2019
Annual Conservation Plan

Overview

PSE PUGET SOUND ENERGY

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[1] It is important to note that the measure tables listed in Exhibit 4: Measures, Incentives & Eligibility are now incorporated into Exhibit 3, making it a more comprehensive document.

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I. Executive Summary

Consistent with WAC 480-109-120(2)[2] and applicable Sections of Exhibit F in Docket UG-011571,[3] Puget Sound Energy (PSE) presents this 2019 Annual Conservation Plan (the Plan or ACP). The Plan represents program revisions, improvements, and modifications that PSE is putting into place in order update its originally-indicated 2019 savings and anticipated expenditures in the 2018-2019 Biennial Conservation Plan (BCP). Table I-1: 2019 Energy Efficiency Savings Goals and Budgets, presents the revised electric and natural gas savings goals and budgets, as compared to their original values. Tables in Chapter 3: *2019 Annual Conservation Plan Development*, page 27, present additional summaries at the Sector level. The Company requests that the Commission allow the Plan to become effective on January 1, 2019.

Table I-1: 2019 Energy Efficiency Savings Goals and Budgets

2019 Energy Efficiency Portfolio Amounts					
Category	Originally-Indicated, *2018-2019 BCP*		**Updated 2019 ACP Values**		Revised TRC B/C Ratio
	Savings	Budgets	Savings	Budgets	
Electric	239,127 MWh	$84,273,557	228,772 MWh	$83,793,668	1.39
aMW	*27.3 aMW*		*26.1 aMW*		
Percent Change			***-4.3%***	***-0.6%***	
Natural Gas	3,233,146 Therms	$15,791,274	3,147,391 Therms	$15,910,511	1.34
Percent Change			***-2.7%***	***0.8%***	
Total Budget		$100,064,831		$99,704,178	
Percent Change				***-0.4%***	

Note: consistent with WAC 480-109-100(10)(b), Low Income Weatherization (LIW) electric figures are excluded from REM and Portfolio TRC ratios. LIW natural gas figures are also excluded from REM and Portfolio cost-effectiveness totals.

The Plan consists of this Overview document and a series of supporting Exhibits, in which PSE provides electric and natural gas program updates specific to 2019.

[2] WAC 480-109-120(2): *Annual conservation plan.* On or before November 15th *[sic]* of each even-numbered year, a utility must file with the commission, in the same docket as its current biennial conservation plan, an annual conservation plan containing any changes to program details and annual budget.

[3] Exhibit F, Settlement Terms for Conservation, is often referred to as the Stipulation Agreement. The corresponding electric portion of the Agreement, UE-011570, was vacated by the 2010 Electric Settlement Agreement in Docket UE-100177. Sections with which this Plan complies include, but are not limited to C.5, E.14, H.21-27, and K.34.

A. Impact of ACP Updates on 2018-2019 BCP Total Utility Conservation Goal

In each annual update of its biennial plan, PSE considers it a good business practice to share with its Regulatory Stakeholders the impact that the updated plan will have on the overall Total Utility Conservation Goal. Table I-2 provides the forecasted 2018-2019 electric and natural gas total savings. It is noteworthy that it isn't possible for PSE to finalize the actual 2018 and 2019 savings amounts until the first quarter of 2020.

Table I-2: 2018-2019 Total Utility Conservation Goal Forecast

2018-2019 Total Utility Conservation Goal Forecast Portfolio Amounts			
Category	BCP Value	2018 Forecast + 2019 Updates	Percent Over/(Under) Target
Electric *aMW*	520,456 MWh *59.4 aMW*	531,768 MWh	2.2%
Natural Gas	6,502,750 Therms	7,324,729 Therms	12.6%

B. Updates to the 2018-2019 Biennial Conservation Plan

In the Chapters 4 through 10 program discussions, PSE includes the original 2018-2019 program overviews as a courtesy to readers. PSE highlights these with unique section headers to clearly differentiate the discussions. These provide a point of comparison to 2019 modifications—also denoted by a unique section header—in compliance with WAC 480-109-120(2), and emphasizes PSE's adaptive management through its application of continuous improvement principles. PSE discusses its continuous improvement process steps in Chapter 12: *Applying Continuous Improvement Principles to Adaptively Manage Energy Efficiency's Portfolio*. PSE also notates updated 2019 savings, measure values, and budget figures throughout Exhibit 1: *Savings and Budgets*.

Comparisons of original 2019 figures to those updated in the 2019 ACP refer to the 2019-specific page of the 2018-2019 Exhibit 1: *Savings and Budgets*.

1. 2019 Electric Savings Revisions

In its 2018-2019 Biennial Conservation Plan (BCP), PSE indicated that its original 2019 electric savings goal was 239,127 MWh, with anticipated expenditures of $84.27 million (including Other Electric Programs).[4] As indicated in Table I-1, the updated 2019 savings goal is now 228,772 MWh with anticipated expenditures of $83.79 million. These figures represent a 4.3 percent decrease and a reduction of 0.6 percent from the original values, respectively.

2. 2019 Natural Gas Figure Revisions

In its 2018-2019 BCP, PSE indicated that its original 2019 savings goal was 3.23 million therms, with an anticipated expenditure of $15.79 million. As indicated in Table I-1, the updated 2019 natural gas savings goal is now 3.15 million therms with anticipated expenditures of $15.91 million. These figures represent a 2.7 percent reduction, and 0.8 percent increase over the original values, respectively.

C. Achieving the 2019 Savings Goals

In 2019, Energy Efficiency will continue to 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

PSE expects overall Portfolio electric savings to achieve approximately 4.3 percent less savings than originally planned for 2019.

The Residential Energy Management (REM) Sector faces continued downward pressure on prescriptive measure savings values (UES – Unit Energy Savings). This impacted most REM programs. Additionally, some retail appliances have seen a reduction in consumer demand in the past year, resulting in the retirement of some key residential offerings. Web-Enabled Thermostats, which saw a significant UES reduction in 2019, continue to be enthusiastically embraced by customers.

[4] For the 2018-2019 biennium, the only program noted in Other Electric Programs is Net Metering. Consistent with requirements outlined in condition (9)(a), Net Metering administrative costs may be used as approved by the Commission.

Accordingly, a significant increase in units incented, along with an expansion of the product across more programs in REM will help to minimize some of the programs' lower savings. The Sector will continue its highly effective marketing and outreach campaigns, including Energy Upgrades and pop-up events in 2019.

In the Business Energy Management (BEM) Sector, lighting programs will be greatly simplified to increase customer participation and satisfaction, with an increase in customer participation carrying over from 2018. This includes offerings in the Lighting to Go Business Rebates program and BEM's business lighting grant program. The Sector will manage the implementation of simplified indoor agricultural savings calculation process, which will maximize the grant application process and increase savings consistency. BEM has also developed an incentive adjustment for its Luminaire Level Lighting Controls (LLLC) bonus, and has developed additional training programs for contractors to promote the technologies.

As a result of their 2018 implementation, two BEM pilot-analogous programs[5] will be converted to ongoing programs in 2019: The Commercial Midstream, and I-SEM (Industrial Strategic Energy Management) programs. The Commercial Kitchen & Laundry program will also launch a highly-anticipated new measure: Demand Control Kitchen Ventilation (DCKV).

The Pay for Performance pilot is managed by BEM's Commercial Strategic Energy Management (CSEM) organization. Despite the pilot team's best efforts, only one customer (as of the date of this Plan's filing) has enrolled. The team continues to implement a number of tactics to increase this number, although electric savings are expected to fall well short of the originally-indicated target.

Lastly, in August, 2018, the Northwest Energy Efficiency Alliance (NEEA) adjusted its 2018-2019 savings forecast, reducing the 2019 electric savings projections by 10 percent: from 12,527 MWh to 11,300 MWh.

[5] PSE differentiates "Pilots with Uncertain Savings" from "Pilot-Analogous" initiatives. PSE considers those programs or measures that have a high degree of savings certainty as analogous to pilots. Where there is a degree of uncertainty, PSE classifies those programs or measures as "Pilots with Uncertain Savings". The only initiative fitting the latter category is the Pay For Performance pilot. *Since the projected savings from that pilot are excluded from the 2018-2019 EIA Penalty Threshold, PSE wouldn't re-classify that program mid-biennium.* PSE discusses Pilots and Pilot-Analogous initiatives in Chapter 3.

2. Natural Gas

Energy Efficiency expects the natural gas Portfolio to acquire approximately 2.7 percent fewer therms that originally forecast for 2019 in the 2018-2019 BCP.

Similar to the circumstances in the electric Portfolio, lower UES values (many driven by RTF UES value adaptations) impacted most Residential programs. For instance, the uptake of the web-enabled thermostats offerings, unlike the electric portfolio, will not be enough to overcome the appreciably lower UES values. This will have a sizeable impact on the Residential Web-Enabled Thermostat program.

Helping to offset some of those losses, a major retailer added a new efficient showerhead to their inventory in 2018, which is anticipated to significantly boost the Residential Showerhead program natural gas savings. A Seattle agency was reinstated in 2018, which Low Income Weatherization program staff indicate can result in a noteworthy increase in multifamily boiler natural gas savings. A re-design in its incentive approach in the Multifamily New Construction program will provide some savings relief to reductions in key programs.

Similar to some Residential programs, the addition of Web-Enabled Thermostats in the Commercial HVAC program is projected to contribute significantly to a slight increase in BEM natural gas savings, as is an increase over the original 2019 estimate for the Commercial Midstream program. Additionally, as is the case in the electric Portfolio, the natural gas Pay for Performance pilot is expected to acquire 90 percent fewer therms than originally planned.

D. Principal Considerations Influencing 2019 Revisions

2019 key savings drivers include continued downward pressure on electric and natural gas UES values of high-value measures, such as appliances, web-enabled thermostats, heat pump water heaters, aerators, and showerhead adaptors. PSE has also seen reduced market demand on measures that are now becoming saturated in the market.

Some new contracted programs (Commercial Midstream, for instance) required some examination of the originally-bid program assumptions, leading to savings adjustments in some cases. Past performance also resulted in some programs (Single Family Weatherization and Multifamily Retrofit among others) realigning their 2019 expectations.

One consistent key budget revision driver in Energy Efficiency Plans is updated corporate labor overhead values.

In addition to accounting for slightly reduced overhead values, the 2019 ACP budgets include two items that were inadvertently and unintentionally omitted from the 2018-2019 BCP: Home Energy Reports and Customer Awareness Tools.[6]

- Home Energy Reports (HER): PSE did not account for the additional savings that the Individual Energy Reports pilot (electric and natural gas) brought when subsumed into the "legacy" HER program. Additionally, the corresponding budgets were omitted from the 2018-2019 BCP. Thus, $325,000 was added to the electric REM budget total, and $492,000 is added to the 2019 REM natural gas budget.
- Customer Awareness Tools: As a sub-total in the Customer Digital Experience budget line, these tools consist of Unusual Usage Alerts (UUAs) and Seasonal Alerts. Inclusion of Customer Awareness Tools added $651,000 to the electric budget, and $135,000 to the natural gas 2019 budget totals.

The majority of the remaining budget revisions can be linked to savings programs' increased or decreased savings, and the corresponding incentives. In some cases, (Strategic Planning and Program Evaluation, for instance) expenses that were originally expected in 2019 were instead recognized in 2018, resulting in budget reductions for 2019.

PSE provides more detailed discussions of key savings and expenditure drivers in Chapter 3: *2019 Annual Conservation Plan Development*, section III.B, starting on page 28. PSE also provides an extensive program-by-program comparison chart in Exhibit 1: *Savings and Budgets*.

E. Cost Effectiveness Considerations

In the 2019 cost-effectiveness calculations, PSE applied all available RTF-established Non-Energy Impacts (NEIs)[7] to the applicable prescriptive rebate programs, including electric and natural gas. PSE provides cost-effectiveness calculations by program in Exhibit 2: *Cost-Effectiveness Estimates*. Final cost-effectiveness figures—which may differ from the above estimates, and are based on actual expenses and savings—are reported in PSE's Annual Reports of Energy Conservation Accomplishments, filed with the Commission each April.

[6] It is important to clarify that PSE provided both of these services and incurred costs throughout 2018. PSE will report their savings and expenditures in the 2018 Annual Report of Energy Conservation Accomplishments in the first quarter of 2019.

[7] Of particular note, the $PM_{2.5}$ NEI, as reported by Abt Associates in its Final Wood Smoke Analysis (provided to the CRAG on September 26, 2018), is included in applicable space heat measures.

1. Electric

PSE estimates that the aggregate of electric programs will achieve a Total Resource Cost (TRC) benefit-to-cost ratio of 1.39, and a Utility Cost (UC) benefit-to-cost ratio of 1.55 and a at the Portfolio level.

2. Natural Gas

The overall Portfolio estimated natural gas TRC benefit-to-cost ratio will be 1.34. Natural gas programs will, in aggregate, achieve an overall UC of 1.55.

F. Regulatory Stakeholder Engagement and Reporting

Throughout the Plan, PSE addresses and references discussions, requests, and agreements made with its Regulatory Stakeholders in 2018.

1. Conservation Resource Advisory Group (CRAG)

PSE proactively engaged the CRAG in the development of this ACP, and provided the CRAG with:

- Key 2019 ACP continuous improvement areas in its August 22, 2018 CRAG meeting, and
- Draft ACP review in its October 17 CRAG meeting.

In accordance with WAC 480-109-110(3), PSE provided the CRAG with an electronic draft 2019 ACP on October 15, 2018.

PSE will continue to provide its periodic CRAG newsletter *CRAG Communications* at appropriate intervals to ensure that the CRAG is up-to-date with Energy Efficiency developments. 2019 is a planning year for the 2018-2019 biennium. PSE anticipates that there will be five 2019 CRAG meetings, four of which will focus on the BCP development.

2. Regulatory Stakeholder Comment Follow-up

In the 2019 Plan, Energy Efficiency provides discussions on several long-standing initiatives, business practices, and guiding principles. In concert with its CRAG, PSE continued to refine and improve in all areas throughout 2018. Energy Efficiency staff base these principles and practices on almost two decades of successful service.

The Plan also reflects responses to Regulatory Stakeholder comments, requests and recommendations. In response, PSE has:

- Continued to focus on strategies to serve Hard to Reach/Potentially Underserved Segments.
- Applied continuous improvement principles to adaptively manage its suite of energy-efficiency programs.
- Developed enhancements of its Conservation Voltage Regulation (CVR) strategies and program implementation,
- Continued the piloting and assessment of advanced evaluation, measurement and verification (colloquially, "EM&V 2.0") techniques,
- Completed the evaluation of particulate matter emissions ($PM_{2.5}$) non-energy impacts for ductless heat pumps in the PSE service territory,
- Adopted applicable recommendations made by SBW Consulting, Inc. in the 2016-2017 Biennial Electric Conservation Achievement Review (BECAR),
- Continued participation in the Northwest Energy Efficiency Alliance's (NEEA's) regional commercial building stock assessment (CBSA).

Energy Efficiency commits to engage the CRAG as it continues its initiatives throughout 2019.

G. Following Chapters

This document discusses the management steps that PSE put into place in order to achieve the indicated savings goals while effectively managing expenses and providing exemplary stewardship of customer funds.

PSE discusses key drivers of budgets and savings goals in Chapter 3: *2019 Annual Conservation Plan Development*, and in the Sector Overview discussions. Some standard Energy Efficiency Exhibits are biennially-focused documents, and are thus excluded from the 2019 ACP.

These are:

- Exhibit 7: *Marketing Plan*,
- Exhibit 8: *EM&V Framework*,
- Exhibit 11*: Tariff Revisions,*
- Exhibit 12: *Biennial Condition Revisions*,
- Exhibit i: *Ten-Year Potential, Two-Year Target Development*.

Exhibits included in the 2019 ACP are:

- Exhibit 1: *Savings and Budgets,*
- Exhibit 2: *Cost-Effectiveness Estimates,*
- Exhibit 3: *Program Details,*
- Exhibit 6: *Evaluation Plan*
- Exhibit 10: *NEEA's 2019 Forecast for PSE Territory.*

Effective with the 2019 ACP, Exhibit 4: *Measures, Incentives & Eligibility* is retired. There was a significant amount of replication between elements of Exhibit 3 and 4 (for instance, "Eligibility", "Customer Qualifications", etc.). Additionally, there were often references in Exhibit 3 that indicated "(…) For a complete listing of available measures, please consult with Exhibit 4…", necessitating customers or Stakeholders to have both documents open simultaneously. Therefore, PSE subsumed the measure tables in Exhibit 4 into Exhibit 3, making it a complete reference of program details.

Also, as a backward-looking compliance review, Exhibit 9: *Condition Compliance Checklist* is included in PSE's Annual Conservation Reports, and is therefore omitted from the Plan.

With this 2019 ACP, PSE continues its principle of providing a wide range of business information in a form that meets Stakeholder needs with a high degree of transparency. The Plan demonstrates PSE's long-standing application of continuous improvement principles—in all Energy Efficiency business operations, including each support function—to adaptively manage 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.

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II. Introduction

The 2019 Annual Conservation Plan (ACP, or the Plan) will discuss PSE conservation program objectives and initiatives that update, revise, or modify those discussed in the 2018-2019 Biennial Conservation Plan (BCP), filed in Dockets UE-171087 and UG-171088.[8] The ACP fulfills the requirements of WAC 480-109-120(2), as it relates to electric programs, and applicable natural gas Sections of Exhibit F, the Settlement Terms for Conservation in Docket UG-011571. These electric-and natural gas-specific requirements indicate that PSE must provide detailed annual budgets, program updates, and any tariff revisions for Stakeholder review.

The 2019 ACP discusses updated strategies that PSE will employ in order to exceed customer expectations, prudently use the funds that they've entrusted to PSE, and be proactive in adjusting to ever-evolving market conditions while achieving its Commission-approved savings targets, consistent with the requirement of WAC 480-109-120(2):

> (2) Annual conservation plan. On or before November 15th of each even-numbered year, a utility must file with the commission, in the same docket as its current biennial conservation plan, an annual conservation plan containing any changes to program details and annual budget.

The Plan provides outlines of PSE's implementation of innovative and adaptive program design with a focus on customer satisfaction and participation, leading to achievement of its updated Portfolio savings goals of 228,772 Megawatt-Hours (MWh), (26.1 Average Megawatts [aMW]), with anticipated expenditures of $83.79 million. Its updated 2019 natural gas conservation goal is 3.15 million therms, with an associated anticipated expenditure amount of $15.91 million.

A. PSE Requests that the Commission Approve its 2019 Annual Conservation Plan

PSE requests that the Washington Utilities and Transportation Commission (WUTC, UTC, or Commission) approve the 2019 electric and natural gas conservation goals, along with their associated budgets as discussed in the Plan, with an effective date of January 1, 2019.

[8] Rather than file separate electric and natural gas Plans (and achievement Reports), PSE combines the information into a single compliance package. This approach reflects Energy Efficiency's program operations, where program initiatives are much more efficient, effective, and innovative when the two fuel types are managed within the same expert staffing organizations.

B. 2019 Savings and Budgets: Original BCP vs Updated ACP

Table II-1 provides a comparison of the updated 2019 electric and natural gas savings and anticipated expenditures to the 2019 values originally stated in the 2018-2019 BCP. The following sections in this chapter and in Chapter 3: *Developing 2019 Updates to the 2018-2019 BCP,* will provide insights to the key revision drivers.

Table II-1: 2019 Savings by Sector Compared to Original BCP Figures

2019 Comparison: 2018-2019 BCP Versus ACP Update					
	Savings		Expenses		
Portfolio	Electric *(MWh)*	Natural Gas *(Therms)*	Electric $	Natural Gas $	Total $
2019 Original *As indicated in 2018-2019 BCP*	239,127	3,233,146	$84,273,557	$15,791,274	$100,064,831
Updated 2019 ACP	**228,772**	**3,147,391**	**$83,793,668**	**$15,910,511**	**$99,704,178**
Change	(10,355)	(85,755)	($479,889)	$119,237	($360,652)
Percent Change	*-4.3%*	*-2.7%*	*-0.6%*	*0.8%*	*-0.4%*

The electric savings values noted represent goals necessary to achieve all targets associated with the overall Portfolio, including PSE's decoupling commitment of 5 percent over the course of the biennium.

PSE conducted an extensive examination of considerations in updating its original 2019 conservation Portfolio. Program staff scrutinized issues such as RTF Unit Energy Savings (UES) value updates, marketplace dynamics, and externalities (for instance, utility actions and partnerships, regional initiatives, regulatory requirements, etc.). They also assessed the potential for new offerings, historical performance, and customer participation and feedback.

Finalization of the Plan included updating cost-effectiveness calculations, incorporating Conservation Resource Advisory Group (CRAG) and trade ally recommendations, and accounting for RTF Unit Energy Savings (UES) value adjustments[9] and technology updates, among others.

