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Puget Sound Energy Electric and Natural Gas Decoupling

Second Year Evaluation

An Independent Third-Party Evaluation of
Puget Sound Energy's Electric and Natural Gas
Decoupling Mechanisms

H. Gil Peach & Associates LLC with
Forefront Economics, Inc. & Joseph Associates, Inc.

H Gil Peach Mark Thompson John Joseph

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Puget Sound Energy
Electric and Natural Gas Decoupling
Second Year Evaluation

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I. Executive Summary

This examination is developed following specifications in an agreement among parties associated with the amended petition in Dockets UE-121697 and UG-121705 (consolidated), Order 07, June 25, 2013 and Order 09, November 1, 2013 in the Matter of the Petition of Puget Sound Energy, Inc. and Northwest Energy Coalition (NWEC) for an order authorizing Puget Sound Energy (PSE) to implement electric and natural gas decoupling mechanisms and to record accounting entities associated with the mechanisms.

This is an independent third party evaluation of the second year of PSE's Electric and Natural Gas Decoupling by H. Gil Peach & Associates (hereafter referred to by name or by "we", "our", and "us"). For ease of reference, this second year study incorporates the first year study so as to provide integrated results for the first two evaluation years.[1]

We conducted the study to answer a set of seven questions that developed from the decoupling joint proposal by NWEC and PSE and were delineated by PSE in the Request for Proposals for the study.[2] However, questions four and five on the list express a single question,[3] so we state six questions (evaluation elements) along with relatively complete but succinct answers. For additional detail please go to the sections of the study indicated in each answer here.[4]

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[1] Note that the decoupling evaluation looks backwards to provide a factual reference as to "what happened" in actual implementation. The evaluation does not specifically address the load forecast, but does take into account the energy use targets already recognized for use as a basis in cost recovery in the decoupling process and documents actual vs. expected. In a few places we include some brief "facing forward" comments.

[2] Section 4, Objectives of this RFP-Address the Evaluation Elements Specified in the Amended Petition, Page 6 of 13 in Puget Sound Energy, Request for Proposal: -- Consulting Services: Independent Third-Party Evaluation of PSE's Electric and Natural Gas Decoupling Mechanisms, June 23, 2014.

[3] On the specified list of questions, evaluation element four is concerned with performance trends; evaluation element five provides some possible performance examples to investigate. We combine these as Question 4.

[4] The report includes two reference appendices: Appendix 1 is the record of Puget Sound Energy Electric Rider & Gas Tracker Conservation Expenditures and Savings. Appendix 2 is a Summary of Decoupling Deferrals by Group from July 2013 through July 2014.

Study Questions & Answers

Here are the six questions (evaluation elements) and answers:

(1) **Q: Were the deferrals and rates calculated in accordance with the Commission Order?**

A: Yes. Deferrals and rates conformed to Commission Orders – the method and the math is correct.

We implemented mathematical checks using information provided in responses by PSE to several of our Data Requests. Based on our analysis of the embedded calculations in the PSE spreadsheets, it is our opinion that the calculations used by PSE to calculate deferral and rate adjustments replicated the mechanisms described in the WUTC decoupling orders. This opinion applies to data through June 2015, the end of the second Evaluation Year.

In addition to our mathematical check, since this data was audited by a professional audit team (Price Waterhouse) which has provided an opinion regarding the accuracy of the data, we are relying on this professional opinion for the financial integrity of the data.

We find that deferrals and rates were calculated correctly, in accordance with Commission orders. For additional detail, please see Section II.

- *There are no problems in this area*

(2) **Q: What are the impacts of the decoupling tariff tracker adjustments?**

A: The short answer is that the impacts are very small for both electricity and natural gas. Overall two-year decoupling revenue impacts of the Schedule 142 surcharge are very small (1.4% for electricity and 1.1% for natural gas). Overall decoupling impacts for each Cost of Service (COS) Class are also very small. Impacts for gas are generally smaller than impacts for electricity.

However, in May 2015 the Schedule 142 rate adjustment filing reached the 3% "soft cap" for Schedule 10 electric customers and for Schedule 31 Commercial & Industrial natural gas customers. Also, the adjustment for the last two months of the two-year examination period (May and June of 2015) were somewhat higher

for five electric COS classes, suggesting that if there had been a third Evaluation Year electric COS Class impacts might be in the range of 3% to 5%.

The impact analysis called for in PSE's Amended Decoupling Petition filed in Docket UE-121697 and presented in Section III of this report was performed for each of the traditional Cost of Service (COS) groups used by Puget Sound Energy. The variation by Cost of Service (COS) class within electricity and within natural gas is small. Within electricity, the second Deferral Adjustment (in May 2015) reaches almost five percent for the residential class and there was a similar but smaller increase for certain other electric COS classes.

These percentages simply index the conformance of actual energy use to planned energy use by COS class, and reaching the 3% "soft cap" is an example of engagement of a "control tool" that manages the amount of increase permitted within a yearly adjustment. The missing revenue amount will be recovered later. It might be expected that the farther into the future a projection, the more variation would show, as is the pattern for both electric and natural gas data. For additional detail, please see Section III.

- *Overall Impact of Decoupling: For the two years examined, overall impacts (and impacts by COS class) of the decoupling tariff tracker adjustments for electricity are very small. However, the 3% "soft cap" for one electric (Schedule 10) and one natural gas (Schedule 31) group was reached in May 2015. This provided an opportunity to observe the working of the "soft cap" part of the decoupling mechanism.*

(3) Q: What are the impacts of the decoupling mechanisms on low-income residential customers?

A: The impacts of the decoupling mechanisms on low-income residential customers are very small to negligible for the two years examined.

For electricity, the average bill-assisted residential electric customer used slightly more electricity than the average non-bill assisted electric customer. Since the deferral adjustment is applied to volumetric rates, bill-assisted electric residential customers had higher bills due primarily to higher use of electricity and also due to the small volumetric increment from the deferral adjustment. The effect size is very small. This pattern would occur if volumetric rates were increased with or without the decoupling mechanism.

For gas, the usage curves for bill-assisted and non-bill-assisted customers are essentially identical. There was a very small advantage to non-bill assisted customers in the first Evaluation Year and a similar very small advantage to bill-assisted customers in the second Evaluation Year.

- *Energy Use and Bills (Electricity): For electricity, the effect size of the impact on average bills in favor of the regular residential (non-bill-assisted) customers is very small.*

- *Energy Use and Bills (Gas): For gas, there is no meaningful differential low-income impact on average bills in comparison with non-low-income customers.*

With regard to assistance with energy bills, PSE low-income customers are provided bill payment assistance through grants from the federal Low-Income Housing Energy Assistance Program (LIHEAP), PSE HELP, Warm Home Fund, and from other sources including tribes, faith-based and government organizations. PSE can control the amount of PSE HELP, but the total of LIHEAP funding is decided each year by Congress and is then allocated to the states by formula. PSE has meaningfully increased dollars available for PSE HELP grants but this increase has been outpaced by a substantial decline in federal assistance dollars. Overall the response to the assistance dollar shortage has been to meet the needs of more households, but the average size of grants has declined. Assistance funding does not make up for the decoupling rate adjustments for bill-assisted customers but this is due to federal assistance reduction, not to decoupling (Table 25). The drop in federal support is a factor in the context of the program and would have happened with or without decoupling.

- *Payment Assistance: There is a problem with a substantial decrease in assistance funding and a tendency to lower grant amounts while spreading coverage to more households. This would have happened with or without decoupling. While PSE has increased funding for HELP grants, the Congress has, by a substantially larger amount cut funding for federal payment assistance (LIHEAP).*

With regard to energy efficiency for billing-assisted and non-billing-assisted customers, there was a substantial increase in billing-assisted weatherization program funding (about 28% -see Table 32) from 2013 to 2014 that affected gas and electricity relatively to the same degree. From 2014 to 2015, billing-assisted gas funding dropped by about 27% (Table 35) while electric billing-assisted

funding increased about 7% (Table 35). Due to the relative sizes of the electric and gas programs, this was an overall increase in billing-assisted weatherization funding from 2014 to 2015 of about 3% (Table 33).

In contrast, funding for regular residential energy efficiency programs increased about 5.5% for electricity and about 5% for natural gas (Table 36). There were no changes to the low-income weatherization program. There was one change to the regular residential energy efficiency program in 2014-2015, but the effect size of the change is very small.

- *Electric low-income funding for weatherization increased on the order of 30% over two years examined (*Table 34*).*

- *Electric low-income weatherization funding was increased and sustained.*

- *Gas low-income funding for weatherization increased by about 23% in the first year (*Table 32*), but then decreased about 27% (*Table 35*) in the second year to return essentially to the pre-decoupling level.*

- *Electric non-low-income energy efficiency funding increased about 5.5% from 2014 to 2015 (*Table 36*).*

- *Gas regular residential funding increased by about 5% in the second year (*Table 36*).*

For additional detail, please see Section IV.

(4) Q: Are there conclusive trends in conservation program performance?

A: No. There is overall stability of good performance (energy efficiency and conservation achievement) in decoupling as compared with the time just prior to decoupling. There is no indication of a sizable change in electric conservation performance[5] over five years (Table 37). Performance has been consistently good in relation to goals, which have been declining. However, current data suggests that PSE will likely meet the target of increasing conservation by 5% as

[5] This question of conservation performance encompasses evaluation elements four and five from the RFP.

required by the Commission.[6] Achievement has been good and continues to be good (for example the 2014 goal was exceeded by almost 10%).

There is no indication of a change in natural gas conservation performance over five years (Table 38). Both electric and natural gas conservation planning goals are declining, though for both electricity and natural gas conservation achievement consistently exceeds goals. Overall, there is no change in conservation program performance against goals.[7] The change towards lower goals is independent of decoupling because it reflects the changing cost and benefit structure in the current wave of DSM and with its associated benefit-cost tests.

Decoupling removes barriers to energy conservation by increasing certainty of revenue recovery but it does not monetize the value of conservation in the form of incentives for the utility. There is a nuanced sense that it is OK to exceed program targets. Also, the support regional gas market transformation may be considered a significant progressive adaptation. PSE's leadership and staff tend to support deregulation and see positive benefits.

For additional detail, please see Section V

(5) Q: Are there any adverse impacts associated with decoupling?

A: No. The variation in cost caused by the adjustment mechanism is very small and does not negatively affect conservation. Only one of the twenty-two customer service indicators we reviewed is currently going in the wrong direction (Table 42, Row 3) but performance remains within goal. And there are many strong motivators other than sales for doing good and careful work with attention to goals and duty. For the first and second Evaluation Years *we find no conclusive evidence to suggest that the decoupling mechanism has any adverse effects*.[8] Conversely, the fact that exceeding conservation targets is not an

[6] The 2014 goal includes a requirement from the Amended petition (p. 17, paragraph 31) that PSE achieve electric conservation five percent above the biennial targets set by the Commission pursuant to the Energy Independence Act (RCW 19.285).

[7] Though, of course, consistently exceeding goals in the context of declining returns requires considerable skill in program allocations to achieve returns.

[8] ICNU, in reviewing the first Evaluation Year study, requested that the limitation of the finding of no adverse impacts be more explicitly acknowledged. Public Counsel, in its review of the first Evaluation

automatic concern of executive management (Footnote 65) may be considered a positive impact.'[9] Plus, PSE's annual average increase in O&M costs has declined when compared to the historical growth rate presented in the decoupling rate plan proceedings under Docket Nos. UE-121697, et al.

For additional detail, please see Section VI.

(6) Q: Is there an impact on conservation achievements for customers on Schedules 26 & 31?

A: No. For the two years studied, conservation proceeded as business as usual for this sector. For additional detail, please see Section VII.

Statement of High-Level Results

So that the executive summary can be fully self-contained. We state the high-level results of the study here. For the two-years examined:

(1) We find that the decoupling mechanism worked as intended, including the operation of the "soft cap" control tool.

(2) Although theoretical concerns about bill increases and motivation to do good work are sometimes raised in the planning phase for decoupling. We did not find these harms to be operative in the two years studied. In this sense, decoupling for the two years studied is, in a word, *harmless.* The theoretical speculation regarding harms remained theoretical and did not occur in actual practice for the two years studied.

(3) In this case study decoupling is a careful and incremental reform with positive features such as increasing the surety of revenue recovery and removing potential barriers to conservation (including the broadening of conservation to

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Year, suggested that the point be made more prominent. We now have two Evaluation Years of information, so this conclusion is stronger.

[9] Public Counsel, in its review of the study of the first Evaluation Year commented that that conservation spending is *not* a measure of success because these costs are passed directly through to the customers via the Schedule 120 tariff rider, and evaluation should take that into consideration. The evaluation team believes that increased conservation spending *is* one of a set of indicators of success and, actually, one of the primary indicators used to contrast the effects of decoupling.

include rooftop solar). It supports an organizational reality in which it is OK for staff to exceed saving goals and in which DSM and renewable energy are included in a positive organizational outlook.

(4) Decoupling removes barriers but does not create a "demand-pull" There is no "pulling force" because it does not have the "Decoupling 2.0"[10] monetization of incentives for the utility.

(5) For the two years studied, decoupling is without a downside. There are cost increases but there are no *net* cost increases beyond what would have needed to happen in a rate case.[11] Decoupling can create the impression of more increases because increase happens in small increments each year rather than in larger increments in more widely spaced rate cases. Since there are fewer rate cases you get to the same place with less cost (fewer rate cases). There is an impact on conservation but because PSE has been doing well on achievement vs. goal, before decoupling as well as in decoupling it is not as easy to notice the impact and the impact may be small. A continuing good record is not an indication of a problem, but it does mean that the impact may have occurred with or without decoupling.

(6) The size of the decoupling adjustment for the two years studied is small, small enough so as not to influence customer energy conservation; small enough to be within general customer experience of normal variation of energy cost from year to year. We have some data that would apply to the third Evaluation Year, which is not included in the study that indicates that for the third year the increases for small residential, the campus rate class and the high voltage class may be higher (on the order of 3% to 5%). We don't know the result for the third Evaluation

[10] Decoupling 2.0 is a shorthand way that people working on evaluation of decoupling refer to the addition to the decoupling mechanism of a reliable new revenue stream for the utility for meeting or surpassing energy efficiency and conservation (and possibly including distributed energy resource, demand control or micro-grid) goals. These goals could be of any type. The critical concept is to create a "demand-pull" that creates a continuing revenue stream by monetizing some of the values attached to the goals. In discussion about decoupling, the kind of decoupling in play for PSE for the time window studied would be called "Decoupling 1.0". If values of energy efficiency and conservation (and possibly including micro-girds, distributed energy resources and demand control) were partially monetized to create a continuing payment stream to the utility, we call the combined package "Decoupling 2.0".

[11] Industrial Customers of Northwest Utilities comments they see increased cost and no impact on conservation. We agree there is increased cost but no net increased cost in rates because the counterfactual would be achieving equivalent bottom-line rate increases through rate cases rather than an automatic mechanism. Plus, have fewer rate cases creates a decrease in cost. On impact, we are in a context of declining returns and good performance in pre-decoupling years that continues in decoupling in terms of achievement vs. energy efficiency goals. This makes the decoupling improvement harder to see, but it does not mean that it is not there.

Year since it is not included in the study; however, facing forward, we call attention to this indication of a more sizable, but still not large increase (see last two columns for May and June in Table 5).[12] At the same point in time (May 2015) the 3% soft cap was reached for electric Schedule 10 and natural gas Schedule 31. This provided an opportunity to see the "soft cap" part of the decoupling mechanism working.

(7) There are potential harms in the socioeconomic environment in which decoupling takes place but they all originate from outside decoupling rather than from within decoupling and would happen with or without decoupling. If households have insufficient incomes they will have trouble with energy bills. Federal low-income support is very important but erratic as to amount and timing. The federal CPI that is used to determine poverty and eligibility levels loses about half of the actual inflation faced by households in an approximately eleven-year period. In every customer class, customers who use more energy will have higher energy bills and customers who use less energy will have lower energy bills (the decoupling offset is very small and does not affect that result).

Naming Convention for Data Requests

The data used in this study was provided by PSE in response to many Data Requests (DRs) from H. Gil Peach & Associates. All DRs that begin with a number less than twenty belong to the first Evaluation Year. All DRs that begin with the number twenty belong to the second Evaluation Year (for example, DR 20.01).

Time Included in Sections of the Study

We define the first evaluation year as running from July 1, 2013 through June 30, 2014. The second evaluation year runs from July 1, 2014 through June 30, 2015. The decoupling rate first appeared on customer bills as the K-factor with July 2013 bills. In May 2014, the first deferral adjustment was applied (the K-factor is taken into account within this adjustment and subsequent adjustments) and customers experienced this

[12] Industrial Customers of Northwest Utilities questions if the assertion of a finding of a small effect (as stated in point 6, above) would continue to be asserted if third year results for some classes reached 4-5% at the end of the third year. We do assert a “very small” effect for the first Evaluation Year and “small” for the second Evaluation Year. We would also remove the modifier “very” for a 5% effect for an Evaluation Year.

rate through the end of April 2015. On May 1, 2015, the second deferral adjustment was in place on customer bills.

PSE posted all data requests to *Basecamp*, a secure electronic project management website. Interested parties to this evaluation are provided access to *Basecamp*, and may query all data requests and responses at their convenience. PSE and Commission staff reviewed section drafts as they were completed, along with authorized *Basecamp* users. PSE's Conservation Resource Advisory Group ("CRAG") members also received a draft first-year report, on which some members made comments. This second-year report reflects our consideration of those comments.

Figure 1 shows how Evaluation Year and Rate Year fit together.

First Evaluation Year & First Rate Year

Calendar 2013								Calendar 2014					
May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
		First Rate Year (K-factor only)											
		First Evaluation Year											

Second Evaluation Year & Second Rate Year

Calendar 2014								Calendar 2015					
May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Second Rate Year (1st Deferral Adjustment)													
		Second Evaluation Year											

First Rate Year	July 1, 2013 through April 30, 2014 (10 months)	K-factor only
Second Rate Year	May 1, 2014 through April 30, 2015 (12 months)	1st Deferral
Third Rate Year	May 1, 2015 through April 30, 2016 (12 months)	2nd Deferral
First Evaluation Year	July 1, 2013 through June 30, 2014 (12 months)	
Second Evaluation Year	July 1, 2014 through June 30, 2015 (12 months)	

Figure 1: Evaluation Year and Rate Year.

Cycles for billing assistance, program achievement review (the Biennial Electric Conservation Achievement Review or “BECAR”) and other programs follow their own yearly definitions and are only approximately matched with the decoupling program cycles. *In each section, it is best to look for specification of the months covered.*

Section Summary

This section of the study summarizes the high-results and provides answers to the primary research questions. It also provides an introduction to the evaluation.

II. Calculation of Rates and Deferrals

The first task in the evaluation is to check calculations for conformance to the Commission Order approving decoupling (Figure 2). There are two steps in this first evaluation item in the Amended Petition.

Task Element 1: Examine Deferrals and Rates

An audit of whether the deferrals and rates were calculated in accordance with the Commission order approving the decoupling mechanisms.

Figure 2: Check Calculations.

Is the Math Correct? Yes.

The first step in determining whether the deferrals and rates were calculated in accordance with the Commission orders approving the decoupling mechanisms is to compare the methodologies embedded in the spreadsheets submitted by PSE in the 2014 Electric Decoupling Filing, Effective May 1, 2014 to the methodologies described in the Commission orders. PSE provided the evaluation team with eleven relevant spreadsheets in response to Data Request 20.07. The calculations in these spreadsheets were compared to the relevant Washington Utilities and Transportation Commission (WUTC) decoupling dockets including WUTC Order 07, WUTC Order 09, Attachment A Electric Revenue Decoupling Mechanism and Attachment B Gas Revenue Decoupling Mechanism found in Dockets UE-121697 and UG-121705 Amended Petition for Decoupling Mechanisms as submitted to WUTC by PSE (February 28, 2013).

The comparison included calculations embedded in the following workbooks (file name "121697-UE 121705-UG PSE Resp GIL PEACH & ASSOC" followed by the "DATA REQUEST" number and attachment numbers listed in parenthesis below):

- Workbook used to calculate electric and gas decoupling deferrals, July 2013 – September 2015:
    1. (Data Request 20.07_Attachment A)

- Workbooks used to calculate decoupling rates, effective May 1, 2015:
    2. Electric (Data Request 20.07_Attach B)
    3. Gas (Data Request 20.07_Attach C)

- Workbooks used to calculate change to decoupling rates, effective July 1, 2014:
    4. Electric non-residential (Data Request 01.05_Attach D)
    5. Electric schedules 26 & 31 (Data Request 01.05_Attach E)
    6. Gas (Data Request 01.05_Attach F)

- Workbooks used to calculate change to decoupling rates, effective May 1, 2014:
    7. Electric (Data Request 01.05_Attach G)
    8. Gas (Data Request 01.05_Attach H)

- Workbooks used to revise the allowed revenue per customer, effective July 1, 2014:
    9. Electric non-residential (Data Request 01.05_Attach I)
    10. Electric schedules 26 & 31 (Data Request 01.05_Attach J)

- Workbook used to revise calculations for inadvertent omission of schedules 10 and 12 customers;
    11. (Data Request 01.05_Attach K)

Based on our analysis of the embedded calculations in the spreadsheet, it is our opinion that the calculations used by Puget Sound Energy to calculate deferral and rate adjustments replicated the mechanisms described in the WUTC decoupling orders.[13] While we reviewed data through September 2015, this opinion applies to data through June 2015, the end of the Year 2 Evaluation. PSE corrected and updated Worksheets I, J and K for an initial miscount that omitted certain PSE customers that are eligible to receive Residential Exchange Credits from the Bonneville Power Administration, resolving a calculation error of twenty-nine customers (fifteen customers in Schedule 10 and fourteen customers in Schedule 12).

On April 22, 2015, the WUTC approved PSE's request to change its methodology for calculating decoupling deferrals going forward to exclude the amortization of prior deferrals from the calculation of "actual revenue" effective May 1, 2015. In addition, the

[13] Public Counsel noted in a review comment for the report for the first Evaluation Year that a correction to the embedded decoupling calculation was made by PSE in its April 2015 filing. This correction did not affect the initial filing but, if it had not been fixed, would have been a meaningful factor in the second decoupling filing.

WUTC also approved PSE's request to adjust the May 2014 through April 2015 deferrals for the new methodology. PSE response to DR 20.07 represents the restated results.

Is the Source Data Credible? Yes.

The second step in completing the calculations audit is to validate the test period costs and revenues, load projections, and other company financial data. Since this data was audited by a professional audit team (Price Waterhouse) which has provided an opinion regarding the accuracy of the data, we are relying on this professional opinion for the financial integrity of the data.

Attachments A and B to PSE's Response to H. Gil Peach & Associates Data Request No. 01.38 continue to be the current accounting instructions used to guide the implementation, tracking and ongoing review of PSE's electric and gas decoupling mechanisms.

See the attached financial audit opinions provided by Price Waterhouse for 2015 and 2014[14], shown as Figure 3 & Figure 4.[15]

[14] Response to Data Request 20.08, Attachment A.

[15] Note that the financial audit opinion provided by Price Waterhouse reports on a period ending December 31, 2014 which includes only the second six months of the Year 1 Evaluation plus the first six months of the Year 2 Evaluation (Figure 3). There is an equivalent Price-Waterhouse statement for the period ending December 31, 2013, which includes the first six months of the Year 1 Evaluation (Figure 4).

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholder of
Puget Sound Energy, Inc.

In our opinion, the consolidated financial statements listed in the accompanying index present fairly, in all material respects, the financial position of Puget Sound Energy, Inc. and its subsidiary at December 31, 2014 and December 31, 2013, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2014 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the accompanying index present fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2014, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
Seattle, Washington
February 27, 2015

Figure 3: 2015 Financial Audit Opinion.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholder of
Puget Sound Energy, Inc.

In our opinion, the consolidated financial statements listed in the accompanying index present fairly, in all material respects, the financial position of Puget Sound Energy, Inc. and its subsidiaries at December 31, 2013 and 2012, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2013 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the accompanying index presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2013, based on criteria established in *Internal Control - Integrated Framework* (1992) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control on Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
Seattle, Washington
March 13, 2014

Figure 4: 2014 Financial Audit Opinion.

Section Summary

Based on analysis of two years of data, we conclude that PSE calculated rates and deferrals in accordance with the Commission Order approving the decoupling mechanisms for the first and second Evaluation Years.

III. Evaluation by Each Cost of Service Category

The second evaluation task in the Amended Petition is to study impacts of decoupling by cost of service category (Figure 5). We report results first for electricity; then for natural gas.

Task Element 2: Examine Tariff Tracker Adjustments

An evaluation of the impacts of the decoupling tariff tracker adjustments, calculated in relation to energy sales (kWh or therms), as a percent of monthly bills, and in total dollars for each rate category customarily used for purposes of PSE's cost of service analyses

Figure 5: Examine Impacts by Cost of Service Group.

Impacts of tariff tracker adjustments included in WUTC Orders 07 and 09 are the combined effect of the K-factor adjustment and the true-up of decoupling deferrals. These two components are the decoupling rate (Schedule 142 surcharge) applied to units of energy (kWh or therms) or demand (kW) sold.

- Some Cost of Service (COS) customer classes are only subject to the automatic multi-year rate adjustment component of Schedule 142 (the K-factor).

- Most COS classes also include the deferral adjustment.

The tables below show which Cost of Service classes are subject to each of the two provisions of Schedule 142.

In Table 1, seven of the nine Electric COS Classes shown are subject to the decoupling deferral component of Schedule 142. We focus on these classes.

ELECTRICITY			
Cost of Service Class	**Rate Schedules**	**Schedule 142 Component**	
		K-Factor	**Decoupling Deferral**
Secondary Voltage - Small (Residential)	7	Yes	Yes
Secondary Voltage - Small (Non-Residential)	8, 24	Yes	Yes
Secondary Voltage - Medium	7A, 11, 25, 29	Yes	Yes
Secondary Voltage - Large	12, 26	Yes	Yes
Primary Voltage Class	10, 31, 35, 43	Yes	Yes
Campus Rate Class	40	Yes	Yes
High Voltage Class	46, 49	Yes	Yes
Transportation Class	449, 459	Yes	No
Firm Resale Class	5	No	No

Table 1: Electric Cost of Service Classes.

In Table 2, six of the seven natural gas COS classes are subject to the decoupling deferral component of Schedule 142. We focus on these classes. Note that effective May 1, 2015 two more classes are no longer subject to the decoupling deferral.

