental cost to exceed code, and may include measures such as boilers, chillers, or industrial processes.
- **Whole Building Analysis:** (For natural gas customers, PSE must also provide electric service.) The program bases these incentives on the percent savings over code baseline as determined by building energy simulation analysis. PSE will provide design team and energy model development support.
- **Lighting:** PSE will use the Washington State Energy Code Lighting Power Allowance (LPA). It will calculate savings from lighting compliance forms.

In 2018, C/I New Construction will suspend its Energy Smart Grocer program, consistent with the C/I Retrofit program. PSE will continue to manage electric and natural gas grocer projects through custom grants and through its Small Business Direct Install program.

To adapt to market conditions and customer adoption, New Construction lighting projects must meet a standard of 20 percent better than the energy code for 2018-2019. New Construction lighting incentives will better align with Business Lighting incentives. In the indoor agriculture market, which is expected to continue to generate substantial savings—almost 40 percent of the overall C/I New Construction total—PSE created a standardized lighting energy calculation workbook. Licensed indoor cannabis producers that receive electric service from PSE may receive up to 100 percent of the incremental measure cost for non-lighting projects. Non-lighting incentives are available on a custom basis.

New projects that are due to be completed in 2018-2019 will drive natural gas custom grants. Some of these projects tend to be very large; an apparent few projects usually contribute the largest amount of natural gas savings.

PSE will employ standard energy models, including EQuest and code models, to standardize evaluations and streamline the custom grant processing.

Due to the long planning and development timeline for new construction projects and recent resurgence in construction planning activities, program staff will spend a portion of their time in 2018-2019 working on projects that will deliver savings in 2020 or beyond.

The program staff will work in concert with its Marketing counterparts to reach architects, municipalities, developers, and engineers early in the building design stages. The program's collateral will reflect customers' need for a more comprehensive representation of program offerings, while electronic content will be updated and optimized.

The C/I New Construction team forecasts that they will manage projects at nearly 100 sites per year for 2018-2019.

1. Savings Contribution

Based on projects about which program staff are aware, expected electric savings in the New Construction program will comprise approximately 15 percent of the 2018-2019 BEM total. The program will also contribute 8 percent of the Sector's natural gas savings.

C. Commercial Strategic Energy Management

Schedules E/G 253

In 2018, Resource Conservation Management (RCM) will become Commercial Strategic Energy Management (CSEM). Although the program will maintain services offered to customers, this name change better aligns with industry nomenclature for this type of service. Participation qualifications will remain at 1,000,000 kWhs, and 135,000 therms per site. Concurrent with the filing of this BCP, PSE will file a tariff Schedule revision to change "Resource Conservation Management" to "Energy Performance Incentive Programs". This revision better reflects current program operations. They will provide the opportunity to create analogous services that have a conservation savings potential. [88] The CSEM program replaces RCM as one program operating under the terms of Schedule 253.

[88] Program staff envision that PSE would be able to offer analogous programs under Schedule 253. For instance, the recent Urban Smart Bellevue pilot, and the Strategic Energy Management pilot that was a subset of RCM in a past biennium, could be offered under Schedule 253 if they proved to be cost-effective.

Another aspect of 2018-2019 program updates is the suspension of the Urban Smart Bellevue initiative in its current format. Throughout the implementation of the effort, PSE found that the anticipated savings would not be realized, and that—while some ancillary energy-savings projects were initiated during the test—the cooperative, aggregate behavior savings did not take place.

However, PSE will apply lessons learned from the endeavor over the past two years to inform future community-based programs in the PSE service territory in the coming biennium.

One concept that PSE will explore is a continuation of its partnership with the City of Bellevue, albeit with a different focus, by targeting commercial customers that participate in Bellevue's proposed benchmarking program. These customers would receive a benchmarking report of their building. PSE would also provide an energy audit, technical assistance, and referrals to PSE programs. The second idea that PSE may examine is based on the proven "community challenge" concept, where PSE's Outreach team could apply the Urban Smart Bellevue model to other communities, building on the program's tip sheets, energy campaigns, and building challenges. The Small Business blitzes also provide an excellent opportunity to blend low- and no-cost measure installations with the idea of a friendly energy challenge.

In order to serve a potential hard-to-reach segment, PSE will refer industrial customers interested in the Commercial SEM program to ISOP, where they will receive no-cost engineering support, and operational and management improvement recommendations.

In the 2018-2019 biennium, the Commercial SEM program will continue to offer the following services:

- Program start-up support,
- Resource accounting software,
- Technical assistance,
- Education and training,
- Energy data services, and
- Financial incentives.

The Commercial SEM program utilizes a broad array of marketing materials and training activities to reach its customer base. The nature of the Commercial SEM program and its need for ongoing communications efforts with customers merits an integrated approach to support this program. The program's communication strategy will focus on existing customers, with recognition and awards to outstanding customers, enhancing the ease of tool usage and ownership, and improving the Commercial SEM web pages.

To attract potential customers, program staff will continue to develop case studies, and feature them in monthly newsletters. The Commercial SEM team will also leverage internal PSE groups, including the Energy Efficient Communities and Business Services to communicate program information and updates.

PSE will provide services for approximately 60 customers, representing over 1,200 buildings, over the course of the coming biennium.

1. Savings Contribution

The Commercial SEM program will contribute approximately 10 percent of BEM's electric savings and over 50 percent of BEM's overall natural gas savings for 2018-2019.

D. Large Power User Self-Directed

Schedule E258

The Large Power User/Self-Directed program is in the last year of its 2015-2018 cycle at the beginning of the next biennium. Thus, 2018-2019 electric savings will be substantially—more than 55 percent—higher than the previous biennium. Due to the nature of large power user participants' conservation project plans, and RFP participation during the competitive-versus-noncompetitive phases of the 4-year cycle, 2019-specific savings will drop precipitously. Program staff forecast savings of approximately 34,600 MWh in 2018, while 2019's savings (beginning a new 4-year cycle) are expected to be almost 1,000 MWh. Anticipated spending will follow a similar trend: approximately $15.6 million in 2018, and $1.9 million in 2019.

Program staff expect that the departure of a major PSE account will not affect program savings for the coming biennium. PSE will serve 32 sites in the Large Power User/Self-Directed program in 2018-2019.

The program's electric savings will contribute approximately 13 percent of BEM's overall 2018-2019 achievement, while the anticipated program spending will comprise approximately 25 percent of BEM's budget.

E. Technology Evaluation

Schedules E/G 261

During the 2018-2019 planning process, there were no new energy-efficient technologies on the horizon that weren't already being evaluated in other forums, such as the 2017 RFP/RFI process.

Therefore, no savings or expenses were budgeted for 2018-2019. PSE program staff will continuously scan for new technologies throughout the year and will consider, in consultation with the CRAG, amending the Technology Evaluation status for the 2019 Annual Conservation Plan.

F. Commercial Rebates

Schedules E/G 262

The Commercial Rebates organization is comprised of several rebate programs that focus on commercial customers, many of which are considered hard-to-reach or proportionately underserved:

- Lighting to Go,
- Small Business Direct Install, which includes:
  - Lodging Direct Install,
  - Agricultural Direct Install,
- Commercial Kitchens & Laundry, and
- Commercial HVAC

1. Lighting to Go

Lighting to Go is a direct-purchase program in which PSE will utilize the existing retail resources, including field services, store signage, marketing, outreach, and limited-time offers to support the commercial-focused efforts. Lower prices on LEDs resulted in a reduced incentive needed to drive market participation, which in turn, reduced the program costs, while communications and marketing levels will remain constant. All LED UES values are PSE Deemed.

The Lighting to Go program will focus its marketing and communications efforts on ensuring that instant rebate vendors place Point of Purchase (POP) signage appropriately, and that collateral provided increases awareness of PSE's Retail Lighting program incentives. Program staff are also working to develop non-English materials to assist those customers with purchases and to increase program awareness. These efforts will be coordinated with the Direct to Consumer Channel's[89] initiatives.

[89] Included in Chapter 6: *Residential Energy Management Program Discussions.*

This electric-only program's measure mix is comprised exclusively of LEDs, including tubular LEDs (TLEDs), and is forecast to provide rebates on the sale of approximately 150,000 units annually.

2. Small Business Direct Install

In the upcoming biennium, BEM will subsume the Lodging Direct Install and Agriculture Direct Install programs into the overall Small Business Direct Install organization. The focus of these groups remains intact and services will be ongoing.

This organizational revision will provide program staff with a unified view of customer needs and activity in the PSE territory, will provide economies of scale, and drive consistencies where appropriate in these niche markets.

In order to provide a more comprehensive suite of electric and natural gas measures to small businesses, PSE will provide a wide range of services to customers in electric rate schedule 24, and rate schedule 25 with buildings less than 10,000 square feet, and natural gas schedule 31G. The Agriculture Direct Install program focuses on small farms with gross annual sales of $250,000 or less. The Lodging Direct Install program serves small-to-medium lodging establishments of less than 200 rooms. Most of these customer classifications can be considered hard-to-reach or proportionately underserved. These particular businesses may be located in rural areas, lack upfront capital due to low profit margins, rent their space, or may be uncertain about their longevity.