[9] It is important to note that PSE aligns its RTF Deemed (UES) savings values to those outlined in the version of applicable RTF tables in effect on September 1 of each year. PSE reviews and updates these applicable values annually, rather than biennially, in order to reflect actual conservation savings in the most accurate manner.

By applying continuous improvement adaptive management principles and experience gained in 2018, program staff honed the 2019 estimates—developed in 2017—to a higher degree of precision and transparency. PSE presents detailed savings goals and budgets by program in Exhibit 1: *Savings and Budgets*.

1. Compliance with Conservation Types Included in the Portfolio

The revisions in the 2019 ACP reflect program staff's review of all elements listed in WAC 480-109-100(1)(b)—listing the types of conservation that must be included in a utility's Portfolio, where possible.[10] PSE presents the chapter locations of its program discussions in Table II-2.

Table II-2: 2019 Conservation Type References

WAC 480-109-100(1) Subsection		ACP Chapter	Section
b	Types		
(i)	End-use efficiency	4 & 5	Residential & Business Energy Management
(ii)	Behavioral programs	4 & 5	Direct to Consumer & Energy Performance Incentive Program
(iii)	High-efficiency cogeneration	5	Business Energy Management
(iv)	Production efficiency	7	Transmission & Distribution
(v)	Distribution efficiency	7	Transmission & Distribution
(vi)	Market transformation	7	NEEA
c	Pilots	3, 6	Developing 2019 Updates to the 2018-2019 BCP, Pilots

C. 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, and its Portfolio passes the required cost-effectiveness tests. PSE provides details on cost-effectiveness calculations in Exhibit 2: *Cost-Effectiveness Estimates*.

[10] As noted in WAC 480-109-100(1)(a)(ii), […] If no cost-effective, reliable and feasible conservation is available from one of the types of conservation, a utility is not obligated to acquire such a resource.

It is important to note that PSE incorporated RTF-defined Non-Energy Impact (NEI) figures for applicable prescriptive measure, including electric and natural gas. Table II-3 provides summary views of the Portfolio cost-effectiveness calculations.[11]

Table II-3: 2019 Portfolio Cost-Effectiveness Calculations

2019 Energy Efficiency Portfolio Cost-Effectiveness		
	Utility Cost Test	Total Resource Cost Test
Electric	1.55	1.39
Natural Gas	1.55	1.34

Note: consistent with WAC 480-109-100(10)(b), Low Income Weatherization (LIW) electric figures are excluded from REM and Portfolio TRC ratios. LIW natural gas figures are also excluded from REM and Portfolio cost-effectiveness totals.

Final cost-effectiveness figures—which may differ from the above estimates, and are based on actual expenses and savings—are reported in PSE's Annual Reports of Energy Conservation Accomplishments, filed with the Commission each April.

D. 2019 Priorities

In addition to a comprehensive design of savings goals and well-vetted anticipated expenditures, the Energy Efficiency department maintained clear focus on its other important priorities throughout the 2019 planning process. PSE discusses highlights of its priorities in the following sections.

1. Maximize PSE Customer Participation and Approval

One of the most critical elements of any successful conservation program depends on maximized customer engagement and support. A key focus for PSE in the upcoming year is the need to continue providing customers with a positive energy-efficiency experience.

PSE will continue its ongoing work to make it easy for customers to participate in Energy Efficiency programs and provide them with an array of energy-efficiency services that meet their expectations.

[11] Indicated electric and natural gas TRC values include a 10 percent adder, consistent with condition (8)(a).

Energy Efficiency will continue its 2018 initiatives to raise customers' awareness and encourage participation: all of PSE's energy-efficiency marketing communications; its brochures; energy-efficiency web pages; and media broadcasts, focus customers' attention on the values of services offered by PSE.

Energy Efficiency will continue to provide consistent conservation messaging in its direct customer-facing activities (in-person field activities, such as retail events, community initiatives, telephone interactions with PSE energy advisors, email interactions, etc.). PSE's targeted outreach strategies, including small business blitzes, community events, door-to-door outreach, along with its fun and engaging Energy Upgrade campaigns, are updated for 2019.

In addition to these customer-facing activities and services, PSE will continue to adaptively manage the implementation of numerous back-office customer-focused process refinements in 2019. These include, but aren't limited to: streamlining rebate and custom grant application processing; Verification Team process enhancements; and systems optimization to support Energy Efficiency's product and services offerings. For instance, enhancements of interconnection application software for Net Metering customers, and making customer interfacing refinements to DSMc: Energy Efficiency's project management system.

2. Continuous Innovation & Adaptation

Another PSE priority is to explore inventive methods of delivering outstanding customer service and cost-effective conservation. By consistently applying continuous improvement 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 2019. PSE notes highlights of its application of continuous improvement principles in Section II.E, and provides an in-depth discussion of these principles in Chapter 12.

3. Encourage Participation in Underserved and Hard-to-Reach Segments

In the 2018-2019 BCP, PSE provides comprehensive discussions of its ongoing hard-to-reach strategy in Section III.A.2: Energy Efficiency Areas of Focus for the 2018-2019 Biennium, V.B: Residential Energy Management Overview, and VI.B: (Business Energy Management Overview). Additionally, each program discussion in the BCP highlights planned 2018-2019 initiatives designed to address hard-to-reach and potentially underserved segments. These strategies have proven successful, and program staff continuously refined and improved them during the past several years.

In March 2018, PSE presented a review of analyses to the CRAG[12] that indicate PSE's initiatives result in the majority of hard to reach and potentially underserved customer segments proportionately participate in Energy Efficiency programs. Energy Efficiency will continue to focus its successful strategies in those few segments that analysis indicate a slight shortfall in customer participation or savings attributed to those segments.

Energy Efficiency staff will continue to employ data and program performance analyses, customer research, evaluations and surveys, and other tools to provide services to customers in the applicable market segments. Staff will continue to monitor and verify results going forward.

Proven strategies and approaches that PSE will continue to execute and refine in 2019 include, but are not limited to:

a) The Low Income Weatherization (LIW) program provides services to the broadest range of target customers. With no spending cap, LIW program staff work closely with low-income agencies to ensure that its offerings are clear and made available to as many eligible customers as possible, limited only by low-income agency processing capacity.

   The LIW's program reach spans several housing types (manufactured homes, multifamily and single-family) and aligns with most of Energy Efficiency's marketing, promotional, outreach, and measure offering initiatives (for instance, appliances, duct sealing, lighting, etc.). In order to maximize efficiency opportunities for this segment, PSE is allowed to offer measures that result in a lower Total Resource Cost (TRC) than other programs.[13]

   Similarly, low-income agencies can use PSE shareholder funds to enable the installation of measures, including repairs to low-income dwellings that are needed as a condition of efficiency upgrade installation.[14]

[12] March 7, 2018 CRAG meeting, PowerPoint pgs 38 – 55.

[13] As stipulated in Schedules 83 and 183 (electric and natural gas, respectively), section 9.a, Low Income agencies may receive funding equal to a value that will result in a TRC benefit-to-cost ratio of no less than 0.667.

[14] For instance, it is unhealthy/hazardous to install new insulation in an attic structure than has mold or dryrot, etc. A detailed discussion of repairs and health & safety measures is included in LIW's Exhibit 3: *Program Details.*

In 2019, the Low Income Weatherization program will continue its initiative to pilot an offering that leverages various funding sources in effecting mobile home replacements. The program is also collaborating with state agencies to address the needs of manufactured homes and multifamily structures.

For instance, a cooperative initiative, including PSE and other State organizations started in 2018, focuses on analyzing data to determine previously-weatherized homes that may qualify for additional measures, including ductless heat pumps.

b) The Small Business Direct Install program also targets those businesses that may have a lower awareness of Energy Efficiency programs, may be rural,[15] may be difficult to access, are locally owned/operated, skeptical of utility efficiency programs, be unavailable at particular seasons or times of day, not interested in making efficiency upgrades,[16] etc. Particularly effective strategies include blitzes, where PSE representatives visit these businesses door-to-door to offer direct installation or low-cost measures. Energy Efficiency has also simplified savings calculations for commercial kitchens, a hard-to-reach segment that PSE determined could also be potentially underserved.

c) The Energy Efficient Communities and Community Outreach organizations continually scan for underserved and hard-to-reach segments of PSE's service territory. These efforts often result in PSE's participation in events that feature multi-ethnic and English-as a-second-language participants.

The organizations also coordinate booths at ethnic grocers, radio and print advertisements in-language, and presentations at ethnic community organizations. Contractors with whom the groups are engaged have staff on-hand that are fluent in various languages. Energy Efficient Communities also target their door-to-door Home Energy Assessment in neighborhoods with older homes, who are more likely to be underserved or unaware of energy efficiency opportunities, as well as in rural communities.

d) The Multifamily Retrofit program's Strategic Energy Management (SEM) offering engages residential multifamily and rental customers to influence energy-savings behaviors.

[15] This is especially true with small-to-medium farms.

[16] Again, particularly applicable to business proprietors that lease their space.

e) Energy Efficiency provides commercial tenants with numerous opportunities to participate in its programs, including the Lighting to Go program, which also provides an efficient avenue for businesses—regardless of their rate Schedule—to acquire a wide range of efficient lighting products.

   Tenants may also be unaware of the efficiency programs that are available to them; Energy Efficiency's communication efforts address this need.

f) Energy Efficiency also affords industrial customers with ample opportunities for energy-efficiency upgrades, whether they are in rural locations or are large industrial customers that qualify for PSE's Large Power User/Self-Directed program. Each are eligible for custom grants and Lighting-to-Go discounts. PSE also offers low- and no-cost operational and management improvements, and no-cost engineering support to Industrial Systems Optimization Program (ISOP) customers. ISOP's I-SEM pilot (Industrial Strategic Energy Management) offering becomes an ongoing program in 2019, and PSE will offer these services to smaller industrial facilities, and wastewater treatment facilities.

g) Energy Efficiency's collateral (printed and electronic) is available in multiple languages, and there is even a "For Renters" site on PSE's Energy Savings website.[17] Residential Home Energy Reports are another important tool for reaching customers who may be reticent to participate in efficiency programs. Energy Efficiency's promotions also target hard-to-reach segments. These include, but aren't limited to the Energy Upgrade campaign, and pop-up events, where PSE focused on areas of its service territory with a smaller population. 2019 initiatives will include a similar focus. The Marketing and Outreach organizations will also employ their transcreation pilot, which will translate materials into native speakers' language.

h) In 2018, Energy Efficiency launched a single-family rental pilot to provided added emphasis to this potentially underserved market segment.[18] Although put on hiatus in the second half of 2018, program staff will continue analysis on program offerings that will serve this market segment.

[17] Renters sometimes believe only the landlord or property owner is eligible to apply for efficiency incentives. This can especially be true of low-income customers and small business proprietors.

[18] During the implementation phase of the Single-Family Rental pilot, program staff and the third-party implementer realized that operational costs would be double the planned (and cost-effective) amount. Program staff put the pilot on hiatus while it is re-evaluating the potential of such a pilot.

PSE provides discussion of revisions and 2019 updates to these approaches in the applicable program sections in the following chapters.

4. Assess Pilot Program Potential

Another 2019 priority for Energy Efficiency is to assess the potential for new pilot programs. As it has for many years, program staff will continue to scrutinize the energy efficiency horizon for new and innovative technologies. Energy Efficiency will inform the CRAG of potential new opportunities throughout 2019.

Energy Efficiency discusses its current pilots, including: Pay for Performance; Low-Income Manufactured Home Replacement, pilot-analogous measures, and EM&V 2.0. in Chapter 3: *Developing 2019 Updates to the 2018-2019 BCP*, section III.B.1.d.

5. 2019 Business System Refinements

Throughout 2018 Data and Systems Services staff continued to make enhancements to Energy Efficiency's project management tool, DSMc. This work will continue throughout 2019, with a focus on measure savings accuracy and archiving, customer satisfaction, and fulfilling 2018-2019 Biennial Electric Conservation Achievement Report (BECAR) data requests. Additionally, the team will examine the system needs relative to the potential for applying rebates as credits on certain customer accounts.

Several Energy Efficiency staff members from a variety of organizations are involved in biennial planning continuous process improvement projects, started in Q2 2018. Projects target efficiencies and redundancy reduction in RFP releases and evaluations, portfolio program development, program and measure business case enhancements, and streamlined, efficient reporting. The teams will continue the process improvement initiatives through 2019, when 2020-2021 BCP development begins.

6. 2019 Updates to Ensure 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.

PSE reflects this commitment in its extensive and comprehensive collection of Exhibits and Supplements[19] provided in its compliance filings.

In response to Commission Staff comments in PSE's 2016-2017 electric Biennial Conservation Report (Docket UE-152058), PSE has enhanced its Distribution Efficiencies (Schedule 292) program discussions in Chapter 7, and in Exhibit 3: *Program Details*. The addition of 2019 Program Update discussions in the following program overviews also provide Stakeholders with an efficient comparison to PSE's 2018-2019 BCP strategies.

7. Maximizing Regulatory Stakeholder Engagement

As PSE has consistently demonstrated for several years, its focus on 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 very high regard.

In 2019, PSE will continue providing its CRAG Newsletter, *CRAG Communications* that keeps CRAG members up-to-date on program developments outside of the CRAG meeting environment. PSE will also provide the CRAG with regular updates of its Condition Compliance Checklist, Exhibit 9. Although excluded from Conservation Plans, the Checklist is included in PSE's Annual Reports of Energy Conservation Accomplishments.

PSE will focus on continuously improving the value of information provided, and update the CRAG regularly in 2019. Energy Efficiency program staff continue to enthusiastically welcome CRAG members' input on a variety of conservation topics in 2019. 2019 is the 2020-2021 BCP planning year, and PSE will depend on critical CRAG engagement throughout the process prior to filing the BCP in November 2019.

[19] 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. There are no Supplements included in the Annual Conservation Plan.

E. Implementing Adaptive Management through the Application of Continuous improvement

By applying the continuous cycle of ASSESS→PLAN→EXECUTE→VERIFY steps of continuous improvement, Energy Efficiency staff are able to consistently demonstrate adaptive management. PSE provides a more extensive discussion on how program staff apply continuous improvement principles to their business operations in Chapter 12.

1. Highlights of 2019 Continuous Improvement, Adaptive Management Initiatives

Adaptively managing through continuous improvement is ongoing in all Energy Efficiency supporting functions, as they implement exciting and inventive methods of connecting with customers every year.

PSE continues to implement several adaptive and continuous-improvement initiatives in 2019 that will positively impact Energy Efficiency's success. Many carry over from those started in 2018. Listed below are some highlights that are discussed in more detail in the coming chapters and in Exhibit 3: *Program Details*.

In 2019, highlights of Energy Efficiency plans include, but are not limited to:

- Collaborating with State low-income agencies to ensure that the 2017 GRC low-income Settlement Stipulation funding ($2 million) is maximized.
- Leveraging State funding through the Community Energy Efficiency Program (CEEP) to pilot multifamily solar installations. PSE plans to subsequently convert those funds to Special Contract dollars when they become available.
- Piloting a low-income mobile home replacement program, with the intent of establishing sustainable funding sources and agency coordination.
- After significant analysis and development, the Commercial Kitchen & Laundry program will pilot a new measure: the Demand Control Kitchen Ventilation (DCKV) measure.
- Retiring the appliance replacement, some clothes washer, refrigerator and freezer offerings, and most advanced power strip measures, due to declining UES values, eroding customer demand, and low cost-effectiveness. Adjusted decommissioning requirements for eligible units to 1992 or earlier.
- Converting the successful Industrial Systems Optimization Program's "Industrial Strategic Energy Management" pilot-analogous initiative to an on-going program.

- As a result of successful implementation, the Commercial Midstream pilot-analogous initiative is converted to an ongoing program.
- Enhancing Indoor Agriculture lighting's approach to savings calculation methodologies that will improve consistency and custom grant efficiencies.
- Expanding web-enabled/smart thermostats to a range of Residential and Commercial programs.
- Investigation of the potential of providing customer incentives via a credit on their bill, rather than on a paper check. This initiative would save customers considerable time, and is envisioned to enhance their satisfaction with the rebate process.
- Piloting "transcreation"[20] for in-language outreach for Small Business customers, including multi-media materials, and utilization of contracted multi-lingual outreach associates.
- PSE is researching and is in the process of optimizing its systems to support Energy Efficiency product and service offerings, include the development of requirements for an enhanced trade ally portal.

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.

F. Compliance

This 2019 Annual Conservation Plan complies with WAC 408-109-110(2).

The 2019 ACP also complies with applicable conditions in Appendix A of Order 01 in Docket UE-171087 relative to program design, cost-effectiveness tests, required involvement in preparation of 2019 activities, etc. The Plan is also consistent with condition (4)(a), which indicates that PSE's annual budgets must be provided in a detailed format and show projected savings.

Lastly, the ACP is consistent with Section F.11[21] of the 2010 Settlement Agreement in Docket UE-100177, and the natural gas-specific sections of the 2002 Rate Case Stipulation Agreement, Exhibit F of Docket UG-011571.

[20] A term applied to translating marketing and outreach materials into other languages (for example, Spanish), that a native speaker of that language will understand. The process is unique, in that it goes beyond a simple word translation: the process ensures that overall concepts—that often cannot be expressed by words alone—are also conveyed to the native speaker.

PSE provides an updated 2019 compliance discussion, in Chapter 13: *Compliance*.

G. Conservation Tariff Schedule Revisions

PSE will file, concurrent with the 2019 ACP, an updated Schedule 258: Large Power User/Self-Directed, to denote the new 2019-2022 program cycle.

H. Annual Conservation Plan Contents

Where there are notable differences, or where it is applicable, electric initiatives will be discussed separately from natural gas initiatives. Where there is not a distinction, the Energy Efficiency program staff will adaptively manage program strategies that address both fuel type programs.

1. References to 2019 Updates

Many discussions will reference and summarize supporting Exhibits, which provide a substantial amount of detailed, important information. PSE updated applicable Exhibits to reflect 2019-specific initiatives and information.

Where possible, PSE provides a reference to the originally-stated 2019 information for a straightforward comparison to the updated values; most notably, PSE provides this updated information in the detail pages of Exhibit 1: *Savings and Budgets*.

Similarly, in Chapters 4 through 10, PSE provides the original 2018-2019 program overview discussions—indicated with a unique section heading—with updated 2019-specific content below.[22] This allows Stakeholders straightforward comparisons of PSE's original program plans to its updated 2019 plans, and reflects PSE's commitment to adaptive management through the application of continuous improvement.

[21] Pertaining to the development of an annual electric budget.

[22] Where there is an action or commitment related specifically to 2018 in the *original* BCP program discussion, PSE will provide follow-up in its 2018 Annual Report of Energy Conservation Accomplishments, filed on April 1, 2019.

2. Regulatory Citations

Throughout this Plan, PSE may cite WAC 480-109 and UTC conditions where applicable within program or function discussions. Conditions include requirements outlined in Appendix A of Order 01 in Docket UE-171087; 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.

3. 2019 Programs

This document: the 2019 *Annual Conservation Plan Overview*, provides general discussions relative to the development of the ACP, outlines 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 a discussion of Energy Efficiency's application of continuous improvement principles).

It is intended to provide 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 updated and revised Exhibits 1: *Savings and Budgets*, Exhibit 2: *Cost-Effectiveness Estimates*, Exhibit 3: *Program Details, and Exhibit 6: Evaluation Plans* to reflect updated 2019 plan details.

4. 2019 Annual Conservation Plan Exhibits

In this Plan, PSE references five Exhibits, all updated to reflect 2019 revisions, listed in section II.J.1.b, that provide details about key elements of Energy Efficiency operations.[23]

[23] In its Annual Conservation Plans, PSE excludes four Exhibits that are a part of its Biennial Plans: Exhibit i: *Ten-Year Potential, Two-Year Target*; Exhibit 6: Evaluation Plan; Exhibit 7: *Marketing Plan*; and Exhibit 8: *The EM&V Framework.*

I. 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 2019 ACP. 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 effectively access the required information. PSE re-prioritized the information presented in the Plan that Stakeholders indicated isn't as valuable, expanded that which is useful, and organized the entire ACP package in a logical and consistent flow.

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. The Energy Efficiency staff continue to value and incorporate Stakeholder suggestions whenever possible.

Highlights of ACP upgrades include:

1. The Plan Overview document program discussions include the original 2018-2019 content, followed by a 2019 Updates, Revisions, Enhancements, Adaptive Management section. This enhancement will make it quite clear what program modifications and adaptive management steps are planned for the upcoming year.

2. Exhibit 1: *Savings and Budgets*

    a. Stakeholders will notice several 2019-specific modifications to the program detail pages, including: 2018 totals are greyed out; the horizontal table that feeds the Sector tables is organized chronologically top-to-bottom, including the original 2018 and original 2019 figures, along with *updated* 2019 figures; applicable measure tables will clearly indicate—via cell highlighting—those attributes that are updated for 2019.

    b. All budget tables now have a notation that Marketing labor is subsumed into the "overall labor" tables. This is the result of an enterprise-wide accounting update. Although program staff will be able to track all labor that's charged to their program, PSE will no longer be able to readily plan and report Marketing labor separately. There is also a similar notation in the electric and natural gas Sector View tables.