NATURAL GAS				
Cost of Service Class	**Rate Schedules**	**Schedule 142 Component**		**Notes**
		K-Factor	**Decoupling Deferral**	
Residential	23, 53	Yes	Yes	
Commercial & Industrial Class	31, 31T, 61	Yes	Yes	
Large Volume Class	41, 41T	Yes	Yes	
Interruptible Class	85, 85T	Yes	Yes	(a)
Limited Interruptible Class	87, 87T	Yes	Yes	
Non-Exclusive Interruptible Class	87, 87T	Yes	Yes	(a)
Contracts Class	Special Contracts	No	No	
Rentals Class	71G, 72G, 74G	Yes	No	
(a) Effective May 1, 2015 this COS class is no longer subject to true-up charges related to the decoupling deferral and are only to be subject to the K-factor.				

Table 2: Gas Cost of Service Classes.

Electric COS Classes

Table 3 shows the Schedule 142 volumetric surcharge by Cost of Service class subject to the decoupling deferral. Nearly $55 million was collected from these COS classes through the Schedule 142 surcharge from July 2013 through June 2015. The largest contributor was Small-Residential. The Small-Residential Class accounted for $38.4 million or seventy percent (70%) of Schedule 142 revenues. Schedule 142 revenues amounted to just under two percent (1.9%) of the total revenue from Small-Residential customers (Table 3, Line 1), adding $40 to the average residential bill over two years (or $20/year).

Taken together Small Non-Residential and Medium Secondary Voltage customers paid nearly $12 million in Schedule 142 surcharge, 21% of total dollars collected through Schedule 142 over two years. However the effect of Schedule 142 on overall revenue is relatively small. Over the two years, Schedule 142 comprised about one percent of the electric bill for each of these classes. The Schedule 142 surcharge for all other classes for the two years examined ranged from just over zero to 1.6% of class revenue.[16]

ELECTRICITY (Two Years)						
Cost of Service Class	Rate Schedules	Number of Customers (Avg Monthly)	Total Billed Revenue	Schedule 142 Surcharge		
				Surcharge Revenue	Percent of Total Revenue	Per Customer (Two Years)
Secondary Voltage - Small (Residential)	7	961,197	$2,052,324,489	$38,424,261	1.9%	$ 40
Secondary Voltage - Small (Non-Residential)	8, 24	113,517	$ 552,133,179	$ 5,729,760	1.0%	$ 50
Secondary Voltage - Medium	7A, 11, 25, 29	7,634	$ 562,519,399	$ 6,227,287	1.1%	$ 816
Secondary Voltage - Large	12, 26	776	$ 343,101,261	$ 1,727,699	0.5%	$ 2,226
Primary Voltage Class	10, 31, 35, 43	633	$ 246,347,830	$ 47,676	0.0%	$ 75
Campus Rate Class	40	129	$ 103,168,456	$ 1,409,792	1.4%	$ 10,929
High Voltage Class	46, 49	25	$ 91,466,048	$ 1,432,992	1.6%	$ 57,320
Totals		1,083,911	$ 3,951,060,662	$54,999,467	1.4%	$ 51

Table 3: Electric COS Class Revenue Impacts of Schedule 142 (7/2013 through 6/2015)

Monthly usage and Schedule 142 surcharge impacts per customer over the first and second Evaluation Years are shown in Table 4: and Table 5, respectively.

[16] Industrial Customers of Northwest Utilities (ICNU) notes that the Commission recognized the heterogeneity of the non-residential customer class and that although this report recognizes discrepancies in decoupling adjustments within the non-residential customer class, it does not analyze reasons for these discrepancies. We agree that this study does not include a reason analysis component; that type of analysis was not included in the study scope. The percentages in Table 3 differ, but for this analysis, it is just mathematics and in working with projections there are typically differences of actual from projected energy use and these become reflected in the percent of revenue due to the Schedules 142 surcharge for each Cost of Service Class. An investigation of reasons for differences might be useful in improving projections.

- Monthly revenue impacts follow the pattern of volumetric sales. As a result classes with high seasonality also show high seasonality in the average customer's monthly Schedule 142 charge. For the same reason, monthly Schedule 142 charges tend to not vary significantly in percentage terms.

- The months of May and June can be exceptions and show significant differences in Schedule 142 revenue percentage from preceding months. This is due to a May 1 effective date of new Schedule 142 rate adjustments.

- Due to its high class seasonality and following the pattern of volumetric sales, the surcharge paid per customer varies significantly by month for the Small-Residential Class ranging from a low of $1.11 per customer in June of 2014 to a high of $3.34 per customer in May 2015.

- The spike in all classes in December 2014 is due to a one-time rate credit for net proceeds from the sale of electric facilities in Jefferson County to Jefferson PUD. This caused revenue in each class to fall and the percentage due to Schedule 142 to increase.[17]

[17] See PSE's Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.57.

	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14
Secondary Voltage - Small (Residential)												
Usage (kWh)	698	713	710	906	1,069	1,379	1,225	1,141	1,024	836	716	660
Billed revenue	$ 74.45	$ 75.63	$ 75.42	$ 92.75	$ 109.06	$ 141.25	$ 126.21	$ 118.09	$ 105.26	$ 86.28	$ 75.35	$ 65.34
Schedule 142 billed revenue	$ 1.14	$ 1.16	$ 1.16	$ 1.48	$ 1.74	$ 2.24	$ 1.99	$ 1.86	$ 1.67	$ 1.36	$ 1.21	$ 1.11
Percent of average monthly bill	1.5%	1.5%	1.5%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.7%
Secondary Voltage - Small (Non-Residential)												
Usage (kWh)	1,784	1,863	1,865	1,867	2,095	2,342	2,186	2,029	2,100	1,821	1,810	1,766
Billed revenue	$ 187.03	$ 193.62	$ 193.66	$ 199.30	$ 219.82	$ 243.72	$ 228.39	$ 213.99	$ 220.96	$ 187.55	$ 190.35	$ 185.13
Schedule 142 billed revenue	$ 0.60	$ 0.63	$ 0.63	$ 0.63	$ 0.71	$ 0.75	$ 0.77	$ 0.68	$ 0.71	$ 0.61	$ 2.44	$ 2.32
Percent of average monthly bill	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	1.3%	1.3%
Secondary Voltage - Medium												
Usage (kWh)	30,915	32,175	32,088	33,694	30,004	33,109	34,219	30,067	34,800	29,438	30,895	29,526
Billed revenue	$ 2,925	$ 2,971	$ 2,965	$ 3,417	$ 3,067	$ 3,393	$ 3,412	$ 3,119	$ 3,520	$ 2,714	$ 2,910	$ 2,798
Schedule 142 billed revenue	$ 10	$ 11	$ 11	$ 11	$ 10	$ 11	$ 12	$ 10	$ 12	$ 10	$ 41	$ 39
Percent of average monthly bill	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	1.4%	1.4%
Secondary Voltage - Large												
Usage (kWh)	246,161	236,733	216,811	210,639	187,269	224,375	180,963	181,468	215,979	199,339	191,417	212,688
Billed revenue	$ 21,105	$ 20,099	$ 18,842	$ 19,934	$ 17,480	$ 20,754	$ 17,162	$ 17,548	$ 20,234	$ 16,253	$ 16,405	$ 18,344
Schedule 142 billed revenue	$ 83	$ 80	$ 73	$ 71	$ 63	$ 76	$ (53)	$ (57)	$ (63)	$ (59)	$ 35	$ 176
Percent of average monthly bill	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	-0.3%	-0.3%	-0.3%	-0.4%	0.2%	1.0%
Primary Voltage Class												
Usage (kWh)	169,323	212,026	188,560	187,254	179,584	217,543	187,620	150,446	216,775	201,984	151,498	201,689
Billed revenue	$ 15,234	$ 17,790	$ 16,001	$ 17,495	$ 16,404	$ 18,698	$ 17,287	$ 14,366	$ 20,047	$ 16,891	$ 12,793	$ 16,741
Schedule 142 billed revenue	$ 57	$ 71	$ 64	$ 63	$ 61	$ 73	$ (62)	$ (66)	$ (90)	$ (86)	$ (27)	$ 31
Percent of average monthly bill	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	-0.4%	-0.5%	-0.5%	-0.5%	-0.2%	0.2%
Campus Rate Class												
Usage (kWh)	430,636	505,805	465,421	464,324	384,757	477,271	477,345	348,295	469,899	411,742	384,083	512,601
Billed revenue	$ 36,573	$ 39,345	$ 36,955	$ 28,757	$ 30,201	$ 36,100	$ 35,954	$ 27,346	$ 36,332	$ 31,603	$ 29,671	$ 40,395
Schedule 142 billed revenue	$ 145	$ 170	$ 157	$ 156	$ 130	$ 161	$ 161	$ 117	$ 158	$ 139	$ 533	$ 674
Percent of average monthly bill	0.4%	0.4%	0.4%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	1.8%	1.7%
High Voltage Class												
Usage (kWh)	3,090,232	2,019,193	2,216,272	2,527,575	1,752,251	2,217,630	1,930,620	3,239,645	298,208	2,330,573	2,278,312	1,533,430
Billed revenue	$ 215,336	$ 142,269	$ 153,111	$ 170,842	$ 129,388	$ 146,135	$ 134,977	$ 211,114	$ 41,422	$ 161,007	$ 160,736	$ 116,693
Schedule 142 billed revenue	$ 1,041	$ 680	$ 747	$ 852	$ 591	$ 747	$ 651	$ 1,092	$ 100	$ 785	$ 3,338	$ 2,015
Percent of average monthly bill	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.2%	0.5%	2.1%	1.7%

Table 4: Electric COS Class Monthly Impacts of Schedule 142 (7/13 through 6/14).

	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15
Secondary Voltage - Small (Residential)												
Usage (kWh)	726	721	667	768	1,083	1,202	1,147	905	940	853	707	695
Billed revenue	$ 71.49	$ 71.06	$ 66.28	$ 74.68	$ 104.67	$ 79.47	$ 114.29	$ 89.02	$ 92.19	$ 83.65	$ 67.86	$ 75.69
Schedule 142 billed revenue	$ 1.22	$ 1.21	$ 1.12	$ 1.29	$ 1.82	$ 2.03	$ 1.93	$ 1.53	$ 1.58	$ 1.44	$ 3.34	$ 3.29
Percent of average monthly bill	1.7%	1.7%	1.7%	1.7%	1.7%	2.5%	1.7%	1.7%	1.7%	1.7%	4.9%	4.3%
Secondary Voltage - Small (Non-Residential)												
Usage (kWh)	1,965	1,977	1,845	1,839	2,076	2,219	2,094	1,812	2,038	1,863	1,768	1,932
Billed revenue	$ 203.96	$ 204.79	$ 192.93	$ 197.85	$ 219.52	$ 160.81	$ 228.63	$ 194.30	$ 216.95	$ 193.44	$ 181.03	$ 207.09
Schedule 142 billed revenue	$ 2.58	$ 2.60	$ 2.42	$ 2.42	$ 2.73	$ 2.92	$ 2.75	$ 2.38	$ 2.68	$ 2.45	$ 6.09	$ 6.66
Percent of average monthly bill	1.3%	1.3%	1.3%	1.2%	1.2%	1.8%	1.2%	1.2%	1.2%	1.3%	3.4%	3.2%
Secondary Voltage - Medium												
Usage (kWh)	34,110	33,243	29,687	31,007	30,478	33,491	32,127	29,716	31,844	30,931	29,754	31,892
Billed revenue	$ 3,179	$ 3,083	$ 2,803	$ 3,238	$ 3,218	$ 2,623	$ 3,336	$ 3,091	$ 3,278	$ 2,801	$ 2,732	$ 3,103
Schedule 142 billed revenue	$ 45	$ 44	$ 39	$ 41	$ 40	$ 44	$ 42	$ 39	$ 42	$ 41	$ 103	$ 110
Percent of average monthly bill	1.4%	1.4%	1.4%	1.3%	1.2%	1.7%	1.3%	1.3%	1.3%	1.5%	3.8%	3.5%
Secondary Voltage - Large												
Usage (kWh)	241,420	202,674	191,864	204,611	181,484	196,740	221,546	188,748	203,275	201,303	194,225	232,079
Billed revenue	$ 20,580	$ 17,501	$ 16,450	$ 19,664	$ 17,695	$ 15,261	$ 21,065	$ 18,488	$ 19,111	$ 16,063	$ 16,430	$ 19,700
Schedule 142 billed revenue	$ 115	$ 106	$ 103	$ 103	$ 98	$ 100	$ 113	$ 107	$ 98	$ 93	$ 361	$ 394
Percent of average monthly bill	0.6%	0.6%	0.6%	0.5%	0.6%	0.7%	0.5%	0.6%	0.5%	0.6%	2.2%	2.0%
Primary Voltage Class												
Usage (kWh)	200,426	189,701	148,258	199,539	154,649	188,005	224,248	177,604	198,244	193,385	157,395	185,552
Billed revenue	$ 16,382	$ 14,686	$ 13,538	$ 18,273	$ 14,563	$ 13,895	$ 19,860	$ 17,107	$ 17,573	$ 15,571	$ 12,881	$ 15,402
Schedule 142 billed revenue	$ (79)	$ (49)	$ (86)	$ (71)	$ (57)	$ (58)	$ (61)	$ (69)	$ (57)	$ (61)	$ 302	$ 331
Percent of average monthly bill	-0.5%	-0.3%	-0.6%	-0.4%	-0.4%	-0.4%	-0.3%	-0.4%	-0.3%	-0.4%	2.3%	2.1%
Campus Rate Class												
Usage (kWh)	484,829	470,407	368,802	521,852	234,994	434,354	520,632	385,879	467,738	431,413	368,953	363,776
Billed revenue	$ 38,922	$ 36,881	$ 29,218	$ 38,866	$ 20,403	$ 28,093	$ 40,428	$ 30,598	$ 36,272	$ 32,845	$ 28,761	$ 29,237
Schedule 142 billed revenue	$ 637	$ 618	$ 485	$ 686	$ 309	$ 571	$ 684	$ 507	$ 615	$ 567	$ 1,271	$ 1,254
Percent of average monthly bill	1.6%	1.7%	1.7%	1.8%	1.5%	2.0%	1.7%	1.7%	1.7%	1.7%	4.4%	4.3%
High Voltage Class												
Usage (kWh)	2,770,588	2,330,805	2,768,685	1,563,313	3,258,714	1,094,469	1,938,632	2,500,340	1,420,749	2,022,956	2,443,456	2,185,258
Billed revenue	$ 190,287	$ 158,329	$ 193,575	$ 118,333	$ 227,234	$ 48,095	$ 137,362	$ 181,737	$ 100,694	$ 132,221	$ 175,972	$ 159,643
Schedule 142 billed revenue	$ 3,641	$ 3,063	$ 3,638	$ 2,054	$ 4,282	$ 1,438	$ 2,547	$ 3,285	$ 1,867	$ 2,658	$ 8,420	$ 7,530
Percent of average monthly bill	1.9%	1.9%	1.9%	1.7%	1.9%	3.0%	1.9%	1.8%	1.9%	2.0%	4.8%	4.7%

Table 5: Electric COS Class Monthly Impacts of Schedule 142 (7/14 through 6/15).

In order to contrast the impacts on customer electric bills between Cost of Service classes, the percentage of monthly bill due to Schedule 142 is shown in Figure 6 for Secondary Voltage customers and in Figure 6 for all other Cost of Services classes subject to Schedule 142 deferrals. We use two figures to improve readability. All twenty-four months (covering the first and second evaluation years) are shown in each figure.

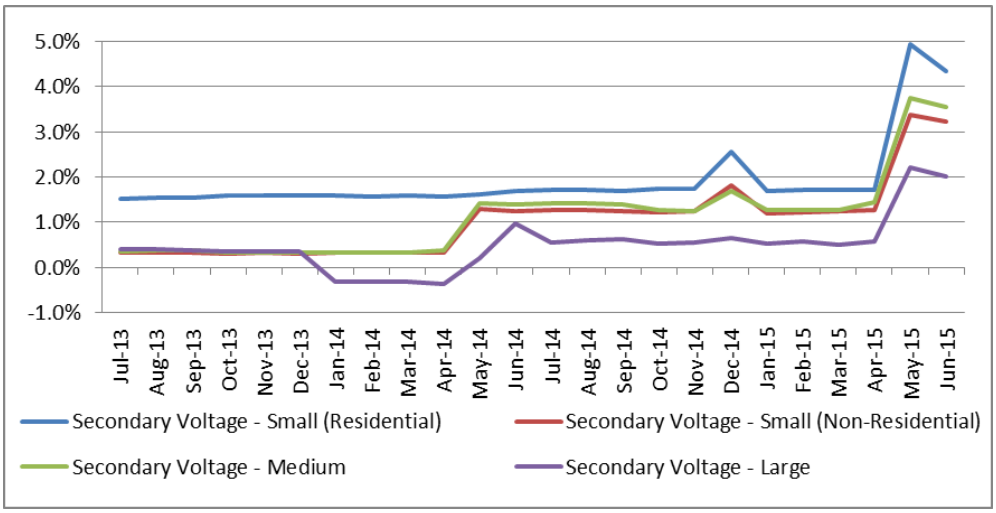

Figure 6. Schedule 142 as % of Monthly Electric Bill - Secondary Voltage Customers

Figure 6 shows that the Residential Class experienced the largest percentage impact on bills of secondary voltage customers, while Large Secondary Voltage had the smallest percentage impact. The chart also shows that the impact of the second rate year adjustment which took effect in May 2014 was much smaller than the Schedule 142 adjustment that took effect in the beginning of the third rate year (May 2015), particularly for Residential customers.

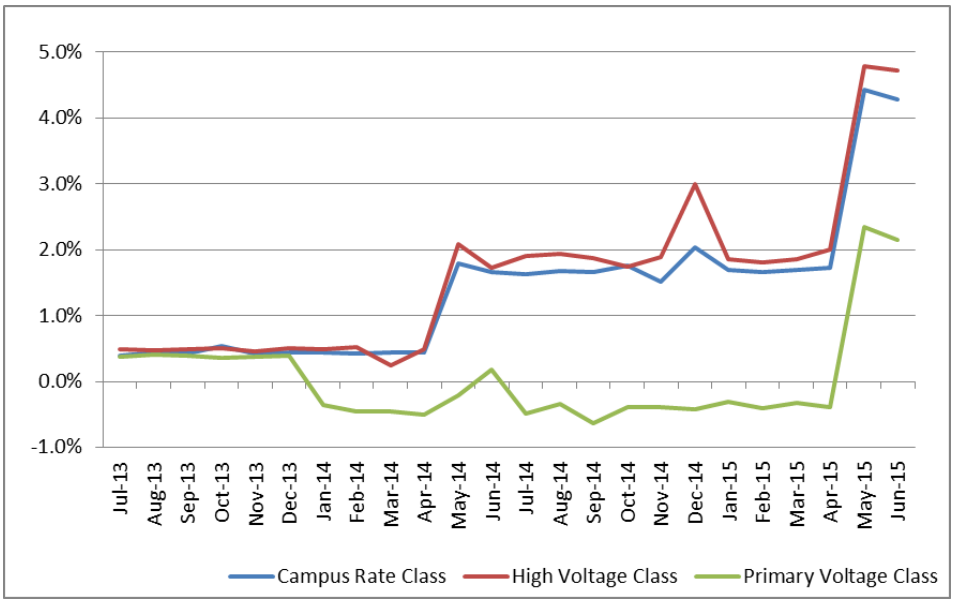

Figure 7: Schedule 142 as % of Monthly Electric Bill - All Other Schedule 142 COS Classes

Figure 7 shows that the Campus Rate and High Voltage electric classes followed a similar pattern, increasing to around 2% of bills in the second rate year and moving to around 4.5% at the start of the third rate year. This pattern is essentially identical to the pattern shown for the residential class in Figure 6.

In general, the year to year change in the Schedule 142 percentage of total electric customer bills was larger in the third rate year beginning May 1, 2015 than was the change between the first and second rate year. The exception is Secondary Voltage – Large.

Natural Gas COS Classes

Like the electric tariff tracker adjustment, the decoupling rate impacts for natural gas are comprised of the combined impacts of the K-factor adjustment and the decoupling deferrals. Taken together these two components make up the decoupling rate (Schedule 142 surcharge) which is applied to units of energy sold. Table 6 shows the Schedule 142 surcharge by Cost of Service Class subject to the decoupling deferral component and the corresponding impact on annual revenues from July 2013 through June 2014.

NATURAL GAS (Two Years)						
Cost of Service Class	Rate Schedules	Number of Customers (Avg Monthly)	Total Billed Revenue	Schedule 142 Surcharge		
				Surcharge Revenue	Percent of Total Revenue	Per Customer (Two Years)
Residential	23, 53	727,244	1,280,754,299	$15,771,358	1.2%	$ 22
Commercial & Industrial Class	31, 31T, 61	55,255	433,971,748	$ 4,061,158	0.9%	$ 73
Large Volume Class	41, 41T	1,500	120,390,989	$ 1,043,962	0.9%	$ 696
Interruptible Class	85, 85T	133	38,180,807	$ 602,789	1.6%	$ 4,532
Limited Interruptible Class	87, 87T	279	15,531,127	$ 110,782	0.7%	$ 397
Non-Exclusive Interruptible Class	87, 87T	18	35,237,445	$ 299,853	0.9%	$ 16,659
Totals		784,429	1,924,066,415	$21,889,902	1.1%	$ 28

Table 6: Gas COS Class Revenue Impacts of Schedule 142 (7/13 through 6/15)

Over $20 million was collected through the Schedule 142 surcharge from July 2013 through June 2015. Over 70% of this came from the Residential Class with non-residential classes making up the remaining 30%. Schedule 142 revenues amounted to 1.2% of the total revenue from Residential natural gas customers, adding $22 to the average residential gas customer's bill for the two-years examined (or $11 per year).

In terms of natural gas Schedule 142 dollars collected over the two years examined, the Commercial and Industrial Class contributed over $4 million, second only to the Residential Class. Customers in the Commercial and Industrial Class paid an annual average of $73 in Schedule 142 contributions for the two years, 0.9% of their total PGE natural gas bill.

Schedule 142 percentage of total revenue from the Interruptible Class was 1.6%, highest of the gas COS classes. The Limited and Non-Exclusive Interruptible Class were both less than 1% of total revenue.

Monthly usage and Schedule 142 surcharge impacts per customer over the first and second Evaluation Year are shown in Table 7 and Table 8, respectively.

- Monthly revenue impacts follow the pattern of volumetric sales and as a result tend not to vary significantly in percentage terms.

- The months of May and June can be exceptions and show significant differences in Schedule 142 revenue percentage from preceding months. *This is due to the May 1 effective date of new Schedule 142 rate adjustments.*

- Due to its characteristic seasonality and following the pattern of volumetric sales, the surcharge paid per customer varies significantly by month for the Residential Class ranging from a low of $0.11 per customer in August of 2014 to a high of $2.82 per customer in December 2013.

- The Schedule 142 surcharge for the Residential Class decreased with the implementation of a new Schedule 142 rate effective May 1, 2014

	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14
Residential												
Usage (Therms)	17	18	25	66	92	134	120	114	87	58	32	24
Billed revenue	$ 28.72	$ 29.13	$ 36.77	$ 78.29	$ 105.80	$ 149.63	$ 135.52	$ 129.32	$ 101.38	$ 71.14	$ 44.14	$ 35.42
Schedule 142 billed revenue	$ 0.36	$ 0.37	$ 0.53	$ 1.39	$ 1.94	$ 2.82	$ 2.52	$ 2.39	$ 1.82	$ 1.21	$ 0.17	$ 0.16
Percent of average monthly bill	1.3%	1.3%	1.5%	1.8%	1.8%	1.9%	1.9%	1.8%	1.8%	1.7%	0.4%	0.5%
Commercial & Industrial Class												
Usage (Therms)	140	132	150	288	408	600	502	571	410	291	233	116
Billed revenue	$ 169.74	$ 160.30	$ 176.43	$ 304.50	$ 419.55	$ 603.78	$ 513.53	$ 577.03	$ 430.33	$ 314.25	$ 265.52	$ 153.66
Schedule 142 billed revenue	$ (0.55)	$ (0.52)	$ (0.59)	$ (1.13)	$ (1.61)	$ (2.36)	$ (1.98)	$ (2.25)	$ (1.62)	$ (1.15)	$ 5.26	$ 2.70
Percent of average monthly bill	-0.3%	-0.3%	-0.3%	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%	2.0%	1.8%
Large Volume Class												
Usage (Therms)	3,088	1,543	4,500	4,467	5,359	7,287	6,162	6,944	5,452	4,930	3,694	3,552
Billed revenue	$ 2,470	$ 668	$ 4,062	$ 3,167	$ 3,737	$ 4,947	$ 4,312	$ 4,638	$ 3,834	$ 3,479	$ 2,770	$ 2,825
Schedule 142 billed revenue	$ (7)	$ (3)	$ (10)	$ (8)	$ (10)	$ (13)	$ (11)	$ (12)	$ (10)	$ (9)	$ 30	$ 52
Percent of average monthly bill	-0.3%	-0.4%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	1.1%	1.8%
Interruptible Class												
Usage (Therms)	54,289	48,319	47,640	64,778	61,720	70,509	60,459	64,733	66,481	60,296	48,473	64,908
Billed revenue	$ 11,921	$ 9,117	$ 7,793	$ 11,729	$ 13,727	$ 19,165	$ 10,175	$ 14,646	$ 15,325	$ 10,954	$ 7,155	$ 12,737
Schedule 142 billed revenue	$ (57)	$ (50)	$ (49)	$ (63)	$ (63)	$ (67)	$ 221	$ 235	$ 253	$ 218	$ 216	$ 263
Percent of average monthly bill	-0.5%	-0.6%	-0.6%	-0.5%	-0.5%	-0.4%	2.2%	1.6%	1.6%	2.0%	3.0%	2.1%
Limited Interruptible Class												
Usage (Therms)	1,121	870	992	2,996	3,269	6,336	4,986	4,826	4,346	3,353	1,928	1,447
Billed revenue	$ 1,102	$ 849	$ 1,005	$ 2,322	$ 2,573	$ 4,691	$ 3,789	$ 3,639	$ 3,315	$ 2,645	$ 1,551	$ 1,274
Schedule 142 billed revenue	$ (3)	$ (2)	$ (3)	$ (7)	$ (7)	$ (13)	$ (10)	$ (10)	$ (9)	$ (7)	$ 21	$ 21
Percent of average monthly bill	-0.2%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	1.4%	1.6%
Non-Exclusive Interruptible Class												
Usage (Therms)	521,631	439,863	543,684	552,371	488,998	643,503	575,179	559,890	503,685	428,240	341,021	586,076
Billed revenue	$ 81,478	$ 50,439	$ 62,773	$ 72,223	$ 91,938	$ 141,670	$ 118,039	$ 108,543	$ 85,406	$ 54,392	$ 74,704	$ 74,189
Schedule 142 billed revenue	$ (292)	$ (228)	$ (265)	$ (266)	$ (255)	$ (297)	$ 973	$ 873	$ 867	$ 766	$ 857	$ 1,034
Percent of average monthly bill	-0.4%	-0.5%	-0.4%	-0.4%	-0.3%	-0.2%	0.8%	0.8%	1.0%	1.4%	1.1%	1.4%

Table 7: Gas COS Class Average Customer Monthly Impacts of Schedule 142 (7/13 - 6/14).