PSE's very successful small business "blitzes" will continue in the coming biennium, with at least five per year planned. Program staff will migrate further away from metropolitan areas, with an effort made to combine blitzes in smaller towns that are geographically closer. The team will also develop segment-specific blitzes, such as agriculture outreach. As a part of the blitz visits, PSE teams will ascertain the interest level of the custom to consider additional measures that have a co-pay, and are in addition to those directly installed. The program will also engage local contractors to assist with the measures that require more installation expertise.

In order to provide a higher degree of efficiency and reduce turnaround, PSE will also locate field crews and inventory in the northern, central, and southern areas of its territory. This will provide an opportunity to communicate with several disparate businesses, rather than only those in a central location.

Staff will also coordinate marketing and promotional efforts with blitzes, and ensure that city officials and Chambers of Commerce are also engaged. The Residential and Commercial Sector Channels will promote product and rebate offerings between them.

Program staff are developing materials specific to the needs of those hard-to-reach customers, including fliers illustrating partnerships with sector-specific organizations, multi-language collateral, and blitzes that occur in rural areas.

The Small Business Direct Install program will pilot a custom option for businesses that have specific equipment unrelated to other business types, such as chick warmers in the agriculture market and kitchen ventilation equipment in hospitality establishments.

The organization will manage over 300 individual measures and will serve approximately 300 to 400 customers annually.

These three Direct Install programs (Small Business, Lodging, and Small Agricultural) now allow PSE to offer electric and natural gas savings to a variety—rather than only one type, of small businesses. This will result in higher customer awareness of energy-efficiency opportunities, and lead to maximized electric and natural gas savings in this market sector.

3. Commercial Kitchens & Laundry

This program focuses on a customer segment that is hard-to-reach and is comprised of large electric and natural gas users; the foundation of their businesses relies on energy-intensive equipment. They often require assistance in participating in Energy Efficiency programs, and service delivery must reach them in their preferred manner; commercial kitchens and commercial laundries have very specific time windows of availability.

Collaborating with seven electric and natural gas utilities, PSE administers an incentive program that provides customers with a uniform assortment of energy-efficient equipment, a single application form, and consistent incentives. This cohesive customer experience also benefits vendors and equipment distributors, and has been in place for more than a decade.

The program will coordinate market and outreach efforts with the Small Business Direct Install program, allowing program staff to assess, treat, educate, and connect customers with the rest of the PSE program portfolio. Examples include appliances, HVAC, and custom grant processing. Program staff are also developing a Demand Control Kitchen Ventilation (DCKV) incentive for 2018. This is significant due to the point that calculating a prescriptive-based incentive for this type of system is quite complicated. Up to this point, these systems were custom-project calculated only. Program staff note that commercial kitchen interest is high, but due to the custom grant process, participation from this customer segment has been low up to now.

It is anticipated that, when implemented, this offering will be similar to PSE's Advance Rooftop Controller (ARC) process, established by BEM in 2016.

The program will engage local market partners to deliver a streamlined point of purchase (POP) experience in both the kitchen and laundry sectors. It will also translate its collateral materials for hard-to-reach customers, and will develop creative marketing campaigns to engage decision-makers more effectively. Program staff will also work to identify opportunities to cross-promote commercial kitchen and laundry programs to customers who have participated in other commercial efficiency programs, and continue its involvement in multi-channel initiatives and campaigns, including the Small Business Direct Install program.

The program expects to serve approximately 300 customers annually in the coming biennium.

4. Commercial HVAC

As noted in the BEM Overview chapter, the Commercial HVAC program is suspending its Premium HVAC offering in 2018. Lack of contractor support, increased prices, and energy codes updates have made the offering no longer cost-effective. To supplant this service, program staff will reference the very successful ARC measure, which may also be integrated into other commercial offerings. As the HVAC units require a tune-up prior to the installation of the controller, PSE is expecting greater customer acceptance. The program will offer three types of measures, each applicable to electric and natural gas applications (for a total of six). The program may also add a web-enabled thermostat to its measure mix, and is working with the RTF to develop prescriptive UES values for small business HVAC units.

Commercial HVAC is also planning to offer a Commercial Upstream incentive program, which PSE anticipates will increase regional stocking of qualifying, energy-efficient equipment. Building owners rarely plan for and analyze energy efficiency impacts when their rooftop unit fails. It is expected that this initiative will prevent a building owner from requesting a distributor to simply "give me whatever you have in stock" if that occurs. This initiative also aligns better with market functions by intervening at a key point in the value chain.

Program staff will collaborate with manufacturers, distributors and contractors to co-promote HVAC incentives, and will direct outreach of its Premium HVAC service to large property management firms. PSE will participate in all relevant industry trade show and will examine opportunities to connect face-to-face with target customers and contractors.

PSE anticipates that the program will serve approximately 400 customers in conjunction with this initiative.

5. Savings Contribution

The overall organization's savings contribution of 41,430 MWh and 268,800 therms to BEM savings are expected to account for 16 percent and 10 percent of the Sector total, respectively.

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IX. Pilots

Schedules E/G 249

As discussed in Chapter 4, several programs or measures can be considered pilots, but are incorporated into program offerings if there is a high degree of confidence in the expected savings. Those pilots with uncertain savings are excluded from PSE's EIA Penalty Target, and are listed in the Pilots section of Exhibit 1's Portfolio View. There are also pilots in groups that don't typically produce conservation savings.

A. Pilot-Analogous Initiatives

In 2018-2019, Energy Efficiency will implement pilot initiatives that leverage existing programs, leverage existing value-chain relationships, or consist of individual measures.

1. Single Family Rental

Energy Efficiency designed the Single Family Rental pilot to not only achieve electric and natural gas savings, but also serve a potentially hard-to-reach and underserved customer segment. The pilot will focus efforts to engage rental customers through its Home Energy Assessment program participation. Using referrals from completed assessments, program staff will offer bundled weatherization, space, and water heat services for rental customers. Savings will be attributed existing Single Family programs: Weatherization, and Space & Water Heat.

2. Commercial Upstream

The Commercial Upstream pilot will focus on providing incentives to distributors who stock more high-efficiency HVAC equipment. The intention of the pilot is to make qualifying equipment more readily available to PSE customers. Interceding at this point of the value chain will provide customers who have emergency replacement needs better access to qualifying equipment, and program staff expect that upstream incentives will lead to better regional access.

3. Individual Measures

There are several potential measures and updated measure delivery methods that are new or revised for 2018-2019. Examples include the Multifamily Automatic Tubspout Diverter, which, after achieving a setpoint of 95 degrees Fahrenheit, will shut the tub spout off until the customer manually diverts the water flow to the showerhead.

REM staff have also designed a ductless heat pump upgrade incentive, which is expected to drive adoption of units that are even higher-efficiency than standard ductless heat pumps.

As a result of a PSE-directed evaluation, UES values for leave-behind advanced power strips dropped by more than 100 kWh per unit. To sustain interest in this measure, program staff is examining the potential of implementing a direct-install approach in 2018. The Multifamily program may also offer a line-voltage web-enabled thermostat.

In the BEM Direct Install programs, customers will have a custom option to receive incentives for specific equipment unrelated to other business types, such as chick warmers for agriculture, and kitchen ventilation equipment for hospitality establishments. PSE also considers the Commercial Kitchens' initiative to standardize Demand Control Kitchen Ventilation (DCKV) incentive processing to be analogous to a pilot.

B. Pay for Performance

Business Energy Management will target the engagement of several customers in 2018 to produce both electric and natural gas savings. The pilot's objective will be the selection of customers with sites of at least 50,000 square feet with large savings potential. Program staff plan that incentives—still under development at the time of this BCP filing—will be source-blind, and consist of a combination of capital, O&M, and behavior savings. Incentives would be based on conservation savings realized.