3. Exhibit 3: *Program Details* now incorporates the measure tables of Exhibit 4: Measures, Incentives & Eligibility. This significantly lessens redundancies (program descriptions, eligibility and incentive overviews, etc.), and off-document references (for instance, when reading Exhibit 3: "…a complete list of measures is located in Exhibit 4…").

   Rather than re-name the subsequent Exhibits (for instance, Exhibit 5 becomes Exhibit 4, Exhibit 6 becomes Exhibit 5, etc., which will lead to confusion when comparing previous documents to current ones), PSE will leave a "space" between Exhibit 3 and Exhibit 5, ensuring that it mentions the purposeful omission of Exhibit 4.

III. Developing 2019 Updates to the 2018-2019 BCP

Chapter 3 focuses on the key factors and considerations PSE examined to develop its updated 2019 electric and natural gas targets, cost-effectiveness estimates, and corresponding budgets.

A. 2019 Conservation Savings Goals and Anticipated Expenditures

Table III-1 presents the overall electric and natural gas savings by Energy Efficiency Sector, as compared to the originally-stated 2019 figures presented in the 2018-2019 Biennial Conservation Plan (BCP).[24]

Table III-1: Comparison of Updated 2019 Savings

2019 Savings Comparison: 2018-2019 BCP Versus ACP Update								
	Electric (MWh)				Natural Gas (Therms)			
Sector	Original	Update	Difference	Percent	Original	Update	Difference	Percent
Residential	*106,590*	*100,814*	*(5,775)*	-5.4%	*1,705,813*	*1,584,254*	*(121,558)*	-7.1%
Business	*115,620*	*114,408*	*(1,213)*	-1.0%	*1,494,834*	*1,561,137*	*66,303*	4.4%
Pilots with Uncertain Savings	*3,640*	*750*	*(2,890)*	-79.4%	*32,500*	*2,000*	*(30,500)*	-93.8%
Regional	*13,277*	*12,800*	*(477)*	-3.6%	*0*	*0*	*0*	
TOTALS	**239,127**	**228,772**	**(10,355)**	-4.3%	**$ 3,233,146**	**$ 3,147,391**	**(85,755)**	-2.7%

1. Decoupling Considerations

As a two-year savings figure, it isn't possible to assign programmatic or timing attribution to decoupling savings. Therefore, PSE does not allocate an annual total that is applicable to the 2018-2019 Decoupling Threshold of 23,658 MWh, or 2.7 aMW. PSE makes the distinction that decoupling savings are not sequential, and it isn't possible to indicate that it will achieve 2.5 percent over its EIA Penalty Threshold in 2018 and an additional 2.5 percent in 2019. Nor is it possible to indicate that it will achieve all 5 percent in 2019, after PSE achieves the EIA Penalty Threshold.

[24] The "Regional" Sector consists of NEEA (-10%, electric savings for 2019) and Transmission and Distribution Efficiencies (+100% electric savings for 2019).

These considerations, applicable to the electric Decoupling Threshold, also apply to the natural gas biennial Decoupling Threshold of 347,750 therms (or 5 percent of PSE's natural gas Penalty Threshold of 6,155,000 therms).

PSE presents the electric and natural gas anticipated expenditures by Energy Efficiency Sector in Table III-2, which compares the originally-stated 2019 savings and budget figures indicated in the 2018-2019 BCP to the 2019 revisions.

Table III-2: Comparison of Natural Gas Savings and Planned Expenditures

2019 Spending Comparison: 2018-2019 BCP Versus ACP Update								
	Electric (MWh)				Natural Gas (Therms)			
Sector	Original	Update	Difference	Percent	Original	Update	Difference	Percent
Residential	*$38,505,603*	*$37,607,325*	*($898,279)*	-2.3%	*$7,948,915*	*$7,961,748*	*$12,833*	0.2%
Business	*$29,201,270*	*$29,294,509*	*$93,239*	0.3%	*$3,878,444*	*$3,929,174*	*$50,730*	1.3%
Pilots with Uncertain Savings	*$350,000*	*$244,130*	*($105,870)*	-30.2%	*$49,688*	*$10,000*	*($39,688)*	-79.9%
Regional	*$5,200,000*	*$5,200,000*	*$0*	0.0%	*$2,434,244*	*$2,434,244*	*$0*	0.0%
Portfolio Support	*$6,622,672*	*$7,238,304*	*$615,632*	9.3%	*$1,090,050*	*$1,219,332*	*$129,282*	11.9%
Research & Compliance	*$3,300,122*	*$3,117,702*	*($182,420)*	-5.5%	*$389,933*	*$356,012*	*($33,920)*	-8.7%
Other Electric	*$1,093,890*	*$1,091,698*	*($2,192)*	*-0.2%*				
TOTALS	**$84,273,557**	**$83,793,668**	**($479,889)**	-0.6%	**$15,791,274**	**$15,910,511**	**$119,237**	0.8%

B. Principal Considerations Influencing 2019 Updates

Energy Efficiency staff continually examined several considerations while adaptively managing their programs in 2018 with an eye toward developing the 2019 ACP. The following discussions highlight some of the key assumptions and factors that program staff used to guide their planning processes.

1. Key 2019 Savings Revision Drivers

Throughout the 2019 planning process, staff carefully considered the 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. Energy Efficiency program staff conducted rigorous savings reviews for both natural gas and electric Portfolios.

Many savings drivers pertain equally to electric and natural gas updated savings values. Central among these include, but aren't limited to: annual revisions to RTF Unit Energy Savings (UES)[25] and PSE Deemed values, and the eroding market demand and product saturation of key measures, among others.

It is important to note that, although excluded from PSE's biennial EIA Penalty Threshold, Northwest Energy Efficiency Alliance (NEEA) savings and pilot programs with uncertain savings are included in the overall Energy Efficiency Portfolio as they are funded by PSE customers. As Portfolio contributors, PSE includes them in the following discussions. Where applicable, PSE distinguishes the circumstances applicable to electric versus natural gas programs.

a. Incorporating 2016-2017 BECAR Recommendations

SBW Consulting, Inc. made several electric savings calculation-specific recommendations in the 2016-2017 Biennial Electric Conservation Achievement Review (BECAR), including:

i. Home Energy Reports aggregate savings

SBW noted that PSE's Individual Energy Report pilot would be subsumed into its general Home Energy Reports (HER) program in 2018. Program staff incorporated the two sets of customers (legacy and pilot) in their 2018-2019 plans. Following its standard practice for reporting HER savings, PSE will report only incremental savings for 2019 ex-ante, should evaluations indicate that there are any.

ii. Unit Energy Savings derivations

SBW found no errors in Residential or Business Sector UES values, and that the values' derivations were consistent or reasonably consistent with the requirements of WAC 480-109-100.[26] PSE and SBW completed a UES review of LED measures in the latter part of 2017. SBW noted that the business case documentation was good, with no resulting recommendations. SBW observed that an ability to map business cases to measure values (in DSMc) would be valuable.

[25] Those PSE-Deemed measures, whose savings values are derived from RTF baselines (primarily natural gas prescriptive measures) are also impacted by RTF UES value revisions.

[26] *Puget Sound Energy 2016-17 Biennial Electric Conservation Achievement Review (BECAR) Final Report*, Section 2.3.2, pgs 17, 18.

PSE continues to examine system enhancements that would provide this linkage throughout the current biennium. PSE also resolved SBW's recommendation that all authors and QC staff are identified in each business case.[27]

iii. PSE Deemed measure values

In the 2016-2017 BECAR, SBW indicated that "(…) our observations in mid-2017 on a limited number (business case workbooks tend to be updated late in the year) of recently updated business case reviews indicate that UES business case documentation is improving markedly. (…)"[28] SBW recommended that UES measure business cases be reviewed, starting in July 2018. PSE started providing measure files to Evergreen, the new BECAR contractor, in August 2018, consistent with this recommendation. This early review will allow PSE to make program adjustments, should any discrepancy or conflict arise in measure savings calculation methodology.

iv. Apply HVAC interaction factors to applicable commercial rebate measures

In the 2016-2017 BECAR, SBW recommended that PSE revise the interior LED lighting measures for the Small Business Direct Install and Lodging Direct Install[29] programs use savings values that account for HVAC interaction effects, using RTF data. Program staff are in the process of examining the current business lighting workbook as it applies to structures served by the Small Business Direct Install program, and mapping out any variances with the recommendation.

v. Update the Lighting to Go deemed savings value to the most current RTF values

Because RTF baseline data was delayed by the RTF at the time of 2018-2019 planning, PSE was unable to modify the baseline for the 2018 Lighting to Go program year. Program staff have incorporated the updated baselines for 2019.

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[27] *Puget Sound Energy 2016-17 Biennial Electric Conservation Achievement Review (BECAR) Final Report,* Section 2.3.3, pgs 18, 19

[28] Ibid, pg ES-5.

[29] For the 2018-2019 biennium, both the Lodging Direct Install and Agriculture Direct Install programs were subsumed into the Small Business Direct Install program for economies of scale purposes.

vi. Develop a standard baseline for indoor new construction agriculture lighting

SBW recommended that a survey and literature research be conducted to ascertain current practices of indoor agriculture lighting technologies. Throughout 2018 Business Energy Management engineers conducted research and analyses to develop indoor agriculture lighting standards, with the intent of developing a standard approach to assigning savings values according to a fixed unit measure: canopy square footage, for instance.

SBW's recommendations aligned with PSE's standard measure revision process. Thus, where possible, PSE incorporated each of these recommendations in its 2019 suite of prescriptive measures.

Although not specifically identified in the affected programs' measure tables,[30] all prescriptive savings values reflect these recommendations, as well as annual measure savings prescribed in Energy Efficiency's *Measure Revision Guidelines.*

b. Annual Prescriptive Measure Updates: RTF UES and PSE Deemed

RTF and RTF-derived measures comprise a key proportion of Energy Efficiency's overall electric and natural gas conservation goals. Applicable programs revised the RTF measures in their portfolios to the updated values published by the RTF as of September 1, 2018. The 2019 ACP reflects—when applicable—these RTF UES values. Similarly, PSE Deemed measures[31] are also reviewed annually. In the first quarter 2019, Energy Efficiency will report those savings values that are calculated by December 31, 2018 in Exhibit 5: *Prescriptive Measure Values*. In applicable cases, PSE will follow accepted methodology and protocols to develop a PSE Deemed value[32] that is consistent with WAC 480-109-100(5)(a), and adheres to Energy Efficiency's *Measure Revision Guidelines*.

[30] It isn't possible to efficiently indicate the original-versus-updated savings values in each detail page measure table. Attempting to do so results in a cumbersome, unclear, and difficult-to-manage workbook. PSE highlights the prescriptive measure attributes (savings, measure cost, incentive, quantity, etc.) that are updated for 2019.

[31] The majority of natural gas prescriptive measures are PSE Deemed.

[32] 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 impacts PSE's ability to meet its savings targets and goals.

Program staff have updated the savings values for their programs' suite of measures in each program detail page of Exhibit 1. Applicable revised savings figures[33] are noted in the Measure Information — Savings column. The revisions are denoted by the (2019-Specific Values) heading at the top of the column, as well as highlighting of each applicable cell within the table(s).

i. Highlights of significant prescriptive measure revisions

Table III-3 provides some notable highlights of electric and natural gas prescriptive measure revisions.[34] Very few programs in REM and BEM were unaffected by these UES value revisions.

While very few prescriptive measures' UES values increased, most, as evidenced in the table—and to be expected in the evolving energy efficiency marketplace—trended to lower savings. This is true for both electric and natural gas measures.

To varying degrees, adjustments included faucet aerators, showerheads, several appliance types, web-enabled thermostats, heat pump water heaters, and some HVAC measures. Some adjustments resulted in measures becoming cost-ineffective, which necessitated those measures' retirement for 2019. PSE discusses specific instances in upcoming program discussions.

[33] If an RTF measure's value was not updated by September 1, 2018, or if there was no revised business case for a PSE Deemed measure by December 31, the value will be the same as was noted in the original 2018-2019 BCP's Exhibit 1 detail page measure table.

[34] In each program detail page, figures in the savings column represent the most up-to-date savings value. Savings that are updated for 2019 from the original 2018-2019 Biennial Conservation Plan, are noted in blue highlighting.

Notable measures that PSE is retiring in 2019 include, but are not limited to:

Program	Type	Measure	Reason
Home Appliances	Electric	Top-loading clothes washers, refrigerators, freezers	Market saturation, declining savings values, and new avoided cost calculations have made offerings cost-ineffective.
Multifamily Retrofit, *Low Income Weatherization,* *Home Energy Assessments,* *Home Appliances*	Electric	Advanced power strips	Markedly lower savings values for leave-behind units made this measure unsustainable.
Multifamily New Construction	Electric and Natural Gas	All individual measures. Revising with whole-building approach.	Whole-building approach yields more robust savings, ensuring inclusion of installed measures. Also more accessible and straightforward for contractors' reporting.
Single Family Space Heat	Natural Gas	Fireplaces	Measure is no longer cost-effective, and savings values declining.
Retail Showerhead	Both	Faucets	Reduced UES values made measure cost-ineffective.
Retail Showerheads	Electric	Showerstart Adaptors	Reduced UES values made measure cost-ineffective.
Small Business Direct Install	Electric	T8 to TLED fixtures	The number of individual measures were difficult to manage, and so were replaced with updated weighted T8 to TLED measures.

Although some per-measure value adjustments may seem insignificant, when multiplied by thousands (or in the case of some LED lamps, millions), the adjustments could have a considerable impact. This circumstance has been present since the beginning (2008) of Energy Efficiency's practice of adjusting its prescriptive measure values annually, rather than biennially.

As a result, program staff are adept at employing a variety adaptive management solutions to overcome these challenges.

Table III-3: Highlights of Prescriptive Measure Savings Revisions

Measure Name	Program(s)	2018-2019 BCP-Indicated Savings Value for 2019	Updated 2019 Savings Value	Difference
Electric		**Kilowatt-hour**		
Tier 2 Heat Pump Water Heater	Low Income Weatherization, SF Water Heat, MF Retrofit	1518	1120	-26%
Tier 3 Heat Pump Water Heater	Low Income Weatherization, SF Water Heat, MF Retrofit	1570	1289	-18%
LED candelabra	Low Income Weatherization	16.01	18.54	16%
Leave-behind aerator, 1.5 GPM	Home Energy Assessment	31	37	19%
Leave-behind aerator, 1.0 GPM	Home Energy Assessment, Weatherization	53	22.0	-58%
Energy Star® Vented Clothes Dryer	Home Appliances	93	68	-27%
Energy Star® Ventless Clothes Dryer	Home Appliances	141	118	-16%
Freezer Decommissioning	Home Appliances	444	334	-25%
Showerstart-showerhead, electric water heat	Showerheads	91.6	79.9	-13%
Web-Enabled Thermostats	Web-Enabled Thermostats, Multifamily Retrofit	1457	502	-66%
BuiltGreen 4-Start All Electric	Single Family New Construction	2883	3083	7%
BuiltGreen 5-Start All Electric	Single Family New Construction	4774	4974	4%
Natural Gas		**Therms**		
Thermostatic Restrictor Showerhead	Multifamily Retrofit	8.5	14.1	66%
Bath Aerators, 1.0 GPM	SF Water Heat, Multifamily Retrofit	3.4	2	-41%
Showerstart Adaptor	Showerheads	1.09	0.75	-31%
Showerstart Adaptor, gas water heat	Showerheads	0.7	0.5	-29%
Showerstart Showerhead, 1.5 GPW	Showerheads	6.78	4.5	-34%
Web-Enabled Thermostat	Web-Enabled Thermostats	57	17.8	-69%

c. Erosion of Market Demand & Product Saturation

The erosion of market demand and product saturation is evident in the consumer markets: consumer lighting in particular. As a result of LEDs' long measure life, lower-cost LED lamps, availability of multi-packs, and increased options for customers, PSE perceives consumer adoption to be on the downward side of the demand curve. For 2019, general-purpose lighting (A-lamps) continues to be a strong performer compared to specialty lighting (for instance, globe, candelabras, reflectors, etc.).

Similarly, due to a significant drop in customer demand, lower savings values (some leading to cost-ineffectiveness), many clothes washer measure forecasts have been scaled back from their original 2019 levels.

d. Cyclical Program Savings

A clear example of savings that occur in a regular, predictable cycle is the Large Power User/Self-Directed program. 2018 was the last year of the previous 4-year cycle, which also tends to acquire the most savings with the cycle. 2019 marks the beginning of the new 4-year, where aggregate savings has been historically notably low at the start of the cycle.

e. Pilot and Pilot-Analogous Savings

PSE provides a comprehensive overview of its approach to pilot and pilot-analogous measures in Section E of its 2018-2019 BCP. In 2019, PSE will continue to actively examine new technologies, and adaptively manage its program offerings to ensure that customers have access to the latest, cost-effective conservation services.

Although the potential electric savings are excluded from the EIA Penalty Threshold, Energy Efficiency includes the following discussion on pilot program and activity in the 2019 Key Savings Revision Drivers section because it is an element of customer-funded overall Portfolio initiatives and savings goals.

i. Energy Efficiency considerations for pilot initiatives

A key aspect of PSE's evaluation of potential pilot programs is the potential for cost-effective energy savings in the current or subsequent biennium.[35]

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**,[36] as long as the overall portfolio remains cost-effective.

Throughout the 2019 planning process, Energy Efficiency staff examined the energy-efficiency landscape, consulted with its trade ally network, and partnered with regional utilities for new technologies and new savings opportunities. This work continues in order to potentially develop new and innovative customer offerings that reflect a prudent use of their Rider funding.

If program staff, based upon their extensive experience and professional opinion, cannot justify the ratepayer expenditure on an offering that isn't expected to produce verified savings within several years, it is prudent to pass that product by and potentially consider it in a future biennium. Where they believe that there is feasibility and customer demand with a potential for program execution and a degree of savings uncertainty, PSE classifies these initiatives as pilots in Exhibit 1: *Savings and Budgets*.

Certain offerings or services that may be classified as Pilots may be incorporated into the Portfolio as a part of BEM's Energy Efficiency Technical Evaluation program (Schedule 261), or they may be directly incorporated into an existing program.

ii. Pilots with Uncertain Savings

For 2019, only BEM's Pay for Performance pilot is categorized as a Pilot with Uncertain Savings. Although participation in the Pay for Performance pilot program was limited in 2018, program staff implemented several steps to reach as many qualifying customers as possible.

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[35] Energy Efficiency's current pilots with uncertain savings are excluded from the EIA Penalty Threshold, and thus, not a key EIA savings driver, pilots and pilot-analogous initiatives contribute to the overall Portfolio savings.

[36] Emphasis is added for purposes of this discussion.

Initiatives include notifications through the Northwest Energy Efficiency Council (NEEC) website, customer conference calls, updating the PSE.com website to increase program visibility, and provide program details more readily available to interested customers.

The Pay for Performance Pilot initiative is not PSE's only initiative to offer new technologies, services, or better efficiencies to its customers. Energy Efficiency implements several pilot-analogous initiatives throughout each year.

iii. Pilot-Analogous initiatives

In 2019, the Commercial Kitchen & Laundry program will launch a new, prescriptive-based Demand Control Kitchen Ventilation (DCKV) measure after an extensive development period, and the Commercial HVAC rebate program began offering commercial web-enabled thermostats at the beginning of the biennium.

In the Residential Sector, the Low Income Weatherization program will continue its initiative to work with different funding groups to implement a mobile home replacement pilot. The Multifamily Retrofit program will continue its Strategic Energy Management pilot in 2019, and the Direct to Consumer Channel will conduct a seasonal pilot with Nest smart thermostats to determine the savings impact of its thermostat optimization concept, which will facilitate changes to customers' schedules.

After successful trials in 2018, BEM's Industrial Strategic Energy Management (I-SEM, a sub-set of the Industrial Systems Optimization Program [ISOP] program), and the Commercial Midstream pilot-analogous programs are converted to ongoing programs for 2019.

In a key natural gas pilot initiative, NEEA anticipates that there is a potential for the installation of pilot gas heat pump water heaters in the northwest region in 2019, which may yield a small amount of therm savings, depending on the location of the pilots. Additionally, NEEA will expand its Next Step Homes initiative to the natural gas sector. PSE will keep the CRAG apprised of further developments for this initiative.

iv. Pilot initiatives not associated with savings generation

PSE has been assessing a refined evaluation approach—real-time monitoring, which typically provides preliminary evaluation results in a matter of months, versus years—since the concept has evolved over the last two years.

Colloquially referred to as “EM&V 2.0”, this concept has evolved with technological and software improvements, such as sub-metering sensors and advanced analytics, and has the potential to improve savings reporting accuracy at reduced costs.