	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15
Residential												
Usage (Therms)	18	16	20	37	94	106	101	75	70	59	31	19
Billed revenue	$ 29.40	$ 27.82	$ 31.66	$ 48.52	$ 108.39	$ 122.82	$ 118.43	$ 90.90	$ 85.60	$ 73.35	$ 45.86	$ 31.90
Schedule 142 billed revenue	$ 0.12	$ 0.11	$ 0.14	$ 0.25	$ 0.64	$ 0.72	$ 0.69	$ 0.51	$ 0.48	$ 0.40	$ 1.24	$ 0.75
Percent of average monthly bill	0.4%	0.4%	0.4%	0.5%	0.6%	0.6%	0.6%	0.6%	0.6%	0.5%	2.7%	2.3%
Commercial & Industrial Class												
Usage (Therms)	134	132	138	193	431	477	463	357	340	289	200	139
Billed revenue	$ 168.84	$ 165.68	$ 171.67	$ 224.51	$ 463.92	$ 519.01	$ 508.91	$ 402.26	$ 382.59	$ 329.04	$ 242.02	$ 180.07
Schedule 142 billed revenue	$ 3.10	$ 3.06	$ 3.19	$ 4.48	$ 10.00	$ 11.07	$ 10.75	$ 8.30	$ 7.88	$ 6.70	$ 6.06	$ 4.21
Percent of average monthly bill	1.8%	1.8%	1.9%	2.0%	2.2%	2.1%	2.1%	2.1%	2.1%	2.0%	2.5%	2.3%
Large Volume Class												
Usage (Therms)	3,012	3,144	3,008	3,674	6,098	4,962	5,573	4,330	5,567	5,000	4,169	3,351
Billed revenue	$ 2,381	$ 2,511	$ 2,365	$ 2,803	$ 4,364	$ 3,752	$ 4,148	$ 3,278	$ 4,190	$ 3,772	$ 3,176	$ 2,640
Schedule 142 billed revenue	$ 46	$ 49	$ 45	$ 51	$ 72	$ 63	$ 69	$ 56	$ 70	$ 65	$ 71	$ 63
Percent of average monthly bill	1.9%	1.9%	1.9%	1.8%	1.6%	1.7%	1.7%	1.7%	1.7%	1.7%	2.2%	2.4%
Interruptible Class												
Usage (Therms)	49,555	52,304	56,325	59,599	65,854	62,761	53,101	58,728	68,616	61,284	57,059	54,146
Billed revenue	$ 7,897	$ 8,805	$ 10,447	$ 11,310	$ 14,362	$ 13,843	$ 7,514	$ 12,942	$ 17,347	$ 13,656	$ 13,164	$ 11,135
Schedule 142 billed revenue	$ 231	$ 191	$ 234	$ 238	$ 250	$ 273	$ 311	$ 355	$ 401	$ 363	$ 327	$ 324
Percent of average monthly bill	2.9%	2.2%	2.2%	2.1%	1.7%	2.0%	4.1%	2.7%	2.3%	2.7%	2.5%	2.9%
Limited Interruptible Class												
Usage (Therms)	1,005	855	1,043	2,059	3,875	4,258	4,262	4,192	3,574	3,911	1,645	1,308
Billed revenue	$ 952	$ 830	$ 1,045	$ 1,722	$ 3,121	$ 3,533	$ 3,519	$ 3,405	$ 2,973	$ 3,200	$ 1,499	$ 1,225
Schedule 142 billed revenue	$ 16	$ 13	$ 16	$ 29	$ 50	$ 55	$ 54	$ 53	$ 46	$ 50	$ 30	$ 25
Percent of average monthly bill	1.6%	1.6%	1.6%	1.7%	1.6%	1.6%	1.5%	1.6%	1.6%	1.6%	2.0%	2.0%
Non-Exclusive Interruptible Class												
Usage (Therms)	414,081	411,503	384,006	434,724	470,789	604,624	525,033	542,878	633,374	577,564	588,180	568,238
Billed revenue	$ 52,967	$ 59,694	$ 49,468	$ 71,494	$ 68,876	$ 132,541	$ 91,009	$ 90,017	$ 82,093	$ 101,313	$ 79,488	$ 98,013
Schedule 142 billed revenue	$ 784	$ 844	$ 770	$ 865	$ 845	$ 1,125	$ 1,171	$ 1,101	$ 1,565	$ 1,530	$ 1,480	$ 1,480
Percent of average monthly bill	1.5%	1.4%	1.6%	1.2%	1.2%	0.8%	1.3%	1.2%	1.9%	1.5%	1.9%	1.5%

Table 8: Gas COS Class Average Customer Monthly Impacts of Schedule 142 (7/14 - 6/15).

In order to contrast the impacts on customer bills among natural gas rate classes, the percentage that Schedule 142 adjustments are of the total monthly bill are shown in Figure 8.

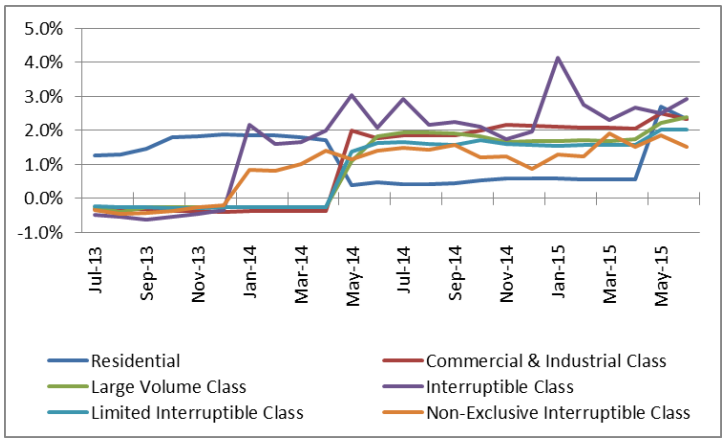

Figure 8: Gas Cost of Service Classes Subject to Schedule 142.

Size of Effects

In this part of the study, we developed impacts of the decoupling tariff tracker adjustments in relation to sales, as a percent of monthly bills and in total dollars for each rate category customarily used for purposes of PSE's cost of service analyses.

Since the effect of decoupling (initially the K-factor, then the yearly adjustments) is applied as a volumetric rate adjustment, its impact follows volumetric sales for each COS class. Within each COS class, if sales are less than planned for a particular year, the decoupling adjustment results in a bill per unit of energy increase for the following year. If sales are higher than planned for a particular year, the decoupling adjustment causes a volumetric billing decrease for the following year. The effect of Schedule 142 on revenue overall is very small for both electricity (1.4% -- see last row of Table 3) and natural gas (1.1% - see last row of Table 6). We provide a visual sense of the very small *overall* decoupling impacts in pie charts (Figure 9 & Figure 10).

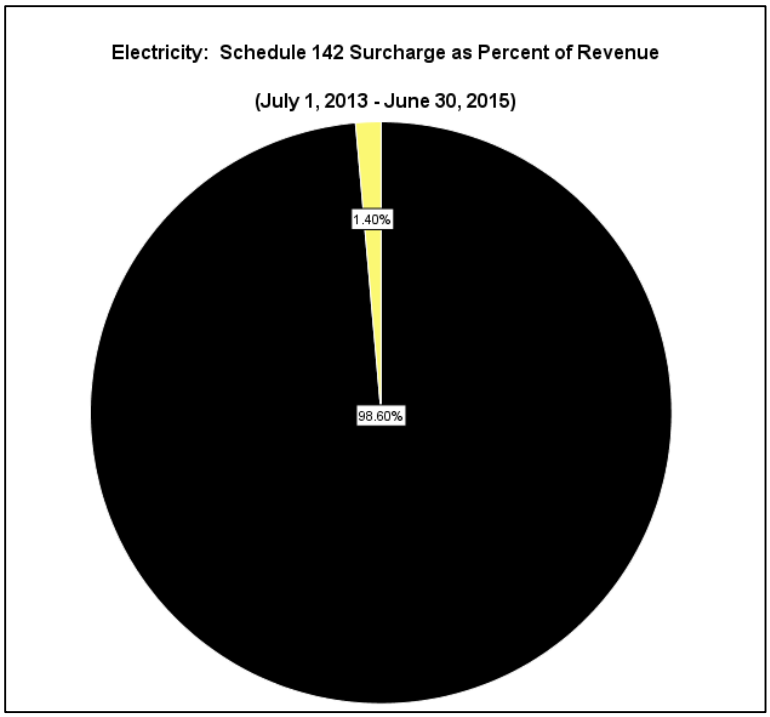

Figure 9: Electricity - Surcharge as Percent of Revenue for Surcharge Classes.

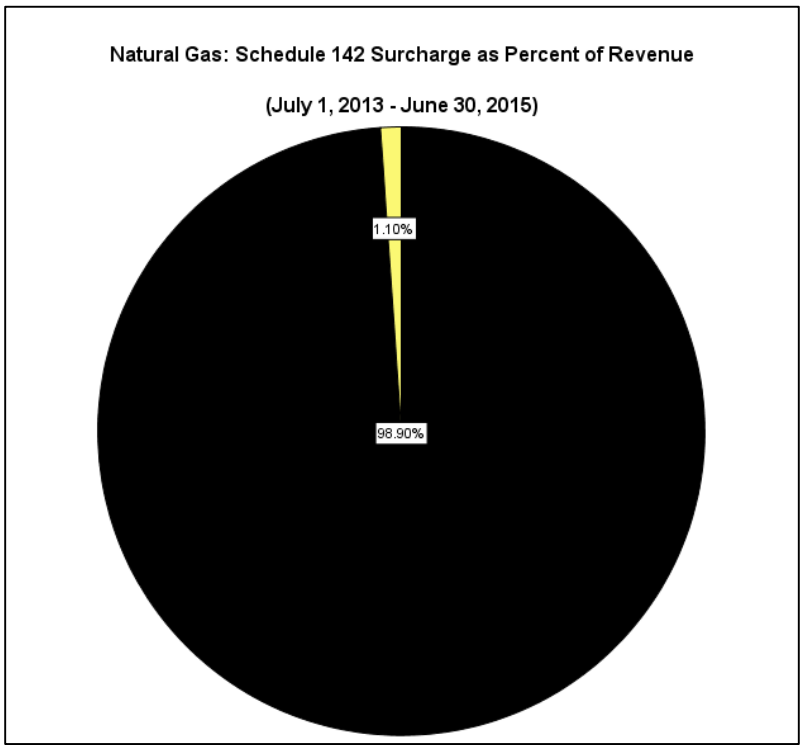

Figure 10: Natural Gas - Surcharge as Percent of Revenue for Surcharge Classes.

Given that the overall decoupling impact is very small, what is the impact by COS class? For electricity, the maximum two-year impact among the COS classes was one and nine-tenths percent (1.9%) for the residential class (Table 3, Row 1). For natural gas, the maximum two-year impact among the COS classes was one and six-tenths percent (1.6%) for the interruptible class (Table 6, Row 4).

As the two-year evaluation neared its ending, the largest increase in the Schedule 142 surcharge observed occurred in May of 2015, for electricity. The electric residential class experienced a Schedule 142 surcharge adjustment of just under five percent (4.9%). In the same month, the high voltage rate class (4.8%), the campus rate class (4.4%), secondary voltage – medium (3.8%) and secondary voltage- small (non-residential) (3.4%) followed a similar pattern. For natural gas, increases in the Schedule 142 surcharges are generally smaller.

However, in May 2015 the Schedule 142 rate adjustment filing reached the 3% "soft cap" for electric Schedule 10 and for natural gas Commercial & Industrial Schedule 31. When the "soft cap" part of the decoupling mechanism is engaged, the annual percentage increase for a Schedule is limited, however, the missing revenue is to be recovered later.[18]

Section Summary

Based on analysis of two years of data, we conclude that the overall decoupling impacts are very small for both electricity and natural gas. For both electricity and natural gas, the impacts by COS class are generally small over the two years examined. However, the adjustments that went into effect at the end of the second Evaluation Year were somewhat higher for five COS classes. And, in the May 2015 Schedule 142 rate adjustment filing, the 3% "soft cap" was reached for electric Schedule 10 and for natural gas Commercial & Industrial Schedule 31. The May 2014 annual decoupling rate adjustment recovered $18 million for gas (about 69% of the authorized $26 million) and left $8 million (about 31% of the authorized $26 million) for future recovery. The May

[18] Nearly all of the monthly percentages in Table 4, Table 5, Table 7 and Table 8 fall below the 3% threshold used in the decoupling mechanism's rate test and, in that sense, the data may be characterized as generally very well behaved. However, while these tables convey recovery of costs through Schedule 142 rates in relation to the overall customer bill for each month, they do not illustrate whether PSE is recovering its authorized revenue. That is why it is possible for the monthly data to be generally well behaved, yet for the yearly adjustment to indicate under-recovery. The May 1, 2015 Schedule 142 gas decoupling adjustment reflects recovery of $18 million in deferred revenue for 2014, with an additional $8 million under-recovery (to be recovered later). The May 1, 2015 Schedule 142 electric decoupling adjustment reflects recovery of $15 million in deferred revenue for 2014, with an additional $2 million under-recovery (to be recovered later). This is how the decoupling mechanism works. There is nothing particularly special about the Rate Test limiting annual average decoupling-related rate impacts to 3% per year except that this is the percentage that was set for the mechanism. Please see PSE' Response to H. GIL PEACH & ASSOCIATES Data Requests No. 20.55 and No. 20.58.

2014 annual decoupling rate adjustment for electricity recovered $15 million (88% of the authorized $17 million) and left $2 million to be recovered later (about 12% of the authorized $17 million). This provided an opportunity to observe the working of this "control tool" portion of the decoupling mechanism.

Facing forward, if there had been a third Evaluation Year in this study, the decoupling impacts for some electricity COS classes (small residential, campus rate class and high voltage class) would be higher; likely about three percent to five percent. Because each Evaluation Year contains two months at the end (May and June) with the newest decoupling adjustment we can see this rise.in the last two columns (May and June) of Table 5. The third Evaluation Year is not included in this study and we cannot evaluate what has not yet happened; however we call attention to this small indicated rise.

In summary, overall, the monthly decoupling impacts for electricity and for gas, and by COS class for the two years examined are *small*. However the 3% "soft cap" was reached for two schedules near the end of the time window for the study and the rate cap at this point produced an under-recovery of about 31% of authorized recovery for natural gas and an under-recover of about 12% for electricity for Evaluation Year 2014.

IV. Impact on Low Income Customers

Task element 3 in the Amended Petition calls for an evaluation of the impact of decoupling on low-income customers. The specific question has four parts, as detailed in Figure 11.

Results follow for each part, with "a" (effects on low-income customers) and "d" (contrast of effects on low-income customers vs. average residential customers) combined. This is followed by comparison of low-income conservation savings, expenditures and customers served in comparison with regular residential programs. The section concludes with modifications to low-income programs since decoupling.

Task Element 3: Impact on Low-Income Customers

An evaluation of the impact of the decoupling mechanisms specifically on PSE's low-income customers (where low-income is defined as a customer receiving bill assistance through the HELP or LIHEAP program within the same calendar year of the evaluation time period) including:

a. A summary of the annual deferrals and rate impacts of the decoupling tariff tracker adjustments (cents per kWh, cents per therm, total dollars and percent of monthly bills) on the group of customers receiving bill assistance through PSE's low-income programs;

b. A summary of annual low-income conservation program savings, expenditures and customers served compared with the rest of the residential class, where low income conservation programs are defined as programs currently being run under electric and gas Schedule 201 (Prior to 2013, the gas schedule was numbered as Schedule 203);

c. A description of any modifications to conservation programs targeted at low-income customers since the inception of the decoupling mechanisms; modifications include changes to funding levels as well as changes to specific measures or programs;

d. A comparison of the effect of the decoupling tariff tracker adjustment on the average customer receiving bill assistance through PSE's low-income programs relative to the impact on PSE's average residential customer.

Figure 11: Impact on Low-Income Customers.

However, first, to place the analysis in context we begin with a consideration of problems with different definitions of low-income and some of the background problems of the low-income

area including the seriously flawed federal Consumer Price Index. We then specify the definition of low-income used in this study: bill-assisted customers.

Contrasting Definitions of Low-Income

Two key definitions are used in this section of the examination of decoupling. The first is the operational indicator for low-income and the second is the specification of the evaluation year.

Indicator for low-income: The operational definition of low-income for this analysis is specified as "a customer receiving bill assistance through the HELP or LIHEAP program within the same calendar year of the evaluation time period." This is a crisp and workable definition, and without such an operational definition, clear quantitative analysis is not possible. However, any operational definition is somewhat arbitrary since there are many ways to define low-income. There may, for example, be households that received bill assistance in prior years and remain low-income in the sense that household income has not meaningfully improved, though they did not receive bill assistance during the evaluated year. Additionally, as can be seen for utilities that have low-income rate designs, the characteristics of customers on a low-income rate vary somewhat from those of customers receiving bill assistance in a particular year. Also, it is not unusual for the household energy usage for low-income homes selected for weatherization services to be somewhat higher than the usage for low-income homes receiving bill assistance or on a low-income rate.

At a higher level, there is also an ongoing national discussion of whether the use of the federal definition of poverty (the Federal Poverty Level or FPL) is or is not a reasonable or a useful indicator. Key federal programs recognize the problem by using a multiple of the official poverty level in general practice; for example using 125% or 150%, 200% or 400% of the federal poverty level as a program eligibility criterion.

An alternative high level indicator and a reasonable replacement for the poverty metric, the Self-Sufficiency Standard, is based on a detailed assessment of income insufficiency using the family budget method. It is calculated at the county level and varies by family structure.[19] The official poverty level (FPL) is calculated based on a very crude method developed in the 1960s

[19] Pearce, Diane M., *The Self-Sufficiency Standard for Washington State*, prepared for the Workforce Development Council of Seattle-King County. Seattle: University of Washington School of Social Work, Center for Women's Welfare, November 2014, http://selfsufficiencystandard.org/docs/Washington2014.pdf. The family budget method has been championed by The Center for Women's Welfare of the University Of Washington School Of Social Work. The UW School of Social Work is the national leader in conducting these studies (see http://selfsufficiencystandard.org/).

using 1950s data and is adjusted *only* by the consumer price index (CPI) each year. It is calculated on a national level and varies not by family structure but by number of persons per household. This official indicator of poverty has several major problems, including:[20]

(1) **Poverty.** The method for estimating poverty has been demonstrated to be based on assumptions that are not (or are no longer) accurate.[21] For example, it is based on the concept of a minimum sustainable household food budget but the food budget it incorporates is unrealistic, as is the concept of poverty as determined by a simple multiple of a late 1950's food budget and updated by the CPI. Further, there has been a shift in family styles from the 1950s nuclear family with one wage earner and one full time non-waged worker in the home to our highly diverse family types today and the typical two (or more) worker households with no one at home to provide non-waged work to support the family. Actual costs of basic items such as health care and child care are not accounted within the construct of federal poverty. So, in the first instance, the construct of the federal poverty metric lacks adequate intellectual, analytical and practical grounding. If it were not the official metric of the federal government, virtually no one of whatever political or empirical methodological perspective would take it seriously. Since it is official, it is used. And since it is used, it is useful. However, it is a poor measure of income insufficiency. We use it in this study because it is the federal definition of poverty and program eligibility is tied to it.

(2) **Not taking the Top Group into Account**. In the highly developed countries of Europe, when poverty metrics were developed, they were often related to the top income group so that when income of the upper group moves sharply upwards, the definition of income insufficiency is automatically lifted and an approximate proportionality is maintained. The advanced European countries, on a practical level, have a much more developed set of income transfer mechanisms and traditions than the US and emphasize "social inclusion"; welfare as keyed to ability to participate in society, which includes enough income to fully participate economically, socially and politically..

In contrast, in the US the official definition of poverty leaves out the allocation of income. To be fair, the corrosive effects of the ever increasing percentage of income shares to

[20] There is no defense of the federal poverty metric except that it is an official federal metric, in use since the 1960's. Virtually no one, from any methodological or policy perspective believes it to be a good metric for poverty (income insufficiency).

[21] See, for example, Pearce, Diane M., *The Self-Sufficiency Standard for Washington State*, prepared for the Workforce Development Council of Seattle-King County. Seattle: University of Washington School of Social Work, Center for Women's Welfare, November 2014, Pp. 2-3.

the extreme top groups that began in about 1970 had not occurred when the metric was developed in the early 1960's when the shared experience was the great increase in income across all groups following the end of World War II and the decline in the income share of the top groups relative to workers. From 1970 onwards the economics have reversed to create conditions similar to an earlier stage of capitalism with ever more extreme income inequality. Contrary to the "job creator" and "trickle down" theories put forward to defend this shift of income from the poor, the middle classes and the lower to middle upper classes as indicated by household by income, the statistical record shows that this shift is essentially (not exactly, yet essentially) a zero sum game. When the top income group is allocated gross[22] additional income shares, in is an income transfer with the income shares of the poor, middle income and even lower and middle upper income groups are reduced.

This increasingly extreme loss of proportionality affects the distribution and quality of goods and services, so that markets for top-end goods and services (luxury markets) function well, while the lower than top-end parts of the market experience two forms of market failure. First, a failure of quality as quality of goods and services decline (think of bus service when cars came to dominate land transportation and what happened to airlines when the highest income group moved to private jets; also the adulteration of foods and shorting of quantity in packaging). Second, a distributional failure since due to income insufficiency, households drop out of their normal markets.[23]

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[22] The top approximately three percent by income own over half of the wealth. See: Stone, Chad, Danilo Trisi, Arloc Sherman & Brandon Debot, "A Guide to Statistics on Historical Trends in Income Inequality". Washington, DC: Center for Budget and Policy Priorities, Updated October 26, 2015 (http://www.cbpp.org/research/poverty-and-inequality/a-guide-to-statistics-on-historical-trends-in-income-inequality); also see: DeSliver, Drew, "U.S. income inequality, on rise for decades, is now highest since 1928". Philadelphia, PA: PEW Research Center Fact Tank, December 5, 2015 (http://www.pewresearch.org/fact-tank/2013/12/05/u-s-income-inequality-on-rise-for-decades-is-now-highest-since-1928/).

[23] According to the Center for Budget and Policy Priorities (CBPP), "A state-by-state examination finds that income inequality has grown in most parts of the country since the late 1970s. Over the past three business cycles prior to 2007, the incomes of the country's highest-income households climbed substantially, while middle- and lower-income households saw only modest increases." McNichol, Elizabeth, Douglas Hall, David Cooper, and Vincent Palacios, Pulling Apart: A State-by-State Analysis of Income Trends, November 15, 2012 (http://www.cbpp.org/research/poverty-and-inequality/pulling-apart-a-state-by-state-analysis-of-income-trends). Note that a problem with CBPP studies is that CBPP, like federal agencies, uses the Bureau of Labor Statistics Consumer Price Index (CPI) to adjust income to equivalent value in a common year to estimate changes in real income. This is the official index, but it is seriously flawed. If a better alternative index is used, the upper group can be seen to gain quite a bit less while income changes for some lower income groups go negative, with many households losing significant real income. This corresponds to the commonsense observation that for the lower and middle ranges of the income distribution, it typically takes two incomes today to cover the income of an equivalent single wage-earner household in the late 1950's: According to Warren and Tyagi, "Today's two-income family earns 75% more than its single income counterpart a generation ago, but actually has less to spend." (That is, less discretionary income.) See: Warren, Elizabeth & Amelia Warren Tyagi, *The Two-Income Trap, Why Middle-Class Mothers & Fathers are Going Broke*. New York: Basic Books, 2003.

(3) **Poverty as Experienced.** Official poverty does not correspond to our ordinary experience and perception of actual income insufficiency. If it did, understanding of eligibility would be virtually automatic and program administration would be a lot easier.

Flawed Federal Consumer Price Index (CPI)

The federal Bureau of Labor Statistic Consumer Price Index (BLS CPI or CPI), though accurate when first introduced, has been modified over the years so as to lose fidelity with the concept of a constant market basket that defines the concept of a price index in economic textbooks.[24] The CPI now fails to capture a significant portion of inflation, as will be shown below by taking the income insufficiency values at two points in time and contrasting how the CPI adjusted poverty indicator moves over the same time period.

The following example has been developed by Pearce.[25] For King County, from 2001 to 2014, a basic needs income of $35,939 in 2001 for a family with one adult, one preschooler and one school age child, when adjusted by the CPI to 2014, becomes $47,590, an increase of 32%. But the 2014 Self Sufficiency Study determined the 2014 level of basic need (disregarding taxes/tax credits) for this family in 2014 is $58,663, a 63% increase.

This example illustrates that in an approximately ten year period, the CPI lost about one-half of actual basic needs cost increases faced by real households in King County. Since in the US, poverty levels are updated each year using the CPI, this means that the official poverty metrics similarly fail to capture about one-half of the increase in cost of basic needs on the same ten year period.[26]

However, the CPI is useful for short term comparisons (for example from one year to the next). It is only in the longer term (in the example, just over ten years) that it cumulatively puts the

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[24] One alternative index is the Shadow Government Statistics (SGS) CPI-Standard. For a comparison with the official CPI and CPU-U, see: Williams, John, Standard and SGS Alternate CPI Measures - Part I (http://www.shadowstats.com/article/cpi-measures).

[25] Pearce, Diane M., *The Self-Sufficiency Standard for Washington State*, prepared for the Workforce Development Council of Seattle-King County. Seattle: University of Washington School of Social Work, Center for Women's Welfare, November 2014, P. 13.

[26] This is, of course, a single example for a single household structure in King County and results would be expected to differ for different household types and for different counties. However, a single example is enough to demonstrate the divergence of the CPI over time. It is also important to note that the Pearce calculation is based on a strong time series cross-sectional design. The cross-sectional studies (2001, 2003, 2006, 2012 and 2014) are independent empirical studies. The application of the CPI ratio is simple mathematics. So, we assert the finding of this result by Pearce is methodologically sound.

official poverty level below the real level of poverty that households experience. As suggested above, a better metric, the income insufficiency method or self-sufficiency standard, takes account of the large diversity of family types, is usually estimated at the county level and is based on a family budget method that has produced solid results in social work for over a century.

Definition of Low-income Used in this Study

The brief overview of problems in defining low-income and of problems with the flawed federal CPI above provides some context for a sophisticated understanding of the method used here and how it fits in to a more general picture. Using customers who receive bill assistance from HELP or LIHEAP within the same calendar year as the evaluation time period has the following advantages:

(1) **Systematic**: It is referenced to the official poverty level system through program income eligibility requirements. Also, the reference is to an official system.

(2) **Clearly defined:** Bill assistance is examined and approved, so there is a clear and documented demonstration of need.