C. EM&V 2.0

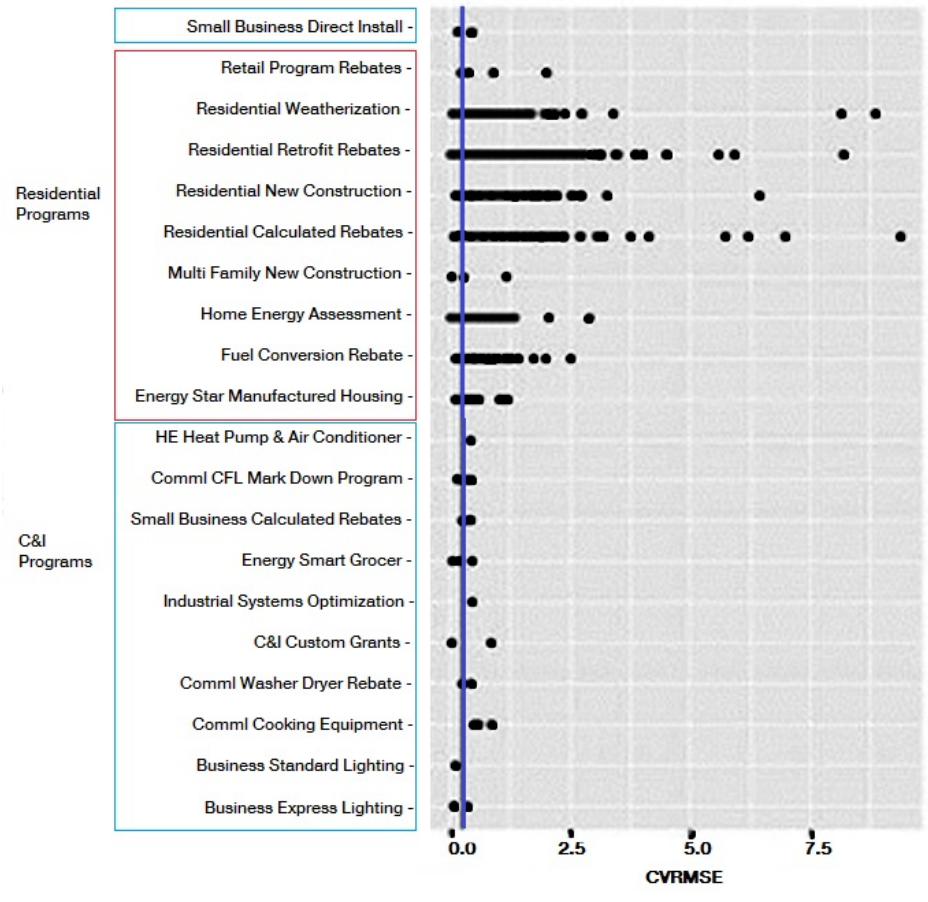
As noted earlier, there are also pilots within the Energy Efficiency Portfolio that do not have a direct bearing on conservation savings, but are noteworthy nevertheless. EM&V 2.0 is one such pilot.

During its EM&V pilot in 2018-2019, PSE will apply advanced analytics and data mining of energy use related to conservation programs to enhance the utility of energy-use modelling. Models will result from the review of lessons learned from PSE's 2017 implementation of the evaluation of a variety of BEM projects. Energy-use models will provide predictable results for a variety of conservation types and customer sets, and provide for more immediate variance analysis. The Evaluation Team will employ the advanced EM&V principles to analyzing realization rates on as many applicable programs as possible within the coming biennium.

By the end of 2017, PSE has assessed the applicability of these principles for the portfolio of programs. By modeling the energy consumption data for over 35,000 program participants in both residential and non-residential programs, PSE determined the predictability of energy consumption through statistical analysis. Using the results of the analysis, PSE identified several non-residential projects to include in a pilot analysis.

The objective is to analyze the effect of the duration of the M&V period on the uncertainty in the energy savings estimates. In other words, can PSE shorten the M&V period for some projects based on the goodness-of-fit of daily energy consumption models? PSE has collaborated with consultants from DNV-GL and researchers from Lawrence Berkeley National Laboratory on these efforts. Figure IX-1 provides a graphical representation of the analysis breakdown by programs as compared to the CV(RMSE).[90]

Figure IX-1: Breakdown of Energy Modeling Data by Program



[90] Graph courtesy of DNV-GL, 2017. CV(RMSE) = Coefficient of Variation of the Root-Mean-Squared-Error. CV(RMSE) is a measure of uncertainty in a model and is used to quantify a model's ability to predict the values that are actually observed. Lower values indicate lower uncertainty and higher predictability.

Currently, the advanced EM&V techniques are anticipated to have an immediate impact on energy-use evaluation. The principles, though, can also be applied to process evaluations, by incorporation of additional and dynamic customer surveys. PSE will also examine this element of EM&V 2.0 in the coming biennium.

X. Regional Programs

Chapter 10 provides discussions of programs that do not fit into the Residential or Business Sectors, are of a more regional nature (consisting of sites, installations or facilities outside of PSE's territory), or are not directly managed by Energy Efficiency program staff.

A. Northwest Energy Efficiency Alliance

Schedules E254

NEEA's updated operational plan for 2018-2019 is included in this BCP as a standalone document, Exhibit 10. It should be noted that at the time of the publication of PSE's 2018-2019 BCP, NEEA's board has not approved their 2018 operating plan. PSE extends its appreciation to the NEEA Staff for their gracious cooperation and the additional effort and resources expended to develop this content.

1. PSE Participation in NEEA Operations

Several Energy Efficiency staff members participate on NEEA committees, in partnership with other NEEA funders. Some committees are advisory in nature, and some are technically-oriented. NEEA also maintains selected sub-committees and working groups that report up to the senior committees. The majority of the operational committees advise four groups that provide advice and recommendations to the NEEA executive board and board of directors. PSE's director of Energy Efficiency sits on the board of directors, and has been its chairman in the past.

Energy Efficiency staff often participate on more than one committee or working group, as well as ad-hoc and limited-time work groups. PSE participation includes, but is not limited to contributions in the:

- Regional Portfolio Advisory Committee,
  - Strategic Market Strategy Working Group
  - Strategic Market Strategy Connectivity Working Group
  - Commercial Lighting Market Strategy Working Group
- Residential Advisory Committee,
  - Market Transformation Work Groups
- Commercial Advisory Committee,
  - Commercial Code Enhancement Program
  - Lighting Managers Committee

- Industrial Advisory Committee,
  - Training Committee
- Cost-Effectiveness Advisory Committee, and
- Emerging Technology Advisory Committee
  - Retac 2.0 Sub-Committee

PSE representatives that are a part of the Regional Portfolio Advisory Committee vote on broad initiatives. Other participants collaborate with committee or work group members outside of the committee forums, and bring issues and new initatives to their groups.

The Natural Gas Advisory Committee currently serves both technical and advisory functions. There are no sub-committees established for this pilot program as of the filing of this BCP. As a major funder, PSE staff also participate on this committee.

2. Natural Gas Market Transformation

In 2018-2019 NEEA will continue development of five key natural gas initiatives, as discussed in Exhibit 10:

- Gas heat pump water heaters,
- Combination water and space heat systems,
- Gas clothes dryers,
- Rooftop HVAC, and
- Hearth products,

consistent with its 2015-2019 Business Plan and its pending 2018 Operations Plan.

NEEA estimates that the first of these products to yield therm savings may potentially be natural gas clothes dryers. A 0.67 natural gas water heater[91] may also produce savings, although there is a potential that neither will result in therm savings in the coming biennium.

PSE's share of the natural gas market transformation funding is 41.25 percent, with a 2018-2019 total of $2.48 million.

[91] Although excluded from the initial five pilot measures, NEEA's natural gas market transformation budget also includes a scanning function. This activity provides for NEEA staff to examine the energy-efficiency marketplace for new technologies that may be incorporated into the suite of offerings.

B. Distribution Efficiencies

Schedule E292

PSE's 2018-2019 plans include implementation of Conservation Voltage Regulation (CVR) at substations most likely to provide cost-effective energy savings to customers from this added level of monitoring and control. The plan for CVR implementation includes required system upgrades, implementation of RTF prescribed measurement & verification protocols, as well as the required phase-balancing work, which is a precursor to successful CVR implementation. PSE will target seven substations for CVR in 2018-2019.

Analyses performed during the 2018-2019 planning revealed that there are no cost-effective measures available for PSE generation facilities. Program staff will maintain examination of these facilities in 2018 and will adjust its 2019 Annual Conservation Plan in consultation with the CRAG, should conservation opportunities in generating facilities present themselves. These programs will operate under Schedule 292 and require coordination between various PSE departments.

Program staff expect that 2018-2019 CVR projects will yield 1,500 MWh of savings in 2018-2019.

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XI. Portfolio Support

Portfolio Support functions and activities provide needed services to Residential and Business Sector program staff. Services include delivering a wide range of options for customers to ask questions and obtain information about PSE's energy efficiency programs, and ensure that PSE's awareness messaging is consistent across all platforms. Portfolio Support staff process enormous amounts of rebate application and measure installation data, efficiently process and follow-up on rebate applications, integrate PSE cost-effectiveness and UES savings methodologies in the region, and provide resources for developing new and updated program offerings.

Over the previous biennia, PSE has endeavored to provide maximized transparency, while maintaining reporting consistency and efficiency. In the 2018-2019 biennium, PSE continues to improve its budget representations in the Portfolio Support group, as will be discussed in the following sections.

Tariff Schedule Adjustments

There are no tariff Schedule revisions required in the Portfolio Support organizations for 2018-2019.

A. Data and Systems Services

This team is responsible for reviewing and ensure data integrity from a wide variety of sources, including vendors, program staff, and contractors. They interface with several disparate data systems, including SAP, program databases, and the Measure Metrics archival system. The team provides systems for program staff to enter measure data on a monthly basis to feed reporting systems, and uses measure data and projections to build monthly forecasting models.