Similarly, the Market and Outreach organizations are piloting *transcreation*, which translates materials into other languages that a native speaker will understand.

v. Business Energy Management technology and pilot assessments

BEM’s Energy Efficiency Technical Evaluation program operates under the terms of electric/natural gas 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 116):

> […] Ideally, PSE would identify cost effective technologies and measures with significant savings potential, which are commercially available. However, there are many emerging technologies that range from commercially available, but not used in the Northwest, to conceptual or prototypical technologies still in the development phase. […]

Energy Efficiency EMEs subject potential projects that are submitted 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, 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.

In 2019, PSE does not foresee new or innovative electric or natural gas technologies, based on engineer feedback provided in 2018. PSE will continue to scan for new and innovative conservation technologies in 2019.

PSE will ensure that it reviews the status of its pilot program activities and any potential pilots in-depth with the CRAG throughout 2019.

f. NEEA Savings

With the agreement the CRAG and Commission staff, NEEA savings are also excluded from the 2018-2019 EIA Penalty Threshold calculations. To ensure reporting consistency, PSE includes NEEA savings in its Exhibit 1 and the Department of Commerce's annual update of biennial conservation achievement.

Since NEEA activities and savings are funded by PSE customers, and are included in the overall Energy Efficiency Portfolio, Energy Efficiency includes this key element in its discussion on 2019 key savings revision drivers.

Energy Efficiency's Portfolio includes both the established NEEA electric program, and NEEA's natural gas market transformation pilot.

i. NEEA electric savings

In September, 2018, NEEA revised its 2018-2019 savings forecast for the PSE service territory from 2.86 aMW (25,054 MWh) to 2.52 aMW (22,075 MWh).

NEEA's original projection for 2019 electric savings was 1.47 aMW. Its revised projection for PSE savings is 1.29 aMW, or 11,300 MWh: a 10 percent reduction. NEEA indicates that a key driver of this variance is primarily driven by three market transformation initiatives: heat pump water heaters, retail products portfolio, and retro-commissioning.

ii. NEEA natural gas market transformation savings

Similarly, NEEA's original 2019 forecast for natural gas savings, achieved through its Natural Gas Market Transformation Collaborative pilots, was zero therms. Over the course of 2018 analyses, NEEA's 2019 estimate remains 0 therms.[37] Although there is a potential for the installation of commercially-available gas heat pump water heaters (one of the core initiative measures), it isn't possible to project where units may be installed, and what their savings values may be.

[37] NEEA's original therm savings estimate for 2019 was based on the early adoption of commercially-available natural gas technology, including non-plug Energy Star® water heaters.

NEEA will also add a new initiative, Next Step Homes. This initiative is already in the product life cycle on the NEEA electric side. NEEA will leverage existing electric knowledge to determine if there is alignment of modeling protocols for utility energy savings, increase market support, establish pathways for data collection, and increase coordination and consistency between home certification programs.

g. Electric Programs' Revisions

In reviewing Energy Efficiency's update of its original 2019 savings forecast, the Transmission and Distribution Efficiency program is notable for a substantial increase over the original 2019 plan.

The savings from this program are from the implementation of Conservation Voltage Regulation (CVR) projects at PSE's substations. Based upon planning and coordination meetings with PSE's Electric System Planning, Smart Grid, Energy Efficiency, and Major Projects teams; three CVR projects will be completed in 2019. It is anticipated that these three completed projects, will lead to a 100 percent increase in CVR savings from the originally-planned 2019 value (originally, 750 MWh, with an updated expected savings of 1,500 MWh).

Apart from CVR, there are very few programs that are expected to increase their electric savings achievement over their originally-planned 2019 values:

- Web-Enabled Thermostats: although the UES values are substantially lower than indicated in the 2018-2019 BCP, the number of expected units is quite a bit higher than originally anticipated, leading to a savings increase of over 12 percent.
- Single Family New Construction's enhanced rebate structure is expected to result in an almost 6 percent increase from the originally-indicated 2019 value.
- The revised whole-building incentive approach in the Multifamily New Construction program should result in a 7 percent increase in 2019 savings.
- The addition of web-enabled thermostats to the Commercial HVAC program is expected to produce an additional 5 percent savings.

While it is expected that most Residential and Business Rebates programs will achieve results that are in line with the original 2019 expectations, many will struggle with previously-discussed issues, such as reduced UES values, lower customer demand, and market saturation of some measures contribute to lower savings than originally planned.

Highlights of notable reductions include:

- A curtailment in demand, lower UES values on key appliances, and cost-ineffectiveness issues resulting in the retirement of some measures led to a reduction of 4,100 MWh (67 percent) in the Home Appliances program.
- Lower Heat Pump Water Heater UES values are expected to result in a reduction of almost 22 percent in Single Family Water Heat savings.
- In the Single Family Weatherization program, an updated projection, based market conditions, contractor feedback, and historical performance, resulted in an 11 percent decline in 2019 expected savings.
- A revision to PSE's third-party implementer RFP response led to a 58 percent reduction of the Commercial Midstream's expected 2019 savings. Initial 2019 expectations were based on the vendor's projections. Actual implementation, however, led to a re-structuring of the electric savings projections.
- Difficulty in lining up participants in the Pay for Performance pilot program resulted in a 2019 projection that is 2,800 MWh lower than originally planned. Despite efforts throughout 2018, discussed in section III.B.1.d.ii, program staff anticipate that the Pay for Performance pilot 2019 savings will be approximately 79 percent lower[38] than originally indicated in the 2018-2019 BCP. PSE provides additional details about the Pay for Performance pilot in Chapter 6.

h. Natural Gas Programs' Revisions

On the natural gas side, the Retail Showerhead, Single Family Water Heat, Multifamily New Construction, Commercial HVAC, Commercial Midstream, and Low Income Weatherization programs all project increases of 9 to more than 80 percent above their originally-planned 2019 figures (changes noted in parentheses).

[38] Pay for Performance's original 2019 projection was 3,640 MWh, while the revised 2019 forecast is for 750 MWh.

Program staff adaptive management results leading to increased therm savings include, but aren't limited to:

- In the Retail Showerhead program, a major big-box store added a new showerhead model to its retail offerings (+56,000 therms).
- A re-alignment in estimated tankless and tank water heaters in the Single Family Water Heat program (+15,700 therms).
- Adjusted projections in Multifamily New Construction, based on historical savings achievement and a re-structuring of the incentive model (+28,700 therms).
- The addition of web-enabled thermostats to the Commercial HVAC program suite (+15,000 therms).
- A refinement of the third-party implementer original 2019 scope of performance led to a savings increase in the Commercial HVAC program (+15,900 therms).
- Contractor performance, based on 2018 actuals in the Commercial Midstream program (+52,000 therms).
- The reinstatement of a major Seattle agency will result in more multifamily boiler installations, and higher incentive amounts (+6,300 therms).

PSE anticipates notable savings reductions (from originally-planned 2019 values) in the Web-Enabled Thermostat program, where a significant reduction in UES values, along with an update to the original 2019 program projections, reduced savings by 112,400 therms, or 30 percent. An analysis of the Multifamily Retrofit annual performance indicated the need to lower the original 2019 savings estimate, leading to a 30,000 therm (37 percent) reduction of projected therm savings.

And as is the case in the electric Portfolio, difficulty in enlisting customers in the Pay for Performance pilot may lead to a reduction of 30,000 therms (almost 94 percent) from the originally-planned value.

PSE provides a program-by-program comparison table of original-versus-revision savings and budget figures in Exhibit 1's "Compare BCP to 2019 ACP" tab. Additionally, each program detail page contains a table that compares the original 2019 value (as indicated in the 2018-2019 BCP) to the updated 2019 values, by budget category.

2. Key 2019 Expenditure Revision Drivers

When discussing drivers of anticipated spending and any associated variances to the original 2018-2019 BCP, there are sometimes considerations that affect electric and natural gas programs equally. For instance, one key driver of updated 2019 planned expenses that applies to all Energy Efficiency programs and supporting functions is updated corporate overhead rates.

a. Updated 2019 Corporate Overhead Rates

The updated PSE corporate labor overhead rate was revised from 68.8 percent to 68.3 percent for 2019. PSE's micro-overhead classification[39] is slightly lower than originally calculated: from 24 percent to 23 percent. Both of these overhead elements are applied globally to applicable programs in the Exhibit 1: *Savings and Budget* MS™ Excel® workbook.

For the most part, drivers of planned spending revisions can be linked to savings forecasts—which primarily result in a commensurate change in customer incentives—in electric or natural gas programs in a relatively clear-cut fashion.

b. Electric

The electric budget of $83.79 million is approximately 0.6 percent lower than the originally-stated 2019 budget in the 2018-2019 BCP. The overall budget considers, but is not limited to the following key drivers.

i. Accounting for Customer Awareness Tools expense

In the 2018-2019 BCP, PSE inadvertently and unintentionally omitted the budget for Customer Awareness Tools: Unusual Usage Alerts and Seasonal Alerts. PSE also unintentionally omitted the ShopPSE expense.[40] In the 2019 ACP, these functions are sub-totaled in the Customer Digital Experience heading, and together add approximately $650,000 to the electric budget.

[39] The micro-overhead account tenet removes assessments that were formerly added to the Labor budget category. The addition of micro-overhead did not result in an incremental increase in the overall budget.

[40] Although inadvertently not allocated, PSE provided these services, and incurred expenses for them throughout 2018.

PSE discusses the services offered in Chapter 8: Portfolio Support, and outlines the anticipated 2019 spending in Exhibit 1: *Savings and Budgets*; again, in the Portfolio Support section.

ii. Accounting for Home- and- Individual Energy Report expenses

As a result of the inclusion of behavioral savings in the 2017 Conservation Potential Assessment, in 2018, the Individual Energy Report pilot—consisting of approximately 90,000 customers—was subsumed into the Home Energy Report (HER) legacy program. The associated savings and planned expenses however, were inadvertently excluded from the HER budget. Correction of this error resulted in an HER electric budget increase of approximately $325,000.

iii. Strategic Planning expenses

PSE originally planned to recognize the expense for the Commercial Building Stock Assessment (CBSA) oversample in 2018. Late in the year, PSE realized that approximately $138,000 would be deferred to 2019 instead.

iv. Program Evaluation expenses

The Evaluation group anticipates a reduction of approximately $333,000 from its original 2019 plan. This can be attributed to a shift of some residential evaluation work forward into 2018, and using updated budgets provided by PSE's evaluation contractor.

v. Efficiencies, economies of scale, and new partners

Some programs—Single Family New Construction and Web-Enabled Thermostats for instance—are now fully integrated and require less direct intervention from program staff. As third-party implementers—originally hired in 2018—gain experience, they too require less management supervision and direction. Energy Efficiency's DSMc system continues to yield increased efficiency across all programs, with additional value-added services planned for 2019. In aggregate, these instances result in some level of cost-savings.

vi. Program costs associated with third-party vendors

Often, vendor responses to Energy Efficiency RFPs are based on a set of assumptions: market conditions, product availability, logistics planning, customer acceptance, etc.

As program staff implement vendor-executed programs, the original set of conditions become more clear, and program staff must adaptively manage the expectations for the vendor, and potentially adjust savings and budgets mid-biennium.

For example, services provided for Energy Efficiency's Commercial Midstream was in its formative stages when PSE filed the original 2018-2019 BCP.[41] During the planning and initial implementation phases, the amount of incentives paid to channel partners was an estimate. At this stage, with almost one year's worth of experience, the Commercial Midstream program 2019 anticipated spending for incentives is projected to increase by $140,000 over the originally-indicated 2019 budget.

vii. Spending associated with projected program savings

As indicated in the section heading, most spending variance can be tied to revisions in savings projections. For instance:

- As noted in the electric savings discussion, the Retail Home Appliances electric savings is anticipated to be approximately 4,100 MWh lower than originally planned, with an associated reduction of almost $1.5 million in incentive expenses.
- The Retail Web-Enabled Thermostat anticipated spending is forecast to increase by $260,000 (or approximately 158 percent) over the originally-indicated 2019 budget. Although the electric savings is forecast to decrease from the original 2019 value, the number of units incented is forecast to more than double, resulting in a substantial increase in incentive dollars paid.
- Program staff anticipate that Multifamily New Construction savings will increase by more than 250 MWh, with a budget increase of approximately $504,000; primarily consisting of incentives. Spending in incentives is anticipated to outpace the savings increase due to the proportion of "Affordable" Multifamily New Construction projects anticipated for 2019. As explained in Exhibit 3: *Program Details*, projected in the Affordable classification are paid an increased incentive ratio.

[41] At the start of the 2018-2019 biennium, Commercial Midstream was a pilot-analogous program. For 2019, it is an ongoing program.

- BEM's Pay for Performance pilot anticipates a savings reduction of more than 70 percent. Consequently, the anticipated spend for 2019 is reduced by $105,000.

PSE provides a program-by-program comparison table of original-versus-revision savings and budget figures in Exhibit 1's "Compare BCP to 2019 ACP" tab. Additionally, each program detail page contains a table that compares the original 2019 value (as indicated in the 2018-2019 BCP) to the updated 2019 values, by budget category.

c. Natural Gas

The natural gas budget of $15.91 million is largely a result of adjusted labor overhead rates, adjustments for programs that were unintentionally omitted from the original 2018-2019 budgets, revised UES values for prescriptive measures, revised program expectations, and PSE's concerted adaptive efforts to maintain a robust suite of natural gas offerings.

Discussions in sub-sections II.B.2.a. (Updated Corporate Overhead Rates) and i – iv of the Electric Key Expenditure Revision Drivers section also apply to those programs' natural gas budgets. Their natural gas budget impacts are:

- Customer Awareness Tools (a sub-category of Customer Digital Experience): +$136,000
- Home Energy Reports: +$492,000
- Strategic Planning: +$20,600
- Program Evaluation: -$56,000

viii. Spending associated with projected program savings

As indicated in the section heading, most spending variance can be tied to revisions in savings projections. For instance:

- As a result of increased savings opportunities and associated incentives, the Low Income Weatherization program projects an increase of $218,000 from its originally-indicated 2019 budget.
- The Single Family Water Heat program, commensurate with its increase in natural gas savings, anticipates a budget increase of approximately $54,000.

- Although Web-Enabled Thermostat savings are projected to be lower than originally-indicated figures—a result of substantial UES value reduction—the number of units incented is forecast almost double, resulting in an increase in incentives of almost $410,000.
- Retail Showerheads will add approximately $82,000 to the original 2019 budget, as a result of a major big-box store adding a showerhead model to their offerings.
- Program staff anticipate that Multifamily Retrofit savings will decrease in 2019, with a commensurate reduction in budget of approximately $239,000.
- BEM's Commercial HVAC program, with an increase in projected therm savings, anticipates an increase in incentives of approximately $52,000.
- The Pay for Performance pilot anticipates a therm savings reduction of approximately 90 percent. Consequently, the anticipated spend for 2019 is reduced by $39,700.

PSE provides a program-by-program comparison table of original-versus-revision savings and budget figures in Exhibit 1's "Compare BCP to 2019 ACP" tab. Additionally, each program detail page contains a table that compares the original 2019 value (as indicated in the 2018-2019 BCP) to the updated 2019 values, by budget category.

3. Notable 2019 Reporting Revision Drivers

In their 2016-2017 electric Biennial Conservation Report (BCR) comments, Commission Staff requested that PSE engage its CRAG to discuss PSE's Generation, Transmission and Distribution program.

Specifically, the Conservation Voltage Regulation (CVR) measure:

> (…) staff expects that the company will, in conjunction with the advisory group, look closely at improving the implementation of this program. This should include a closer examination of the distribution efficiency target and achievement, and a plan to bring the quality of program reporting in-line with other conservation programs.[42]

[42] *Staff open meeting memorandum on 2016-2017 Biennial Conservation Reports, Dockets UE-152058 and UG-152075,* page 2, ¶ 2.

Energy Efficiency staff is working with the Electric System Planning team, Smart Grid group, and Energy Resource Planning groups to update the 2019 Conservation Potential Analysis for CVR projects. In 2019, PSE will collaborate with the CRAG to develop reporting standards for CVR that align with those of other Energy Efficiency programs.

As it did in the 2017 ACP, PSE provides 2019 updates to its 2018-2019 program discussions. It includes the original program plan outline:

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

This content is copied directly from the 2018-2019 BCP Overview document, and is italicized to clearly indicate that it is not updated for the 2019 ACP. Following the BCP discussion, PSE provides applicable 2019 updates via a separate heading within each program outline:

2019 Updates, Revisions, Enhancements, Adaptive Management

PSE discusses further enhancements, revisions, and additions in more detail in Chapters 4 through 10, and in Exhibit 3: *Program Details*.

C. Portfolio Cost Effectiveness

Table III-4 on page 51 presents the projected 2019 electric and natural gas program cost-effectiveness ratios, as measured using the Utility Cost (UC) Test and Total Resource Cost (TRC) test. It is important to note that cost effectiveness calculations performed for planning purposes rely on measure cost, customer incentive, and savings projections.

Energy Efficiency finalize definitive cost-effectiveness rates only after actual costs are accumulated and reported. PSE provides program-level cost-effectiveness calculations in Exhibit 2: *Cost-Effectiveness Calculations*.

PSE will provide the 2019 actual cost-effectiveness results, based on the reported 2019 costs and savings in the Annual Report of Conservation Accomplishments in March, 2020.

1. Application of Non-Energy Impacts

For 2019 cost-effectiveness analyses, PSE will continue to incorporate RTF-calculated Non-Energy Impacts (NEIs) into the TRC calculation for the majority[43] of electric prescriptive measures using RTF UES values. PSE applied this policy to its suite of gas measures as well.

The RTF indicates the first-year value of the applicable NEI. 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 multiplies that first-year NEI value by 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 NEIs validated in evaluation studies.

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

2. Electric Cost Effectiveness

Energy Efficiency's overall electric Portfolio cost-effectiveness remains healthy. Consistent with WAC 480-109-100(10)(b), PSE omitted Low Income Weatherization (LIW) factors from the REM and Portfolio UC and TRC calculations.[44] The LIW program experienced only an inconsequential impact from the incorporation of the SIR (Savings to Investment Ratio) cost-effectiveness test for low-income projects in which the low-income agency based their savings on TREAT[45] model calculations.

Energy Efficiency's electric portfolio's cost-effectiveness considerations remain intact, with very little change from the 2018-2019 BCP estimates. Reductions in RTF UES values and market saturation increase pressure on program staff to balance their programs' measure mixes.

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[43] A very limited number of measures, such as faucet aerators, did not have RTF-calculated NEIs at the time that Energy Efficiency developed the 2019 ACP. In these cases, PSE used RTF methodologies to calculate water-saving NEIs, as it has successfully done in the past. PSE included $PM_{2.5}$ NEIs in its Single Family Space Heat ductless heat pump measure calculations.

[44] Although omitted from aggregate UC and TRC calculations, PSE provides LIW cost-effectiveness calculations (for both electric and natural gas sectors) separately in Exhibit 2: *Cost-Effectiveness Calculations*.

[45] Targeted Residential Energy Analysis Tool.

In the REM Sector, only Single Family Water and Space Heat programs are estimating TRCs B/C ratios slightly lower than 1.0, with the overall Sector achieving a TRC of 1.68. In BEM, the Commercial Midstream and Small Business Direct Install programs are anticipated to finish 2019 with TRCs lower than 1.0. The Large Power User/Self-Directed program's indicated TRC is below 1.0 is indicative of the start of a new program cycle. Actual TRC will be confirmed as programs are submitted. Overall, BEM is expected to achieve a TRC of 1.48. Energy Efficiency's Portfolio TRC result is calculated to be 1.39.

3. Natural Gas Cost Effectiveness

As was the case in recent past biennia, program staff must apply skillful and proactive management in every Energy Efficiency program in order to sustain the Portfolio's suite of natural gas programs.

In REM, only LIW will finish 2019 with a TRC of less than 1.0. The LIW program's TRC of 0.59 is a reflection of the natural gas policies that PSE presented to the CRAG in May 2018. Consistent with that policy, LIW will continue to 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. The policy on the treatment of natural gas boilers to establish payments on the incremental and measure cost up to an SIR of 1.0 or greater also has an effect on the program's TRC. PSE excludes the LIW cost-effectiveness attributes from the overall REM and Portfolio cost-effectiveness calculations. REM's Sector natural gas TRC is expected to be 1.53.

In BEM, only the Commercial HVAC and Commercial Midstream programs are forecast to achieve a TRC of less than 1.0 in 2019: 0.89 and 0.87, respectively. BEM's overall TRC is calculated to be 1.75 for 2019.

As it has for the past several years, PSE assigns a 10 percent adder to the natural gas TRC figures for illustrative purposes. The overall natural gas Portfolio TRC figure is calculated to be 1.34.

4. 2019 Cost-Effectiveness Estimates

As indicated in Table III-4, the overall Portfolio exceeds an estimated TRC of 1.0 for its electric programs, consistent with the requirement of WAC 480-109-100(8).