(3) **Exact operational identification in the billing system:** The appropriate customers can be exactly identified within the utility billing system.

(4) **Relative severity:** The indicator points toward a more restricted but also a more severe definition of low-income than some other indicators.

For these reasons, the operational definition of low-income is a good choice for this examination of effects of decoupling.[27]

Definition of Period Analyzed

For analysis in this section of the study, the time period examined is from July 2013 through June 2015.

[27] Since bill-assistance is keyed to federal definition of 150% of poverty, we remain locked into the federal system of definition of poverty and calculation protocols that adjust poverty from year to year by means for the flawed federal CPI. However, we have provided contextual information that permits an interested reader to independently look into the gap between the official federal representations and reality on the ground.

Electricity: Effect of Decoupling on Low-Income

The decoupling effect on low income consumers is evaluated in terms of the impact on low income customers' monthly bills.[28] The decoupling impact on low income bills is measured by changes in monthly bills that are due to the Schedule 142 decoupling rate applicable to all residential customers.

The Schedule 142 decoupling rate is comprised of the combined effects of the K-factor adjustment and the true-up of decoupling deferrals. Taken together, these two components make up the Schedule 142 decoupling rate which is applied, in calculating the monthly bill, to units of energy (kWh) sold.

Table 9 and Table 10 illustrate the bill impacts of the Schedule 142 decoupling rate for bill-assisted residential electric customers during the first Evaluation Year and the second Evaluation Year. For the purpose of this bill impact analysis, low income customers are defined as customers receiving some form of financial energy assistance through PSE.[29]

The Schedule 142 decoupling rate for electricity was initially set at the dollar value of the K-factor ($.001628 per kWh) for the period July 1, 2013 through April 2014. The rate increased to $.001685 cents per kWh in May 2014 and was again increased to $.004729 in May 2015.

[28] PSE does not have a low-income rate option; all low income residential customers pay according to the same rate-schedule as other residential customers. Payment trouble can be partially offset by means of PSE's low income payment assistance program and PSE's low income weatherization program.

[29] Data in this analysis was provided in response to H. GIL PEACH & ASSOCIATES Data Request No. 20.11.

Puget Sound Energy Electric Residential Decoupling Schedule 142 Rate Impacts: Bill Assisted July 2013 - June 2014							
Line No.	Month	Average kWh	Average Bill (No Schedule 142)	Decoupling Schedule 142 Rate $/kWh	Average Bill Decoupling Sch 142	Average Bill (Including Schedule 142)	% Difference
	(a)	(b)	(c)	(d)	(e) = b * d	(f) = c + e	(g) = e / c
1	Jul-13	749	$ 73.21	$ 0.001628	$ 1.22	$ 74.43	1.66%
2	Aug-13	749	$ 73.23	$ 0.001628	$ 1.22	$ 74.45	1.66%
3	Sep-13	727	$ 70.96	$ 0.001628	$ 1.18	$ 72.14	1.67%
4	Oct-13	855	$ 84.12	$ 0.001628	$ 1.39	$ 85.51	1.66%
5	Nov-13	1,110	$ 110.18	$ 0.001628	$ 1.81	$ 111.99	1.64%
6	Dec-13	1,525	$ 152.64	$ 0.001628	$ 2.48	$ 155.12	1.63%
7	Jan-14	1,575	$ 157.84	$ 0.001628	$ 2.56	$ 160.41	1.62%
8	Feb-14	1,522	$ 152.35	$ 0.001628	$ 2.48	$ 154.83	1.63%
9	Mar-14	1,382	$ 138.09	$ 0.001628	$ 2.25	$ 140.35	1.63%
10	Apr-14	1,176	$ 116.93	$ 0.001628	$ 1.91	$ 118.84	1.64%
11	May-14	959	$ 94.76	$ 0.001685	$ 1.62	$ 96.38	1.71%
12	Jun-14	784	$ 76.88	$ 0.001685	$ 1.32	$ 78.20	1.72%
13	Annual Total	13,112	$ 1,301.20		$ 21.45	$ 1,322.64	1.65%
14	Monthly Average	1,093	$ 108.43		$ 1.79	$ 110.22	1.65%

Table 9: Low Income Electric Average Monthly & Annual Bill Impacts (Evaluation Year 1)

During the first Evaluation Year, the Schedule 142 decoupling rate[30] resulted in an average bill increase of $1.79 per month or $21.48 for the year, which is an average bill increase of 1.65% for bill-assisted customers.

During the second Evaluation Year (Table 10) the decoupling rate resulted in an average bill-assisted customer monthly increase of $2.02 or $24.20 for the year, which is an average annual bill increase of 2.34%. The Schedule 142 decoupling rate increased from $.001685 to $.004729 in May of 2015. The relatively large May 2015 rate adjustment was a result of the deferral process as average residential sales were lower than anticipated.

[30] During year one evaluation period, the impact of the decoupling rate is based only on the K-factor from July 2013 through April 2014; and on a combination of the K-factor and the deferral adjustment for May and June of 2014.

Puget Sound Energy Electric Residential Decoupling Schedule 142 Rate Impacts: Bill Assisted July 2014 - June 2015							
Line No.	Month	Average kWh	Average Bill (No Schedule 142)	Decoupling Schedule 142 Rate $/kWh	Average Bill Decoupling Sch 142	Average Bill (Including Schedule 142)	% Difference
	(a)	(b)	(c)	(d)	(e) = b * d	(f) = c + e	(g) = e / c
1	Jul-14	704	$ 63.28	$ 0.001685	$ 2.00	$ 64.47	1.88%
2	Aug-14	697	$ 62.62	$ 0.001685	$ 1.18	$ 63.80	1.88%
3	Sep-14	707	$ 63.52	$ 0.001685	$ 1.19	$ 64.71	1.88%
4	Oct-14	701	$ 62.95	$ 0.001685	$ 1.18	$ 64.13	1.88%
5	Nov-14	931	$ 84.74	$ 0.001685	$ 1.57	$ 86.31	1.85%
6	Dec-14	1,356	$ 124.96	$ 0.001685	$ 2.28	$ 127.25	1.83%
7	Jan-15	1,394	$ 128.61	$ 0.001685	$ 2.35	$ 130.96	1.83%
8	Feb-15	1,253	$ 115.22	$ 0.001685	$ 2.11	$ 117.33	1.83%
9	Mar-15	1,142	$ 104.75	$ 0.001685	$ 1.92	$ 106.68	1.84%
10	Apr-15	984	$ 89.79	$ 0.001685	$ 1.66	$ 91.45	1.85%
11	May-15	861	$ 73.35	$ 0.004729	$ 4.07	$ 77.43	5.55%
12	Jun-15	739	$ 62.43	$ 0.004729	$ 3.49	$ 65.92	5.60%
14	Annual Total	11,470	$ 1,036.22		$ 24.20	$ 1,060.42	2.34%
16	Monthly Average	956	$ 86.35		$ 2.08	$ 88.37	2.34%

Table 10: Low Income Electric Average Monthly & Annual Bill Impacts (Evaluation Year 2)

Table 11 and Table 12 illustrate the monthly and annual bill impacts of the decoupling rate for non-bill assisted residential electric customers during evaluation year-one and evaluation year-two, respectively. Non-bill assisted customers are defined as customers who do not receive energy assistance through PSE.

Table 11 illustrates that the Schedule 142 decoupling rate adjustment resulted in an average bill increase of $1.51 per month or $18.12 per year for non-bill assisted customers. This is an average percentage increase of 1.66% per month during the first Evaluation Year.

Table 12 illustrates monthly bill impacts of the Schedule 142 decoupling rate during evaluation year-two for non-bill assisted customers. The Schedule 142 decoupling rate adjustment resulted in an average bill increase of $1.81 per month or $21.74 per year. This is an average percentage bill increase of 2.33% per month for non-bill assisted customers during the second Evaluation Year.

Puget Sound Energy Electric Residential Decoupling Schedule 142 Rate Impacts: Non-Bill Assisted July 2013 - June 2014							
Line No.	**Month**	**Average kWh**	**Average Bill (No Schedule 142)**	**Decoupling Schedule 142 Rate $/kWh**	**Average Bill Decoupling Sch 142**	**Average Bill (Including Schedule 142)**	**% Difference**
	(a)	(b)	(c)	(d)	(e) = b * d	(f) = c + e	(g) = e / c
1	Jul-13	698	$ 68.04	$ 0.001628	$ 1.14	$ 69.17	1.67%
2	Aug-13	713	$ 69.54	$ 0.001628	$ 1.16	$ 70.70	1.67%
3	Sep-13	710	$ 69.21	$ 0.001628	$ 1.16	$ 70.37	1.67%
4	Oct-13	907	$ 89.45	$ 0.001628	$ 1.48	$ 90.93	1.65%
5	Nov-13	1,069	$ 105.98	$ 0.001628	$ 1.74	$ 107.72	1.64%
6	Dec-13	1,377	$ 137.52	$ 0.001628	$ 2.24	$ 139.76	1.63%
7	Jan-14	1,220	$ 121.43	$ 0.001628	$ 1.99	$ 123.41	1.64%
8	Feb-14	1,135	$ 112.78	$ 0.001628	$ 1.85	$ 114.63	1.64%
9	Mar-14	1,019	$ 100.86	$ 0.001628	$ 1.66	$ 102.52	1.64%
10	Apr-14	830	$ 81.57	$ 0.001628	$ 1.35	$ 82.92	1.66%
11	May-14	749	$ 73.25	$ 0.001685	$ 1.26	$ 74.51	1.72%
12	Jun-14	658	$ 63.94	$ 0.001685	$ 1.11	$ 65.05	1.73%
13	Annual Total	11,084	$ 1,093.56		$ 18.12	$ 1,111.69	1.66%
14	Monthly Average	924	$ 91.13		$ 1.51	$ 92.64	1.66%

Table 11: Residential Electric Average Monthly & Annual Bill Impacts (Evaluation Year 1)

Puget Sound Energy Electric Residential Decoupling Schedule 142 Rate Impacts: Non-Bill Assisted July 2014 - June 2015							
Line No.	**Month**	**Average kWh**	**Average Bill (No Schedule 142)**	**Decoupling Schedule 142 Rate $/kWh**	**Average Bill Decoupling Sch 142**	**Average Bill (Including Schedule 142)**	**% Difference**
	(a)	(b)	(c)	(d)	(e) = b * d	(f) = c + e	(g) = e / c
1	Jul-14	727	$ 65.38	$ 0.001685	$ 1.22	$ 66.61	1.87%
2	Aug-14	722	$ 64.92	$ 0.001685	$ 1.22	$ 66.14	1.87%
3	Sep-14	666	$ 59.64	$ 0.001685	$ 1.12	$ 60.76	1.88%
4	Oct-14	771	$ 69.55	$ 0.001685	$ 1.30	$ 70.85	1.87%
5	Nov-14	1,088	$ 99.60	$ 0.001685	$ 1.83	$ 101.44	1.84%
6	Dec-14	1,198	$ 109.98	$ 0.001685	$ 2.02	$ 112.00	1.83%
7	Jan-15	1,139	$ 104.45	$ 0.001685	$ 1.92	$ 106.37	1.84%
8	Feb-15	893	$ 81.17	$ 0.001685	$ 1.51	$ 82.68	1.85%
9	Mar-15	933	$ 84.96	$ 0.001685	$ 1.57	$ 86.53	1.85%
10	Apr-15	849	$ 76.96	$ 0.001685	$ 1.43	$ 78.39	1.86%
11	May-15	702	$ 59.14	$ 0.004729	$ 3.32	$ 62.46	5.61%
12	Jun-15	694	$ 58.41	$ 0.004729	$ 3.28	$ 61.69	5.62%
13	Annual Total	10,381	$ 934.17		$ 21.74	$ 955.91	2.33%
14	Monthly Average	865	$ 77.85		$ 1.81	$ 79.66	2.33%

Table 12: Residential Electric Average Monthly & Annual Bill Impacts (Evaluation Year 2)

Rates (including decoupling rate) are the same for both bill-assisted and non-bill assisted residential customers. Since the decoupling adjustment is volumetric, high use customers experience the highest monthly bills. The size of the decoupling portion of the volumetric bill is quite small.

Table 13 provides a summary comparison of impacts between bill-assisted and non-bill assisted residential electric customers during each evaluation year.

Comparison of Impact on Bill Assisted and Non-Bill Assisted Residential Electric Customers				
Metric	**Evaluation Year**	**Bill Assisted**	**Non-Bill Assisted**	**Difference**
Monthly Bill Impact	1	$ 1.79	$ 1.51	$0.28
Monthly Bill Impact	2	$ 2.02	$ 1.81	$0.20
Annual Bill Impact	1	$ 21.45	$ 18.12	$3.33
Annual Bill Impact	2	$ 24.20	$ 21.74	$2.46
% Bill Impact	1	1.65%	1.66%	-0.01%
% Bill Impact	2	2.34%	2.33%	0.01%

Table 13: Group Contrasts for Average Monthly & Annual Bill Impacts.

Bill-assisted residential electric customers paid an average of twenty-eight cents per month more than the non-bill assisted electric customers during evaluation year-one. On an annual basis, the average impact is $21.45 for bill-assisted customers and $18.12 for non-bill assisted customers, which represents *$3.36 more annually for the bill-assisted residential customer during the first Evaluation Year*.

During the second Evaluation Year bill-assisted customers experienced a slightly greater average monthly decoupling bill impact of $2.02, compared with $1.81 non-bill assisted customers. Bill-assisted residential electric customers paid an average of twenty cents per month more than the average for non-bill assisted electric residential customers. For evaluation year-two, the annual average impact is $24.20 for bill-assisted customers compared to $21.74 for non-bill assisted residential customers, which represents *$2.46 more annually for the bill-assisted residential customer during the second Evaluation Year*.

The differences in impact on average annual energy bills between bill-assisted and non-bill assisted residential electric customers are quite small and decreased from $3.33 during evaluation year-one to $2.46 during evaluation year-two. Electric residential customers used less energy than expected in both years, so both deferral adjustments increased the cost per unit of electricity (since the residential class used less electricity than expected, their deferral adjustment for each year resulted in an overall rate increase).

Electric usage data for bill-assisted and non-bill assisted customers illustrate differences in usage patterns between the two groups. During the first Evaluation Year, bill-assisted customers showed higher average electricity monthly use of 1,093 kWh as compared to regular non-bill assisted residential customer's use of 924 kWh. This difference in kWh caused low-income customers to experience a slightly greater bill-impact of $1.79 per month from the

decoupling adjustment, compared with $1.51 per month for non-bill assisted customers. During the second Evaluation Year, bill-assisted customers continued to show higher average monthly electricity usage of 956 kWh as compared to regular non-bill assisted residential customers of 856 kWh.

Table 14 provides an analysis of trends in monthly electricity usage for bill-assisted compared to non-bill assisted customers during the two evaluation years. While bill-assisted customers continue to report higher usage, the bill-assisted group reported a 12.5% usage reduction. Non-bill assisted customers reported a 6.3% reduction in usage. Energy usage decreased more for bill-assisted customer than for non-bill assisted customer in nine out of the twelve month comparisons in the two year evaluation period.

The major monthly differences in usage between the two groups occur from December through June. We are not entirely sure why major differences in kWh occur in this set of months, but it likely reflects higher electric space-heat costs in bill-assisted client homes and the shift in weather patterns towards warmer early winters. Figure 12 illustrates seasonal patterns for each of the two evaluation years.

Comparison of Evaluation Years: Electric Energy Use by Month						
Month	Bill-Assisted			Non-Bill-Assisted		
	First Evaluation Year (kWh)	Second Evaluation Year (kWh)	% Change	First Evaluation Year (kWh)	Second Evaluation Year (kWh)	% Change
Jul	749	704	-6.0%	698	727	4.2%
Aug	749	697	-6.9%	713	722	1.3%
Sep	727	707	-2.8%	710	666	-6.2%
Oct	855	701	-18.0%	907	771	-15.0%
Nov	1,110	931	-16.1%	1,069	1,088	1.8%
Dec	1,525	1,356	-11.1%	1,377	1,198	-13.0%
Jan	1,575	1,394	-11.5%	1,220	1,139	-6.6%
Feb	1,522	1,253	-17.7%	1,135	893	-21.3%
Mar	1,382	1,142	-17.4%	1,019	933	-8.4%
Apr	1,176	984	-16.3%	830	849	2.3%
May	959	861	-10.2%	749	702	-6.3%
Jun	784	739	-5.7%	658	694	5.5%
Annual	13,113	11,469	-12.5%	11,085	10,382	-6.3%

Table 14: Residential Usage Change Evaluation YR 1 to Evaluation YR 2

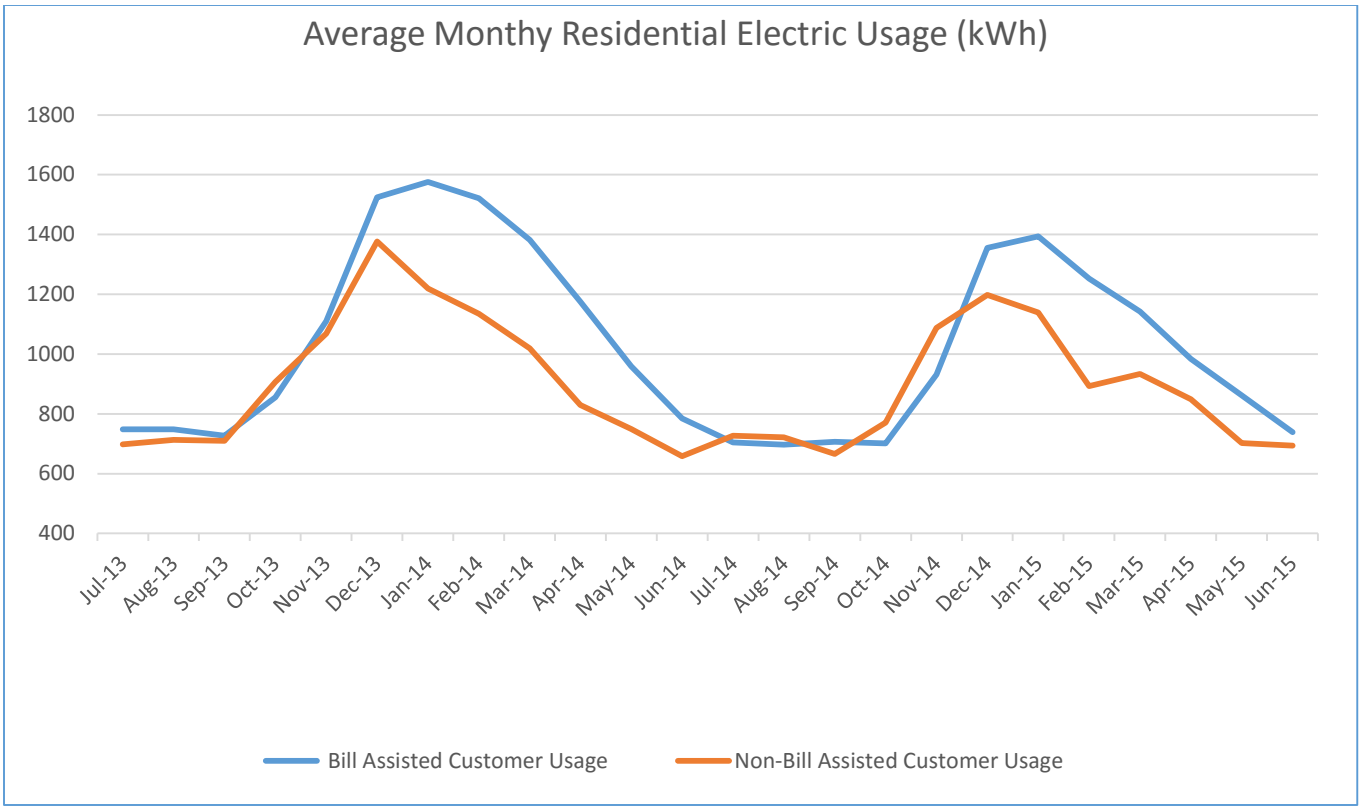

Figure 12: Monthly Average kWh by Customer Group.

The overall electric bill differential between low-income and regular residential customers is very small during the two year evaluation period, July 2013 through June 2015.

In summary, the average bill-assisted residential electric customer used slightly more electricity than the average non-bill assisted electric customer. Since the deferral adjustment is applied to volumetric rates, bill-assisted electric residential customers had higher bills due primarily to higher use of electricity and also due to the small volumetric increment from the deferral adjustment. The effect size is very small. This pattern would occur if volumetric rates were increased with or without the decoupling mechanism. Energy use declined for both bill-assisted and non-bill-assisted customers.

Effect of Decoupling on Low-Income Natural Gas Customers

The Schedule 142 decoupling rate was $.021010 per therm for all residential gas customers from July 1, 2013 through April 2014. The rate decreased to $.00677 for May 2014 through April 2015. It was then increased to $.03930 in May 2015.[31]

Table 15 illustrates the average monthly and annual bill impacts of the Schedule 142 decoupling rate for residential bill-assisted natural gas customers during evaluation year-one. Since it is an adjustment to a volumetric rate, the natural gas decoupling rate impact on residential bills depends upon customer energy usage. The evaluation year-one decoupling rate resulted in an average bill increase of $1.20 per month for bill-assisted natural gas customers (or, an average percentage increase of 1.73% per month). The average annual bill increase was $14.42.[32]

Puget Sound Energy Gas Residential Decoupling Schedule 142 Rate Impacts: Bill Assisted July 2013 - June 2014							
Line No.	**Month**	**Average Therms**	**Average Bill (No Schedule 142)**	**Decoupling Schedule 142 Rate $/therm**	**Average Bill Decoupling Sch 142**	**Average Bill (Including Schedule 142)**	**% Difference**
	(a)	(b)	(c)	(d)	(e) = b * d	(f) = c + e	(g) = e / c
1	Jul-13	21	$ 30.87	$ 0.021010	$ 0.45	$ 31.32	1.45%
2	Aug-13	20	$ 29.30	$ 0.021010	$ 0.41	$ 29.71	1.41%
3	Sep-13	20	$ 29.18	$ 0.021010	$ 0.41	$ 29.59	1.41%
4	Oct-13	41	$ 50.04	$ 0.021010	$ 0.86	$ 50.90	1.73%
5	Nov-13	70	$ 77.59	$ 0.021010	$ 1.46	$ 79.05	1.89%
6	Dec-13	111	$ 117.67	$ 0.021010	$ 2.34	$ 120.00	1.99%
7	Jan-14	110	$ 116.44	$ 0.021010	$ 2.31	$ 118.75	1.98%
8	Feb-14	112	$ 118.26	$ 0.021010	$ 2.35	$ 120.61	1.99%
9	Mar-14	91	$ 98.27	$ 0.021010	$ 1.91	$ 100.18	1.95%
10	Apr-14	67	$ 75.19	$ 0.021010	$ 1.41	$ 76.60	1.88%
11	May-14	47	$ 55.39	$ 0.006770	$ 0.32	$ 55.71	0.57%
12	Jun-14	28	$ 36.96	$ 0.006770	$ 0.19	$ 37.15	0.51%
13	Annual Total	737	$ 835.14		$ 14.42	$ 849.57	1.73%
14	Monthly Average	61	$ 69.60		$ 1.20	$ 70.80	1.73%

Table 15: Bill Assisted Natural Gas Customer Bill Impacts (Evaluation Year 1)

[31] Data support for this section is from the Response to H. GIL PEACH & ASSOCIATES Data Request No. 21.11.

[32] The lower dollar impact for natural gas customers relative to electric customers in evaluation year-one is based on the lower gas K-factor for natural gas.

Table 16 illustrates the average monthly and annual bill impacts of the decoupling rate for bill-assisted natural gas customers during evaluation year-two. The evaluation year-two decoupling rate resulted in an average bill increase of $.52 per month for bill-assisted natural gas customers, an average percentage increase of .87% per month. The annual bill impact was $6.22.

Puget Sound Energy Gas Residential Decoupling Schedule 142 Rate Impacts: Bill Assisted July 2014 - June 2015							
Line No.	**Month**	**Average Therms**	**Average Bill (No Schedule 142)**	**Decoupling Schedule 142 Rate $/therm**	**Average Bill Decoupling Sch 142**	**Average Bill (Including Schedule 142)**	**% Difference**
	(a)	(b)	(c)	(d)	(e) = b * d	(f) = c + e	(g) = e / c
1	Jul-14	21	$ 30.54	$ 0.006770	$ 0.14	$ 30.68	0.46%
2	Aug-14	18	$ 27.54	$ 0.006770	$ 0.12	$ 27.66	0.43%
3	Sep-14	19	$ 28.66	$ 0.006770	$ 0.13	$ 28.79	0.44%
4	Oct-14	25	$ 34.56	$ 0.006770	$ 0.17	$ 34.73	0.49%
5	Nov-14	56	$ 65.37	$ 0.006770	$ 0.38	$ 65.75	0.58%
6	Dec-14	93	$ 101.19	$ 0.006770	$ 0.63	$ 101.82	0.62%
7	Jan-15	97	$ 105.31	$ 0.006770	$ 0.66	$ 105.96	0.62%
8	Feb-15	80	$ 89.04	$ 0.006770	$ 0.54	$ 89.58	0.61%
9	Mar-15	71	$ 79.87	$ 0.006770	$ 0.48	$ 80.36	0.60%
10	Apr-15	56	$ 65.16	$ 0.006770	$ 0.38	$ 65.54	0.58%
11	May-15	41	$ 51.95	$ 0.039300	$ 1.63	$ 53.57	3.13%
12	Jun-15	25	$ 35.11	$ 0.039300	$ 0.97	$ 36.08	2.76%
13	Annual Total	602	$ 714.31		$ 6.22	$ 720.53	0.87%
14	Monthly Average	50	$ 59.53		$ 0.52	$ 60.04	0.87%

Table 16: Bill Assisted Natural Gas Customer Bill Impacts. (Evaluation Year 2)

Table 17 illustrates the monthly and annual bill impacts of the Schedule 142 decoupling rate for non-bill assisted residential natural gas customers during evaluation year-one. The decoupling rate resulted in an average bill increase of $1.31 monthly and $15.76 annually for non-bill assisted customers, a 1.78% impact.