In 2018-2019, the team will continue employing adaptive management and Six-Sigma techniques to ensure updated and reliable data, reporting, and forecasting tools. Data and Systems Service staff are focusing on full-scale maintenance support of the DSMc (Demand Side Management central) system, which staff fully integrated in 2017. Staff transitioned responsibilities from the developer late in 2017, and coordinated the launch of the Public User Interface (PUI), which provides PSE customers with real-time access to their rebate application status. The team will focus on system enhancements, process improvements, and developing a trade ally portal.

The team is also developing data-driven dashboards to help program staff better monitor and improve program performance. Data and Systems Services staff are also working with the Rebates Processing team on a similar dashboard to monitor rebate processing metrics.

B. Programs Support

This functional group is responsible for ensuring that program staff have the most updated cost-effectiveness calculation data and receive information on regional measure savings trends. The team will provide NEEA-PSE savings attribution coordination, tracking and reporting, and will provide RTF subcommittee participation support.

C. Rebates Processing

This team plays a critical role in PSE's ability to achieve its customer participation and conservation goals, as they are a key energy-efficiency contact point for PSE customers. The staff must be well versed in all Energy Efficiency programs, the terms and conditions of PSE incentives, and be sensitive to how they represent the Energy Efficiency department to customers. The team also uses feedback provided by PSE constituents to collaborate with program staff to make process improvements within the programs throughout the year.

The Rebates Processing team will focus on continued process improvement gains, maximized customer satisfaction, and benefit for Residential and Business programs in 2018-2019. A key initiative for the coming biennium is the continued rollout of DSMc's Public User Interface (PUI), which provides a portal for customers to track their incentive application status. The team will collaborate with PSE's Information Technology and Marketing departments to create customer awareness of this service, with the ongoing emphasis on creating a purely digital portal. This has the potential of removing the need for customers to mail in hard-copy rebate application forms, and improves rebate analyst effectiveness, further improving incentive payment turnaround time.

D. Verification Team

The Verification team will perform on-site inspections and confirmations of randomly-selected participated homes and business to assure energy-efficiency measures are properly installed. The team will update verification policies, protocols, guidelines, and processes.

The following Verification continuous improvement activities will support mainstream field work in 2018-2019:

1) Data Systems

   The Verification tracking and scheduling database will be closely aligned with the DSMc system to continue simplifying and automating the project sampling and job-pulling process. This streamlines workflow between the program and verification teams.

The team will also explore a potential "virtual" inspection. This would use approved visual applications to interact with customers, improving incentive payment turnaround time. The concept would also reduce travel time, and increase productivity.

2) Sampling Rates

The team will base verification sampling rates on installation forecasts from the program teams and anticipated compliance/discrepancy rates. PSE expects that these forecasts will be finalized subsequent to the filing of the 2018-2019 BCP. In the last biennium, though, the team forecast over 2,000 random verifications, and the team anticipates that the upcoming biennium will require a commensurate number, based on savings goals. Individual measures/programs will each have a target number of verifications. Reviewing compliance rate results will inform program staff in the continued management of process improvements, data integrity, savings validity, and program delivery efficiency.

3) Additional Verification Measures

The Verification team will continue to assist in other areas of Residential or Business efficiency programs, including non-random visits. Non-random visits, typically performed at the request of program managers for case-specific interests, are considered quality assurance reviews. These may also result in documented discrepancies for program management follow-up. Additionally, new measures/programs are planned for the Verification portfolio, including phone Verification for Appliance Decommissioning, and site verification for Business Rebates-Commercial Kitchens.

E. Contractor Alliance Network

This revenue-neutral program will continue to connect interested customers with PSE-approved contractors for their energy-efficient equipment installation needs. A dedicated team of REM staff manage the program, and they expect that the program will also expand its support of a limited number of business customer requests.

The CAN program has been successful in, and will continue recruiting contractors who provide lighting and refrigeration services for all types of business customers. Commercial projects will be processed through the Commercial and Industrial Retrofit, Direct Install and New Construction programs.

In 2018-2019 the CAN team will be integral in implementing Energy Efficiency's trade ally strategic integration goals (discussed in more detail in Chapter 3: *Key Areas of Focus*).

F. Trade Ally Support

The Trade Ally Support function manages PSE's memberships in trade associations that benefit PSE's Energy Efficiency customers. Memberships in these organizations often lead to ideas for innovative service offerings, a broader understanding of market and industry trends, and insight into customer behavior. In combination with Energy Efficiency's CAN organization, Energy Efficiency can significantly broaden its customer reach and exposure.

In 2018-2019, the Trade Ally Support team will support services for energy-efficiency programs, including those provided by:

- BOMA—Building Owners & Managers' Association,
- CEE—Consortium for Energy Efficiency,
- ESource,
- Electric League,
- ESC—Energy Solutions Center, and
- NEEC—Northwest Energy Efficiency Council.

PSE provides extensive discussions of the objectives satisfied for each Energy Efficiency Trade Ally organization, including organization description, the nature of the expense, the need for PSE participation, and if there are associated sponsorships or events in Exhibit 3: *Program Details*.

G. Automated Benchmarking System

This free website, called *MyData* and launched in the autumn of 2013, provides building owners an easy to use, self-service portal that allows users to set up automated monthly reporting of their building's energy usage. The tool was designed and offered by PSE, and provides building owners, managers and operators a convenient way to track and assess energy consumption of their buildings. Customers register their property to receive quick and accurate data on a monthly basis for their building. Customers can track energy usage for a portfolio of buildings, track the results of energy efficiency projects, develop Energy Star® ratings, and comply with state and city regulations.

In 2018-2019, an extensive upgrade is planned for the software.

H. Energy Advisors

The Energy Advisor department will continue to locate energy advisor staff in local PSE offices, in addition to the Bellevue-based core team—including Olympia, Bellingham, and South Whidbey Island. Energy advisors are also "embedded" with program staff; each Energy Efficiency program team has an energy advisor as a member of the team. This provides a heightened level of expertise in addressing customer questions, and allows program staff to receive "real world" customer feedback from the energy advisor.

In 2018-2019, the staff are implementing new outreach methods, including outbound calls for Home Energy Assessment customers. The organization will put new metrics into place to show customer trends. The group expects to process over 90,000 phone calls, 8,000 email responses, and staff over 100 events in 2018-2019.

I. Energy Efficient Communities

The Energy Efficient Communities team collaborates with, and adds value to many organizations within Energy Efficiency. These include the Events and Energy Education teams, as well as the Residential and Business Energy Management organizations. The team will emphasize proactive, direct residential and business customer outreach, with a focus on in-person engagement. This strategy will augment the other forms of energy-efficiency exposure that customers receive, including telephone contact, internet (including social media), and print. The team will collaborate with other PSE organizations to promote energy-efficiency programs. Customer engagements will include, but will not be limited to the following initiatives:

- Small Business Direct Install blitzes,
- Door-to-door Home Energy Assessments outreach,
- Cross-program promotions,
- Leveraging corporate initiatives to promote energy efficiency, and
- Training PSE employees in other customer-facing departments on energy-efficiency programs.

As Energy Efficiency considers its hard-to-reach and potentially underserved customers, the Energy Efficient Communities team will focus their attention on the design of new- and expansion of its existing- outreach tactics to reach these customers. This will require more detailed and comprehensive on-the-ground implementation tactics, utilizing what they have learned the past two years through their outreach work.

For example, the team has found efficiencies in targeting two smaller communities for the small business direct install blitzes instead of just one. This tactic utilizes local contractors, who are most familiar with the community's businesses. Focusing on local businesses is also the most efficient application of the contractor's time. This approach also allows PSE to increase awareness of its programs in communities where its presence is impactful and appreciated.

The team will assist in designing Energy Efficiency's outreach materials to foster creative local partnerships, ensuring that PSE is easy to partner with (for instance, bill inserts with a city,[92] a piece of collateral that can be inserted into a food bank bag, delivering presentations to new audiences like home owners associations, tabling at existing local events hosted by business/nonprofit organizations, etc.). In order to stand out in an already-cluttered space, the Energy Efficient Communities team will concentrate on new ways to engage with PSE customers, and plan to implement these and apply them to the next initiative going forward.

J. Digital Experience

Customer interactions with PSE are no longer limited to the internet. Customers expect PSE to communicate its energy-efficiency offerings in a wide variety of electronic media, and expect the information in the form and at the time they want it, rather than driving them to a PSE-designated site. This group will continue to improve the ways in which it communicates with energy-efficiency customers, and support energy analysis tools. The Customer Digital Experience team will also support interactive content development, e-newsletters, database, and web hosting services.

K. Events

The Energy Efficiency Events team will continue to manage requests from communities—including those considered to be hard-to-reach or proportionately underserved—the team will coordinate Energy Efficiency participation in trade shows, and other interested organizations in approximately 200 events per year. The Energy Efficient Communities team seeks out events and presentation opportunities while engaging with organizations and municipalities as part of the overall outreach strategy for each of our Energy Efficiency programs.