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

Table III-4: 2019 Energy Efficiency Cost Effectiveness Estimates, Sector View

2019 Energy Efficiency Sector Cost-Effectiveness		
Sector	**UC**	**TRC**
Overall EE		
Electric	1.55	1.39
Gas	1.55	1.34
Residential		
Electric	1.91	1.68
Gas	2.29	1.53
Business		
Electric	1.81	1.48
Gas	1.77	1.75

Note: consistent with WAC 480-109-100(10)(b), Low Income Weatherization (LIW) electric figures are excluded from REM and Portfolio TRC ratios. LIW natural gas figures are also excluded from REM and Portfolio cost-effectiveness totals.

It is noteworthy that final cost-effectiveness figures—which may differ from the above estimates, and are based on actual expenses and savings—are reported in PSE's Annual Reports of Energy Conservation Accomplishments, filed with the Commission each April.

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Implementing Energy Efficiency Programs

Chapters 4 through 10 provide, by Sector (following the organization of Exhibit 1's Portfolio View), details of 2019 Annual Conservation Plan strategic initiatives that will be put into effect in order to meet PSE conservation targets.

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IV. Residential Energy Management Sector

Consistent with its application of the adaptive continuous improvement 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 make enhancements and revisions to several program strategies and measure offerings. It will also implement adaptations and appropriate revisions to programs in order to meet its 2019 savings goals.

In the following program plans, PSE includes the original 2018-2019 Biennial Conservation Plan program overviews (denoted with a unique heading) to differentiate and provide a point of comparison with the updated 2019 program plans (also separated by a unique heading).

A. REM Highlights

For 2019, notable REM highlights include:

- The Sector will pursue initiatives that broaden the reach and leverage standardization of commercial measures, streamlining incentive and grant application processes for customers.
- Program staff will execute several Low Income Weatherization initiatives:
  - Collaborate with State agencies to ensure that the 2017 GRC Settlement Stipulation funding ($2 million) is maximized by the end of June.
  - Pilot a low-income mobile home replacement program, with the intent of establishing sustainable funding sources and agency coordination.
  - Leveraging State funding through the Community Energy Efficiency Program (CEEP) to pilot multifamily solar installations. PSE plans to subsequently convert those funds to Special Contract dollars when they become available.
- The Low Income Weatherization natural gas program's savings are anticipated to increase by approximately 64 percent,[46] (+6,300 therms) a result of the reinstatement of a Seattle agency, which should see more multifamily boiler installations and incentives.

[46] As compared to the originally-stated 2019 values indicated in the 2018-2019 BCP.

- The appliance replacement, some clothes washer, refrigerator and freezer offerings, and most advanced power strip measures are retired, due to declining UES values, eroding customer demand, and low cost-effectiveness. The Home Appliance program adjusted decommissioning requirements for eligible units to 1992 or earlier.
  - As a result of lower UES values, declining customer demand, and retired measures, the anticipated electric savings will be 66 percent lower (-4,100 MWh).
- Home Energy Reports electric and natural gas anticipated expenditures will increase approximately 83 and 488 percent, respectively (+$325,000/electric, +$492,000/natural gas). This is a result of the Individual Energy Reports pilot being subsumed into the HER program at the start of the 2018-2019 biennium. While the incremental savings were accounted for, the budget amounts were inadvertently omitted from the BCP totals.

Additional details are provided in the following program overview discussions and 2019 revisions, and in Exhibit 3: *Program Details*.

Table IV-1 provides a summary of the Residential Energy Management Sector's 2019-savings goals, specific budgets, and cost-effectiveness estimates. Several constituents of these figures are noted in the following program discussions. Only the Single Family Water Heat and Space Heat programs are expected to finish 2019 with an electric TRC below 1.0: 0.79 and 0.97, respectively. The Low Income Weatherization (LIW) TRC, consistent with WAC 480-109-100(10)(b), is excluded from the overall REM and Portfolio TRC ratio calculations. Exhibit 2, however, presents all program's cost-effectiveness attributes and calculations.

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

2019 Residential Energy Management			
	Total Savings *Electric: MWh Natural Gas: Therms*	**Budgets**	**Total Resource Cost**
Electric *aMW*	100,814 MWh *11.5*	$37,607,325	1.68
Natural Gas	1,584,254 therms	$7,961,748	1.53
Total Budget		$45,569,073	

Note: consistent with WAC 480-109-100(10)(b), Low Income Weatherization (LIW) electric figures are excluded from REM and Portfolio TRC ratios. LIW natural gas figures are also excluded from REM and Portfolio cost-effectiveness totals.

Single Family Weatherization's natural gas TRC calculation indicates an expected ratio of 0.93 for 2019. LIW's natural gas TRC—which is excluded from the overall REM and Portfolio calculation, consistent with policies presented to the CRAG in May 2018—is calculated to be 0.59.

All other programs in both the electric and natural gas portfolios, are expected to achieve a greater than 1.0 TRC in 2019. It is noteworthy that actual cost-effectiveness figures—which may differ from the above estimates, and are based on actual expenses and savings—are reported in PSE's Annual Reports of Energy Conservation Accomplishments, filed with the Commission each April.

PSE provide details of specific budget and savings changes in the specific budget detail sheets for each program in Exhibit 1: *Savings and Budgets.*

1. Tariff Schedule Adjustments

Residential Energy Management has no revisions to its Conservation Schedules (Schedules 200 – 249) planned in 2019.

B. Low Income Weatherization

Schedules E/G 201

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

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.

In December 2017, the Commission issued Order 08 in PSE's 2017 General Rate Case (GRC), which included a Settlement Stipulation. Relative to the LIW program, the Stipulation indicated that PSE will add $2 million to its current funding.

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.

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 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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The LIW program will continue to 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. Additionally, PSE will continue to apply its policy on the treatment of natural gas boilers, which bases payments on the incremental and measure cost up to an SIR of 1.0 or greater. The policy, presented to the CRAG in May 2018 is:

1) PSE will fund space and/or water heating boilers when the **incremental cost** of the boiler upgrade has an SIR 1.0 or greater.
2) The amount of funding will be 100% of the incremental cost PLUS the balance of the full measure cost up to the SIR 1.0 threshold.
3) This policy will apply to boilers ONLY and is NOT applicable to other low income measures.
    a. For all other measures, cost effectiveness will continue to be based on full measure cost.

In 2019, PSE will continue to distribute 2017 General Rate Case Settlement Stipulation dollars (originally, $2 million) until they are exhausted or until June 30, 2019, whichever comes first.

On the electric side, the program will suspend the advanced power strip measure, due to cost-effectiveness concerns, while web-enabled thermostats, and window replacement in manufactured homes are added for 2019.

The program will also continue to offer showerheads, water heaters, and natural gas furnaces The program will see increased budgets and savings targets, due increase production potential realized in 2018 from increased program measure incentives. In 2018, PSE reinstated a contract with Seattle HomeWise, which will result in more boiler installations in multifamily buildings in 2019.

In 2019, PSE plans to leverage $200,000 of State funds through the Community Energy Efficiency Program (CEEP) with CCS dollars to pilot multi-family solar installations with the intent to leverage Microsoft Special Contract dollars in the future in place of CEEP dollars. To that end, PSE will distribute 5-7 grants of approximately $75,000 to Community Action Agencies currently contracted with PSE to implement the Schedule 201 Low Income Weatherization program. The grants will be awarded in November 2018 and installations will be complete by June 30, 2019.

PSE will also partner with CEEP to leverage $300,000 State funds along with utility incentives to pilot a Mobile Home Replacement Program (MHRP) for income eligible Mobile Home customers living in structures that are candidates for replacement. Five installations will be completed by June 30, 2019.

Additionally, PSE will continue to increase its service to the Mobile Home Sector through continued increased direct marketing campaigns and coordinated efforts with Community Action Agencies to identify enhanced methods of program delivery.

1. Underserved and Hard-to-Reach segments

In 2019, PSE will continue to increase its service to the Mobile Home Sector through continued increased direct marketing campaigns and coordinated efforts with Community Action Agencies to identify enhanced methods of program delivery.

C. Single Family Existing

Schedules E/G 214

This Sector group is the largest contributor of savings in REM and is made of these programs:

- Direct to Consumer Channel
    - Residential Lighting,
    - Home Appliances,
    - Showerheads,
    - Web-Enabled Thermostats,
    - Home Energy Reports.

- Dealer Channel
    - Space and Water Heat,
    - Weatherization,
    - Home Energy Assessment,
    - Business Rebates.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019, the Single Family Existing organization composition will remain intact.

1. Direct to Consumer Channel

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.*

2019 Updates, Revisions, Enhancements, Adaptive Management

The Direct to Consumer Channel group composition remains unchanged for 2019.

2. Underserved and Hard-to-Reach segments

The Direct to Consumer Channel will continue its highly successful Energy Upgrades campaign, and implement promotions that target these segments. Promotions are designed to reach a broad and diverse group of customers.

a. Retail Lighting

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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 131.

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[47] 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.

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

2019 Updates, Revisions, Enhancements, Adaptive Management

PSE will continue to respond to a market where LED lamps have seen price decreases and Energy Star has ceased the certification of the CFL bulb. LED bulbs and fixtures will now account for 100 percent of lamps claimed through the retail lighting program.

With the reduced costs of LEDs, PSE will continue to adjust its incentives accordingly while still maintaining funding for customer engagement to further increase product adoption.

b. Home Appliances

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

PSE is making adjustments to the Home Appliances program offerings in 2019 to maintain overall cost-effectiveness. The refrigerator and freezer decommissioning programs will adjust eligibility criteria to only accept models for recycling that were manufactured in 1992 or earlier. Energy Star refrigerators will no longer be eligible for a rebate. PSE is also adjusting clothes washer rebates by ending incentives for top-loading clothes washers and only incentivizing front loading models that are Energy Star or CEE Tier 2 certified.

c. Showerheads

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

Due to reduced energy savings, PSE will retire rebates on WaterSense faucets. Incentives on Showerheads using 1.76 – 2.0 gallons per minute will decrease from $10.00 to $3.00 in order to maintain cost-effectiveness for that measure. Aerator savings for 2019 will be updated to reflect the August 22, 2018 RTF values.

d. Web-Enabled Thermostat

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.[48]

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.

[48] 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.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2018 and 2019, PSE will continue offering 'instant rebates' to eligible customers at select online retail and select pop-up retail events in the community. PSE continues to see increased adoption of smart thermostats.

In 2019, PSE continues its research project on programmable and smart thermostats using line-voltage heating systems.

e. Home Energy Reports

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

No changes to program design or administration are expected in 2019.

In the original 2018-2019 BCP, PSE inadvertently and unintentionally did not account for the additional savings that the Individual Energy Reports pilot (electric and natural gas) brought when subsumed into the "legacy" HER program. Additionally, the corresponding budgets also omitted the additional IER pilot costs from the 2018-2019 BCP.

Thus, $325,000 was added to the electric HER budget total, and $492,000 is added to the 2019 HER natural gas budget.[49] No additional savings is forecast in 2019 for the HER program, consistent with its two-year measure life.

3. 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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The 2019 Dealer Channel composition remains unchanged.

a. Single Family Rental Pilot

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

[49] Although these budget items and savings were omitted from the 2018-2019 BCP, PSE provided the services and incurred the costs from the service provider. The actual values will be represented in the 2018 Annual Report of Energy Conservation Accomplishments, filed in April of 2019.

2019 Updates, Revisions, Enhancements, Adaptive Management

Due to unanticipated costs, PSE put the implementation of this program on hold. PSE is evaluating the most cost-effective way to deliver this service to its rental customers utilizing existing delivery channels.

a. Space & Water Heat

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

PSE plans to integrate its HVAC home control rebates by eliminating the Heat Pump Sizing and Lockout measure, and allowing contractors to redeem the Web-Enabled Thermostat rebate. PSE is exploring a bundled incentive that includes both space heat and web-enabled thermostat measures installed at the same time.

Based on results from 2018 limited-time offers, PSE will continue to improve targeted marketing and customer offers through contractor engagement.

b. Water Heat

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

Additionally, the program will utilize data analytics to deliver outreach campaigns to targeted communities, 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.

Replacement units will be Tier 3, high-efficiency models, and the focus will be on replacing existing resistance heating units, rather than one-for-one heat pump water heater exchanges. The program will also add a NEEA Tier 3 heat pump water heater measure and offer contractor-installed web-enabled thermostats for both electric-and gas-heated structures.

Two of the top electric savers in the Water Heat program's portfolio will be 95 percent water heaters and NEEA Northern Climate Specs heat pump water heaters.

Due to the lack of cost-effective natural gas measures, no savings are planned for the natural gas water heat program in 2018-2019. Program Staff will continue to evaluate the market for potential savings.

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 result from installation of 95% furnaces, efficient fireplaces and new integrated space & water heat measures.

2019 Updates, Revisions, Enhancements, Adaptive Management

PSE is evaluating the lessons learned from a Heat Pump Water Heater limited-time offer that was aimed at engaging contractors through bonus incentives. Based on initial results, contractors are still struggling to offer this measure at a cost-competitive level.

PSE will continue contractor outreach as well as focus on ways to increase sales through the Direct to Consumer Channel. PSE will also look for ways to promote eligible natural gas storage water heater sales, while further clarifying qualification requirements.

c. Home Energy Assessment

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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,[50] 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.

2019 Updates, Revisions, Enhancements, Adaptive Management

A focus going into 2019 will be to continue using the Home Energy Assessment (HEA) as an entry point into the PSE customer journey. Opportunities exist for better coordination between HEA energy specialists and contractor referrals. PSE is still evaluating the opportunities for adding MR-16 reflector lamps to its offerings. Advanced Power Strips are now completely phased out of the HEA program due to unfavorable results from evaluations.

d. Weatherization

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

[50] Previously discussed in the Retail Appliance section.

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The weatherization program continues to perform as anticipated with the existing measure offerings. PSE is shifting the contractor management components of the program from a third party to internal staff as part of an effort to improve overall contractor engagement.

D. 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 99), Residential New Construction, and Multifamily Retrofit markets. Single Family and Multifamily New Construction groups comprise the Residential New Construction market.

2019 Updates, Revisions, Enhancements, Adaptive Management

The 2019 Channel composition remains unchanged.

1. Multifamily Retrofit

Schedules E/G 217

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

Multifamily Air Sealing: In 2019, the Multifamily Retrofit program will provide remedial contractor training to ensure the air sealing trade allies remain successful. Program staff instituted a more rigorous quality control process, which includes pre-construction meetings and in-progress inspections. Staff continue to work closely with PSE's third party evaluator to conduct ongoing analyses to ensure the program's prescriptive per dwelling unit-UES value is within the accepted relative precision range.

Line Voltage Connected Thermostats: The Multifamily Program has added a Smart Thermostat measure for homes with central heat, which predominantly will benefit condominium customers. The program is also currently analyzing the savings from phase 1 and 2 of the Line Voltage Connected Thermostat CEEP pilot. If it's determined to be cost-effective, staff will propose it as a new measure in 2019. Technology in the connected thermostat space is moving quickly, and in order to remain current with technology enhancements, PSE is now conducting a third phase of field trials with a new product in partnership with WSU and BPA. This data will be used to compare product features, customer acceptance, and energy savings between the different thermostat models.

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

> *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,[51] 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.*

[51] The Resource Conservation Management program name was revised to the Commercial Strategic Energy Management program at the start of 2018.

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

Strategic Energy Management: The Multifamily Retrofit program will build upon the groundwork forged by its Strategic Energy Management (SEM) pilot. By utilizing portfolio benchmarking and leveraging the existing SEM educational tools, the program will aim to catalyze deep energy retrofits and influence customer behaviors. Housing Authorities with workforce housing portfolios have expressed keen interest for SEM, particularly from a resident engagement standpoint.

2. Residential New Construction

Schedules E/G 215 and E/G 218

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

e. 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.

f. 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.

2019 Updates, Revisions, Enhancements, Adaptive Management

Single Family New Construction, High Performance Homes: A Contractor Alliance Network Home Rater list has been developed for single family home builders. Since a third-party home rating is required for participation, this will help create a seamless customer experience. Furthermore, it allows PSE to provide up-to-date information for home raters to ensure they are successful in their marketing and outreach efforts.

After partner feedback and analysis by NEEA, program staff incorporated a change in calculation method for the whole home Percentage Improvement Metric (PIM), which is used as an incentive qualifier. It will be treated as a pilot to assess overall impacts across a sample of unique program homes. Barring the discovery of any negative impacts, this change will be implemented region-wide for all participating utility programs in the first quarter of 2019.

The new calculation method for the whole home PIM is more closely aligned with how savings are calculated in the AXIS database, and may provide benefit for installed measures not accounted for in REM/Rate (for example, Smart Thermostats, LEDs, etc.). An estimator was created in partnership with NEEA to better inform builders and raters of the percentage above code for a given whole home package of measures.

Manufactured Home New Construction, Energy Star Homes: Given that the program aligns with Northwest Energy Works certified NEEM homes, PSE will follow suit with a recent branding change from "NEEM 2.0" to "Energy Star® with NEEM+". PSE has updated marketing collateral, which has been used during manufactured home retailer regional outreach.

Multifamily New Construction: PSE hired a third-party vendor (CLEAResult) to redesign and implement the program. PSE now applies incentives on a per-square foot basis, following a tiered whole-building package approach (good, better, best, very best). Developers frequently run their pro-formas on a square-foot basis, so this approach better aligns with how they value engineer projects. Program staff also have a much greater presence in the early design process by offering design charrettes and lunch-and-learns to architecture, engineering, and real estate development firms. PSE expects these efforts to achieve greater market penetration and better influence on the energy efficiency components of the project design. This program design also allows for greater consistency across the region as Energy Trust of Oregon also offers a similar program.

V. Business Energy Management Sector

The Business Energy Management (BEM) Sector has consistently achieved superior results through its proactive application of continuous improvement and continuous improvement adaptive principles for over ten years. By implementing strategies outlined in this Plan, updated for 2019, PSE plans that this trend will continue in the rest of the biennium. For 2019, BEM program staff responded to customer feedback, technology advancements, process efficiencies, and marketplace dynamics in adapting and making applicable revisions to robust programs that PSE forecasts will meet savings targets while prudently applying its customers' funding.

In the following program plans, PSE includes the original 2018-2019 Biennial Conservation Plan program overviews (denoted with a unique heading) to differentiate and provide a point of comparison with the updated 2019 program plans (also separated by a unique heading).

A. BEM Highlights

BEM Program Staff applied creative adaptation to the management of their suite of electric programs as they prepared for the 2019 program year. The Sector continues its focus on streamlining of business lighting application processes, including Business Lighting Grants, and indoor agriculture. Following the implementation of the Commercial Midstream pilot, the original electric saving projection is revised lower for 2019 by approximately 58 percent (-1,200 MWh), based on the vendor's 2018 experience. The Commercial Kitchen and Laundry program is expected to fall slightly short of its original electric savings plan, despite the introduction of its new Demand Control Kitchen Ventilation (DCKV) measure.

Increased electric savings are expected in the Commercial HVAC program, where the addition of web-enabled thermostats is expected to gain considerable customer support. In the Large Power User/Self-Directed program, program staff planned that the start of the new program cycle (2019-2022) would result in a dramatic reduction of electric savings from the 2018 value, and no adjustment to the original 2019 savings is planned. Additionally, BEM has one co-generation project underway as of the filing of this plan, with an expected completion in 2019.

As a result of slow customer uptake, the Pay for Performance pilot electric savings are reduced by 79 percent from its originally-indicated 2019 value in the 2018-2019 BCP (-2,800 MWh), and its natural gas anticipated savings are expected to be 93 percent lower: -30,000 therms.

The BEM electric anticipated spend is relatively flat, increasing by only $93,000, or 0.3 percent. Key revisions result from the implementation of the Commercial Midstream Pilot and increased incentives in the Commercial HVAC program.

Key drivers of BEM's natural gas anticipated 2019 savings performance are similar to those on the electric side: increased savings will be driven by the enthusiastic customer uptake of web-enabled thermostats in the Commercial HVAC program resulted in a 118 percent increase in natural gas savings (+15,900 therms). The Commercial Midstream program's natural gas savings are expected to be 33 percent higher than originally planned; again, due in large part to learnings gained as part of the 2018 pilot initiative.

As a result of slow customer uptake, the Pay for Performance pilot natural gas anticipated savings are expected to be 93 percent lower: -30,000 therms. All other BEM natural gas programs are expected to remain on-target, relative to original 2019 projections outlined in the 2018-2019 BCP.

BEM's natural gas anticipated expenditures are also expected to be relatively flat, as compared to the originally-indicated 2019 figures: an approximate $50,000 increase will be approximately 3 percent more than planned.