Puget Sound Energy Gas Residential Decoupling Schedule 142 Rate Impacts: Non-Bill Assisted July 2013 - June 2014							
Line No.	Month	Average Therms	Average Bill (No Schedule 142)	Decoupling Schedule 142 Rate $/therms	Average Bill Decoupling Sch 142	Average Bill (Including Schedule 142)	% Difference
	(a)	(b)	(c)	(d)	(e) = b * d	(f) = c + e	(g) = e / c
1	Jul-13	17	$ 26.75	$ 0.021010	$ 0.36	$ 27.11	1.34%
2	Aug-13	18	$ 27.40	$ 0.021010	$ 0.37	$ 27.77	1.36%
3	Sep-13	25	$ 34.87	$ 0.021010	$ 0.53	$ 35.40	1.53%
4	Oct-13	66	$ 74.50	$ 0.021010	$ 1.40	$ 75.89	1.87%
5	Nov-13	92	$ 99.52	$ 0.021010	$ 1.94	$ 101.46	1.95%
6	Dec-13	134	$ 139.90	$ 0.021010	$ 2.82	$ 142.72	2.02%
7	Jan-14	120	$ 126.37	$ 0.021010	$ 2.53	$ 128.90	2.00%
8	Feb-14	114	$ 120.13	$ 0.021010	$ 2.39	$ 122.52	1.99%
9	Mar-14	87	$ 93.95	$ 0.021010	$ 1.82	$ 95.76	1.94%
10	Apr-14	58	$ 65.84	$ 0.021010	$ 1.21	$ 67.05	1.84%
11	May-14	35	$ 43.94	$ 0.006770	$ 0.24	$ 44.17	0.54%
12	Jun-14	24	$ 33.14	$ 0.006770	$ 0.16	$ 33.30	0.48%
13	Annual Total	790	$ 886.29		$ 15.76	$ 902.06	1.78%
14	Monthly Average	66	$ 73.86		$ 1.31	$ 75.17	1.78%

Table 17: Non-Bill Assisted Residential Natural Gas Bill Impacts (Evaluation Year 1)

Table 18 illustrates the monthly and annual bill impacts of the decoupling rate for non-bill assisted residential natural gas customers during evaluation year-two. The decoupling rate resulted in a monthly bill increase of $0.50 per and an annual increase of $6.02. This is an average percentage increase of less than one percent (0.79%).

Puget Sound Energy Gas Residential Decoupling Schedule 142 Rate Impacts: Non-Bill Assisted July 2014 - June 2015							
Line No.	Month	Average Therms	Average Bill (No Schedule 142)	Decoupling Schedule 142 Rate $/therms	Average Bill Decoupling Sch 142	Average Bill (Including Schedule 142)	% Difference
	(a)	(b)	(c)	(d)	(e) = b * d	(f) = c + e	(g) = e / c
1	Jul-14	18	$ 27.71	$ 0.006770	$ 0.12	$ 27.83	0.43%
2	Aug-14	16	$ 26.39	$ 0.006770	$ 0.11	$ 26.50	0.42%
3	Sep-14	20	$ 30.11	$ 0.006770	$ 0.14	$ 30.24	0.46%
4	Oct-14	37	$ 46.75	$ 0.006770	$ 0.25	$ 47.01	0.54%
5	Nov-14	94	$ 102.60	$ 0.006770	$ 0.64	$ 103.23	0.62%
6	Dec-14	106	$ 114.24	$ 0.006770	$ 0.72	$ 114.96	0.63%
7	Jan-15	101	$ 109.52	$ 0.006770	$ 0.69	$ 110.21	0.63%
8	Feb-15	75	$ 83.69	$ 0.006770	$ 0.51	$ 84.20	0.61%
9	Mar-15	70	$ 79.11	$ 0.006770	$ 0.48	$ 79.59	0.60%
10	Apr-15	59	$ 68.14	$ 0.006770	$ 0.40	$ 68.54	0.59%
11	May-15	31	$ 41.82	$ 0.039300	$ 1.23	$ 43.05	2.94%
12	Jun-15	19	$ 29.32	$ 0.039300	$ 0.74	$ 30.06	2.53%
13	Annual Total	648	$ 759.40		$ 6.02	$ 765.42	0.79%
14	Monthly Average	54	$ 63.28		$ 0.50	$ 63.79	0.79%

Table 18: Non-Bill Assisted Residential Natural Gas Bill Impacts (Evaluation Year 2).

Similar to the electric sector, the impact of decoupling on natural gas bills is marginally different for bill-assisted and non-bill assisted residential natural gas customers. However, the bill-assisted customer impacts were slightly less that non-bill assisted impacts in evaluation first Evaluation Year and slightly greater in the second Evaluation Year. Table 19 summarizes the comparison between the natural gas decoupling rate impacts for bill-assisted customers and non-bill assisted residential customers.

Comparison of Impact on Bill Assisted and Non-Bill Assisted Residential Gas Customers				
Metric	**Evaluation Year**	**Bill Assisted**	**Non-Bill Assisted**	**Difference**
Monthly Bill Impact	1	$ 1.20	$ 1.31	($0.11)
Monthly Bill Impact	2	$ 0.52	$ 0.50	$0.02
Annual Bill Impact	1	$ 14.42	$ 15.76	($1.34)
Annual Bill Impact	2	$ 6.22	$ 6.02	$0.20
% Bill Impact	1	1.73%	1.78%	-0.05%
% Bill Impact	2	0.87%	0.79%	0.08%

Table 19: Group Contrasts for Natural Gas Monthly and Annual Bill Impacts.

Considering only the decoupling portion of the customer bill, bill-assisted customers paid an average of $0.11 per month less than the non-bill assisted customers during the first Evaluation Year. On an annual basis, the average impact of the decoupling portion of the residential natural gas bill is $14.42 for bill-assisted customers and $15.76 for non-bill assisted customers. *This is $1.34 less annually for the average bill-assisted natural gas residential customer during evaluation year-one.*

During evaluation year-two, bill-assisted customers experienced a slightly greater bill impact of $0.52 per month from the decoupling portion of the natural gas bill, compared with $0.50 per month for non-bill assisted customers in evaluation year two. Bill-assisted customers paid an average of $0.02 per month more than non-bill assisted residential customers. For evaluation year-two, the annual average impact is $6.22 for bill-assisted customers compared to $6.02 for non-bill assisted residential customers, *which represents $0.20 more annually for the average bill-assisted natural gas residential customer during evaluation year two.*

As with electricity, the Schedule 142 decoupling rate is a volumetric rate and the bill impact depends upon customer usage levels. A high use residential natural gas customer will experience higher monthly bills due to the underlying volumetric rate and also due to the very small volumetric increase due to the decoupling adjustment. Combining these volumetric adjustments, evaluation year-two average impact for natural gas bill-assisted customers was slightly greater than for non-bill-assisted natural gas residential customers (even though the annual average usage for bill-assisted customers was less (602 therms) than for non-bill-assisted customers (648 therms). The specific reason for this outcome is that the bill-assisted customer's usage was greater that non-bill assisted customer usage during the higher cost two months of May and June of 2015 when the Schedule 142 decoupling rate was significantly increased from $.00677 to $.03930 per therm.

Figure 13 shows an analysis of trends in monthly use of natural gas for bill-assisted compared to non-bill assisted customers during the two evaluation years. While bill-assisted customers reported slightly lower usage levels, overall, considering the two years together*, both groups showed an 18% usage reduction in usage.* The curves track closely with each other, illustrating the minimal differences in bill impacts between bill-assisted and non-bill assisted customers. *Overall, for natural gas, for the two years considered together, the variations are slight and the usage curves are essentially the same.*

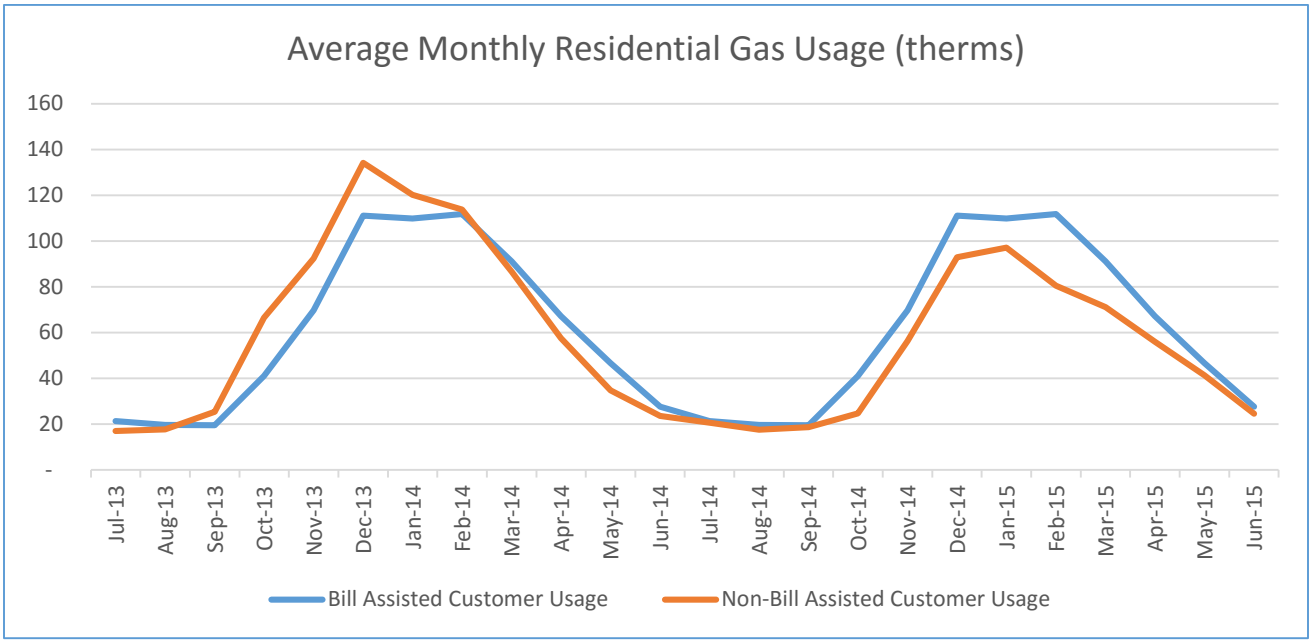

Figure 13 Average Natural Gas Use by Month.

In summary, overall, for natural gas, for the two years considered together, the variations in usage and bills are slight (essentially negligible) and the energy usage curves are essentially the same. Both bill-assisted and non-bill-assisted customers dropped about 18% in energy use over the two years examined.

Assistance with Energy Bills

To help alleviate energy costs, PSE low-income customers are provided bill payment assistance through grants from the federal Low-Income Housing Energy Assistance Program (LIHEAP), PSE HELP, Warm Home Fund, and from other sources including tribes, faith-based and government organizations. PSE can control the amount of PSE HELP, but the total of LIHEAP funding is decided each year by Congress and is then allocated to the states by

formulas. We start with a high-level overview of low-income energy assistance grants. Energy assistance data is based on a program-year which runs from October through September.[33]

LIHEAP has strong support from both political parties but is subject to annual appropriation by the Congress. It is a very important, but inadequate and erratic, contributor to payment assistance funding. Each year the amounts and timing of LIHEAP funds are a national political outcome. Figure 14, updated by the National Center for Appropriate Technology on December 28, 2015 illustrates the fluctuation in LIHEAP funding nationally since 1981 (nominal dollars).[34]

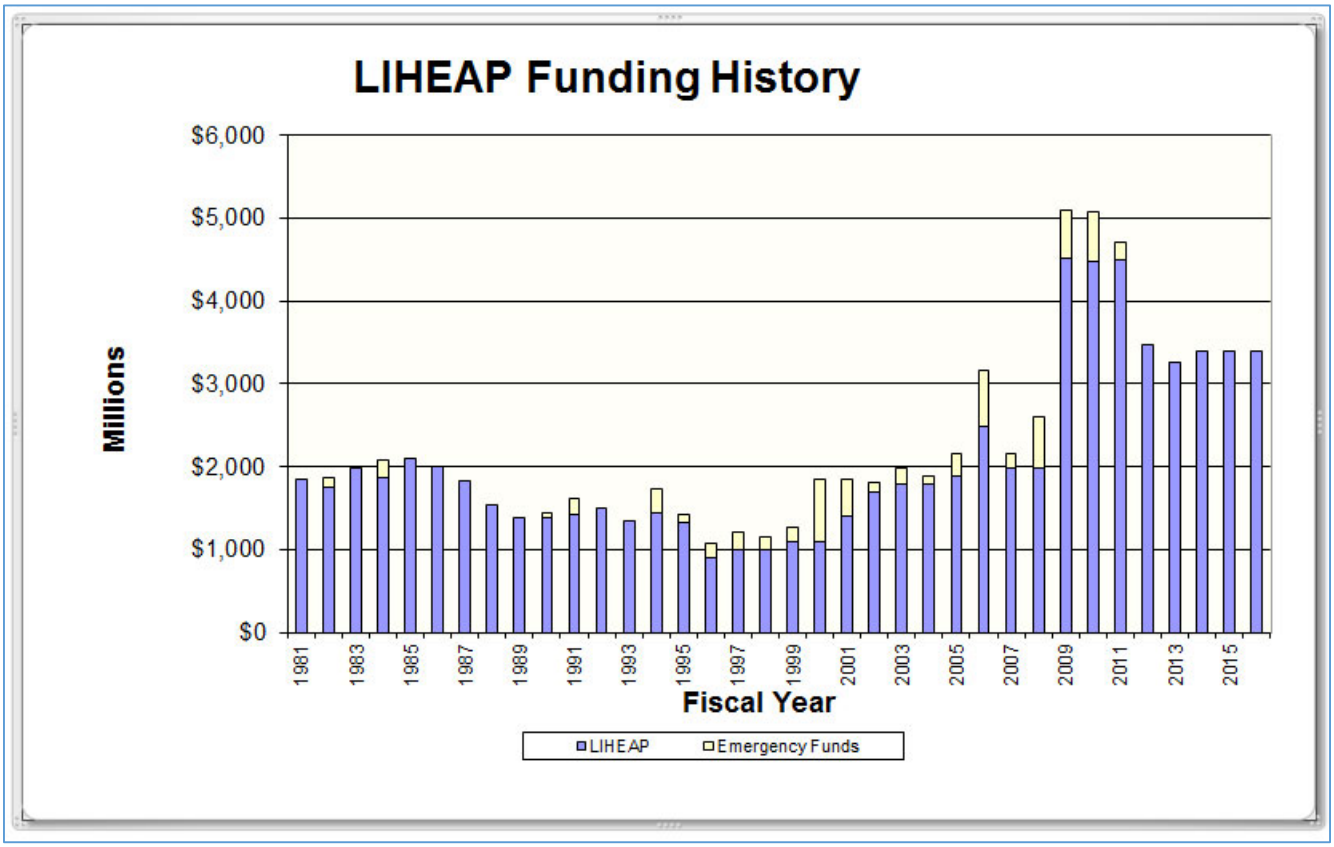

Figure 14: Variation in Federal LIHEAP Funding (NCAT) – Nominal Dollars.

Converted to real 2013 dollars, a better picture of national LIHEAP funding fluctuation is shown in Figure 15. The conversion to real 2013 dollars in this graph uses the official but defective Bureau of Labor Statistics CPI Inflation Calculator so it in large measure underestimates the

[33] Source: Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.13.

[34] This graph is not adjusted for inflation. Source: National Center for Appropriate Technology, http://www.liheapch.acf.hhs.gov/Funding/energyprogs_gph.htm

impact of inflation (but is much better than not adjusting at all). See: http://data.bls.gov/cgi-bin/cpicalc.pl?cost1=1.00&year1=2012&year2=2013. According to BLS a dollar in 1982 is equal to $2.41 in 2013. In a ballpark sense, the official US BLS CPI estimating procedure probably loses about three-fourths of the actual inflation impact over this timespan, which would yield $9.64 in 2013. The alternative Shadowstats CPI yields $9.66 which can provide an upper bound and agrees with our ballpark estimate.[35] We use the official BLS CPI in this study because it is the official method, however we caution that it greatly underestimates the loss of real income over long (a decade or more) time spans.

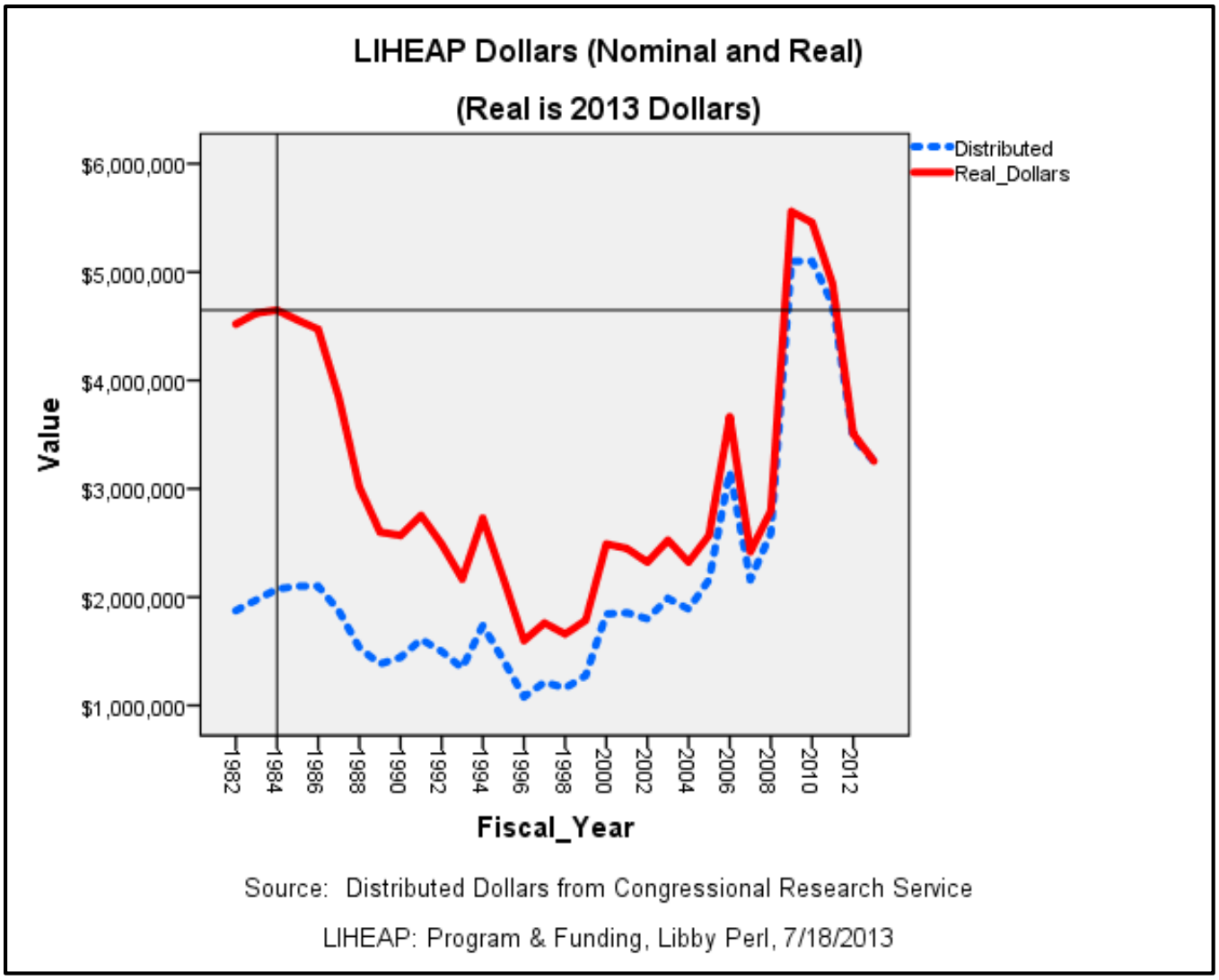

Figure 15: Real (2013) vs. Nominal (Distributed) LIHEAP Dollars.

[35] Our ballpark estimate is based on experience and review of time series and cross sectional data. The Shadow Government Statistics result is from the Shadowstats CPI calculator at www.shadowstats.com. However, access requires a subscription.

As shown in Table 20 and illustrated in Figure 16, LIHEAP and PSE provide the most grant dollars for PSE low-income payment assistance, with PSE HELP grants exceeding LIHEAP since 2012. LIHEAP funding available for PSE customers began a downward trend in 2012 that continued through 2015 with a slight increase in 2014, for a total decrease of $5.49 million over the six-year period. During the same time period yearly PSE grants were increased by $2.7 million between 2010 and 2015, filling nearly one-half of the gap caused by decrease of federal funds.

Energy Assistance Grant Amounts				
Year	**LIHEAP**	**PSE HELP**	**Other**	**Total**
2010	$ 14,098,800	$ 11,955,220	$ 6,470,171	$ 32,524,191
2011	$ 14,576,086	$ 13,614,799	$ 5,757,089	$ 33,947,974
2012	$ 11,119,822	$ 12,218,569	$ 4,415,259	$ 27,753,650
2013	$ 9,258,459	$ 15,130,762	$ 2,204,449	$ 26,593,670
2014	$ 9,836,285	$ 15,442,433	$ 4,211,120	$ 29,489,838
2015	$ 8,603,900	$ 14,681,601	$ 4,349,383	$ 27,634,884
Change 2010 to 2015	$ (5,494,900)	$ 2,726,381	$ (2,120,788)	$ (4,889,307)
	-39.0%	22.8%	-32.8%	-15.0%
Change 2012 to 2015	$ (2,515,922)	$ 2,463,032	$ (65,876)	$ (118,766)
	-22.6%	20.2%	-1.5%	-0.4%

Table 20: Summary of Totals of Low-Income Assistance Grants (Nominal Dollars).

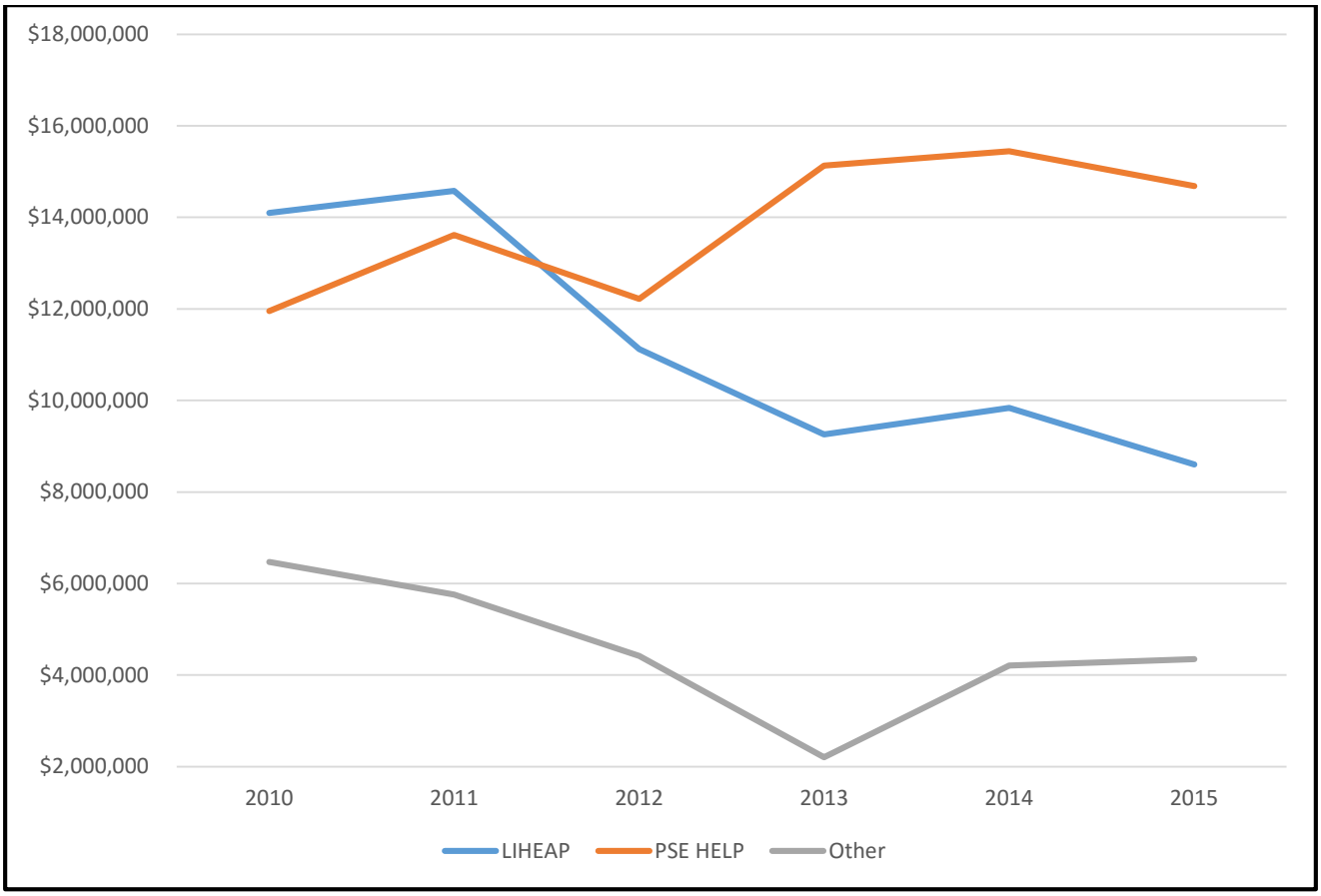

Figure 16: Patterns in Bill Assistance Grants.

As a rough cut, and overall, we can show that PSE provides good grant coverage to low-income customers beyond LIHEAP. According to the Congressional Research Service, "[u]nlike some other federal assistance programs…simply being eligible for LIHEAP does not entitle a household to LIHEAP benefits. Available benefits are limited by the amount that Congress appropriates each year…." Nationally, the percentage of eligible household served is usually about 16% of eligible households. [36] As a very rough cut, assume this percentage holds for the PSE service territory. Then (Table 20) the $8,603,900 for 2015 provided through LIHEAP serves about 16% of households eligible for bill-assistance. While there is likely overlap across the grant sources for many households, let's assume no overlap for purposes of calculation. Then, the $27,636,899 total across all grants for 2015 would permit service to 3.21 times number of LIHEAP customers or to about the LIHEAP service or about 51% of

[36] Nationally, the percentage of eligible household served is usually about 16% of eligible households. See Perl, Libby, LIHEAP Program and Funding. Washington, D: Congressional Research Service, July 18, 2013, Page 6. Link at: (http://energy4us.org/wp-content/uploads/2010/03/CRSLIHEAP1.pdf.

eligible households.[37] While the actual percentage will be somewhat less than this, it will still be good grant coverage.

Table 21 shows that the *number* of PSE HELP grants increased from 2010 through 2015. However, the overall total number of bill-assisted customer grants provided by all other sources decreased for a net decline of 10,201 grants. *The only grant source showing a consistent increase in the number of low income grants is the PSE HELP program.*

Number Energy Assistance Grants				
Year	**LIHEAP**	**PSE HELP**	**Other**	**Total**
2010	$ 34,018	$ 27,151	$ 32,388	$ 93,557
2011	$ 35,986	$ 31,851	$ 29,183	$ 97,020
2012	$ 26,325	$ 27,486	$ 29,089	$ 82,900
2013	$ 23,597	$ 33,889	$ 11,830	$ 69,316
2014	$ 25,031	$ 35,341	$ 22,436	$ 82,808
2015	$ 24,566	$ 37,238	$ 21,552	$ 83,356
6 Year Change	$ (9,452)	$ 10,087	$ (10,836)	$ (10,201)

Table 21: Summary of Numbers of Low-Income Energy Assistance Grants (Nominal Dollars).