[92] There have been instances where Energy Efficiency has partnered with cities where Energy Efficiency provides a bill insert (conforming to the city's size specifications) showcasing one of its programs and the city mails it out inside their water utility bills.

The team will provide materials and moving services for custom interactive displays, using a tracking database to ensure consistent and accurate logistical flow. Major conferences planned for the 2018-2019 biennium include but aren't limited to the West Coast Energy Management and the Powerful Business conferences.

L. Brochures

This Energy Efficiency department category includes brochures that are not program-specific. These include home improvements, tips for controlling moisture, general energy-savings tips, general energy-savings appliances, and a variety of brochures for non-English-speaking customers, for instance. This function will continue to re-print, replenish, and distribute these brochures to customers using continuously-improving methodologies.

M. Education

Schedules E/G 202

PSE will continue to provide Independent Colleges of Washington grants in 2018-2019.

N. Market Integration

For 2018-2019, the Market Integration group will continue supporting the enhancement of online energy-efficiency tools, and coordinating with traditional communications strategies and tactics.

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XII. Research & Compliance

The primary deliverables of this group are to provide critical market research, customer information, such as survey results, demographic information, etc., evaluations, and assistance in the management of programs, and the development of PSE's Conservation Potential Assessment every two years.

Tariff Schedule Adjustments

There are no tariff Schedules in the Research & Compliance group.

A. Conservation Supply Curves

The 2018-2019 focus of this group will be to select a consultant for the 2019 potential assessment, and provide staff support for the development of the 2019 Integrated Resource Plan (IRP).

B. Strategic Planning

The Strategic Planning group's 2018-2019 primary activities will include an oversample of regional Commercial Building Stock Assessment and continued implementation of more efficient research methods. For the upcoming biennium, the group's electric budget reflects PSE's $200,000 contribution to the Commercial Building Stock Assessment (CBSA) oversample, and the Regional End-Use Load Research study, with PSE's share estimated to be $700,000.

C. Market Research

The Market Research activities include energy-efficiency customer satisfaction surveys and tactical program target-marketing support. This team of analysts will provide much-needed customer data, including an understanding of customer perceptions, barriers to the adoption of energy-efficient behavior, and tracking customer awareness of energy-efficiency programs. They will also support program-specific requests for analyses of localized customer characteristics, attitudes, energy-usage trends, and behaviors.

D. Program Evaluation

Exhibit 6**:** *Evaluation Plan*, describes an ongoing process for prioritizing measures and programs, as well as the four-year timetable to evaluate all Energy Efficiency programs, consistent with condition (6)(c).

Exhibit 6 provides a detailed table of evaluations planned for the upcoming biennium.

1. EM&V 2.0 Pilot

Throughout 2018-2019, the Evaluation team will continue its initiative to assess the value of updated techniques, colloquially termed “EM&V 2.0”. Although this evaluation-related pilot will not directly produce conservation savings, Evaluation staff expect that the evaluation and measurement techniques that will be tested and validated can result in the potential of real-time adjustments to program implementation methodologies. Early detection of savings trends can lead to revisions of programs that are under-performing against expectations, and program staff can maximize those that are meeting or exceeding expectations.

PSE will apply lessons learned during its 2017 limited-scope testing to build energy-use models, which can be applied to a wider range of applicable programs in 2018-2019.

XIII. Other Electric Programs

PSE segregates the Other Electric Programs category from other Customer Solutions Electric and Gas Rider programs because they are not used in calculating cost-effectiveness of the overall Portfolio. For the 2018-2019 biennium, only Net Metering will be included in this category.

Tariff Schedule Adjustments

No tariff revisions are envisioned for 2018-2019.

A. Net Metering

Schedule E150

Program staff anticipate that the regional interest in customer renewables, and net metering in particular will continue into the next biennium, although at a slower pace. Falling equipment prices are expected to continue, and the Net Metering team expects that the effects of Senate Bill 5939 will reduce historical customer signup trends by approximately 50 percent in the upcoming biennium (from a new enrollment estimated total of 1,350 in 2017 to 800 in 2018, and 700 in 2019). The bill provides for updated production incentives and a statewide payment cap. The UTC accounting Order[93] for the treatment of distribution costs resulted in an apparent increase in the program's 2018-2019 budget versus the 2016-2017 biennium.

[93] Commission Order in Docket UE-990016, in response to PSE's petition to authorize deferral of Net Metering expenditures and recover those expenditures in the Schedule 120 Conservation Rider.

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XIV. Compliance

PSE will continue its commitment to comply with regulatory requirements, as reflected by its long-running track record of Stakeholder engagement and compliance transparency.

A. Compliance with RCW 19.285

This BCP and its Exhibits are consistent with RCW 19.285.040 (1)(a), which indicates that utilities must identify their achievable cost-effective conservation potential, reviewing and updating the assessment every two years thereafter. The BCP also satisfies § (b), which states that utilities shall establish and make publicly available a biennial acquisition target for cost-effective conservation consistent with their identification of the achievable opportunities.

B. Compliance with WAC 480-109

Throughout the BCP, PSE provides references to the applicable WAC section. PSE ensures that its conservation operations are in compliance with WAC rules in a manner similar to the process that it uses to track and report compliance with the biennial conditions, Exhibit 9: *Condition Compliance Checklist*. PSE tracks and reports on WAC compliance by incorporating the WAC requirements that are unique, in addition to PSE's biennial conditions, into its Exhibit 9.

Consistent with the requirements outlined in WAC 480-109-100(1) through (3), addressing the development of the 2018-2019 BCP, PSE conducted 15 Integrated Resource Planning Advisory Group (IRPAG) meetings over the course of 2016 and 2017. Energy Efficiency maintained a close collaboration with the CRAG throughout the BCP development process.

PSE held CRAG meetings to discuss specifics around the development of the 2018-2019 BCP on May 21, July 26, September 7, and October 11, 2017.[94] In addition to these in-person meetings, PSE maintained a high level of CRAG engagement, as required in applicable sections of WAC 480-109-110(1), including sub-sections (e) through (g), (i), (j), and (m).

As referenced in Chapter 11: *Exhibit Summary*, Exhibit i satisfies subsections (ii), (iv) and (v) of WAC 480-109-120(1)(b). The remaining subsections of WAC 480-109-120(1) are satisfied in other Chapters and Exhibits in the 2018-2019 BCP, as noted in Table XIV-1.

[94] These meetings were also consistent with conditions (3)(e), outlining the BCP deliverables timeline and (3)(c), requiring that PSE involve the CRAG in Conservation Potential Assessment and establishing the conservation potential.

Table XIV-1: WAC 480-109-120 Requirements Addressed in the 2018-2019 Biennial Conservation Plan

(All Section (1) of WAC 480-109-120. Requirements are paraphrased.)

Requirement	2018-2019 BCP Content
(a) Biennial Conservation Plan filed by November 1 of each odd year.	The 2018-2019 BCP and its Exhibits.
(b)(i) Must include a request that the Commission approve the potential and target	Executive Summary and Introduction
(b)(iii) The plan must include the potential, target, program details, biennial budgets, and cost-effectiveness calculations	▪ Potential & Target: Executive Summary, Introduction, Exhibit i ▪ Program Details: Exhibit 3 ▪ Biennial Budgets: Exhibit 1 ▪ Cost-Effectiveness Calculations: Exhibit 2
(b)(vi) The plan must include the evaluation, measurement & verification framework (and sub-parts A through C).	Exhibit 8 Sub-part C is addressed in Exhibit 6.

C. Six Sets of Requirements in Commission Orders

Throughout the decade-long evolution of conservation regulatory expectations, PSE has sustained successful compliance with an ever-increasing and complex set of requirements. Since 2013, in order to consolidate reporting and tracking of those requirements, PSE migrated requirements from a diverse set of Commission Orders[95] into its Exhibit 9: *Condition Compliance Checklist*. Since Exhibit 9 is a "look-back" document, PSE files it with its Annual Reports on March 1 of each year, rather than with its planning publications. PSE provides a list of the Docket numbers containing the requirements in Table XIV-2.

Doing so maximized PSE compliance efficiencies and provided Stakeholders added value in reviewing PSE compliance with conservation requirements in a single document.

[95] The 2001 Stipulation Agreement is formally known as Exhibit F of PSE's 2001 General Rate Case, Docket UE-011570 and UG-011571. These natural-natural gas unique requirements were only added to Exhibit 9 for tracking and reporting purposes.

Table XIV-2: Dockets Containing Conservation Orders, Requirements and Rules

Docket Number	Summary of Requirements
UG-011571	First set of natural gas conditions & established the CRAG
UE-100177	First biennial conditions. Sections A – J & L remain in effect. Section K has been replaced by subsequent biennial conditions.
UE-152058[96]	2016-2017 conditions
UG-121207	Commission Policy Statement on natural gas cost-effectiveness recommendations
U-072375	Merger Agreement; Low-income funding commitment and net metering
UE-121697 UG-121705	Decoupling Order, requiring Low Income Weatherization funding increases.