BEM will apply Non-Energy Impacts in the Commercial Strategic Energy Management (CSEM) program, commensurate with the findings in SBW Consulting Inc.'s 2013 evaluation study.[52] Only the Commercial Midstream and Small Business Direct Install (SBDI) programs are expected to achieve an electric TRC lower than 1.0 in 2019: 0.46, and 0.87, respectively. The overall BEM Sector electric TRC is expected to be 1.48 for 2019.

On the natural gas side, the Commercial HVAC and SBDI programs may be slightly below a TRC of 1.0: 0.89, and 0.87, respectively. BEM's overall natural gas TRC is calculated to be 1.75 for 2019.

It is noteworthy that final cost-effectiveness figures—which may differ from the above estimates, and are based on actual expenses and savings—are reported in PSE's Annual Reports of Energy Conservation Accomplishments, filed with the Commission each April.

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

While the majority of BEM program offerings remain consistent into 2019, below are highlights of noteworthy enhancements:

1) Two successful pilot-analogous initiatives have been converted to ongoing programs: Industrial Systems Optimization Program's Industrial Strategic Energy Management (I-SEM) and Commercial Midstream to ongoing programs.
2) Program staff are enhancing Indoor Agriculture lighting's approach to savings calculation methodologies that will improve consistency and custom grant efficiencies.
3) After significant analysis and development, the Commercial Kitchen & Laundry program will pilot a new measure: the Demand Control Kitchen Ventilation (DCKV) measure.
4) Commercial Direct-Install Programs – In 2019, PSE continues to offer direct install measures to agriculture and lodging sector customers through the Small Business Direct Install program. These difficult-to-reach markets have been challenging in the past. However, Program Staff have developed innovative penetration strategies to continue serving these customer segments.
5) The Business Lighting program will implement a Luminaire Level Lighting Controls (LLLC) bonus incentive, and is also developing additional training programs for contractors to promote the technology.
6) BEM will continue developing a standard approach for variable refrigerant flow (VRF) systems. Staff are benchmarking approaches with other utilities to ensure consistency.

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

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

2019 Business Energy Management			
	Total Savings *Electric: MWh Natural Gas: Therms*	**Budgets**	**Total Resource Cost**
Electric *aMW*	114,408 MWh *13.1*	$29,294,509	1.48
Natural Gas	1,561,137 Therms	$3,929,174	1.75
Total Budget		$33,223,683	

Program plans are discussed in the following sections, with comprehensive reviews of target markets, marketing and outreach initiatives, and customer incentives contained in Exhibit 3: *Program Details*. Details of specific budget and savings changes are thoroughly highlighted in the specific budget detail sheets for each program in Exhibit 1: *Budgets and Savings*.

B. Tariff Schedule Adjustments

PSE will file, concurrent with the 2019 ACP, an updated Schedule 258: Large Power User/Self-Directed, to denote the new 2019-2022 program cycle.

C. Commercial/Industrial (C/I) Retrofit

Schedules E/G 250

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.[53] 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.

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

2019 Updates, Revisions, Enhancements, Adaptive Management

The C/I Retrofit indoor agriculture team is developing a revised approach to calculating energy savings from indoor agricultural lighting projects. The new approach conceptualizes a more "prescriptive" view of savings, based on canopy square footage. The approach will simplify and expedite project grants and ensure consistency across applications.

The Business Lighting team will continue to adaptively manage its Business Lighting grant application process, increasing the consistency of lighting grant amounts across all business customers, and eliminate the need for the customers and contractors to navigate very different processes for projects which may be very similar with the exception of varying electric rate schedules.

BEM is finalizing the development of a standard approach for variable refrigerant flow (VRF) projects. BEM is currently benchmarking with other regional utilities on their VRF incentives and prescriptive approaches. The new approach has a planned launch in early 2019. By simplifying to a more prescriptive approach, BEM hopes to increase customer implementation of VRF projects.

D. Commercial/Industrial New Construction

Schedules E/G 251

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019, PSE will remove the Whole-Building Analysis requirement that PSE must provide electric service for natural gas customers wishing to participate. Incorporating this revision, program staff will continue to execute the program's original 2018-2019 plans.

E. Commercial Strategic Energy Management

Schedules E/G 253

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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. The CSEM program replaces RCM as one program operating under the terms of Schedule 253.

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

In response to the completed third party evaluation of the CSEM program, the Building Performance Team is doing a more intensive review of customer sites that are showing energy consumption increases. The team is also considering additional ways to keep customers engaged through trainings and incentives.

F. Large Power User Self-Directed

Schedule E258

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

As 2019 is the start of a new program 4-year cycle, PSE expects electric savings to be low, which is historically consistent with past cycles. PSE's EME's will be working with eligible customers to develop qualifying projects, in preparations for the upcoming competitive phase of the program.

G. Technology Evaluation

Schedules E/G 261

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019, Energy Efficiency EMEs will continually scan for newer, reliable and feasible technologies that have the potential for long-term energy savings.

H. 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

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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[54] initiatives.

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.

[54] Included in Chapter 4: *Residential Energy Management*.

2019 Updates, Revisions, Enhancements, Adaptive Management

Distributors have requested additional measures that are more financially difficult for contractors to implement. In 2019 PSE will offer T5 TLEDs and Bi-pin based LED replacements for compact fluorescents. This will further align program offerings with programs from neighboring utilities.

2. Small Business Direct Install

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

Small Business 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.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019, program staff will continue refining measure offerings, utilizing market research, updated historical data, channel partner feedback, and customer input.

a. Underserved and Hard-to-reach segments

PSE is working to *transcreate*[55] collateral for SBDI. With that, PSE is also exploring a pilot to target a blitz in a high second-language area where it will identify the top languages spoken and take native speakers on the blitz to talk with those customers.

[55] Transcreation refers to marketing and outreach materials that can be readily translated for specific non-English speaking customer segments. Rather than a simple word-for-word translation, transcreation represents the conveyance of the concept or idea that the original material contains.

PSE experienced an exciting success at a blitz in 2018, where the team had a staff member who spoke Vietnamese and was able to communicate the program to the customer in their own language, which transformed them from declining PSE's services to accepting and engaging in the free and low-cost offerings.

3. Commercial Kitchens & Laundry

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

PSE has a prominent presence at a bi-national level as Chair of the Consortium for Energy Efficiency's (CEE) Commercial Food Service Committee. This affords the program the ability to influence the direction, analysis, and eventual specification-setting for current and future foodservice equipment categories. Most notably in 2019, program staff will be critical in revising the commercial ice machine specification and resulting manufacturing trajectory following a substantial shift in the Federal minimum standard; this work will affect PSE and regional utilities' foodservice programs, as well as utilities' across the US and Canada.

In 2019 PSE will relaunch Point-Of-Purchase materials in distributor locations, standardizing the tools they receive, and providing consistent feedback and feedback loops for their involvement in the program. PSE will use what is learned from these participants to finalize a distributor toolkit for the program for use with future potential distributor participants. By increasing the distributors' level of comfort and improving PSE's visual presence in their stores and showrooms, it is expected that program awareness will improve and participation will increase in 2019.

The newest measure in the program portfolio, Demand Control Kitchen Ventilation (DCKV) will be active at the beginning of the year, and will include collaboration with the regional utilities to deliver a streamlined offering and process to customers and distributors.

a. Underserved and Hard-to-reach segments

The entire program falls within a hard-to-reach customer segment and specifically addresses the segment in as many ways as possible. In 2019, PSE will provide *transcreated* materials and resources to better serve English-as-second-language customers.

4. Commercial HVAC

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

For 2019 PSE will continue its rollout of the Commercial Midstream HVAC and water heat program. The 2019 focus will be on creating tools and trainings for contractors to use to help sell more high-efficiency equipment. PSE is also looking into potential measure to add to the program based on feedback from distributors and manufacturers.

PSE is also adapting rebates and processes to create a suite of commercial HVAC maintenance measures that can be easily accessed by its commercial customer base. This includes aligning the advanced rooftop control rebates and the program's new commercial web-enabled thermostat measure with the Regional Technical Forum's (RTF's) UES list. The goal is to reduce administrative processing and reporting requirements to increase the adoption of commercial maintenance controls.

VI. Pilots

Schedules E/G 249

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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

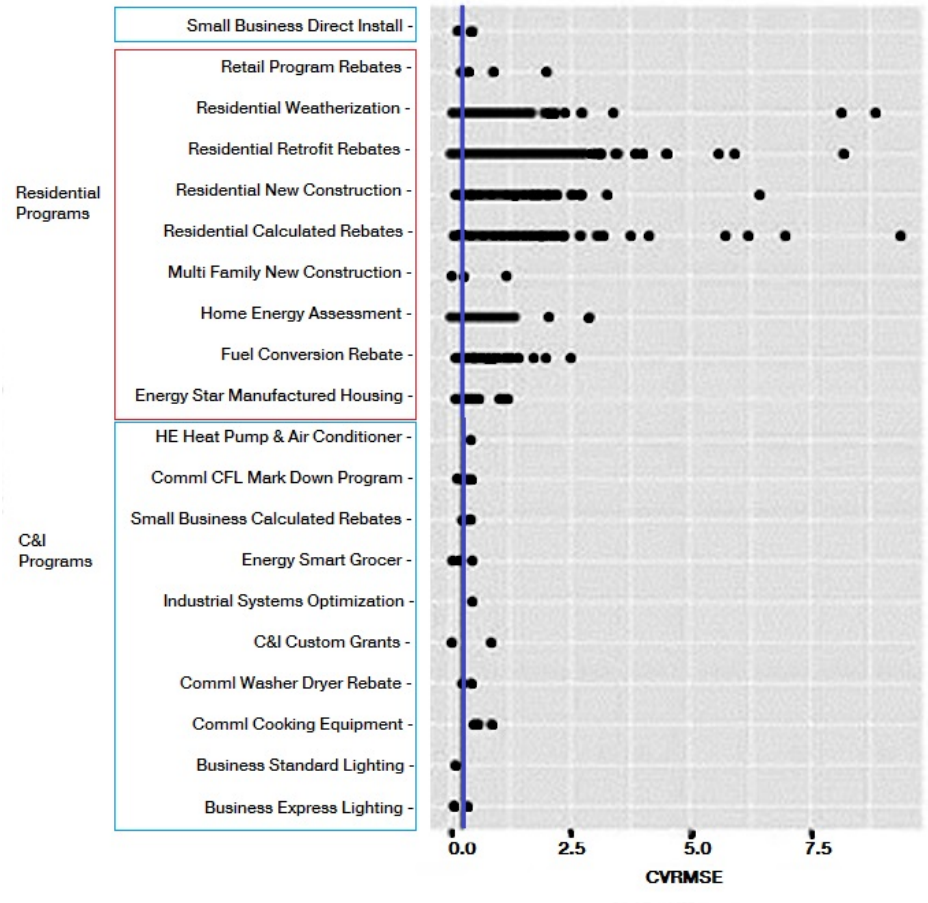
As noted earlier, there are also pilots within the Energy Efficiency Portfolio that do not have a direct bearing on conservation savings, but are noteworthy nevertheless. EM&V 2.0 is one such pilot.

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 VI-1 provides a graphical representation of the analysis breakdown by programs as compared to the CV(RMSE).[56]

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



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.

[56] 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.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019:

- After determining that implementation costs were projected to be double the amount originally forecast, PSE put the Single Family Rental pilot on hiatus while program staff analyze the market needs and alternative solutions, using current program resources.
- As a result of the successful 2018 implementation, the Commercial Upstream Pilot is converted to an ongoing Commercial Midstream program.
- As the only program classified in the "Pilots with Uncertain Savings" category (thus excluded from the EIA Penalty Threshold), the Pay for Performance program experienced difficulty in lining up participants in 2018. As a result, the 2019 electric savings projection that is 2,800 MWh lower than originally planned. Despite efforts throughout 2018, discussed in section III.B.1.d.ii, program staff anticipate that the Pay for Performance pilot 2019 savings will be approximately 79 percent lower[57] than originally indicated in the 2018-2019 BCP.

  On the natural gas side, program staff estimate that the therm savings will be approximately 30,000 therms lower than originally estimated.

  In 2019, the team will continue to implement a number of tactics to increase this number. For instance, in 2018, program staff implemented notifications through the Northwest Energy Efficiency Council (NEEC) website, customer conference calls, and collaborating with PSE Marketing to present program information on PSE's website to increase visibility and have program details more readily available to interested participants.
- The Program Evaluation organization will be incorporating EM&V 2.0 advanced analytics into its core evaluation activities, with a particular focus on performance of the C/I Retrofit, Commercial Strategic Energy Management, and Large Power User programs. Part of this work will include assessment of the extent to which EM&V 2.0 techniques can replace or supplement traditional impact evaluation methods.

[57] Pay for Performance's original 2019 projection was 3,640 MWh, while the revised 2019 forecast is for 750 MWh.

- For the winter season of 2018-2019, PSE will run a winter savings web-enabled thermostat pilot in partnership with Nest call the Seasonal Saving Pilot Program. Nest will provide PSE with a thermostat optimization solution that will facilitate automated changes to end users' schedules to drive energy savings. PSE will evaluate the savings and impact of the program to determine if it would be beneficial to pursue as an offering in the Direct-to-Consumer portfolio.

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VII. Regional Programs

In the following program plans, PSE includes the original 2018-2019 Biennial Conservation Plan program overviews, with an updated discussion below with a unique section heading to indicate 2019-specific updates.

A. Northwest Energy Efficiency Alliance

Schedule E254

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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 initiatives 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[58] may also produce savings, although there is a potential that neither will result in therm savings in the coming biennium.

[58] 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.

PSE's share of the natural gas market transformation funding is 41.25 percent, with a 2019 total of $2.43 million.

2019 Updates, Revisions, Enhancements, Adaptive Management

In September, 2018, NEEA revised its 2018-2019 savings forecast for the PSE service territory from 2.86 aMW (25,054 MWh) to 2.52 aMW (22,075 MWh). NEEA's original projection for 2019 electric savings was 1.47 aMW. Its revised projection for PSE savings is 1.29 aMW, or 11,300 MWh: a 10 percent reduction. NEEA indicates that a key driver of this variance is primarily driven by three market transformation initiatives: heat pump water heaters, retail products portfolio, and retro-commissioning.

Similarly, NEEA's original 2019 forecast for natural gas savings, achieved through its Natural Gas Market Transformation Collaborative pilots, was zero therms. Over the course of 2018 analyses, NEEA's 2019 estimate remains 0 therms.[59] Although there is a potential for the installation of commercially-available gas heat pump water heaters (one of the core initiative measures), it isn't possible to project where units may be installed, and what their savings values may be.

B. Distribution Efficiencies

Schedule E292

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

[59] NEEA's original therm savings estimate for 2019 was based on the early adoption of commercially-available natural gas technology, including non-plug Energy Star® water heaters.

Program staff expect that 2018-2019 CVR projects will yield 1,500 MWh of savings in 2018-2019.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019, PSE plans to follow the original Biennial Conservation Plan (BCP) for CVR project implementation. This plan forecasted three CVR projects to be implemented in 2019. Energy Efficiency staff is working with the Electric System Planning team, Smart Grid group, and Energy Resource Planning groups to update the 2019 Conservation Potential Analysis for CVR projects.

A significant expansion in CVR project implementation is being considered during the 2020 / 2021 BCP. This expansion is tied to the updated Conservation Potential Analysis and implementation of the Advanced Metering Infrastructure (AMI) project and substation automation project. These two projects will enable Voltage Var optimization, an improved CVR method that allows for deeper levels of savings over PSE's current CVR implementation method.

For the 2020-2021 Biennial Conservation Plan, staff is anticipating to budget for a study that provides an updated methodology for energy savings determination for Voltage Var[60] CVR projects. The initial research, scoping, and costs for the study will take place in 2019.

In 2019, PSE Energy Efficiency program staff will continue to closely with the cross-collaborative PSE CVR team from Electric System Planning, the Smart Grid Group, Energy Resource Planning, and Major Projects to provide increased monitoring and reporting of CVR project implementation to the CRAG.

[60] Volt-ampere, reactive. A unit by which reactive power is expressed in an AC electric power system. Reactive power exists in an AC circuit when the current and voltage are not in phase. (Courtesy: Wikipedia)

VIII. Portfolio Support

In the following program plans, PSE includes the original 2018-2019 Biennial Conservation Plan program overviews, with an updated discussion below to indicate 2019-specific updates.

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The majority of functions and activities in the Portfolio Support group will continue to operate consistently with the originally-outlined 2018-2019 Plan. As readers will note, several functions are associated with or support the implementation of Energy Efficiency's new customer management software DSMc, or will provide direct support of the implementation of PSE's Demand Response program.

A. Tariff Schedule Adjustments

There are no tariff Schedule revisions required for 2019 in the Portfolio Support group.

B. Data and Systems Services

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019, the Data and Systems Services team will continue working on enhancements to Energy Efficiency's DSMc system to improve the user experience for internal staff (who process residential rebates and commercial grants), and PSE's external users (PSE customers and contractors) who submit rebates online through our public-user interface. One change the team is currently exploring would enable customers to apply their rebate payment to their billing account. The team will be working towards building out this functionality in the DSMc system and determining which programs are best suited for this new rebate payment option.

C. Rebates Processing

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The Rebates Processing team will continue executing their original 2018-2019 plans in 2019.

D. Verification Team

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The Verification Team has no plans to revise current operational strategies or tactics.

E. Programs Support

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The organization will continue to provide internal program support, process improvement initiatives, and operational effectiveness throughout 2019.

F. Trade Ally Support

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

Trade Ally Support will continue implementing its original 2018-2019 strategies throughout 2019.

G. Contractor Alliance Network

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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: Developing 2019 Updates to the 2018-2019 BCP).

2019 Updates, Revisions, Enhancements, Adaptive Management

PSE continues to evaluate the existing CAN program and identify areas to improve contractor engagement while reducing administrative costs for both the participants and the utility. PSE will focus on implementing specific tactics in 2019 that are informed by a larger trade ally engagement strategy. Additionally, program staff are developing requirements for systems optimization to support Energy Efficiency's product and services offerings and an enhanced trade ally portal that they target for 2019.

H. Automated Benchmarking System

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019, the MyData team will continue executing its original 2018-2019 business plan.

I. Energy Advisors

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The Energy Advisors will sustain its application of continuous improvement principles to its 2019 operations, with the goal of meeting customer expectations, partnering with Energy Efficiency program staff, and making it easy for customers to participate in Energy Efficiency programs.

J. Energy Efficient Communities

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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,[61] 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.*

[61] 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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The Energy Efficient Communities team has focused their attention on the design of new, and an expansion of its existing outreach tactics to engage hard-to-reach customers. This requires more detailed and comprehensive on-the-ground implementation tactics, utilizing what the team have learned over the past three years through their outreach work.

The team piloted the delivery of presentations and small business direct installs outreach in Vietnamese and Korean in 2018. Presentations were delivered with the use of an interpreter and the team had a Vietnamese speaking employee engage with the business owners.

The team will be expanding this approach in 2019 to try and reach more customers in their preferred language. It was found that this helps with building customers' trust, establishing a stronger rapport with some underserved segments that we may not be reaching through PSE's current messaging, and a better overall awareness of PSE's energy efficiency programs.

K. Digital Experience

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The Digital Experience organizations will continue their initiatives to innovate new and updated avenues for engaging PSE customers in energy-efficiency services.

L. Customer Awareness Tools

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

PSE inadvertently and unintentionally omitted a Customer Awareness Tools discussion from its 2018-2019 BCP.

2019 Updates, Revisions, Enhancements, Adaptive Management

Customer Awareness Tools is comprised of four electronic services provided to PSE customers via a variety of media, designed to fit customers' communication expectations. The services include:

1. Unusual Usage Alerts (UUA)

- Unusual Usage Alerts, or UUA's are sent to customers when their energy usage is abnormal compared to the previous year.
- Unusual usage alerts are triggered when a customer is trending to use more than 30 percent of they used for the same billing cycle the year prior.
- Over the last year, an average of over 44,000 communications have been dispatched.

2. My Energy Usage

- When PSE customers log onto their myPSE account, they can view their energy usage center, which is moderated by PSE's vendor.
- Additionally, the energy usage center also allows customers to select ways to be more energy efficient to help them save energy.

3. Seasonal Readiness Emails (SRE)

- Up to 250,000 PSE customers receive reports are sent to by Oracle to over 1 million customers twice a year during the changing seasons, once in the Summer and once in the Winter.
- In the last cycle, PSE's vendor sent approximately 180,000 emails.
- In 2017-2018, the open rate was over 33 percent for both the summer and winter notifications.

4. Customer Engagement Tracking (CET):

The Customer Engagement Tracker (CET) survey is an instrument designed to explore utility customer reactions to the Home Energy Reports (HER) program and other related outreaches. The instrument incorporates a variety of standardized questions that enable applicable comparisons to other utility deployments surveyed by PSE's vendor, representing over 69,000 customer interviews across 44 distinct utility partners.