Table 22 provides a monthly analysis of the number of PSE HELP customers served and total grants for the first 12 months for the period from July 2013 through June of 2014 as compared to the 12-month period prior to decoupling implementation. This table shows that t*he total number of bill-assisted customer grants has increased in all but one month from the twelve months prior to decoupling*. During this period, the company increased the number of grants by 5,575 customers. The number of PSE energy assistance grants increased in eight out of twelve months in evaluation year-two as compared to evaluation year-one, with an overall increase of 1,399 grants.

[37] The calculation is 3.21*0.6 = 0.514.

PSE HELP Grants Customers Served					
Month	Pre Decoupling	Eval YR 1	Change YR 0 -YR 1	Eval YE 2	Change YR 1 -YR 2
July	1,617	2,223	606	2,529	306
August	1,451	1,777	326	2,020	243
September	1,130	3,361	2,231	1,852	(1,509)
October	2,751	2,836	85	3,452	616
November	5,515	3,996	(1,519)	4,354	358
December	3,072	3,153	81	3,924	771
January	2,104	2,234	130	2,963	729
February	1,778	2,475	697	3,124	649
March	2,271	3,154	883	3,487	333
April	3,582	3,646	64	3,407	(239)
May	2,889	3,436	547	3,084	(352)
June	2,566	4,010	1,444	3,504	(506)
Jul-Jun	30,726	36,301	5,575	37,700	1,399

Table 22: PSE Energy Assistance Grants by Month.

Table 23 shows that PSE increased grants by $1,519,805 during the first Evaluation Year (from July 2013 through June 2014). However, this table also shows that the total amount of PSE assistance grants then decreased somewhat (. $347,810) during the second Evaluation Year (July 2014 through June 2015).

PSE HELP Grants Grant Amounts					
Month	Pre Decoupling	Eval YR 1	Change YR 0 -YR 1	Eval YE 2	Change YR 1 -YR 2
July	$ 681,519	$ 966,485	$ 284,966	$ 1,175,294	$ 208,809
August	$ 567,647	$ 801,797	$ 234,150	$ 931,513	$ 129,716
September	$ 495,040	$ 1,193,071	$ 698,031	$ 863,559	$ (329,512)
October	$ 1,425,348	$ 1,386,091	$ (39,257)	$ 1,266,807	$ (119,284)
November	$ 2,863,887	$ 1,987,101	$ (876,786)	$ 2,259,278	$ 272,177
December	$ 1,569,431	$ 1,577,810	$ 8,379	$ 1,621,713	$ 43,903
January	$ 933,199	$ 947,911	$ 14,712	$ 1,076,701	$ 128,790
February	$ 721,651	$ 960,561	$ 238,910	$ 1,076,198	$ 115,637
March	$ 905,462	$ 1,160,024	$ 254,562	$ 1,152,657	$ (7,367)
April	$ 1,403,195	$ 1,355,061	$ (48,134)	$ 1,172,048	$ (183,013)
May	$ 1,215,000	$ 1,390,138	$ 175,138	$ 1,119,985	$ (270,153)
June	$ 1,132,236	$ 1,707,370	$ 575,134	$ 1,369,757	$ (337,613)
Jul-Jun	$13,913,615	$ 15,433,420	$ 1,519,805	$15,085,510	$ (347,910)

Table 23: PSE HELP Grants – Comparison of Total Dollars Monthly.

Table 24 presents a monthly analysis of average PSE energy assistance grants over the two-year evaluation period. While the total budget funding for grants has increased, the average size of grant has decreased during both evaluation year-one and evaluation year-two. This is due to the fact that the number of people served has increased (Table 22) at a greater rate than the total PSE grant amount (Table 23).

PSE HELP Grants Average Grant Amount					
Month	Jul 12-Jun13	Jul 13-Jun 14	Change YR 0 -YR 1	Jul 14-Jun 15	Change YR 1 -YR 2
July	421	435	13.29	465	30
August	391	451	60.00	461	10
September	438	355	-83.11	466	111
October	518	489	-29.37	367	-122
November	519	497	-22.02	519	22
December	511	500	-10.47	413	-87
January	444	424	-19.22	363	-61
February	406	388	-17.77	344	-44
March	399	368	-30.91	331	-37
April	392	372	-20.08	344	-28
May	421	405	-15.98	363	-41
June	441	426	-15.47	391	-35
Jul-Jun	442	426	-15.93	402	-23

Table 24: Average HELP Grant Amounts by Month.

Table 25 provides an analysis of the average monthly bill impact of Schedule 142 decoupling rates as compared to the monthly change in the average PSE HELP grant. The number of customers receiving bill assistance has increased and more customers are receiving bill assistance. However, as shown in Table 24, the average size of grant to each customer has decreased and the grants do not compensate for the average (small) bill increase associated with the Schedule 142 decoupling rate impacts on bills.

Average Energy Bill Impact of Schedule 142 vs. Change in Average PSE HELP Grant (July 13-June 15)			
Bill-Assisted Residential Customers			
Month	**Electric**	**Gas**	**Average Grant Change**
Jul-13	$ 1.22	$ 0.36	$ 13.29
Aug-13	$ 1.22	$ 0.37	$ 60.00
Sep-13	$ 1.18	$ 0.53	$ (83.11)
Oct-13	$ 1.39	$ 1.40	$ (29.37)
Nov-13	$ 1.81	$ 1.94	$ (22.02)
Dec-13	$ 2.48	$ 2.82	$ (10.47)
Jan-14	$ 2.56	$ 2.53	$ (19.22)
Feb-14	$ 2.48	$ 2.39	$ (17.77)
Mar-14	$ 2.25	$ 1.82	$ (30.91)
Apr-14	$ 1.91	$ 1.21	$ (20.08)
May-14	$ 1.62	$ 0.24	$ (15.98)
Jun-14	$ 1.32	$ 0.16	$ (15.47)
Jul-14	$ 1.19	$ 0.14	$ 29.96
Aug-14	$ 1.18	$ 0.12	$ 9.94
Sep-14	$ 1.19	$ 0.13	$ 111.31
Oct-14	$ 1.18	$ 0.17	$ (121.77)
Nov-14	$ 1.57	$ 0.38	$ 21.62
Dec-14	$ 2.28	$ 0.63	$ (87.13)
Jan-15	$ 2.35	$ 0.66	$ (60.93)
Feb-15	$ 2.11	$ 0.54	$ (43.61)
Mar-15	$ 1.92	$ 0.48	$ (37.24)
Apr-15	$ 1.66	$ 0.38	$ (27.65)
May-15	$ 4.07	$ 1.63	$ (41.42)
Jun-15	$ 3.49	$ 0.97	$ (34.87)
Totals	$ 45.64	$ 21.98	$ (19.70)

Table 25: Average Schedule 32 Bill Impact vs. PSE HELP Grants.

In summary, with regard to payment assistance, PSE has increased dollars available for PSE HELP grants but federal assistance has over the same time period declined by a substantially larger amount of dollars. There has been a tendency to provide more grants to help meet the needs of more households, while the average size of grants has declined. Assistance funding does not make up for the decoupling rate adjustments for bill-assisted customers. However,

this is due to reduction in federal assistance, not to decoupling (see percentage comparisons in Table 20).

Comparison of Conservation Energy Efficiency Programs

This sub-section summarizes annual low-income conservation program savings, expenditures and number of households served compared with the rest of the residential class, as well as program modifications. For this analysis, low income conservation programs are defined as programs currently being run under electric Schedule 201 and gas Schedule 203 (later renamed gas Schedule 201). Modification of conservation programs is defined to include changes to funding levels as well as changes to specific measures or programs. These are reported below.

1) Energy Savings

In terms of dollars per unit of conserved energy, electric cost is rising for low-income residential (Table 26), non-low-income residential (Table 28) and for total portfolio less low-income weatherization (Table 30). Gas cost shows a similar tendency to rise, but to a much smaller degree. Cost for gas low-income weatherization is shown in Table 27; for gas residential non-low-income in Table 29; and for the gas portfolio excluding low-income weatherization in Table 31.[38] This direction of change is a general changed currently experienced in the industry for the current wave of DSM programs and their associated cost and benefit structure. The change is not related to decoupling.

Electric Low-Income Weatherization (Only)			
Year	**Expenditures**	**Savings Achieved, MWh**	**Ratio of $/MWh**
2011	$ 4,212,840	3,715	$ 1,134
2012	$ 2,414,265	1,606	$ 1,503
2013	$ 2,373,466	1,591	$ 1,492
2014	$ 2,846,848	1,767	$ 1,611
2015	$ 3,489,481	1,739	$ 2,007

Table 26: Cost per MWh – Electric Low-Income.

[38] Results for Table 26 through Table 31 are from the revised response to H. Gil Peach & Associates Data Request No. 20.49. This corrects a line reading error that affected some of the tables.

Gas Low-Income Weatherization (Only)			
Year	**Expenditures**	**Savings Achieved, Therms**	**Ratio of $/Therm**
2011	$ 712,248	50,745	$ 14
2012	$ 378,512	22,622	$ 17
2013	$ 372,176	32,948	$ 11
2014	$ 305,326	24,370	$ 13
2015	$ 174,171	10,070	$ 17

Table 27: Cost per Therm - Gas Low-Income.

Electric Non-Low-Income Residential Programs			
Year	**Expenditures**	**Savings Achieved, MWh**	**Ratio of $/MWh**
2011	$ 24,521,227	137,630	$ 178
2012	$ 37,967,242	151,737	$ 250
2013	$ 47,733,242	171,336	$ 279
2014	$ 49,086,835	149,492	$ 328
2015	$ 44,471,527	134,026	$ 332

Table 28: Cost per MWh - Electric Non-Low-Income Residential.

Gas Non-Low-Income Residential Programs			
Year	**Expenditures**	**Savings Achieved, Therms**	**Ratio of $/Therm**
2011	$ 5,687,204	2,064,255	$ 3
2012	$ 5,725,705	1,730,913	$ 3
2013	$ 5,940,964	1,568,247	$ 4
2014	$ 6,807,747	1,790,229	$ 4
2015	$ 6,094,940	1,273,177	$ 5

Table 29: Cost per Therm - Gas Non-Low-Income Residential.

Total Portfolio, Electric, Less Low-Income-Weatherization			
Year	**Expenditures**	**Savings Achieved, MWh**	**Ratio of $/MWh**
2011	$ 72,235,018	345,211	$ 209
2012	$ 88,708,259	337,885	$ 263
2013	$ 95,777,510	359,801	$ 266
2014	$ 95,657,922	376,772	$ 254
2015	$ 88,103,368	269,785	$ 327

Table 30: Cost per MWh - Electric Portfolio (Except Low-Income).

Total Portfolio, Gas, Less Low-Income-Weatherization			
Year	**Expenditures**	**Savings Achieved, Therms**	**Ratio of $/Therm**
2011	$ 14,777,166	5,135,976	$ 3
2012	$ 13,629,935	4,803,552	$ 3
2013	$ 11,547,245	6,505,052	$ 2
2014	$ 11,583,137	4,321,771	$ 3
2015	$ 12,919,907	3,232,237	$ 4

Table 31: Cost per Therm - Gas Portfolio (Except Low-Income).

2) Funding Changes

The change in low-income residential weatherization spending from 2013 to 2014 is shown in Table 32; for 2014 to 215 in Table 33. An overall perspective for the two years examined is provided in Table 34.

Order 07, referenced to the Multi-Party Agreement, in which Puget Sound Energy committed to add $500,000 annually to its residential low-income electric program and $100,000 annually to its investor contribution directs this change in funding.[39] As a part of the Settlement Agreement (so, as directed by the Commission), PSE added $500,000 to the 2014 Schedule 201 Electric Program Budget and $100,000 to its Schedule 201 investor contribution.[40] These budgets support weatherization of low-income houses (Table 32). Note that the actual increase is larger than the $500,000 amount.[41] These are ongoing budget additions, applied in 2014, continued in 2015 and to continue in subsequent years.

[39] Paragraph 178, pages 76 and 77 of Order 07, Dockets UE-121697 and UG-121705 (consolidated), Dockets UE-130173 & UG-130138 (consolidated).

[40] Source: Response to H. GIL PEACH & ASSOCIATES Data Request No. 01.19.

[41] Source for Table 32: Response to H. GIL PEACH & ASSOCIATES Data Request No.20.39.

Low-Income Weatherization (2013 vs. 2014)				
Source	**2013**	**2014**	**Difference**	**Percentage**
Electric Tariff	2,425,462	3,098,684	673,222	27.8%
Gas Tariff	301,309	369,443	68,134	22.6%
Shareholder Contribution	300,000	400,000	100,000	33.3%
Total	3,028,784	3,870,141	841,356	27.8%

Table 32: Change in Low-Income Conservation Budgets with Decoupling.

As shown in Table 33, for the second Evaluation Year there was a small net addition to budget for the tariff schedules, inclusive of an increase of 7.1% for Electric Schedule 201 and a 27.4% decrease for natural gas Schedule 201.[42]

Low-Income Weatherization (2014 vs. 2015)				
Source	**2014**	**2015**	**Difference**	**Percentage**
Electric Tariff	3,098,684	3,318,140	219,456	7.1%
Gas Tariff	369,443	268,098	-101,345	-27.4%
Shareholder Contribution	400,000	400,000	0	0.0%
Total	3,870,141	3,988,253	118,111	3.1%

Table 33: Change in Low-Income Conservation Budgets in Second Year.

The net change over the two year period examined is an overall increase in funding of 31.5%. The change from 2013 to 2015 is shown in Table 34.[43]

[42] Source for Table 33: Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.39.

[43] Source for Table 28: Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.39.

Low-Income Weatherization (2013 vs. 2015)				
Source	**2013**	**2015**	**Difference**	**Percentage**
Electric Tariff	2,425,462	3,318,140	892,678	36.8%
Gas Tariff	301,309	268,098	-33,211	-11.0%
Shareholder Contribution	300,000	400,000	100,000	33.3%
Total	3,028,784	3,988,253	959,469	31.7%

Table 34: Overall Increase in Funding.

With somewhat different numbers, since the shareholder contribution is not included, PSE Conservation Savings Goals and Budgets link budgets with anticipated energy savings. Table 35 shows the planning contrast for 2015 vs. 2014 low-income Schedule 201 weatherization. As shown in the table, there was a spending drop for gas weatherization of about 27% and a spending increase for electric weatherization of about 7% from 2014 to 2015. This result is consistent with the pattern discussed for Table 33.[44]

Low-Income Weatherization						
Grouping	**Year**	**Electric Program Budgets**	**Natural Gas Program Budgets**	**Energy Savings (kWh)**	**Energy Savings (Therms)**	**Number of Households Served**
	2014	3,098,684	369,443	1,571,000	27,391	1,357
	2015	3,318,140	268,098	1,571,000	18,815	Not Available
Change ($)		219,456	-101,345	0	-8,576	Not Available
Change (%)		7.1%	-27.4%	0.0%	-31.3%	Not Available

Table 35: Low Income Spending & Savings (Conservation Rider Goals and Budgets).

Using PSE Conservation Savings Goals and Budgets information (Table 36), for regular residential programs there was a budget decrease of 1% for electricity conservation between 2014 and 2015, and for non-bill-assisted residential natural gas conservation programs a decrease of about 11.5% from 2014 to 2015.[45]

[44] Source for Table 35: Planning Exhibit 1's.

[45] Source for Table 36: Planning Exhibit 1's.

Residential Programs (Except Low-Income Weatherization)						
Grouping	**Year**	**Electric Program Budgets**	**Natural Gas Program Budgets**	**Energy Savings (kWh)**	**Energy Savings (Therms)**	**Number of Households Served**
Regular Residential	2014	42,006,316	6,362,648	131,817,000	1,639,166	Not Available
	2015	44,356,173	6,679,863	130,451,000	1,450,131	Not Available
Change ($)		2,349,857	317,215	-1,366,000	-189,035	Not Available
Change (%)		5.6%	5.0%	-1.0%	-11.5%	Not Available

Table 36: Regular Residential Spending & Savings (Conservation Rider Goals and Budgets).

3) Customers Served

Customers served information is not available.

4) Modifications to Low-Income Conservation Programs

For Low-Income programs, there have been no changes to client program eligibility.[46] Puget Sound Energy defers to the Washington State Department of Commerce on issues related to client eligibility.[47] Similarly, there have been no changes to low-income weatherization programs and measures in the first Evaluation Year.[48] In the second evaluation year, PSE began operating its electric program in accordance with the revised WAC 480-109-100(10). Since this revision does not affect the installation of prescriptive measures, it has no effect on Low Income Weatherization (LIW) electric conservation.

However, this WAC revision provides utilities with the option of funding low-income conservation projects that have been deemed by implementing agencies (State-appointed entities allowed to install conservation measures in low-income dwelling units) to be cost-effective consistent with the Weatherization Manual (maintained by the Washington Department of Commerce).[49] This change allows utilities to classify low-income projects that meet a Savings to Investment Ratio (SIR ratio) of => 1.0 as cost effective based on the state

[46] Source: Responses to H. GIL PEACH & ASSOCIATES Data Requests Nos. 20.17, 20.09, 01.14 and 1.20).

[47] Source: Response to H. GIL PEACH & ASSOCIATES Data Request No. 01.20.

[48] Source: Response to H. GIL PEACH & ASSOCIATES Data Request No. 01.15.

[49] In addition to weather normalization, TREAT audit software has a provision for entering in the previous twelve months of energy use information for a dwelling and the program can use this information to ratio its prediction of the amount of energy savings. This feature partially corrects for the tendency of USDOE approved audit software to substantially over-predict energy savings by providing an empirical true-up to actual home usage for the model.

approved Targeted Retrofit Energy Analysis Tool (TREAT).[50] PSE began compliance with the revised rule in June 2015, and by December 2015, had processed one project based on TREAT analysis projections.

Section Summary

In summary, with regard to energy efficiency for billing-assisted customers, there was a substantial increase in weatherization program funding (about 28%) from 2013 to 2014 for both gas and electricity. From 2014 to 2015, billing-assisted gas funding dropped by about 27% while electric funding increased by almost 7%. Due to the relative sizes of the bill-assisted electric and gas programs, overall this was an increase from 2014 to 2015 of about 3% (Table 36). In contrast, from 2014 to 2015, funding for non-bill-assisted residential energy efficiency programs declined 29% for electricity and declined a little over 18% for natural gas. There were no changes to the low-income weatherization program, except a WAC revision that may allow processing of some additional low-income weatherization as cost-effective.

[50] Source: Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.40. TREAT is a software product of Performance Systems Development, http://psdconsulting.com/software/treat/.

V. Trends in Conservation Performance

Task elements 4 and 5 deal with trends in the performance of the Company's electric and gas conservation programs since the inception of the decoupling mechanisms.

Task Elements 4 & 5: Identity Trends in Performance

Identification of conclusive trends in the performance of the Company's electric and gas conservation programs since the inception of the decoupling mechanism based on information already available as part of the Company's biennial conservation achievement evaluations filed with the Commission in the second quarter of every "even" calendar year.

Trends could include: changes in senior management roles as they relate to energy efficiency, numbers of presentations to the Board, significant changes in the program budgets or savings levels as reported.

Figure 17: Conservation Performance.

Program Performance

Budgets, projected and achieved energy savings are shown for electricity conservation programs in Table 37. There is no indication of a change in electric conservation performance against goals over the five years shown in Table 37 although the electric conservation budget is slightly higher than the budget prior to decoupling and the goal declines in 2015. Gas conservation programs are shown in Table 38. There is no indication of a change in natural gas conservation performance over the five years shown in Table 38; the natural gas conservation budget is essentially the same as the budget just prior to decoupling. Both electric and natural gas conservation goals are declining, though for both electricity and natural gas conservation achievement consistently exceeds goals. In overview, there is no change in conservation program performance against goals,

For electric DSM (Table 37), there was a meaningful increase in the DSM budget in the year prior to decoupling, a decrease in the year decoupling started and a small increase in 2014

(the first full budget year during decoupling).[51] Then, there was a further small increase for 2015 (however, this was underspent – see footnote 54). Within the yearly budgets there are different mixes of commitments to different program types and approaches. Comparing the two year periods 2011-2012 (688,426 MWh) with 2014-2015 (661,000 MWh), actual electric conservation savings have decreased (Table 37, next to last column). Savings for 2014 and for 2015, which includes savings applied to PSE's decoupling commitment to achieve five percent (5%) more than its EIA target (27,920 MWh)[52] will be counted in the 2014-2015 biennium.[53]

Conservation Rider: Electric Budget												
Year	Residential	Business	Regional Efforts	Support	Pilots	Other Electric Programs	EES Research & Compliance	Total	% Change in Total Budget	MWh Goal	MWh Saved	Achieved vs. Goal
2011	$ 32,965,000	$ 46,434,000	$5,261,000	$4,619,000	$ -	$ 1,516,000	$ -	$ 90,795,000		340,119	348,926	102.6%
2012	$ 42,698,000	$ 41,871,000	$5,573,000	$3,514,000	$ -	$ 1,648,000	$ 3,172,000	$ 98,476,000	8.46%	336,600	339,500	100.9%
2013	$ 42,477,000	$ 38,522,000	$5,261,000	$3,568,000	$ -	$ 835,000	$ 3,738,000	$ 94,401,000	-4.14%	333,520	361,400	108.4%
2014	$ 45,105,000	$ 36,638,496	$5,260,640	$3,358,605	$1,572,459	$ 399,763	$ 3,485,575	$ 95,820,538	1.50%	344,405	378,500	109.9%
2015	$ 47,674,312	$ 32,672,929	$4,771,922	$5,575,677	$1,267,712	$ 3,638,342	$ 3,806,632	$ 99,407,526	3.74%	277,605	282,500	101.8%
Note: For a complete representation of PSE's annual conservation savings and expenditures by program, please see Appendix 1. Appendix 1 is an extract of PSE's "Exhibit 1: Savings and Expenditures" from its Annual Report of Energy Conservation Accomplishments.												

Table 37: Electricity Conservation Budgets & Goals.

Some key drivers of the recent electric budget increase are:[54]

- ◊ Reduction in Regional Technical Forum (RTF) savings estimates for single family and manufactured home weatherization. Significant reductions in savings estimates mean

[51] NEEA savings are included in both the "MWh Goal" and "MWh Saved" totals as part of the overall Energy Efficiency portfolio for each year presented in Table 37. See response to Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.52.

[52] As ordered by the Commission in Order 03 of Docket No. UE-132043.

[53] The 2014 goal includes a requirement from the Amended petition (p. 17, paragraph 31) that PSE achieve electric conservation five percent above the biennial targets set by the Commission pursuant to the Energy Independence Act (RCW 19.285). Due to the two-year program planning cycle, the Integrated Resource Plan changes avoided costs in even years. PSE will present the final 2014-2015 electric savings and expenditure results in its Biennial Electric Conservation Report, which will be filed on or before June 1, 2016, consistent with WAC 480-109-120(4). For PSE's current projection, see Section 3, Biennial Target Progress, Table II-3: Projected 2014-2015 Total Savings and Expenditures, Puget Sound Energy, 2015 Annual Report of Conservation Accomplishments, March 1, 2016, P. 10 and for reference also see Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.53. Currently, PSE appears on track to meet this target.

[54] Actual expenditure for 2015 was $93,197,600 rather than the $99,408,000 budgeted. See Table II-2: Energy Efficiency 2015 Expenditures by Sector in Puget Sound Energy, *2015 Annual Report of Energy Conservation Accomplishments*, March 1, 2016, Page 9.

programs cost somewhat more to obtain equivalent savings (or the same spending level tends to produce decreasing returns).

◊ For the Low-Income Weatherization Program (only) an increase in agency administration costs from 15% to 20%. Agency administrative costs had not been addressed for a long time. For the 2016-2017 biennium, PSE staff recommended and increase in agency administrative reimbursement to keep pace with agency costs.

◊ For the Low-Income Weatherization Program (only), increases in dollars allocated to CAP agencies do not necessarily translate into increased production due to the independent nature of individual agency capacity constraints. The agencies are primarily dependent on federal/state funding and direction. Budget years for different types of funding do not align. So, there are times when federal funds must be expended by a certain date and during those times agencies cannot also use all available utility funding. At other times, utility funding is available while federal dollars are short.

◊ Also for the Low-Income-Weatherization Program (only), gas weatherization jobs take more time and effort (due to health and safety requirements) than electric weatherization. In addition, due to having separate cost-effectiveness mechanisms in place for natural gas vs. electrically heated homes and a lower avoided cost for natural gas, electric jobs are easier to do. They are usually fully funded by either government or utility funds; but, due to its lower cost, natural gas weatherization requires matching federal and utility funding to accomplish whole house weatherization. This matching can be easy at certain times of year and difficult to impossible at other times of year due to the limited availability and uncertainty in amount and timing of federal funding. Also, federal and state direction regarding health and safety goals must be followed even though these produce costs (especially for natural gas heated homes) that are not producing energy savings. Sometimes a furnace replacement or other repairs can account for most of the weatherization budget for an individual home. If the furnace is not replaced, the family may have to abandon the home, yet other measures would usually provide more energy savings.

◊ For Low-Income Weatherization (only), challenges for each CAP agency include:

- Budget balancing throughout the year and from year to year with multiple funding sources, each with different regulations or guidelines.

- The uncertainty in the amount and timing of federal funding from year to year.

- The practical realities of keeping staff at a size for which continued funding can be anticipated.

- CAP agencies are not profit-making organizations and so do not have a source of funds (or the ability to develop a sizable reserve fund) to smooth out the time varying patterns of funding availability.

CAP agencies forecasted reduced program intake and production for 2015, and the budget was updated in the Annual Conservation Plan accordingly.[55]

As shown for natural gas conservation in Table 38, yearly budgets do not show a conclusive change.[56] The budget for natural gas DSM had a sharp decrease in 2012 (down about 30% from 2011); then decreased by only about two percent (2%) in 2013; then by nearly ten percent (10%) in 2014. Then the budget increased by about 12% in 2015. Program funding for 2015 is slightly more than spending planned for 2013 (an increase of about one percent). This means there is essentially no net change the gas conservation budget from the year prior to decoupling. Performance goals (in millions of therms) have been declining for natural gas conservation, though performance consistently exceeds goals. There is no clear pattern of change in conservation performance against goals.