PSE continues to operate its natural gas conservation programs under the set of requirements and deliverables enumerated in the 2001 Stipulation Agreement, where the natural gas requirements remain in effect.[97]

[96] PSE will track any conditions with a deliverable in 2018 from Order 01 in Docket UE-152058, along with the Docket that's created when PSE files this 2018-2019 BCP.

[97] The 20014 Stipulation Agreement is formally known as Exhibit F of PSE's 2001 General Rate Case, Docket UE-011570 and UG-011571. UE-011570 was vacated by the Electric Settlement Agreement of 2010, Docket UE-100177. PSE added the natural-gas only requirements to Exhibit 9 for tracking purposes.

D. Specific Conditions Applicable to the Biennial Conservation Plan

During 2018-2019, PSE will continue to proactively and adaptively manage its conservation programs under the guiding principle of condition (2):

> Nothing within this Agreement relieves PSE of the **sole responsibility** for complying with RCW 19.285 and WAC 480-109, which requires PSE to use methodologies consistent with those used by the Pacific Northwest Electric Power and Conservation Planning Council ("Council"). Specifically, the conditions regarding the need for a high degree of transparency, and communication and consultation with external stakeholders, **diminish neither PSE's operational authority** nor its **ultimate responsibility** for meeting the biennial conservation target approved herein.

During the development of the BCP, PSE met the requirements of conditions (3)(c):

> (c) Puget Sound Energy must consult with the Advisory Groups starting no later than July 1, 2017, to begin to identify achievable conservation potential for 2018-2027 and to begin to set annual and biennial targets for the 2018-2019 biennium, including necessary revisions to program details. See RCW 19.285.040(1)(b); WAC 480-109-110.

And (3)(e):

> (e) Prior to filing the Biennial Conservation Plan, Puget Sound Energy shall provide the following information to the CRAG: draft ten-year conservation potential and two-year target by August 1, 2017; draft program details, including budgets, by September 1, 2017; and draft program tariffs by October 1, 2017.

This 2018-2019 BCP also addresses, completes, or initiates compliance with other Sections, Orders, and conditions specific to the BCP's contents. Table XIV-3 provides highlights of deliverables with which this report complies, and in what section or chapter PSE addresses the compliance requirement.

Table XIV-3: Conditions Addressed in the 2018-2019 Biennial Conservation Plan

Section/Condition Subject	Plan Chapter
F(11), UE-100177 – Annual detailed program budget	Chapter 1: Executive Summary, Chapter 2: Introduction Details: *Exhibit 1: Savings and Budgets*
(4)(a) UE-152058 – PSE mst submit annual budget, with program details.	Chapter 1: Executive Summary, Chapter 2: Introduction, Details – *Exhibit 1*
(5) - Program details on file with UTC	*Exhibit 3: Program Details*
(6)(c) – PSE must spend a reasponable amount of its conservation budget on EM&V.	EM&V spending is highlighted and summarized in magenta in *Exhibit 1*
(7)(c) – PSE may spend up to 10 percent of its conservation budget on programs whose savings impact has not yet been measured.	10 percent spending is highlighted and summarized in blue in *Exhibit 1*
(8)(a) – The Commission uses the TRC test as its primary cost-effectiveness test.	*Exhibit 2: Cost-Effectiveness Calculations*
(10)(a) – PSE will continue to review the feasibility fo pursuing cost-effective conservation in generating facilities it owns in whole or in part.	Chapter 8, Regional Programs *Exhibit 3: Program Details*

PSE provides the CRAG with compliance progress updates routinely throughout the year, using its Exhibit 9 formatting. PSE also includes references to applicable conditions in each CRAG meeting slide presentation. PSE will focus on continuously improving the value of information provided, and update the CRAG regularly in the upcoming biennium.

E. Compliance with Stakeholder Requests

Beginning in 2016, Regulatory Stakeholders requested PSE to consider certain issues and requests from different constituencies during the 2018-2019 BCP development process.

PSE addressed those requests, as highlighted in Table XIV-4.

Table XIV-4: Stakeholder Requests Addressed in the 2018-2019 Biennial Conservation Plan

Request	Highlight of Disposition	Chapter Reference
Incorporate "Deep Retrofit" principles.	Business Energy Management developed the Pay for Performance pilot.	Chapter 9: Pilots
Add a billing function that provides on-bill repayment functionality.	The forecasted costs to implement such a feature is not a prudent use of ratepayer funding. PSE will continue to consider alternative solutions and bring them to the CRAG for discussion.	Chapter 3: Key Areas of Focus
Consider developing an incentive mechanism, consistent with WAC 480-109-100(9).	PSE supports a workshop to discuss statewide incentives at a utility level that recognizes innovation.	Chapter 2: Introduction
Focus on hard-to-reach, proportionately underserved market segments.	PSE discusses specific initiatives that target these segments throughout the BCP.	Chapter 3: Key Areas of Focus, Chapter 5: Residential Energy Management Overview Chapter 7: Business Energy Management Overview

F. Energy Efficiency Compliance Controls

PSE and Energy Efficiency routinely evaluate and examine compliance controls. Staff consistently update and test management review, compliance processes, and compliance tracking. Over the span of several years, PSE has put into place controls to ensure compliance not only with the above-noted conditions, but also with other business management subjects:

- Ensuring that Rider funds are spent appropriately,
- Ensuring that invoices are approved only by applicable managers,
- Providing segregation of duties for financial activities (such as incentive payment processing & reporting),
- Effectively coordinate CRAG meetings, associated summary briefs, and all CRAG-related exchanges, information and communications, *[Continued on next page]*

- Confirming savings accuracy, including all savings adjustments,
- Substantiating financial reporting accuracy, and
- Others, as required.

Highlights of some of the most important compliance controls that PSE maintains and updates at regular intervals include the following steps:

- Clearly defined signature authority for invoice approval,
- Clearly defined delegation of commitment authority policies,
- Clearly defined regulatory training,
- Clearly defined measure guidelines, including implementation of new measures, revision of existing measures,
- Segregation of duties provide cross-checks and ensures that payments cannot be mis-appropriated, and
- Energy Efficiency employs a dedicated compliance management staffing to oversee regulatory deliverables compliance.

Additionally, one of the best and most effective compliance controls is clear and consistent communication with Regulatory Stakeholders.

G. Development of the 2018-2019 Conditions

PSE engaged the CRAG in the development of the draft 2018-2019 conditions in its July 26, 2017 CRAG meeting. Throughout the 2018-2019 planning process, PSE collaborated with Commission Staff and provided the CRAG with opportunities to review and comment on the condition draft revisions. PSE received one comment from the CRAG on condition 10 (excess conservation) on August 17, 2017. PSE and the CRAG continued to collaborate on the final draft of the 2018-2019 conditions through the BCP filing period.

PSE intentionally left this page blank for proper pagination.

XV. Exhibit Summary

This section provides a brief overview of the contents of each Exhibit included with the 2018-2019 Biennial Conservation Plan.

A. Exhibit i: Ten-year Achievable Conservation Potential and Biennial Conservation Acquisition Targets

The 2016-2025 Ten-year Achievable Conservation Potential and 2018-2019 Biennial Conservation Targets Exhibit discusses the development of the electric ten-year achievable conservation potential and two-year conservation target.[98] Exhibit i may be referenced as "The Ten-year Potential and Two-year Target", "Two-year Target", or "2018-2019 Biennial Target". Each designation has the same meaning for purposes of referencing the electric 2016-2025 Ten-year Achievable Conservation Potential and 2018-2019 Biennial Conservation Targets.

Exhibit i provides an overview of PSE's Integrated Resource Plan (IRP) guidance and Conservation Potential Assessment (CPA) development processes, which satisfy the requirements of WAC 480-109-100(1)(a)(i), (2) and (3). The Exhibit also notes the extent of public participation in the development of the 10-year potential and 2-year target, as prescribed by WAC 480-109-120(1) sub-section (b)(ii). Another sub-section addressed in Exhibit i is (b)(v), which requires that a utility provides a description of and support for any changes from the assumptions or methodologies used in the utility's most recent conservation potential assessment.

PSE reviewed the majority of the ten-year potential and two-year target development points with the CRAG throughout the latter half of 2017. A key requirement met in these meetings is condition (3)(c) which required PSE to engage the CRAG in the scope and design of the 10-year conservation potential analysis and to identify the achievable conservation potential for 2018-2027. Additionally, many CRAG members also participated in the Integrated Resource Planning Advisory Group (IRPAG) meetings between 2016 and 2017.

Exhibit i indicates that PSE's 2018-2027 ten-year achievable electric conservation potential is 1,799,149 MWh, or 205.4 aMW. Following adjustments made to the pro-rata share of the 10-year potential, the 2018-2019 two-year electric conservation potential is 473,163 MWh, or 54 aMW of first-year savings, as measured at the customer meter.

[98] This document only discusses electric conservation.