At PSE, the instrument aims to accomplish the following key objectives:

- Explore customer interaction with and reception of the Home Energy Reports; for both those in PSE's legacy deployments as well as the 2014 expansion groups,
- Gauge overall impact of the program on the PSE customer relationship, both via self-reported influence and by measuring differences in engagement between program participants and non-participants (controls).
- Compare results between PSE deployments and to those of other vendor utility partners, with an eye towards potential program improvements.

M. ShopPSE

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

PSE inadvertently and unintentionally omitted a ShopPSE discussion from its 2018-2019 BCP.

2019 Updates, Revisions, Enhancements, Adaptive Management

ShopPSE is Energy Efficiency's online retail website:

https://shop.pse.com/

will continue to provide PSE customers with a wide variety of energy-savings devices, including LED lamps and showerheads.

N. Market Integration

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

There are no revisions planned for the Market Integration team's 2019 business strategies and tactics.

O. Events

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The Events team will continue executing its original 2018-2019 plan.

P. Brochures

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The Brochures team will continue to implement brochure fulfillment strategies in line with its 2018-2019 plan.

Q. Education

Schedules E/G 202

PSE will continue to provide Independent Colleges of Washington grants in 2018-2019.

2019 Updates, Revisions, Enhancements, Adaptive Management

The colleges did not propose viable projects for 2018, so PSE and the colleges have collaboratively agreed to generate new RFPs for student projects for the 2019 school year.

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IX. Research & Compliance

The primary deliverable of this group is to provide critical research, customer information, such as survey results, demographic information, etc., evaluations, and assistance in the development of PSE's Conservation Potential Assessment every two years.

In the following program plan discussions, PSE includes the original 2018-2019 Biennial Conservation Plan program overviews, with an updated discussion below to indicate 2019-specific updates.

A. Tariff Schedule Adjustments

There are no tariff Schedule revisions required in the Research & Compliance group.

B. Conservation Supply Curves

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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).

2019 Updates, Revisions, Enhancements, Adaptive Management

In 2019, the focus will be on finalizing the economic conservation potential analysis, and preparation of the IRP document and Cadmus Group's conservation potential report that will be included as an appendix to the IRP. Results will be presented to the IRP Advisory Group. Once the IRP results are finalized, they will be used to develop the biennial target and avoided costs for the 2020 – 2021 Biennial Conservation Plan.

C. Strategic Planning

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The primary strategic research activities in 2019 will continue to be participation in the Regional End Use Load Study and oversampling of PSE's service area as a supplement to the regional Commercial Building Stock Assessment (CBSA). Work on the CBSA oversample has been shifted from 2018 to 2019, in line with the most current CBSA work plan and will consist of data collection and analysis. Results are expected to be available in the second quarter of 2020.

D. Market Research

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The department did not renew the customer panel in outside services, as its internal capabilities have improved. Additionally, outside services costs were projected to increase when the former vendor was acquired. This resulted in no increase in planned 2019 expenses from those originally planned in the 2018-2019 BCP.

E. Program Evaluation

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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.

2019 Updates, Revisions, Enhancements, Adaptive Management

The 2019 budget for evaluation is reduced from the estimate in the 2018-2019 BCP due to shifting of some residential evaluation work forward into 2018 and using updated budgets provided by Opinion Dynamics Corp., the portfolio evaluation consultant who was selected after the BCP had been filed.

Evaluation activities in 2019 may be influenced by any program changes and findings from evaluation work completed in 2018, which could result in new follow-up activities and re-prioritization of evaluation work that was originally planned.

In 2019, PSE will be incorporating EM&V 2.0 advanced analytics into its core evaluation activities, with a particular focus on performance of the C/I Retrofit, Commercial Strategic Energy Management, and Large Power User programs. Part of this work will include assessment of the extent to which EM&V 2.0 techniques can replace or supplement traditional impact evaluation methods.

PSE will also be leading a pilot evaluation of Line Voltage Control Thermostats installed in multifamily properties, funded by WSU's Community Energy Efficiency Program. In this role, PSE is advising BPA researchers on assessing technical performance as well as customer acceptance.

The Evaluation team will consider Stakeholder comments in the design of future evaluations of the Large Power User/Self-Directed program in 2019. Although the program is near the end of its current cycle (2015-2018)—with the next program evaluation potentially occurring in 2019—PSE will take into consideration enhancements and improvements relative to the 2013 program evaluation in its future program evaluations.

These improvements include, but aren't limited to: budgeting for in-depth interviews with eligible customers or creating a Delphi panel; a follow-on best practices study; PSE will also ensure that future evaluations will make clear distinctions between results, findings, and recommendations; and incorporate sample designs that provide more inclusive results and provide a basis for statistical significance.

X. Other Electric Programs

The Other Electric Programs group is segregated from other Customer Solutions Electric and Gas Rider programs because they are not used in calculating cost-effectiveness of the overall Portfolio.

In the following program plans, PSE notes original 2018-2019 Biennial Conservation Plan program overviews in *italics* to differentiate and provide a point of comparison with the updated 2019 program plans.

A. Tariff Schedule Adjustments

There are no tariff revisions applicable to Net Metering planned for 2019.

B. Net Metering

Schedule E150

Original 2018-2019 Biennial Conservation Plan Content (For Reference Only)

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[62] for the treatment of distribution costs resulted in an apparent increase in the program's 2018-2019 budget versus the 2016-2017 biennium.

2019 Updates, Revisions, Enhancements, Adaptive Management

The Net Metering program will continue executing the business strategies and tactics established at the start of the biennium.

[62] 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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XI. Exhibit Summary

This section provides an overview of the updates to the 2018-2019 BCP Exhibits that apply specifically to the 2019 Annual Conservation Plan.

A. Exhibit 1: Savings and Budgets

The format of Exhibit 1 remains unchanged from the previous two biennia. In keeping with its continuous improvement 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 toward Stakeholder needs, requests and observations. Energy Efficiency reviewed its 2018-2019 Exhibit 1, and made the following enhancements (in descending order of granularity):

1) The Portfolio View table is specific to 2019 only.

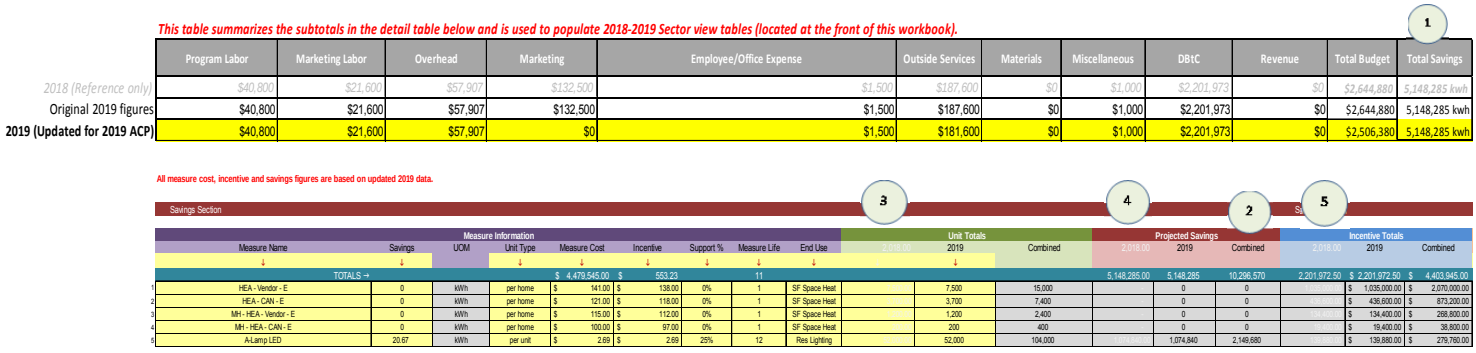
2) In the Sector View tables, PSE highlighted the specific elements of prescriptive measures that are revised for 2019. Elements include, but aren't limited to: UES values, measure cost, incentive amount, and forecast unit count. The savings figures noted in the horizontal table at the top of each detail page is linked to the corresponding measure table totals. In the illustration, (1) is linked to Projected Savings, 2019 at (2).[63]

   The horizontal tables at the top of each detail page are used to link to the Sector View pages in the Microsoft® Excel™ workbook. An extract of such an example is provided in illustrated in Figure XI-1.

[63] In the discussion, numbers in parentheses: (1), (2), etc. correspond to numbered items illustrated in the noted Figures.

The illustration also highlights another modification made to the measure table: in those affected programs, the 2018 totals for units (3), savings (4), and incentives (5) are excluded from the 2019-specific measure table (but are available for reference). The 2018-2019 measure table, located below the 2019-specific table, contains the originally-estimated values. (Some columns are hidden in this extract for presentation purposes. In the actual workbook, there are no hidden cells.)

Figure XI-1: Example of an Exhibit 1 Program Detail Page Measure Table Reference



This table summarizes the subtotals in the detail table below and is used to populate 2018-2019 Sector view tables (located at the front of this workbook).

	Program Labor	Marketing Labor	Overhead	Marketing	Employee/Office Expense	Outside Services	Materials	Miscellaneous	DBtC	Revenue	Total Budget	Total Savings
2018 (Reference only)	*$40,800*	*$21,600*	*$57,907*	*$132,500*	*$1,500*	*$187,600*	*$0*	*$1,000*	*$2,201,973*	*$0*	*$2,644,880*	*5,148,285 kwh*
Original 2019 figures	$40,800	$21,600	$57,907	$132,500	$1,500	$187,600	$0	$1,000	$2,201,973	$0	$2,644,880	5,148,285 kwh
2019 (Updated for 2019 ACP)	$40,800	$21,600	$57,907	$0	$1,500	$181,600	$0	$1,000	$2,201,973	$0	$2,506,380	5,148,285 kwh

All measure cost, incentive and savings figures are based on updated 2019 data.

Savings Section

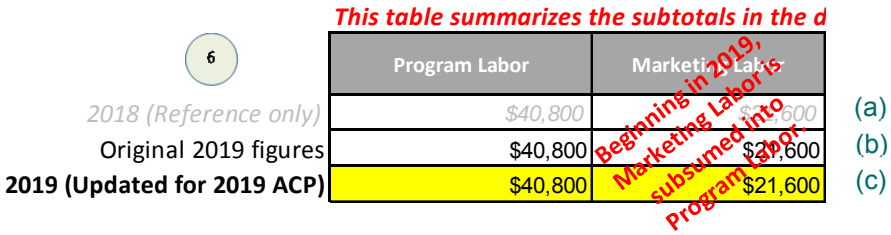
	Measure Information									Unit Totals			Projected Savings			Incentive Totals		
	Measure Name	Savings	UOM	Unit Type	Measure Cost	Incentive	Support %	Measure Life	End Use	2018.00	2019	Combined	2018.00	2019	Combined	2018.00	2019	Combined
	TOTALS →				$ 4,479,545.00	$ 553.23		11					5,148,285.00	5,148,285	10,296,570	2,201,972.50	$ 2,201,972.50	$ 4,403,945.00
1	HEA - Vendor - E	0	kWh	per home	$ 141.00	$ 138.00	0%	1	SF Space Heat		7,500	15,000		0	0		$ 1,035,000.00	$ 2,070,000.00
2	HEA - CAN - E	0	kWh	per home	$ 121.00	$ 118.00	0%	1	SF Space Heat		3,700	7,400		0	0		$ 436,600.00	$ 873,200.00
3	MH - HEA - Vendor - E	0	kWh	per home	$ 115.00	$ 112.00	0%	1	SF Space Heat		1,200	2,400		0	0		$ 134,400.00	$ 268,800.00
4	MH - HEA - CAN - E	0	kWh	per home	$ 100.00	$ 97.00	0%	1	SF Space Heat		200	400		0	0		$ 19,400.00	$ 38,800.00
5	A-Lamp LED	20.67	kWh	per unit	$ 2.69	$ 2.69	25%	12	Res Lighting		52,000	104,000		1,074,840	2,149,680		$ 139,880.00	$ 279,760.00

Also notable in Figure XI-1 are the row headers (number 6 in Figure XI-2) of the horizontal table (which is used to populate the Sector and ultimately, the Portfolio Views of the Exhibit 1 workbook). PSE presents a larger image of the same table in Figure XI-2.

The figure also reveals a key budgeting revision, effective with the 2019 ACP: as a result of enterprise financial system upgrades, it is no longer possible to budget labor for staff who are not in the immediate Energy Efficiency cost center. Marketing staff (who are a part of PSE's Communications cost center) for instance, now cannot be separately budgeted. Their anticipated costs, however, are included in the "Program Labor" budget element. It is also possible to, at an order number level, report on individuals' labor allocations.

For biennial reporting consistency, PSE chose to maintain the current Exhibit 1 format. In the 2020-2021 BCP, PSE will update the program detail tables to accommodate the financial systems change.

Figure XI-2: Marketing Labor Notation Revisions for 2019



This table summarizes the subtotals in the d

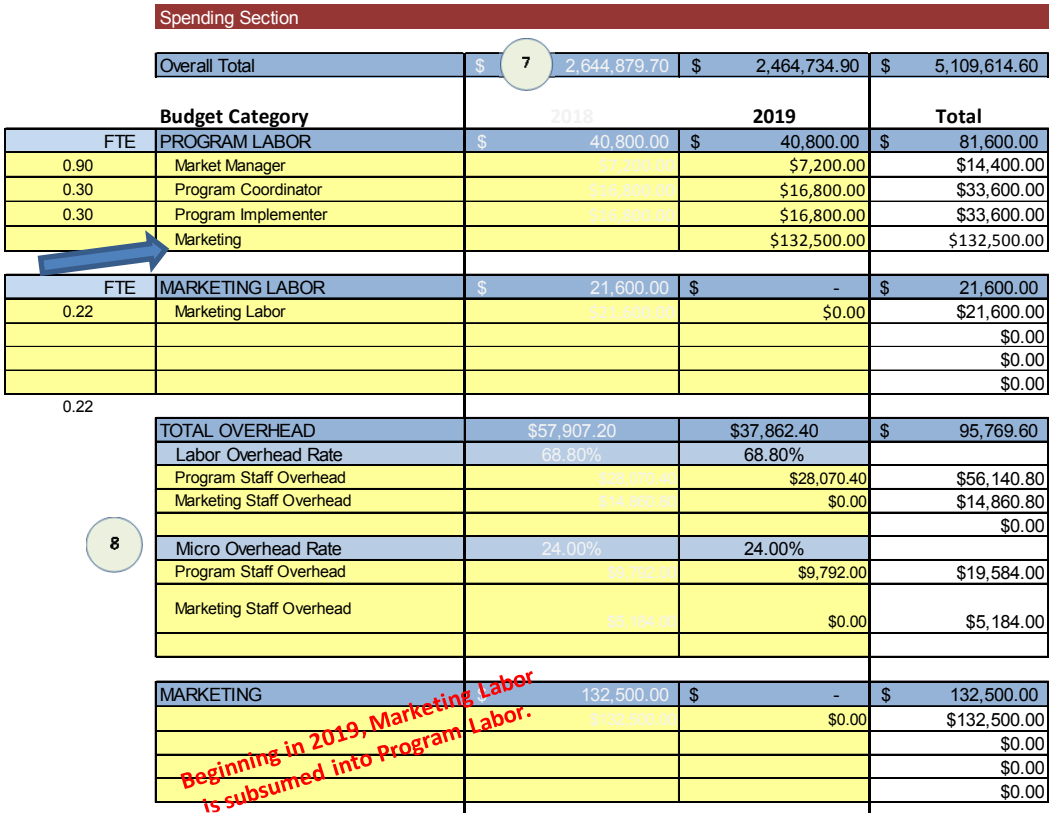
	Program Labor	Marketing Labor	
2018 (Reference only)	*$40,800*	*$21,600*	(a)
Original 2019 figures	$40,800	$21,600	(b)
2019 (Updated for 2019 ACP)	$40,800	$21,600	(c)

Beginning in 2019, Marketing Labor is subsumed into Program Labor.

These row headings provide a chronological view of (a) the original 2018-specific budget and savings figures ("2018 (Reference only)", in grey print), as noted in the 2018-2019 BCP. In the electronic worksheet, Stakeholders will see that these are hard-coded.

Similarly, (b) the originally-estimated 2019 figures below the 2018 figures ("Original 2019 Figures", as noted in 2018-2019 BCP) are also hard-coded. Only the bottom line, (c) highlighted in yellow ("2019 (Updated for 2019 ACP)") links to the data listed in the budget detail table on each page, illustrated in Figure XI-3. PSE includes another note, relative to the financial system revision that prevents the separate representation of Marketing staff labor. In the figure, the arrow indicates that the Marketing labor anticipated spend is now subsumed into the "Program Labor" category.

Figure XI-3: Example of a 2019 Budget Detail Table



This illustration highlights two additional 2019 enhancements to Exhibit 1:

a. 2018 figures are greyed out (and are not linked), indicated at (7), and

b. The addition of a micro-overhead value in the OVERHEAD portion of the table, indicated at (8).

1. Micro-Overhead

PSE created a new budget category, micro-overhead, for the 2018 and beyond Energy Efficiency budget. The new category eliminates the need to calculate assessments and apply those costs to the labor budget category, which has made researching assessments difficult during the annual UTC Schedule 120 expense review.

a. How does Micro-Overhead Work?

Expenses that were formerly charged to a cost center (office supplies, department staff meetings, seminars, conferences, department trainings, etc.) will now be charged to a single order number, and will be classified as micro-overhead.[64] The micro-overhead percentage of 23 percent is applied to all 2019 Energy Efficiency programs that formerly assessed to the three primary Energy Efficiency cost centers (Residential Energy Management, Business Energy Management, and Programs Support).[65] Rather than create a new budget category, the micro-overhead value is added to the Labor Overhead value (that was updated to the 2019 corporate ratio of 68.3 percent).

b. Why was it Created?

PSE's General Accounting department is enhancing its enterprise financial accounting methodologies by reducing or eliminating the practice of charging expenses to cost centers. Expenses charged to cost centers causes them to assess to all of the order numbers that roll up to the order number.[66] Additionally, the Budget, Evaluation, Administration, and Regulatory organization—which does not have a specific Exhibit 1 budget—assessed to each Energy Efficiency cost center.

[64] The order number will not be a 1823nnnn format. These numbers are strictly reserved for conservation-related expenses and cannot be used for anything else. Assigning one of these order numbers to micro-overhead would create the potential for double-counting conservation expenses.

[65] PSE does not calculate the micro-overhead values in: Market Research, Market Integration, Conservation Supply Curves, Strategic Planning, or Other Electric Programs.

[66] In the case of Energy Efficiency, the Residential Energy Management organization, cost center "1234", has more than 50 order numbers that roll up to it. If an expense is charged to that cost center, the expense amount is assessed, via a pre-determined methodology, to the applicable order numbers by a certain percentage. (Cost center "1234" is fictional, and is only referenced for illustration.)

When program managers review the expenses charged to their programs, they often see these assessments, and have a difficult time determining what the specific charge is for.[67] This is also true when Commission Staff perform their annual Schedule 120 review; when they query an unusual expense, it sometimes requires quite a bit of research in SAP to determine the ultimate expense.[68]

Micro-overhead represents an allotment, arrived at by analyzing the past three years' Energy Efficiency expenses to determine how the assessments flowed across Energy Efficiency by adding the assessed labor to the non-labor charges and dividing that total by the direct labor charged to the order number. The result was used to determine a percentage that will be used for the applicable cost centers for budget-setting only: 23 percent.

The actual micro-overhead amount is reviewed and trued-up quarterly.

c. What is the Effect on the Overall 2019 Budget?

A key principle of micro-overhead is that this new budget element is not an incremental expense. Similar to past efforts to enhance financial transparency, PSE assures Stakeholders that the new value is not an additional expense. Rather, it is re-allocating budget amounts that formerly assessed to the Labor budget category and moving them to the Overhead category.

It is important to note that, similar to past financial reporting enhancements, it isn't possible to make a direct correlation to previously-stated budget totals. For instance, it won't be possible to review REM's budget amount and surmise that the 2019 value will be 23 percent less than the 2018 budget value. That is because staffing for an organization of that size is rarely static; the number of staff may change from year-to-year, salaries adjust, enterprise overhead rates change, etc.

[67] Assessments, as noted in SAP, always start with a specific set of unique numbers, and have very general descriptions, such as labor assessment, or rent assessment, etc.

[68] For instance, if there was an REM all-staff meeting costing $400, charged to cost center "1234", only a certain percent of that expense would be charged to Multifamily Existing, Retail Lighting, Low Income Weatherization, etc. If a Commission Staff member asked about a particular Multifamily Existing assessment of, say, $25, it would take several steps, working backwards, to determine that the amount ultimately came from that all-staff meeting.

2. WAC 480-109-120(1)(b)(vi)(B): EM&V Budget

PSE presents its EM&V budget on line *bh i*n its Portfolio view of Exhibit 1: *Savings and Budgets*.

In that view, PSE highlights support functions that comprise the majority of its EM&V budget; Data and Systems Support, Program Evaluation, Biennial Electric Conservation Acquisition Review (BECAR), and Verification Team. PSE provides detailed budget information in each functional group's Exhibit 1 electric and natural gas page.