Conservation Rider: Natural Gas Budget										
Year	Residential	Business	Regional Efforts	Support	Pilots	EES Research & Compliance	Total	% Change in Total Budget	Millions of Therms Goal	Millions of Therms Saved
2011	$11,039,000	$6,951,000	$0	$1,288,000	$0	$0	$19,278,000		4.79	5.19
2012	$6,938,000	$5,291,000	$0	$538,000	$0	$683,000	$13,450,000	-30.23%	4.84	5.20
2013	$6,863,000	$4,987,000	$0	$554,000	$0	$777,000	$13,181,000	-2.00%	4.62	6.54
2014	$6,732,091	$3,925,110	$0	$609,988	$248,630	$411,323	$11,927,142	-9.51%	3.88	4.35
2015	$6,947,561	$4,006,015	$738,000	$914,537	$233,902	$482,420	$13,322,435	11.70%	3.08	Not Available
Note: For a complete representation of PSE's annual conservation savings and expenditures by program, please see Appendix 1. Appendix 1 is an extract of PSE's "Exhibit 1: Savings and Expenditures" from its Annual Report of Energy Conservation Accomplishments.										

Table 38: Natural Gas Conservation Budgets & Goals.

[55] Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.43. Note that this barrier applies only to low-income weatherization work. PSE works closely with each agency to identify a feasible budget for each program year and works with agencies to manage budgets. PSE notes that it has never refused a CAP agency's request for additional funding.

[56] Based on data provided in Response to H. GIL PEACH & ASSOCIATES Data Request No. 01.21.

The relative decrease in the commodity cost of natural gas due to fracking lowers avoided cost and so reduces cost-effective economic potential. This is a general trend in the US and follows the dramatic increase in the production of fracked gas. From the approaching gas scarcity of not that many years ago, the US has become the major producer of natural gas (Figure 18).[57] With the increased abundance of supply, cost has decreased.

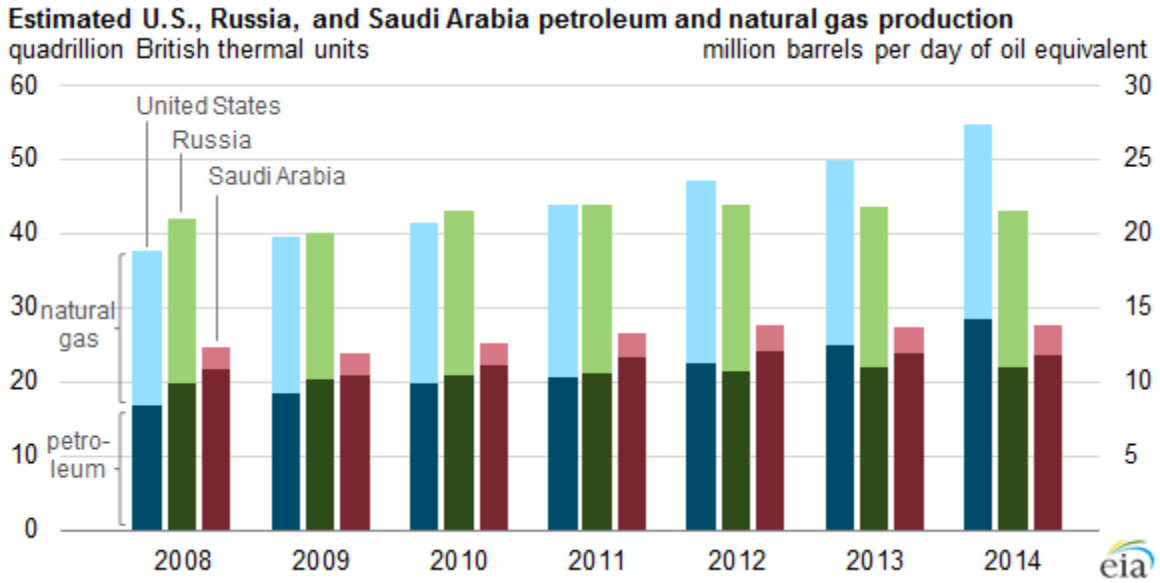

Figure 18 US Becomes Largest Producer of Natural Gas (EIA).

In Table 38 the planning numbers indicate a tendency to plan for a lower cost per conserved therm. The 2015 gas savings target and budget reflected a decline in budget and savings from 2014.

It should be noted that consistent with its decoupling commitment, PSE is now a major contributor to NEEA's gas market transformation effort. PSE funding for NEEA's regional gas market transformation program is in addition to funding for PSE's own programs. PSE

[57] Source: Energy Information Administration (http://www.eia.gov/todayinenergy/detail.cfm?id=20692).

participates on and is a major funder of the Natural Gas Advisory Committee and is sponsoring a gas-fire heat pump water heater pilot with NEEA. .

Other Trends

While there have been no structural changes in senior management roles since decoupling was initiated,[58] PSE shifted the reporting of its director of Energy Efficiency from the Vice-President of Corporate Affairs to a newly-appointed Vice-President of Customer Solutions. There have been no Energy Efficiency department-specific presentations to the PSE Board of Directors in since decoupling (the last was in 2008).[59] PSE operates a Customer Energy Management Group, along with ancillary services (including Market Research, Resource Planning, and Marketing) staffed with a combined FTE of approximately120 to cover all functions for delivery of energy efficiency and low income assistance services.

There were no meaningful changes to staffing for Energy Efficiency or to staffing for Low-Income Weatherization or Bill Assistance for the first Evaluation Year.[60] There was one meaningful change for the second evaluation year: the Renewables organization, consisting of the Green Power Program (a revenue neutral O&M program) and Net Metering (the Conservation rider funds administrative costs) was added to the Residential Energy Management organization. This is meaningful because it is a step towards being ready for the next DSM era in which program boundaries will be redrawn to include DSM, DR, DER, DERMs and microgrids as projects, rather than the DSM silo approach of the past. This change occurred in decoupling, but might also have occurred outside of decoupling and is an industry trend.

Other Indicators

There is a positive outlook on decoupling among PSE management and staff. From the perspective of Puget Sound Energy, there are positive results from decoupling:[61]

[58] Interpretation of Responses to H. GIL PEACH & ASSOCIATES Data Request No. 01.22 and DR 20.19.

[59] Responses to H. GIL PEACH & ASSOCIATES Data Request No. 01.23 and DR 20.22

[60] Interpretation of Response to H. GIL PEACH & ASSOCIATES Data Request No. 01.29.

[61] Response to H. GIL PEACH & ASSOCIATES Data Request No. 01.32.

- First, by removing the "throughput incentive" in which a substantial portion of fixed costs were recovered through volumetric energy sales, any financial disincentive to encourage its customers from engaging in energy efficiency efforts has been mitigated.

- Second, decoupling removes the financial disincentive so that the Company can support its customers' engagement with rooftop solar and other distributed generation projects that enable customers to have more control over energy needs, providing value to customers in terms of reduction of customer bills and to society in terms of environmental improvements.[62,63]

These advantages take on increased value for effective grid management[64] in terms of the discussions and pilots underway in a number of jurisdictions, particularly in Connecticut, Massachusetts, New York and California, and the pilots of some individual utilities regarding

[62] Robust solar is included in Puget Sound Energy's new Integrated Resource Plan.

[63] Industrial Customers of Northwest Utilities (ICNU) agrees with Public Counsel (see footnote 64) that this comment and the material that directly follow are outside the scope of the decoupling evaluation. For example, a net metering customer is fundamentally different from a customer that merely pursues energy conservation without combining energy conservation with a distributed energy resource. Also, ICNU notes that the study does not provide data to demonstrate that decoupling is the right mechanism to address issues associated with distributed energy resources. We agree that the direct terms and conditions for the decoupling examination do not include a study of how to incorporate distributed energy resources – and so such a study is not included. However, facing forward, we do advocate breaking silos as a general practice and foresee that several areas that have been in separate by parallel silos, including energy efficiency and conservation, distributed energy resources, distributed energy resource management, traditional and non-traditional demand control programs, microgrids, disaster preparedness and climate adaptation and development of an ecology of microgrids to provide resilience to communities and police, fire, civil administration, medical services and other needs are in the process of being combined within single project boundaries. On the cost reduction and improved service potential of breaking down silos, see: Tett, Gillian, *The Silo Effect: The Peril of Expertise and the Promise of Breaking Down Barriers*. New York: Simon & Schuster, 2015.

[64] The Public Counsel office of the Washington Attorney General's office represents general ratepayer interests in PSE's Conservation Resource Advisory Group (CRAG). Public Counsel, in review of the first Evaluation Year decoupling study raised the question of whether this statement about "added value" in the current industry disruptive process is germane to the evaluation of PSE's mechanism, and, instead, may be an unrelated policy argument. We are not intending to make a policy argument, but simply to note that PSE's decoupling specifically *takes on added value* in the context of the current disruption of markets occurring in several jurisdictions and in the global context of climate adaptation. To clarify, we note that in some jurisdictions, utilities are trying to adapt to the disruption by dramatically raising the fixed portion of customer bill while slightly lowering the variable portion (cost per kWh or cost per therm). This primary alternative to decoupling transfers increased cost to low energy users (typically seniors, low-income and minority group customers) and lowers the value of conservation and integrated renewables for customers who have conserved or are planning to conserve energy. This alternative strategy has the additional drawbacks of impeding climate mitigation and adaptation, restraining rapid movement towards incorporation of more renewables, introducing an undervaluation of DSM, stimulating load growth, reducing resiliency and transferring payment burden to seniors, low-income and minorities while reducing cost to high-income and heavy energy users. Increasing fixed cost by means of a shift from the variable (volumetric) portion of customer bills is a promotional sales strategy and a defense against competitive service suppliers. PSE's decoupling is not designed to produce these negative economic, climate, conservation and social outcomes. This is a part of its added value in the current context.

the role of Distributed Energy Resources (DERs), Distributed Energy Resources Management Systems (DERMS) and a re-visioning of a traditionally linear electric system to system characterized by the resilience of an ecology of quasi-independent (islandable) microgrids.

- We appear to be entering a new era of breakdown of barriers between DSM energy savings, demand reduction (DR) and renewable and localized generation, at least to the extent that it makes more sense to combine these three "silos" of a work into single pilots.

- New project forms are appearing that include diverse elements such as rooftop solar, both distributed and concentrated batteries, systematic deep DSM measures, novel applications of traditional Demand Management including two-way communication with thermostats, HVAC systems and appliances to reduce peaks and decoupling.

- At the same time, the California Energy Commission has determined that a substantial amount of residential natural gas water heating has to be replaced by solar thermal units in order to meet California's targets for mitigation of greenhouse gas emissions.

The Washington utilities and the State of Washington, as a leader in climate mitigation and adaptation may need to consider similar options in terms of reliance on net zero construction and reduction of fugitive methane emissions. In both the area of potentially disruptive changes due to the emergence of DERs and in the area of ability to adapt to climate goals, Puget Sound Energy is well-positioned for flexibility and innovation compared with a non-decoupled utility. Of course, PSE also has a natural advantage in being an integrated combination natural gas and electric utility.

In addition we note that in interviews we were told that in previous years the emphasis had been on *reaching* targets. Now, when a program *exceeds* its target the program manager and team can keep going. They report no indication of any perception by executive management of a problem in exceeding targets and attribute this to decoupling since any financial disincentive is removed. Prior to this, Energy Efficiency management consistently encouraged Program Staff to actively manage programs to maximize energy savings within programs, but this is different from exceeding targets. The one has to do with getting the best return for a planned program target; the other with moving beyond.[65]

PSE adaptively manages its programs and portfolio on a consistent basis – this is a key requirement, especially since PSE is the only IOU that proactively adjusts its UES measure

[65] These two statements may appear contradictory: staff now feels more openness to exceed targets yet in the past management also encouraged maximizing energy savings. However, maximizing energy savings can mean

savings values *annually*. Additionally, PSE releases all-comers RFPs for new and existing outsourced conservation programs, and tries to work collaboratively and transparently with the CRAG to develop and report on conservation achievements. Over the past several years, Energy Efficiency management supported new and innovative marketing strategies (such as "Rock the Bulb", "Re-Energized by Design", and the recent "Energy Upgrades"), leading edge programs and pilots (web-enabled thermostats, Energy Reporting pilots), and embraced new technologies (ductless heat pumps, heat pump water heaters, LEDs and T-LEDs, for example). PSE discusses its conservation achievements in detail in Annual Reports of Energy Conservation Achievements, filed with the Commission by March 1st each year. As an organization, PSE has been active in moving conservation forward prior to decoupling and in decoupling.

The change reported in discussions with energy efficiency staff is a subtle change in nuance in organizational culture. There was not a negative view of exceeding targets and there were no negative consequences for exceeding the electric or gas savings targets and goals. Still, in large and complex organizations knowing that executive management will now not see any negative consequences, financial or otherwise, in exceeding energy efficiency goals creates a sense of positive assurance in being aligned with management in doing so. Utility organizational culture is very careful in nature. Within this kind of organizational context, decoupling creates a kind of "green light".[66]

Section Summary

In summary, conservation performance is much the same in decoupling as it is prior to decoupling. Budgets are essentially the same as pre-decoupling. Decoupling removes

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making programs as efficient and effective as possible within a target, while exceeding targets means proceeding through targets so we see the statements as complementary. The change here is not "black and white", but it is a kind of "greenlight". Though it is a greenlight without a "Decoupling 2.0" revenue flow monetizing some of the value of the goals to serve as a "demand-pull" for the utility. In other words, we are talking here about a subtle change in organizational culture. Industrial Customers of Northwest Utilities (ICNU) notes an alternative interpretation: PSE maximized acquisition of energy efficiency prior to decoupling and maximizes it today. We feel there is a subtle difference and a new "greenlight"; we agree that the effect is small.

[66] Public Counsel, in commenting on the study for the first Evaluation Year, suggested that this section is overly speculative and/or makes policy arguments that are not appropriate for this evaluation, and so should be revised or removed. However, the evaluation team stands by this analysis. If we had no experience with organizational analysis or with the cultures of gas, electric and water utilities as operating organizations then such a section might be overly speculative. However, we do have substantial experience in these areas. Also, an organizational "green light" for conservation is an organizational "green light". We are not making policy arguments but we do state the nature of decoupling vs. other ways of responding to the disruption that faces the utility industry. Decoupling does not occur in a vacuum; the context for decoupling is a policy context conditioned by the material reality of climate change and the need for energy conservation. At the same time, the social justice issues in rate

barriers to energy conservation by increasing certainty of revenue recovery but it does not create a positive “pulling force” by monetizing the value of conservation in the form of new incentives for the utility. PSE’s additional budget support of NEEA’s natural gas market transformation may be considered a conclusive change. We also conclude that there is progressive organizational change towards moving beyond the DSM silo which creates a basis for more powerful programs (though this change might have happened in the absence of decoupling and is an industry trend) and there is a nuanced sense that it is OK to exceed program targets. PSE’s leadership and staff tend to support deregulation and see positive benefits.

design and avoiding the transfer of costs to low energy users, low-income and minorities is a fact in the contrast of a decoupling design that removes the stimulus towards higher throughput and the alternative design for throughput utilities of raising fixed charges while lowering volumetric charges to stimulate sales. We report what we see as a kind of pattern recognition that the readers may make policy arguments about.

VI. Identification of Any Adverse Impacts

Task element 6 in the Amended Petition is focused on the possibility of adverse impacts caused by or associated with decoupling (Figure 19).

Task Element 6: Identification of Any Adverse Impacts

Identification of any conclusive evidence to suggest that the decoupling mechanisms adversely impacted customer service, distorted price signals for customers resulting in lower participation in conservation programs, or eroded the utility's incentive to control costs and improve operational efficiency.

Figure 19: Adverse Impacts.

What Adverse Impacts Might There Be?

Generally, any reform may have unanticipated and unintended consequences. One possible consequence of decoupling has been speculated to be a drop in customer services. Another is a customer response to decoupling price signals which increase price in the following cycle if there is less energy use than planned in the current cycle. Then, there is the area of cost control and operational efficiency – with increased surety of revenue recovery and the drives associated with a sales mentality removed, would staff become less oriented to cost control and would efficiency decline? The answer to each of these sub-questions is "No". The variations in cost caused by the adjustment mechanism is too small to negatively affect conservation. Only one of the twenty-two customer service indicators we reviewed is currently going in the wrong direction (Table 42, Row 3) but performance remains within goal. And there are many strong motivators than sales for doing good and careful work with attention to goals and duty.

The Need to Look for Unintended Consequences

In ethics, a fundamental question is "how can a thing that is quite apparently good also have negative consequences?" Or, in an organizational analysis, a root question is, how can a change that is clearly functional also entail dysfunctional consequences?" In economic

analysis, an open question is “how can economic effort also have bound within it a set of negative economic externalities that are not taken into account?” In Campbell’s school of evaluation the terminology for a programmatic change such as decoupling is a “reform.” And, in evaluation of regulatory reforms, a standard in the protocol for evaluations is a requirement for a search for unintended side effects or adverse impacts.[67] So, it being both a stated question within the defined scope of analysis and a step required in evaluation protocol, in this section we search for any adverse impacts. Does decoupling, a well-intended, well-researched and theory-based “reform” with a clear upside also have a downside? The philosophy underlying Campbell’s school of evaluation is “evolutionary epistemology” or “selection theory”.[68] In this respect, Campbell brought Darwin’s discoveries and insights in the natural realm into the realm of knowledge construction and evaluation. Where Darwin saw *random variation* and *selective retention* as the fundamental mechanism of normal evolution in the natural world, Campbell emphasizes *intentionally planned variation* (or regulatory reforms) coupled with *evaluation* in order to improve regulatory processes, programs and organizations. The practical question is if a reform (here, decoupling) should be selectively retained or discarded. The perspective is an evolutionary approach to regulatory processes and to social and organizational learning.

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[67] A current example is of this kind of contradiction is the use of quantitative assessment tests in grade and high schools, which on its face seems a good thing that will establish “hard” indicators of results but also leads to a loss of some of the human qualities and higher social and informational functions of teaching in order to “teach to the test”. In some cities this has provided strong incentives leading to corruption of the testing system. In evaluation, a general perspective on this problem (Campbell’s law) is: "The more any quantitative social indicator (or even some qualitative indicator) is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor." Campbell, D.T., Assessing the Impact of Planned Social Change, *Evaluation and Program Planning*, 1979, 2, 67-90. This is a rediscovery for indicator systems of an older problem recognized by economists in non-market systems of state planning: If the state sets indicators for performance to a production plan (which, in itself, seems a good thing since it is necessary to measure progress towards goals) but enforces the results on the indicators with heavy consequences (such as liquidation of the manager for failure to meet plan targets), production processes tend to meet or excel on the officially adopted indicators while losing other qualities that may be essential to customers such as durability or fitness for use. See Heilbroner, Robert, “Socialism,” in *The Concise Encyclopedia of Economics* (http://www.econlib.org/library/Enc1/Socialism.html). In sociotechnical analysis, there is the similar contradiction of “normal accidents” in complexly interactive technical systems – in complex systems, the more the possibilities for interaction among components (the “interactive complexity” of system) and the more “tightly coupled” (in the sense of a change in one element leading to a direct change in others automatically), the more likely there will be an unanticipated accident. Moreover, incremental “fixes” (clearly well motivated and often designed to eliminate “human errors” in order to prevent some kinds of accidents) increase interactive complexity; and so, without meaning to, increase the probability of an unanticipated accident. Perrow, Charles, *Normal Accidents, Living with High-Risk Technologies*. Princeton, New Jersey: Princeton University Press, 1999 (first published by Basic Books, 1984). This required search for the influence of context and for unanticipated consequences is generally seen as one of the differentiating features of protocols for evaluation research (aimed at improving a “reform” or program – here, decoupling as a regulatory reform) in contrast to protocols for pure research (aimed at development of a research discipline).

[68] Heyes, Cecilia & David L. Hull, eds., S*election Theory and Social Construction, the Evolutionary Naturalistic Epistemology of Donald T. Campbell*. Albany: State University of New York, 2001.

An additional factor is that large integrated utilities have strong internal planning and forecasting functions so utility personnel can often see the future better than people in other kinds of organizations that do not make the same kinds of investment in forecasting and planning functions. This is a major strength of the large, integrated utilities. Yet because such regulated utilities are a kind of profit-oriented business (though regulated) and, at the same time, carry out an essential public service function (which would otherwise be a requirement of government) they can be subject both to classic problems of market failure and to classic problems of government failure.[69] It is only by application of intelligence and strict internal discipline that they avoid these. Looking for unintended consequences and adverse impacts is part of that discipline.

We will look here at customer service, price signals, cost control & operational efficiency, external factors, and patterns.

Customer Service

PSE has operated for many years using a series of service quality indices (SQI) and reliability measures.[70] These permit examination of customer service metrics over time. In examination of selected Puget Sound Energy Service Quality Index and Electric Service Reliability Reports for 2011, 2012, 2013 and 2014 (Table 39 through Table 43) there is no evident pattern of adverse impact to customer service.[71] The measurement overlap of this data with Evaluation Years is partial, but enough time has passed to make the overlap problem unimportant.

As shown in Table 25, indicators of customer satisfaction usually exceed target levels. There is a dip in answering performance for the Customer Access Center for 2013 that coincides with implementation of a new Customer Information System (CIS). However this can be attributed

[69] Cowen, Tyler, *The Theory of Market Failure, A Critical Examination*. Fairfax, Virginia: George Mason University Press, 1988; Wallis, Joe & Brian Dollery, *Market Failure, Government Failure, Leadership and Public Policy*. London: MacMillan Press Ltd., 1999 & New York City: St. Martin's Press, 1999; Wolf, Charles (Jr.), *Markets or Governments, Choosing Between Imperfect Alternatives, Second Edition*. Cambridge, Massachusetts & London: MIT Press, a RAND book, first published in 1988, third printing 1997.

[70] PSE's Response to H. GIL PEACH & ASSOCIATES Data Request No. 01.24, with Attachments A, B and C (service quality reports for 2011, 2012 and 2013; also, Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.21, Attachment A (service quality report for 2014).

[71] Tables 26-30 are developed from information provided in PSE's Response to H. GIL PEACH & ASSOCIATES Data Request No. 01.24, with Attachments A, B and C (service quality reports for 2011, 2012 and 2013; also, Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.21, Attachment A (service quality report for 2014).

to implementation of the new CIS and it is only one of four satisfaction measures operative in 2013. Performance goes back up in 2014.

For appointments (Table 26) there is a drop below target for Service Provider Construction Appointments Kept – Quanta Gas for 2013, but this is a drop below target for only one of three indicators and the size of the drop (one percentage point) is not meaningful.

As shown in Table 27, there are no meaningful changes in gas operations indicators. Table 28 demonstrates that electrical operations are similarly not affected.

Table 29 shows that electric service reliability changes from year to year in both number of service interruptions and in cumulative minutes of outage. However, there is no pattern.

Measures of Service Quality 2011 - 2014: Indicators of Customer Satisfaction					
Key Measurement	**Benchmark/ Description**	**2011**	**2012**	**2013**	**2014**
UTC complaint ratio	No more tht 0.40 complaints per 1,000 customers, including all complaints filed with UTC	0.28	0.24	0.25	0.21
Customer Access Center transactions customer satisfaction	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	0.95%	0.95%	91%	93%
Field Service Operations transactions customer satisfaction	At least 90% satisfied (rating of 5 or higher on a 7-point scale)	0.96%	0.98%	95%	96%
Service Provider Customer Satisfaction -- Pilchuck	At least 84% satisfied (rating of 5 of higheron a 7-point scale)	0.85%	Not Applicable (service provider changed)		
Service Provider Customer Satisfaction -- Quanta Electric	At least 77% satisfied (rating of 5 or higher on a 7-point scale)	0.81%	80%	NA	99%
Service Provider Customer Satisfaction -- Quanta Gas	At least 84% satisfied (rating of 5 of higheron a 7-point scale)	0.87%	82%	NA	99%
Customer Access Center answering performance	At least 75% of calls answered by a live representative within 30 seconds of request to speak with a live operator	0.77%	79%	66%	76%
Note: Shaded cells with percentages in red show indicators registering below goal.					

Table 39: Customer Satisfaction.

Measures of Service Quality 2011 - 2014: Operations Services - Appointments					
Key Measurement	**Benchmark/ Description**	**2011**	**2012**	**2013**	**2014**
Appointments Kept	At least 92% of appointments kept	100%	100%	99%	100%
Service Provider New Customer Construction Appointments Kept - Pilchuck	At least 98% of appointments kept	100%	NA - Service provider changed		
Service Provider New Customer Construction Appointments Kept - Quanta Electric	At least 98% of appointments kept	100%	99%	100%	Not Reported
Service Provider New Customer Construction Appointments Kept - Quanta Gas	At least 98% of appointments kept	100%	98%	97%	Not Reported
Note: Shaded cells with percentages in red show indicators registering below goal.					

Table 40: Appointments.

Measures of Service Quality 2011 - 2014: Operations Services - Gas					
Key Measurement	**Benchmark/ Description**	**2011**	**2012**	**2013**	**2014**
Gas Safety Response Time	Within 55 minutes from customer call to arrival of field technician	29 minutes	30 minutes	32 minutes	31 minutes
Secondary Safety Response Time - Pilchuck	Within 60 minutes from first response assessment completion to second response arrival	51 minutes	NA - Service provider changed		
Secondary Safety Response Time - Quanta Gas	Within 60 minutes from first response assessmente completion to second response arrival	53 minutes	48 minutes	46 minutes	47 minutes
Service Provider Standards Compliance - Pilchuck	At least 95% compliance with site audit checklist points	99%	NA - Service provider changed		
Service Provider Standards Compliance - Quanta Gas	At least 97% compliance with site audit checklist points	99%	98%	98%	98%

Table 41: Gas Operations.

Measures of Service Quality 2011 - 2014: Operations Services - Electric					
Key Measurement	**Benchmark/ Description**	**2011**	**2012**	**2013**	**2014**
Electric Safety Response Time	Within 55 minutes from customer call to arrival of field technician	51 minutes	51 minutes	53 minutes	53 minutes
Service Provider Standards Compliance - Quanta Electric	At least 97% compliance with site audit checklist points	99%	98%	98%	98%
Secondary Non-Emergency Safety Response and Restoration Time - Core Hour -- Quanta Electric	Within 250 minuts from the dispatch time to the restoration of non-emergency outage during core hours	234 minutes	239 minutes	243 minutes	248 minutes
Secondary Non-Emergency Safety Response and Restoration Time - Non-Core Hour -- Quanta Electric	Within 316 minutes from the dispatch time to the restoration of non-emergency restoratio of non-emergency outage during non-cor	273 minutes	270 minutes	274 minutes	282 minutes

Table 42: Electric Operations.

Measures of Service Quality 2011 - 2014: Electric Service Reliability - SAIFI & SAIDI					
Key Measurement	**Benchmark/ Description**	**2011**	**2012**	**2013**	**2014**
SAIFI(5%) <5% Non-Major Storm (< 5% customers affected)	No more than 1.30 interruptions per year per customer	1.02 interruptions	0.92 interruptions	0.86 interruptions	1.05 interruptions
SAIDI (Total 5-Year Average) Total (all outages 5 year average)	No more than 320 minutes per customer per year	281 minutes	245 minutes	247 minutes	312 minutes

Table 43: Electric Service Reliability.