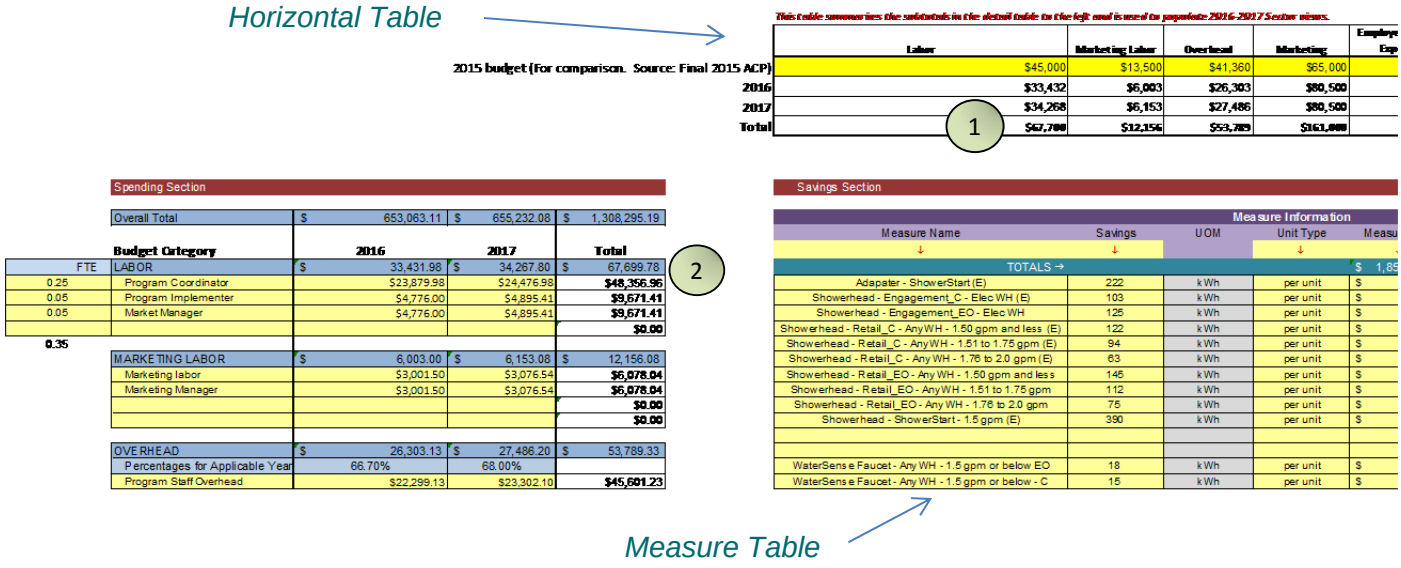
B. Exhibit 1: Sector-Level Savings Goals and Anticipated Expenditures

Exhibit 1 represents a detailed view of every Energy Efficiency program; PSE provides a separate view for the programs' electric and natural gas area. Each program detail page rolls up to a Sector view, which sums the budget categories ("Labor", "Overhead", "Employee Expense", etc.). In the Sector views, there are separate electric and natural gas pages for each year of the biennium. Finally, the Sector views roll up to the Portfolio views. PSE presents each Sector and Portfolio view in a two-year, and separate 2018 and 2019 views. This presentation is also consistent with condition (4)(a), providing separate, annual budget and conservation target views.

The format of Exhibit 1 remains unchanged from the previous three biennia, providing a high degree of consistency for Stakeholders. In keeping with its adaptive management principles, it is PSE's intention to enhance the presentation of the budget and measure details with each iteration. PSE takes into account development and reporting efficiencies of PSE staff, with a keen eye towards Stakeholder needs, requests, and observations.

Program detail pages contain the finest granularity of the 2018-2019 savings and budgets. The "Total" figures noted in the top horizontal tables are calculated using the 2018 figure plus the 2019 figure ("1" in Figure XV-1). The "2017 ACP (for comparison)" figures are extracts from the 2017 ACP, and are included for comparison purposes only. The figures in the blue sub-totals in the vertical table ("2" in Figure XV-1) on the left of each page are linked to the totals (individual year and overall totals) in the horizontal table.

Figure XV-1: Example of an Exhibit 1 Program Detail Page (1 of >120)



As a courtesy, and to enhance Stakeholders' reviewing experience, PSE also incorporated sub-total comparisons to the 2016-2017-specific figures in the 2-year electric and natural gas Sector views.

Among several other document enhancements:

- PSE added tabs for new programs and additional detail representation (for instance, separate sheets are now presented for "449" and "non-449" customer groups). There are also new tabs for "building the electric and natural gas tables", and a tab that contains the table presented in the Executive Summary chapter (Table I-1).
- The Exhibit 1 electronic Microsoft® Excel™ hyperlink buttons are color-coded, for easier differentiation between electric and natural gas pages, and Portfolio and Sector views. Navigation buttons eliminate the need to scroll tab-by-tab through over 120 pages of the workbook.
- Each sheet is double-and triple-checked; at the point of the workbook's creation, and at every point of update, using a series of notifications, confirmations, and check-offs by coordinating staff members to ensure accuracy.
- PSE added a global reference page to the workbook, reducing the number of one-time entries needed on each page.

C. Exhibit 2: 2018-2019 Cost Effectiveness Estimates

Table IV-5 on page 88 (Chapter 4: *Developing PSE's 2018-2019 Biennial Conservation Plan*) provides PSE estimates of the Portfolio-level cost effectiveness of its electric and natural gas programs. Exhibit 2 provides program-level cost-effectiveness figures, as well as electric and natural gas-specific program calculation pages.

D. Exhibit 3: Energy Efficiency Program Details

Discussions of program-level strategies and tactics are located in Exhibit 3: *Program Details*. It is notable that PSE maintains a running version control number (for instance, "**version**: two **replacing version**: one") in the footer section of Exhibits 3 and 4. This version numbering practice commenced with the 2011 Annual Conservation Plan filing.

Each program that generates conservation savings[99] contains an overview of program elements:

- The purpose of the program,
- The program description, *[continued on the next page]*
- The program's target market,
- An overview of customer incentives,[100]
- The marketing plan,[101] and
- Outreach plan.

Programs, functions, and activities in the Portfolio Support, Research & Compliance, and Other Electric Programs Sectors also provide a Purpose and Program Description discussion.

E. Exhibit 4: Energy Efficiency Measures, Incentives & Eligibility

Exhibit 4 provides, by program and by fuel type, all incentives Energy Efficiency will offer as of January 1, 2018. The Exhibit also discusses custom grant calculations and the types of projects and measures for which PSE will provide a custom grant.

Exhibit 4, similar to all Energy Efficiency Exhibits, is organized by Sector (Residential, Business, Other Electric Programs), by Conservation Schedule number. It outlines, in table formats by end-use type, the measure types available to PSE customers. The Exhibit also discusses PSE information services, NEEA value-add, and net metering services offered to customers. In the same manner as Exhibit 3, PSE maintains a running version control number in the footer section of Exhibit 4.

A key enhancement to Exhibit 4 is the relocation of the measure lives tables. PSE maintained these tables at the back of the Exhibit since its creation in 2011. Henceforth, the measure lives will be included in the *Exhibit 5: Prescriptive Measures* tables, rather than Exhibit 4.

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[99] Programs or functions such as Evaluation or Conservation Supply Curves do not generate savings and for the most part, do not interface with PSE customers. Therefore, program elements such as *Customer Incentives* and *Target Market* do not apply to these.

[100] PSE provides a detailed listing of measure incentives in Exhibit 4: *Energy Efficiency Measures, Incentives & Eligibility*.

[101] A summary discussion of the Energy Efficiency Marketing Plan can be found in Exhibit 7: *Marketing & Outreach Executive Summary*. PSE provides detailed marketing plans by program in Exhibit 3: *Program Details*.

F. Exhibit 5: Prescriptive Measures

Energy Efficiency's comprehensive list of all prescriptive measures—RTF UES and PSE Deemed—is Exhibit 5: *Prescriptive Measure Tables*. Energy Efficiency's Measure Revision Guidelines require that the Director, Energy Efficiency, approve all measure revisions (either updated savings values or new measures). These measures are then archived in PSE's DSMc system for access and savings reporting.

Accordingly, 2018 measure values aren't archived in DSMc by the time that the 2018-2019 BCP is filed in November 2017. PSE will provide the 2018 Exhibit 5 to the CRAG when it updates the first quarter 2018 filing of Exhibit 4: *Measures, Incentives & Eligibility*. Until then, planned prescriptive measure UES values are available for review in each program's detail page of Exhibit 1: *Savings and Budgets*.

It is important to note that when PSE develops and files its conservation plans, not all UES measures have been updated by the RTF, or are in the process of being updated at the time that PSE is required to file the BCP.[102] PSE will make any necessary adjustments needed to align the savings values with RTF UES values at the beginning of 2019, if the RTF values are published after September 1, 2017, consistent with PSE's *Measure Revision Guidelines*.

G. Exhibit 6: Energy Efficiency Evaluation Plan

Exhibit 6 provides a view of all efficiency program evaluations planned over a four-year cycle, along with the guiding principles of the Evaluation Team.