B. Exhibit 2: Cost Effectiveness Estimates

PSE updated the 2019 Exhibit 2: *Cost-Effectiveness Estimates* to reflect program revisions updated savings values, new measures, and updated RTF Non-Energy Impacts (NEIs).

C. Exhibit 3: Energy Efficiency Program Details

Program staff updated their program details in the 2019 iteration of Exhibit 3: *Program Details*. Additionally, in order to decrease the amount of cross-referencing between Exhibits, measure tables that were formerly presented in Exhibit 4 are now included in Exhibit 3. In former iterations, both Exhibits contained references to the other: "Please see Exhibit 4 for a complete measure list", or "Please see Exhibit 3 for a program description." Now, PSE customers and Stakeholders will be able to review all pertinent information about a program in a single document.

D. Exhibit 4: Energy Efficiency Measures, Incentives & Eligibility is Retired

With the changes discussed above, PSE will retire Exhibit 4. PSE will not replace Exhibit 4 with another reference (for example, Exhibit 5: *Prescriptive Measures* will not become Exhibit 4, etc.). This will result in a (intentional) gap in the Exhibit numbering sequence.

E. Exhibit 6: Program Evaluation Plan

Exhibit 6: Evaluation Plan, in routinely only filed with the BCP. However, as a result of experience and efficiencies gained with PSE new evaluation contractor, PSE will update the Evaluation Plan in this ACP.

F. Exhibit 10: Northwest Energy Efficiency Alliance (NEEA) 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.

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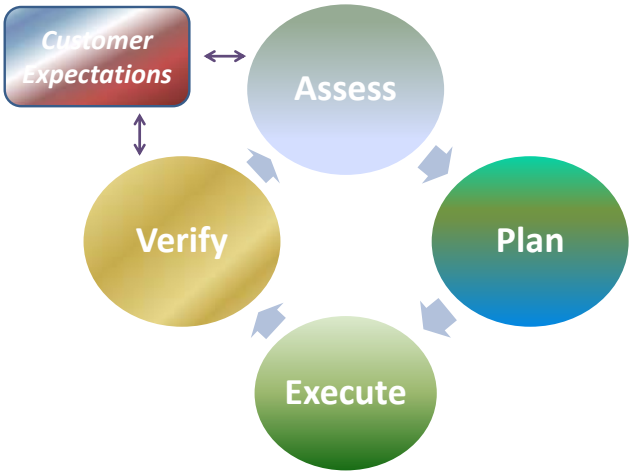
XII. Applying Continuous Improvement Principles to Adaptively Manage Energy Efficiency's Portfolio

As noted in Chapter 2, Energy Efficiency program staff manage their programs with a forward-thinking and continuous improvement approach. They consistently follow adaptive management principles that are commonly accepted as the standard in the majority of business operations. Figure XII-1 illustrates a simplified interpretation of the continuous improvement process flow.

Figure XII-1: The Continuous improvement Process Flow



It is important to note that in the dynamic environment in which Energy Efficiency conducts business, these four conceptual stages are (1) rarely sequential or discreet steps;[69] program staff may need to complete the assessment and planning stages more than once before implementing a program modification, for instance. (2) Continuous improvement typically includes several steps in each stage; any business operations revision often requires the involvement of several PSE departments—such as Marketing, Purchasing, Accounts Payable, IT, etc.

[69] It would be operationally inefficient and ineffective for program staff to interrupt the process flow and formally indicate "now, I'm going to assess….now, I'm going to plan with checklists, forms, etc." Rather, program staff ensure that they complete each step in the process organically and fluidly within the business environment.

The entire process may be put into effect in a matter of days (in the case of a minor business process enhancement), or it may take several months (as is the case with Energy Efficiency's DSMc platform implementation).

1. Each of the Four Stages are put into a General Context Applicable to Energy Efficiency Organizations.

Assess. In this phase, staff determine the need or the potential for new/different opportunities.

Throughout a program's or business function's life cycle, program and functional staff make extensive use of performance metrics, market research, program evaluation reports, vendor and contractor input, customer surveys, and assessment of other utility programs. Performance metrics can include, but aren't limited to: Number of website visits; Energy Upgrade ticket redemptions; number of rebate applications; ShopPSE units sold; average days to process rebate applications; number of customer sites visited by the Verification Team; etc.

Energy Efficiency and support staff conduct assessments in each business unit throughout the year in order to maximize operational effectiveness. The results may lead to an immediate adjustment in process implementation, or be accumulated and incorporated into the following year's business plan.

Plan. Once potential enhancements or new opportunities are identified and vetted, staff create operational plans.

Similar to the year-round assessment of new/modified/ongoing program and functional business assessments, Energy Efficiency staff update operational planning throughout the majority of the year. While intentional and forward-thinking, planning is quite often iterative, and requires numerous inputs. Program staff incorporate data and information from a variety of sources. They design their suites of energy-efficiency offerings with a clear focus on making it easy for customers to engage in energy-efficiency programs and provide customers energy-efficiency options. Program staff incorporate new technological innovations, economies of scale, and build on shared expertise between Business and Residential teams. Program staff also must include each of the supporting functional organizations, even for small or targeted offerings.

As noted in section E.2, program or support functional revisions often involve ancillary PSE departments, including Accounts Payable (rebates or vendor payments), Purchasing (vendor or trade ally contracts), Accounting (create order numbers, etc.), the Customer Access Center, Energy Advisors, and IT (DSMc integration, for instance). Careful and thorough planning ensures a smooth process implementation.

The plan is vetted at various development stages for feasibility, customer satisfaction, vendor and contractor impacts, savings potential, and a variety of other factors, until it receives management approval.

Execute. Following a plan's approval, staff then need to execute and maintain the initiative.

As a result of efficient processes and collaborative relationships that break down barriers, program and support staff are able to deftly execute their planned strategies outlined in the ACP.

Once planned and vetted, there are sometimes circumstances that allow Energy Efficiency to launch a completely new program; Commercial Midstream,[70] for instance. Following a market assessment, performance of similar programs, extensive marketing and implementation planning, a fairly significant program can be successfully launched in its full-scale form. Similarly, specific measures within an existing program can be introduced following a rapid assessment and planning period with no disruption of overall program operations (adding TLEDs or heat pump dryers, for instance).

Other customer-focused enhancements must be implemented in a more phased approach; customer awareness tools, and Low Income Weatherization's incorporation of the SIR cost-effectiveness benchmark, for example. The implementation of DSMc—that involves significant IT resources, and is being implemented on a program-by-program basis is also a relevant illustration.

In some cases, these principles result in the retirement of programs or measures. Measures that were once cost-effective and innovative eventually become standard practice through market transformation or code requirements. Throughout the course of a measure life, it is often necessary to adjust incentive amounts, or bundle (cross-marketing, or cross-program in some cases) offerings.

[70] Commercial Midstream, considered a pilot-analogous program in 2018, became an ongoing program for 2019.

Programs also conduct limited-time promotions, and maximize the visibility on the PSE energy-efficiency website, etc.[71]

Verify. Staff use a variety of metrics to determine whether the process, program, or service is meeting expectations.

Program and operational staff closely monitor new systems, processes, and offerings to ensure that the actual results meet those that were planned. It is at the critical implementation phase where execution modifications can be rapidly made. Staff verify results not only during the implementation phase, but throughout the lifecycle. If at any point the operation is not performing as expected, staff will re-assess the initial assumptions and expectations and develop plans to adjust the initiative.

2. Adaptive Management Through Continuous Improvement Includes all Business Groups

In 2019, Residential Energy Management (REM) and Business Energy Management (BEM) will adaptively manage their programs by applying continuous improvement approaches they have employed for several years.[72] It is also important to note that organizations that provide program support (for instance, Energy Efficiency Brochures, Verification Team, Data and Systems Support, etc.) also apply these continuous improvement practices throughout the year in their business practices. The following discussions are brief outlines of how Energy Efficiency applies the continuous improvement principles to the adaptive management of its conservation programs.

As illustrated in the following discussion, program adaptive management practices include, but are not limited to: proactively managing Energy Efficiency's suite of measures; monthly savings and expense forecasting; aligning with updated RTF UES values annually; active participation in trade shows and community events; effective Trade Ally communications; cooperating and partnering with regional utilities; collaborating in NEEA committees; continuously improving business processes; utilization of market research; and incorporating feedback from customers. This outline is not a comprehensive list of all continuous improvement activities in Energy Efficiency.

[71] 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.

[72] Pilot programs with uncertain savings and Regional programs, including NEEA, are also managed by REM and BEM staff. Collectively, Energy Efficiency staff often refer to REM and BEM together as Customer Energy Management or CEM.

a. Proactively manage Energy Efficiency's suite of measures

Each program in Energy Efficiency 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 (TLEDs are an example, as is the Advanced Rooftop Controller [ACR] initiative that were not a part of the original 2014-2015 BCP). Program staff will often incorporate such a measure—bypassing the pilot process—immediately into its suite of measures. This proactive management often has a significant impact on realized savings.

When a planned measure isn't performing as expected, program staff may strategize a limited-time offer or other promotion to stimulate activity. Similarly, when a measure is no longer in demand or becomes cost-ineffective (Retail refrigerator replacements, for instance), program staff retire that measure.

b. Monthly savings and expense forecasting

Each month, Energy Efficiency staff review monthly and year-to-date savings and expenditure metrics and compare the results to expected performance. This high degree of rigor and proactive management ensures that necessary adaptation is put into effect quickly, and that each Energy Efficiency Sector maintains close familiarity of challenges and opportunities within the entire Portfolio.[73]

c. Aligning with updated RTF UES values annually

PSE's policy of updating its prescriptive measure UES values, which it developed in 2008, clearly demonstrates adaptive management. Energy Efficiency program staff track RTF UES values for their programs' suite of measures throughout the year, and incorporate updated or new values during the program planning process. Commensurate with annual planning filings, program staff build (in the case of new measures) or update (in the case of existing measures) their measure business cases to reflect RTF UES values that are in place on September 1.

[73] Sectors (Residential Energy Management, Business Energy Management, etc.) consist of a collection of associated Channels and programs. In REM, for instance, the Direct to Consumer Channel consists of Retail Lighting, Retail Showerheads, Retail Appliances, etc. programs.) REM, BEM, etc. then make up the overall Portfolio for Energy Efficiency. The general hierarchy (from most detailed to most general) is thus: Programs→Channels→Sectors→Portfolio.

d. Active participation in trade shows and community events

Trade shows and conferences are good sources of new and innovative conservation technological advancements. Energy Efficiency's sponsorship of, involvement with, and participation in trade shows and conferences are other key element of its adaptive management steps. Similarly, Energy Efficiency gains valuable insight into customer expectations and potential opportunities for strategic advancement by attending community events, hosting promotions at large retailers, conducting community blitzes, etc.

e. Effective Trade Ally communications

Several Energy Efficiency program staff are members of industry committees, providing technical expertise and real-world experience while gaining insight into regional developments and potentials for market transformation. Energy Efficiency staff also conduct regular vendor and contractor trainings, recognition events, and conferences, where important exchanges provide critical two-way communication as to market potential and customer demand. PSE's participation in eSource also provides program staff with a portal to services and technologies beyond the Puget Sound Region. This is another key component of Energy Efficiency's adaptive management implementation.

f. Cooperating and partnering with regional utilities

PSE routinely engages with other utilities in the Puget Sound region to devise comparable customer offerings, standardize application forms and processes, combine evaluation efforts, and ensure consistency of business practices. Examples include the Advanced Rooftop Controller (ACR) incentive, where PSE partnered with the I-5 utilities, and its work with its regional counterparts on proactively managing standalone Energy Smart Grocer programs. Singly, some utilities aren't able to execute innovative strategies. By partnering, though, economies of scale are realized and there is more assertive adaptation progress.

g. Collaboration in NEEA committees

Energy Efficiency staff participate in a wide range of NEEA committees, including the Residential Advisory, Commercial Advisory, Natural Gas Advisory, and Cost Effectiveness Advisory Committees, for example. Staff's committee involvement not only provides valuable insight into leading-edge practices and technologies, but also helps influence regional efficiency directions and shape market adaptation.

h. Continuously improving business processes

Program implementation, even with new measures or incentives, would be sub-optimal if Energy Efficiency's supporting business processes weren't continually reviewed and upgraded. Program staff collaborate with their marketing counterparts, the Data and Systems Services team, Rebate Processors, the Verification Team, Energy Advisors, Market Research, and others. They measure the ease with which customers can participate in Energy Efficiency programs, how effective the incentives or delivery mechanisms are, where there are potential process defect opportunities, or the time needed to process customer requests. The implementation of DSMc is a key example of a department-wide initiative to provide customers with a positive energy-efficiency experience and keep customers returning for additional conservation opportunities.

One of the most significant business process enhancements that Energy Efficiency has undertaken in several years is the implementation of DSMc. Having reached full implementation at the end of 2016, DSMc will play a critical role in allowing program staff to adjust nimbly to market conditions, meet customer expectations, maximize communications with Trade Allies and Regulatory Stakeholders, provide real-time performance data, and reduce rebate processing time lags.

The application of continuous improvement principles in its business processes is a significant Energy Efficiency adaptive management constituent.

i. Utilization of market research

A significant portion of Energy Efficiency programs rely on up-to-date market research for indications of customer behavior, expectations, and satisfaction with Energy Efficiency's programs.

Program staff review research findings throughout the year and apply results to their offerings, often developing customized services for particular PSE territories or demographics, such as English-as a-second-language, rural customers, etc. Essential market research is important to promotions such as Energy Upgrades and pop-up events; these types of projects are considerable participation boosters.

Market research is a key adaptive management tool for the effective implementation of REM programs.

j. Incorporating feedback from customers

PSE customers are vital source of performance indicators, and Energy Efficiency places a high degree of reliance on what they tell program staff about the services provided. Program staff adaptively manage various elements of their implementation tactics throughout the year based (in large part) on their customers' input.

XIII. Compliance

PSE will continue its commitment to complete compliance with regulatory requirements, as reflected by its long-running track record of Stakeholder engagement and compliance transparency.

A. RCW 19.285

RCW 19.285 does not specify a requirement for an annual update to a utility's biennial conservation plan.

B. WAC 480-109

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 report on WAC compliance by incorporating the WAC requirements that are unique, in addition to PSE's biennial conditions, into its Exhibit 9. Since Exhibit 9 is a look-back document, it is filed with its Annual Reports on March 1 of each year, and is excluded from the planning publications.

The 2019 ACP is consistent with the requirement outlined in WAC 480-109-120(2).

PSE held CRAG meetings to discuss specifics around the development of the 2019 ACP on August 22 and October 17, 2018. 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).

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[74] into its Exhibit 9: *Condition Compliance Checklist*.

[74] 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 gas-unique requirements were only added to Exhibit 9 for tracking and reporting purposes.

Doing so maximized PSE compliance efficiencies and provided Stakeholders added value in reviewing PSE compliance with conservation requirements in a single document.

PSE provides Stakeholders with its compliance status on six sets of requirements, listed in Table XIII-1, in its Annual Reports of Energy Conservation Accomplishments, filed each March 1.

Table XIII-1: 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 still in effect. Section K replaced by subsequent biennial conditions.
UE-152058	2018-2019 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.

Although not explicitly required to do so, PSE has operated its natural gas conservation programs consistent with the same set of requirements and deliverables as enumerated for PSE's electric conservation programs since the acceptance of the 2010 Electric Settlement Agreement.

D. Specific Conditions Applicable to the Annual Conservation Plan

1. Appendix A, Order 01, Docket UE-152058

The 2019 ACP is submitted in compliance with conditions (4)(a) – *Annual Budgets and Energy Savings*, (5) - *Program Details,* and (7) - *Program Design Principles*.

2. Electric Settlement Terms, Conditions, Docket UE-100177

Sections A through H and L remain in force from this 2010 Order. Section F.11, for instance, requires that annual conservation budgets be built from the bottom-up.

3. Settlement Terms for Conservation, Exhibit F, Docket UG-011571

The 2019 ACP complies with Section H.21 – (Annual) *Budget Development*.[75]

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.

4. Energy Efficiency Compliance Controls

PSE and Energy Efficiency will continue to evaluate and examine compliance controls in 2019. Management review, compliance processes and compliance tracking are consistently updated and tested to not only ensure compliance with the above-noted conditions, but also with other business management subjects, such as:

- 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,
- Confirming savings accuracy, including all savings adjustments,
- Substantiating financial reporting accuracy,
- Others, as required.

Highlights of some of the most important compliance controls that PSE maintains and updates at regular intervals include:

- 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,

[75] Although there are other natural gas-specific requirements in Exhibit F, they are primarily biennial in nature, and are addressed in PSE's Biennial Conservation Plans.

- Segregation of duties provide cross-checks and ensures that payments cannot be mis-appropriated,
- 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.

XIV. Glossary of Terms

Calculated Savings	This savings type is different than 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 100177, 2014-2015 conditions are listed in Appendix A of Order 01 in Docket UE-171087. 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 LED 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.

Glossary, continued

Direct Benefit to Customer (DBtC)	Rebates, grants, credits or services that are of value to customers. Services can include, but aren't limited to, credits on a monthly bill, upstream incentive provided to channel partners or trade allies—either within 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.
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.[76] Measures should also meet cost-effectiveness standards.

[76] Schedule 83, section 4, Definitions, #m. Schedule 183, section 4, #l.

Glossary, continued

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 ACP, PSE is operating under Order 01 of Docket UE-171087.
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).
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.

A. 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
BCR	Biennial Conservation Report
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.
CRAG	Conservation Resource Advisory Group
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
HVAC	Heating, Ventilation and Air Conditioning
IRP	Integrated Resource Plan
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

Acronyms, Continued

NEBs, NEIs	Non-Energy Benefit or Impacts, Quantifiable. Attributes having a direct cost-effectiveness correlation applicable to the Total Resource Cost test and Participant Cost Test. It is important to note that any reference to NEBs 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 Existing, 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).[77]
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.[78]
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

[77] Schedule 83, section 4, Definitions, #z. Schedule 183, section 4, #x.

[78] Schedule 83, section 4, Definitions, #bb. Schedule 183, section 4, #z.

B. Revised Savings Terminology

"Definition" cells highlighted in green are key/important terms that are most frequently referenced in PSE filings.

PSE's formerly used terms	Updated Terms (2018)	Definition
Total Biennial Potential	**CPA Pro-Rata Share**	Pro-rata share of the utilities IRP's Conservation Potential Assessment's 10-year potential or 2 year total (whichever is greater). Includes NEEA.
Total Base Savings	**EIA Target**	[(CPA Pro-Rata Share) + (other programs/measures with confident savings that were omitted from CPA)]
Decoupling Penalty Target	**Decoupling Threshold**	[EIA Target * 0.05]
Total Portfolio Target	**Total Utility Conservation Goal/Achievement**	All savings programs funded by Conservation Riders [EIA Target + Decoupling Threshold]
Excluded	**Adjusted Programs**	Programs approved by the Commission to be excluded from a Penalty Threshold. For last three biennia, these included NEEA and Pilots with Uncertain Savings.
Utility-Specific Savings	**Utility-Specific Conservation Goal/Achievement**	[Total Utility Conservation Goal/Achievement – (Excluded programs (for instance, NEEA, Pilots with uncertain savings, retail wheeling accounts, etc.) + adjustments)]
EIA Penalty Target	**EIA Penalty Threshold**	[Utility-Specific Conservation - Decoupling Threshold]
Excess Savings (1)	**Excess Savings for Carbon (Dept of Commerce driven)**	(Referencing results, rather than targets) The difference of [Total Utility Conservation Achievement – Total Utility Conservation Goal]
Excess Savings (2)	**PSE Excess Savings for Penalty Thresholds (UTC Driven)**	(Referencing results, rather than targets) The difference of [(Total Utility-Specific Conservation Achievement) - (EIA Penalty Threshold + Decoupling Penalty Threshold)]

XV. Conclusion

This concludes Energy Efficiency's 2019 Annual Conservation Plan. PSE acknowledges, and is very appreciative of the partnership with the CRAG and the collaboration that was cultivated with CRAG members throughout 2018. PSE looks forward to further success in 2019.

PSE additionally appreciates the input and cooperation of its regional partners, other PSE divisions, and its constituents. As PSE 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 toward achievement of its 2018-2019 biennial savings targets.

Most importantly, PSE extends its thanks to PSE customers. PSE sincerely appreciates their acknowledgement of its efforts and trust that they put in the dedicated men and women of Energy Efficiency. PSE is a steward of their efficiency efforts to prudently use the funds that they provide and improve the environment for them and their children. PSE consistently strives to provide the highest level of customer service in the Northwest.

The Energy Efficiency Staff look forward to a productive and collaborative 2019!

Respectfully submitted,

PSE PUGET SOUND ENERGY

Puget Sound Energy
Energy Efficiency