H. Exhibits 7: Marketing and Outreach Executive Summary

The Energy Efficiency Marketing and Outreach Plan, Exhibit 7, Includes overarching views of marketing and outreach strategies that PSE will employ to call customers to action, motivate them to install energy efficiency measures, and engage with PSE on energy efficiency initiatives. Exhibit 7's content is intended to serve more as an overview or summary. PSE discusses Marketing and Outreach strategies that apply to specific programs in detail in Exhibit 3.

[102] In order to comply with the requirement of WAC 480-109-110(3), which requires PSE to provide the CRAG a draft BCP filing 30 days in advance of the filing, the Measure Revision Guidelines were adjusted so that henceforth, PSE will employ RTF UES values or PSE Deemed values that are effective on September 1 of each planning year.

I. Exhibit 8: EM&V Framework

The EM&V Framework is included as Exhibit 8 to the 2018-2019 Biennial Conservation Plan. Exhibit 8: *EM&V Framework* provides discussions on how PSE will conduct evaluation, measurement, and verification activities to estimate savings and other metrics associated with its Energy Efficiency department programs.

J. Exhibit 9: Condition Compliance Checklist

Exhibit 9 is excluded from PSE's planning documents, as the Condition Compliance Checklist is a backward-looking document, which is more applicable to PSE's Annual Reports of Energy Conservation Accomplishments.

K. Exhibit 10: Northwest Energy Efficiency Alliance Plan

NEEA plans and reports are standalone documents, comprising Exhibit 10. Treating this document in this manner reflects the significant effort expended by NEEA Staff to create these references for inclusion in PSE filings.

L. Exhibit 11: Tariff Revisions

PSE created Exhibit 11 to provide the CRAG with mark-up versions of the Conservation Schedule tariff sheets that PSE plans to file and request Commission approval, contemporaneously with the 2018-2019 BCP. PSE will request that the revised Tariff Sheets be made effective on January 1, 2018.

It is important to note that in the tariff filing process, only those Tariff Sheets being revised are filed, rather than the entire Schedule or complete set of Conservation Schedules. As a courtesy to readers, though, PSE includes a PDF of the entire (current, non-revised) Schedule for easier reference in Exhibit 11, with the revisions noted in mark-up Microsoft® Word™ versions.

Glossary of Terms

This section provides descriptions of commonly-used Energy Efficiency terms and acronyms.

A. Commonly-Used Terms

Calculated Savings	This savings type is different from deemed 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).
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.
Conditions	Specific deliverables and stipulations with which the Company must adhere through the course of operating and managing energy efficiency programs. In addition to compliance requirements outlined in the Settlement Terms Sections A through J and L in Docket No. 100177, 2016-2017 conditions are listed in Appendix A of Order 01 in Docket UE-152058. Conditions are typically included in Commission Orders approving PSE's biennial conservation targets.
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 savings 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 may have a deemed value of 24 kilowatt-hours per year.) This classification applies to both RTF and PSE Deemed (noted on the following page). This term has been supplanted by "UES", defined below.
Direct Benefit to Customer (DBtC)	A PSE-specific term, indicating 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 the PSE 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—rather than a PSE customer—into a qualifying structure.

Glossary, continued

Distribution	For the purposes of Schedule 292, means electrical facilities within the State of Washington that the Company owns or operates to convey electricity from the point of generation or purchase to the point of use by a Customer. Distribution includes transmission and distribution lines related substations and transformers.
EIA	Energy Independence Act. A 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. The EIA was also sometimes colloquially referred to as "I-937".
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, by law, is now referred to as the Energy Independence Act ("EIA").
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.[103] Measures should also meet cost-effectiveness standards.
Orders (see also Conditions)	Overarching instructions to an entity under the purview of the Washington Utilities and Transportation Commission (UTC or Commission). Orders may be made at the conclusion of a Docket proceeding or throughout the course of a Docket's existence. At the time of the publication of this BCP, PSE is operating under Order 01 of Docket UE-152058.
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 WAC 480-109-100(5).

[103] Schedule 83, section 4, Definitions, #m. Schedule 183, section 4, #l.

Glossary, continued

RTF Deemed (see also UES)	A legacy term, only used in the Source of Savings database. Relative to PSE savings types (Custom, Calculated, PSE Deemed or RTF Deemed), supported by RTF analyses, in compliance with WAC 480-109-100(5).
Savings	Savings (both natural gas and electric) 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. Electric savings are counted at the customer meter, not the busbar. Gas savings are counted at the customer natural gas meter. It is important to note that all measures have an associated life, during which the noted annual savings accumulate. Each measure has a different life, as determined by rigorous evaluation. The average measure life per program can be found in the Energy Efficiency Cost-Effectiveness tables in Exhibit 2 of this report. As noted above, measures have associated savings beyond the first year; those savings continue to accrue to the benefit of PSE.
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

ACP	Annual Conservation Plan
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.
BCP	Biennial Conservation Plan
BEM	Business Energy Management
BOMA	Building Owner and Managers Association
CBTU	Comprehensive Building Tune-Up (program in the BEM Sector).
CFL	Compact Fluorescent Lamp
C/I	Commercial/Industrial. References programs in the Business Energy Management sector.
CMS	Customer Management System. A PSE proprietary software application that tracks customer activities, inventory and rebate processing.
CRAG	Conservation Resource Advisory Group
CSY	Customer Solutions database; prior to 2017, used to process custom grants and select prescriptive rebates within Energy Efficiency. The database remains as a historical archive. Active project management is now managed in Energy Efficiency's DSMc system.
DSMc	Demand Side Management central. A comprehensive project management system, developed and maintained by Nexant.
EES	Energy Efficiency Services; an acronym that is still associated with some tracking and reporting systems and databases, referencing Energy Efficiency's former name. (Eliminating this reference would cause severe disruption of queries and reports in some systems and filing structures.)
EE	Energy Efficiency
EME	Energy Management Engineer
EM&V	Evaluation, Measurement and Verification
FTE	Full Time Equivalent, in reference to PSE staffing levels
HVAC	Heating, Ventilation and Air Conditioning

Acronyms, Continued

IRP	Integrated Resource Plan
IRPAG	Integrated Resource Planning Advisory Group
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 (typically, a lamp type)
MWh	Megawatt-hour. 1,000 kWh = 1 MWh
NEIs	Non-Energy Impact, Quantifiable. Formerly known as Non-Energy Benefit, or NEB. Attributes having a direct cost-effectiveness correlation applicable to the Total Resource Cost test. It is important to note that any reference to NEIs in any PSE document refers to those that are quantifiable. Any non-quantifiable benefits will be specifically noted.
NEEA	Northwest Energy Efficiency Alliance
O&M	Operations & Maintenance
RB2B	Residential Business to Business Channel. Comprised of Multifamily Retrofit, Multifamily New Construction, Low Income Weatherization, and the Single Family New Construction programs. Formerly referred to as the Multifamily Channel.
RCW	Revised Code of Washington.
REM	Residential Energy Management
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.
SBDI	Small Business Direct Install (program within the BEM Sector, Commercial Rebates).
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).[104]

[104] 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, audits, analysis, technical review and funding specific to the Measure or program and evaluation.[105]
UES	Unit Energy Savings. Formerly "Deemed", the RTF updated the term in 2011.
WAC	Washington Administrative Code
WUTC, or UTC	Washington Utilities and Transportation Commission

[105] Schedule 83, section 4, Definitions, #bb. Schedule 183, section 4, #z.

Conclusion

This concludes Energy Efficiency's Overview of its 2018-2019 Biennial Conservation Plan. The following Exhibits i through 11 provide an extensive amount of detailed information about how PSE will execute the concepts and initiatives described herein.

Consistent with WAC 480-109-120(1)(b)(i), PSE requests that the Commission approve its ten-year conservation potential and biennial conservation target. PSE acknowledges, and is very appreciative of the partnership with the CRAG and the collaboration that was cultivated with CRAG members throughout 2017. PSE looks forward to further success in 2018-2019.

PSE additionally appreciates the input and cooperation of its regional partners, other PSE divisions, and its constituents. As it progresses through the upcoming biennium, PSE will continue to keep its Stakeholders apprised of progress, program refinements, measure updates, and other adjustments as PSE utilizes its business management acumen to anticipate and stay ahead of regional conditions in moving towards achievement of its 2018-2019 biennial savings targets.

Most importantly, PSE extends its thanks to its customers. PSE sincerely appreciates their acknowledgement of its efforts and trust that they put in the dedicated men and women of Energy Efficiency. It is a steward of their efficiency efforts and funding. PSE takes its obligation to prudently use the funds that they provide and improve the environment for them and their children with the utmost respect and sincerity. PSE consistently strives to provide the highest level of customer service in the Northwest.

The Energy Efficiency Staff look forward to a productive and constructive 2018-2019!

Respectfully submitted,

PSE PUGET SOUND ENERGY

Puget Sound Energy
Energy Efficiency

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