In summary, review of PSE's service quality indicators shows no adverse impacts on customer service. Of course the overlap of the calendar years with Evaluation Years is inexact (the Evaluation Years each begin in July instead of January). However, an advantage of looking at these indicators in a time series perspective is that enough time has passed to draw a conclusion. The conclusion for the first and second Evaluation Years is that there are *no evident adverse impacts on customer service* from decoupling.[72]

[72] In its review of the first year report, ICNU commented that this (customer service) finding is of limited value since it applies only to the first year evaluation. We stand by the finding of no evident adverse impacts on customer service from decoupling. We now have two years of data and note that our finding is limited to the first two evaluation years. Because yearly adjustments are small and the time interval between hearings is limited, it would take more years than are available for a problem with decoupling to manifest. Since periodic hearings are part of the decoupling regulatory reform, should any problems occur they will be detected and will not have a chance to run for more than a limited period.

Price Signals

In general, the decoupling regulatory reform involves a projection of expected energy use for specific cost-of-service customer groups across a small number of future years.[73] If a group of customers decreases energy use so that the average for the group is below the planning projection of energy use, the decoupling adjustment will increase their cost per unit (cost per kWh or cost per therm or cost per kW) for the next cycle. For the first and second Evaluation Years, there is no evidence that price signals for customers have been distorted

During the first Evaluation Year, only the K-factor amount was collected for the first ten months of the year. This amount is not different from the amount that would have been collected in an ordinary rate increase for that period. Also, since more-or-less regular small rate increases are a normal pattern to which customers are accustomed, the very small rate increases when deferral amounts are included would not logically have the effect of signaling any advantage to lower participation in conservation programs. For the last two months of the first Evaluation Year, deferral amounts were included in rates. Again, the rate and bill amount changes from decoupling were small. The second deferral adjustment applied for the last two months of the second Evaluation Year and was somewhat larger. However, the second deferral adjustment was not large.

As a customer strategy, participation in conservation programs can substantially lower bills and more than offset a number of small rate increases over a number of years. A small rate increase (a small percent of the per-unit cost) does not have a signal strength to outbalance the cost advantage of using fewer units. So, it does not provide a signal to disengage. The conclusion for the deferral adjustments for the first and second Evaluation Year is that there are *no adverse impacts on energy conservation from price signals*.

Cost Control & Operational Efficiency

We have found no indication of any adverse effect of decoupling on the utility's incentive to control costs. While conservation programs that exceed their targets or their planned expenditures are now not an automatic concern of executive management, we do not classify this as an adverse impact but as a positive impact, since a goal of the decoupling pathway is to increase energy conservation.[74,75]

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[73] For Schedules 26 & 31 (only), the mechanism is based on demand rather and on energy.

[74] Public Counsel in its review of the study of the first Evaluation Year noted that PSE's budgets and targets for energy conservation were increasing year-over-year for most of the past decade (with the implication that this positive result should be seen in that context).

[75] Public Counsel, in its first Evaluation Year review, suggested that conservation spending is because these costs are passed directly through to the customers via the Schedule 120 tariff rider, and evaluation should take that into consideration. The evaluation team believes that increased conservation spending *is* one of a set of

Theoretically, by removing the traditional business model's strong focus on sales, utility executive management will be able to focus more effort on other goals. Because cost recovery proceeds in a decoupled utility following a target revenue requirement that has already been projected by a commission proceeding, costs have been anticipated. So, a focus on cost control can function within this *already established revenue requirement* to improve earnings. PSE cannot increase profits by increasing sales, but can *only* positively improve profits by improving cost control and operational efficiency.[76]

In our interactions with management and staff we found no indications of any lack of attention to cost control and operational efficiency, and we tested this with some direct questions. We believe that the company maintains a careful and prudent approach to controlling costs and we found no indication of any form of dysfunction or fractionalization within the organization.

On the contrary, on a sociological level, we found that PSE management and staff exhibit a coherent sense of teamwork coupled with a high sense of personal and group responsibility that incorporates a dedication to a high level of performance, individual and group achievement of strong technical proficiency and a sense of personal and business commitment to public service. We found no indication of any cynicism, apathy or disaffection during the formal workday or in informal discussions with management and staff. Staff hold each other, corporately, to high standards. Everyone works hard, consistently, and carry a high workload. PSE is successful in the sense that it embodies a strong work ethic in its corporate culture and every person is expected to work hard and be responsible.
The overall annual average increase in O&M is lower than the historical growth rate and has slowed compared to that presented in the ERF/Decoupling proceedings (2.0% versus 3.8%).

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indicators of success and, actually, one of the primary indicators used to contrast the effects of decoupling. The BECAR studies are a place that provides third-party evaluative verification of conservation spending within the context of other indicators of program success, so any problem with the quality of conservation spending would be flagged there (and conservation claims would be adjusted for verification if there were a problem). For the validity of the conservation effect (including conservation spending as a component), this decoupling examination relies on the BECAR studies which incorporate extensive conservation program evaluation including site visits. We take the pass through of conservation costs to customers into account as the way utilities work. It is just a fact and is not a negative. The directive that energy conservation is a positive comes from the government of the State of Washington and from the WUTC policy on decoupling as well as from the realities of the material world and the rapidity of climate change; and from DSM being the least cost resource.

[76] Public Counsel, in its review of the first Evaluation Year study, noted that it believes it is still imperative that PSE maintain proper cost controls for its conservation programs. The point we assert here is that decoupling provides increased incentive to maintain disciplined cost control. Industrial Customers of Northwest Utilities (ICNU) raise the theoretical question of a utility that does not have an established revenue requirement, particularly one experiencing low load growth. ICNU comments in review second Evaluation Year study (this report) that a (theoretical) utility that does not have an established revenue requirement, particularly one experiencing low load growth, will have a stronger incentive to control costs in order to achieve its Return on Equity. PSE has been implementing operational efficiencies to control cost, presented in an update to the Commission on Decoupling and Rate Plan Efficiencies on August 28, 2014. In this plan, a number of cost reduction efforts are listed in three immediate areas: specific cost reductions, infrastructure reductions and improved financing factors. Longer-term process and technology efficiencies are also addressed. Also, a number of cost and service reports have been filed with the Commission. For information on these cost reduction efforts, please see PSE's Response to H. GIL PEACH & ASSOCIATES Data Request No. 04.01, dated May 7, 2015.

The electric annual growth rate in cost per customer of 3.5% is below the electric historical growth rate of 4.7% presented in the ERF/Decoupling proceedings. The natural gas annual growth rate represents a decrease in cost per customer at -0.7% compared to the 2.2% historical natural gas growth rate presented in the ERF/Decoupling proceedings.[77]

The commission structured the decoupling so as to provide PSE an improved opportunity to earn its authorized return, but set the levels to require PSE to improve the efficiency of its operations in order to actually earn its authorized return.[78] This provides an incentive for cost control and to improve operational efficiency. As noted above in discussion of service quality, the indicators are good, which is an indirect indication of operational efficiency. We find for the first and second Evaluation Years there is *no adverse impact on cost control or operational efficiency*. Costs per customer are, in fact, slightly decreasing overall.

External Factors: Accustomed Variation

It is possible for external factors to influence results. Throughout this study, we look primarily for internal variables and particularly for "tractable" variables – variables that can be set or changed like the K-factor. But it is often the case that something completely outside a program can have more of an influence on results than variables that are part of the program. We look for these outside factors and also ask the Conservation Resource Advisory Group (CRAG) to alert us to any additional such factors on which we might need to follow-up. Although weather is a contextual variable over which we have no control, we often take weather into account.[79] Figure 20 shows average therms per residential customer per year, while Figure 21 shows therms that would have been required if each year had been a normal weather year.[80]

[77] See response to H. GIL PEACH & ASSOCIATES Data Request No. 20.36; including supporting tables in Attachment A. Also see the response to H. GIL PEACH & ASSOCIATES Data Request No. 20.37.

[78] Dockets UE-1216907 and UG-121705 (consolidated), Order 07, Final Order Granting Petition and Dockets UE-13137 and UG-130138 (consolidated), Order 07, Final Order Authorizing Rates, Page 74, ¶171. Also, see Pages 89-90, ¶214-215.

[79] Only the residential sector is analyzed here because it is weather sensitive. The other sectors are either not weather sensitive or very much less so.

[80] Figure 20 through Figure 31 are developed on the Response to H. GIL PEACH & ASSOCIATES Data Request No. 20.29.

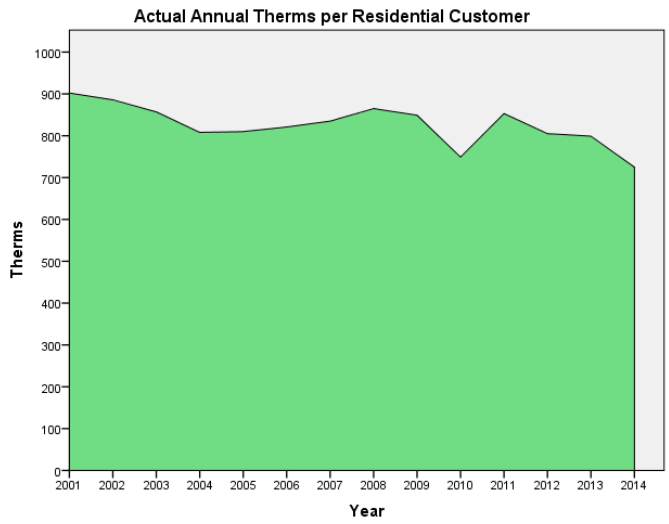

Figure 20: Actual Average Therms per Residential Customer per Year.

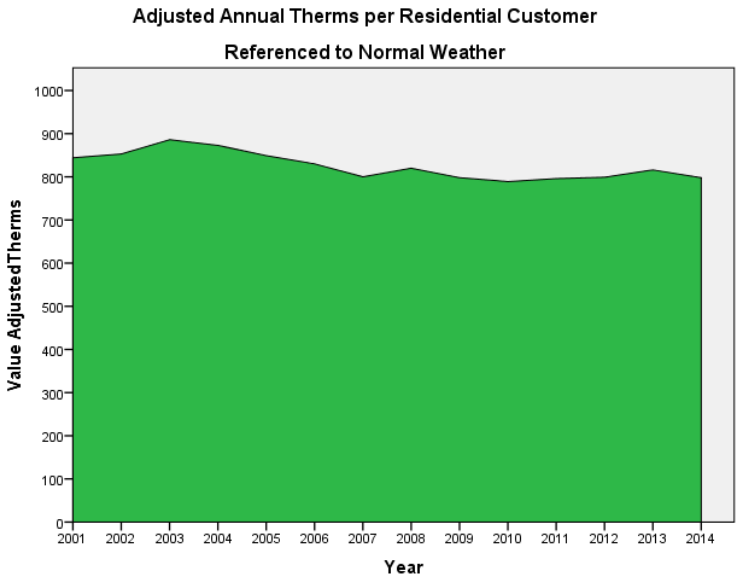

Figure 21: Therms That Would Have Been Required Given Normal Weather.

A comparison of annual actual therms and therms referenced to normal weather is shown in Figure 22.

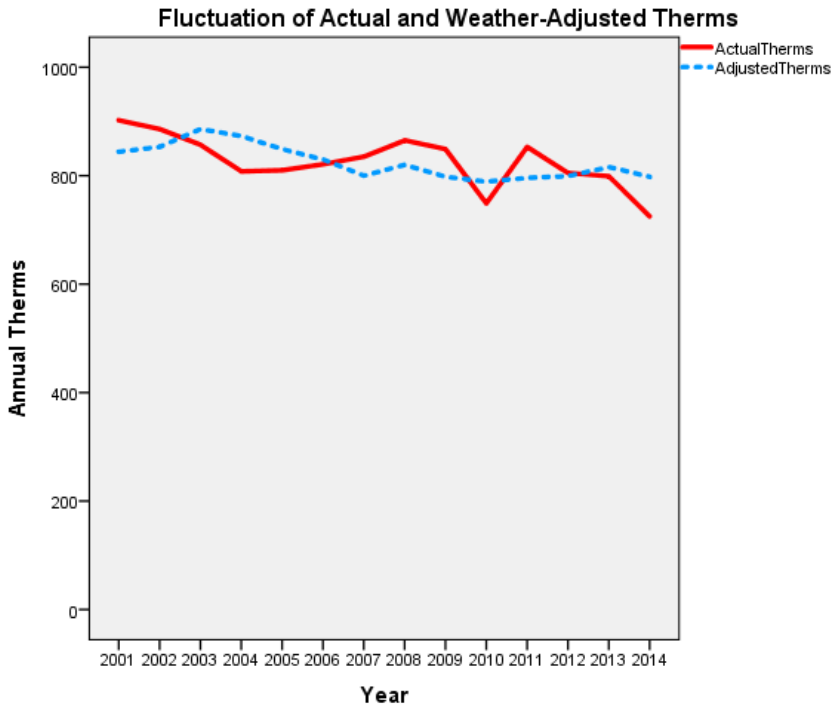

Figure 22: Comparison of Actual vs. Weather Normalized Therms per Year.

Figure 20 and Figure 21are drawn with a minimum value of zero to emphasize for perspective that though weather is important, the size of average residential weather variations when full energy use is taken into account is analogous to a pattern of soft ripples on a small pond. Figure 22 overlays the information from Figure 20 and Figure 21 to provide a sharper contrast.

As shown in Figure 23, average yearly residential use of natural gas fluctuates within a band of plus or minus ten percent (+/- 10%).

Figure 24 shows that annual cost of natural gas, showing an initial rise, a tendency towards leveling, and the beginning of a decline. Figure 25 shows that average yearly residential cost of natural gas fluctuates with a band of plus six percent (6%) to minus seven percent (-7%).

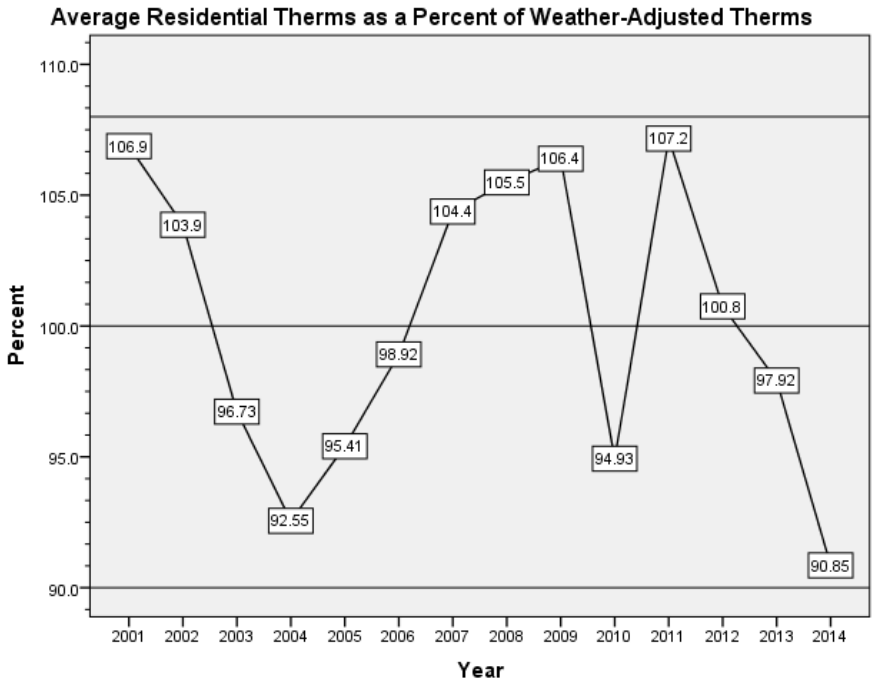

Figure 23: Average Therms as a Percent of Normal Therms.

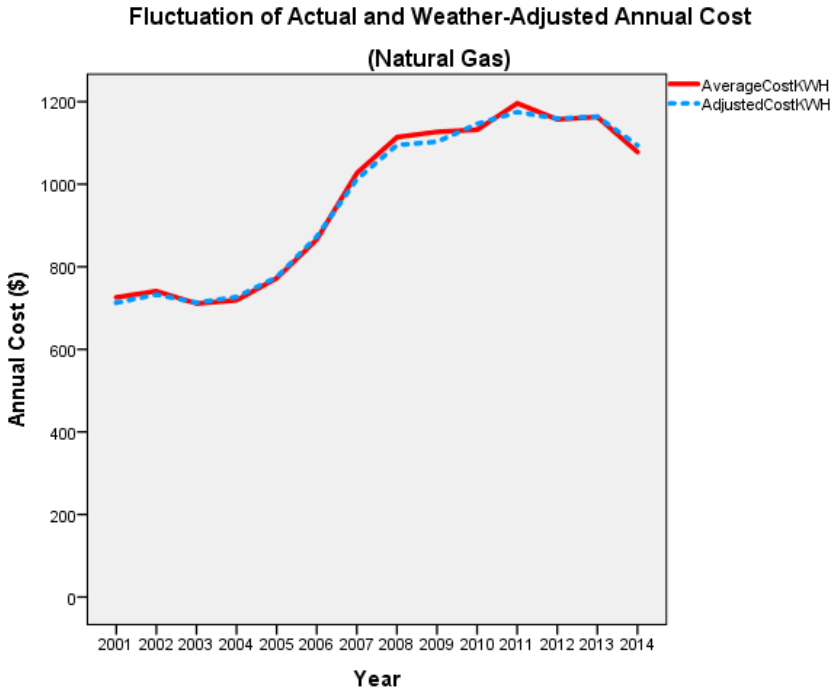

Figure 24: Average Actual & Weather Normalized Cost of Natural Gas by Year.

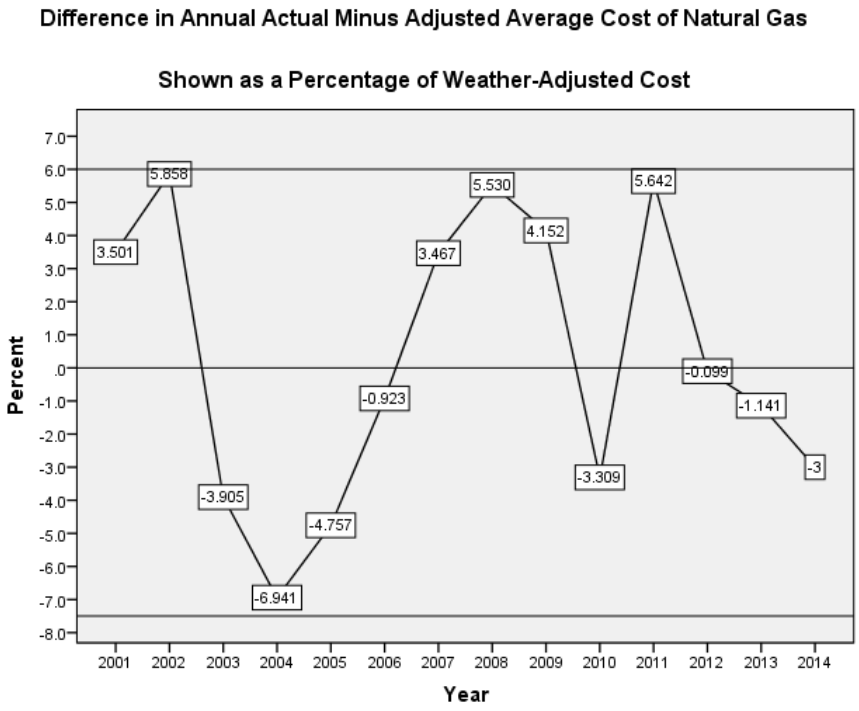

Figure 25: Percentage Fluctuation in Average Residential Gas Cost by Year.

For electricity, actual average residential kWh usage is shown in Figure 26. Average residential usage if weather had been normal is shown in Figure 27. These two graphs are included to emphasize the relatively small effect of yearly changes in energy use compared to the size of energy use in any year. The information in these graphs is shown as an overlay in Figure 28 to emphasize the contrast of actual with weather-adjusted energy use.

Figure 29 shows that the year-to-year variation as a percentage of weather-adjusted energy use ranges from plus two (2%) percent to minus two percent (-2%).

Figure 30 shows how the average household annual bill for electricity has changed since 2001, with an initial rise, a tendency towards leveling, and a beginning of a decline. Figure 31 shows the yearly difference in cost as a percentage of weather-adjusted cost. The yearly fluctuation shown in the graph ranges from approximately two percent (2%) on the plus side to approximately minus two percent (-2%) on the minus side.

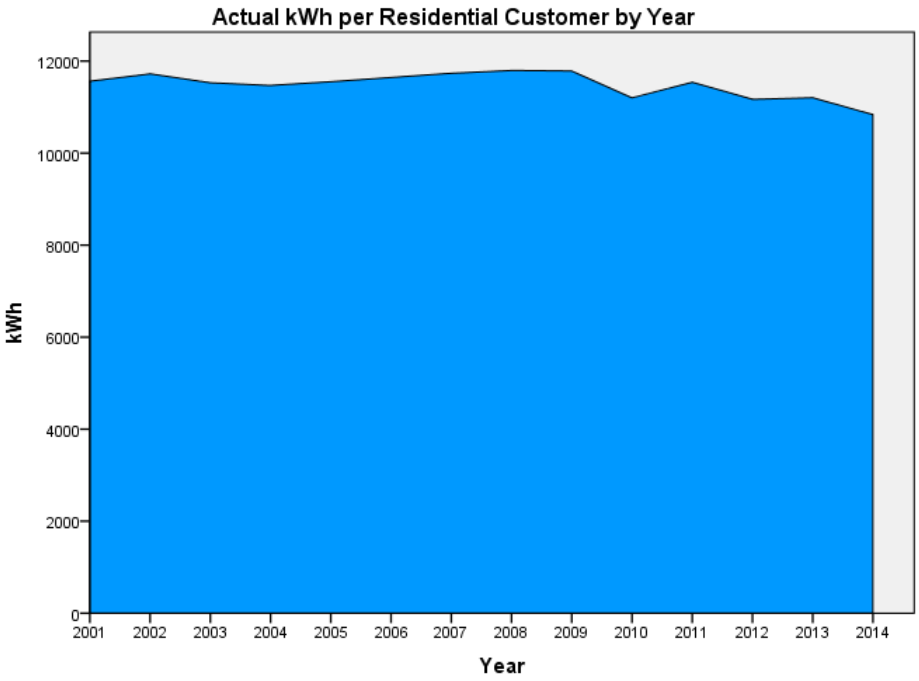

Figure 26: Actual Average Residential kWh by Year.

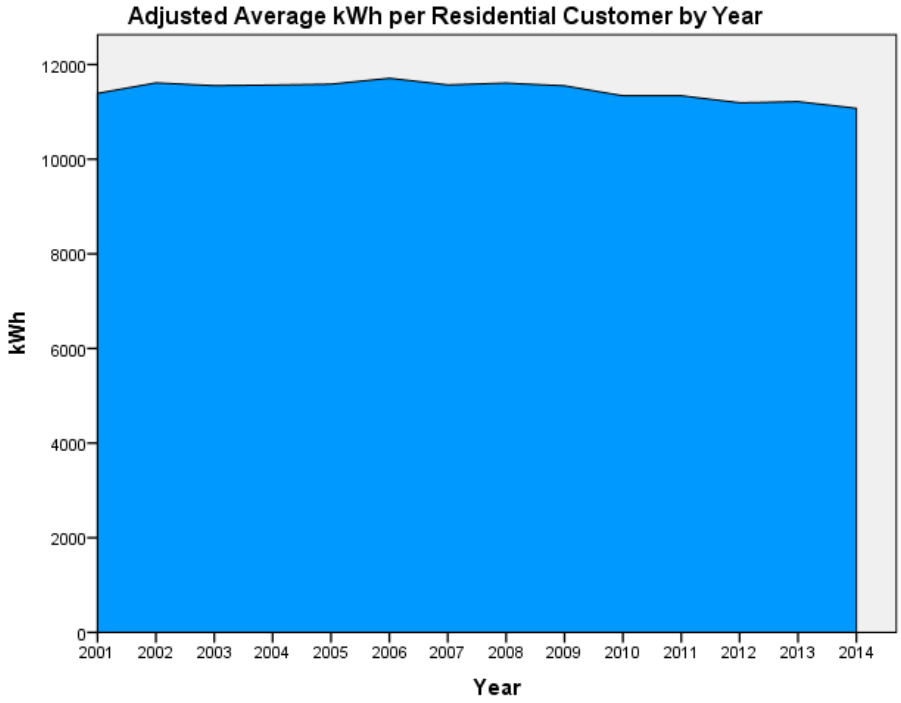

Figure 27: Average kWh by Year if Years had been Normal Weather Years.

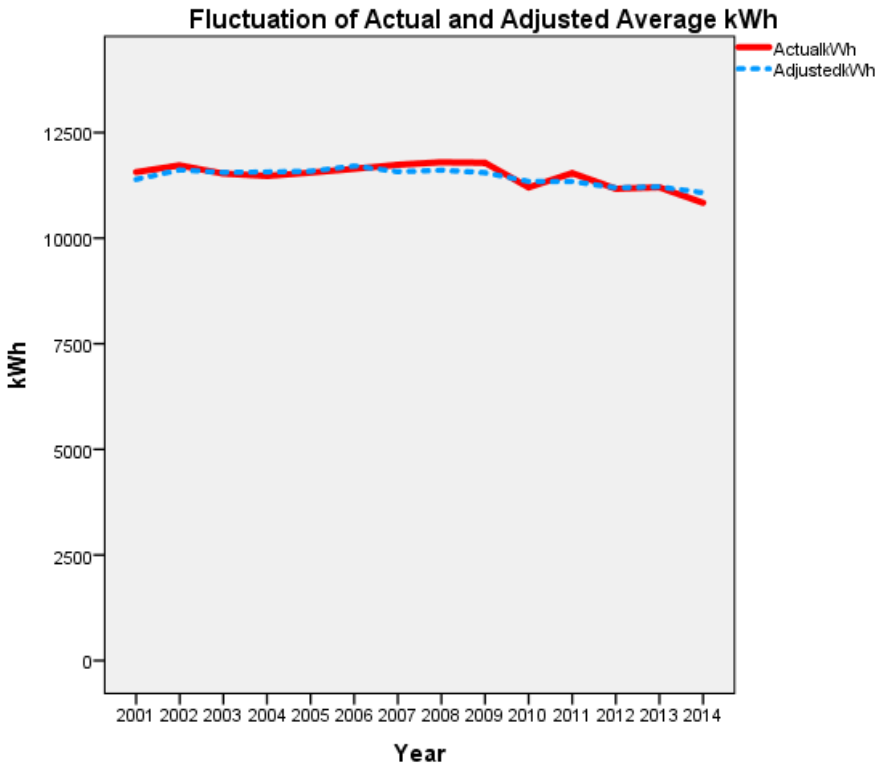

Figure 28: Actual vs. Weather Normalized kWh.

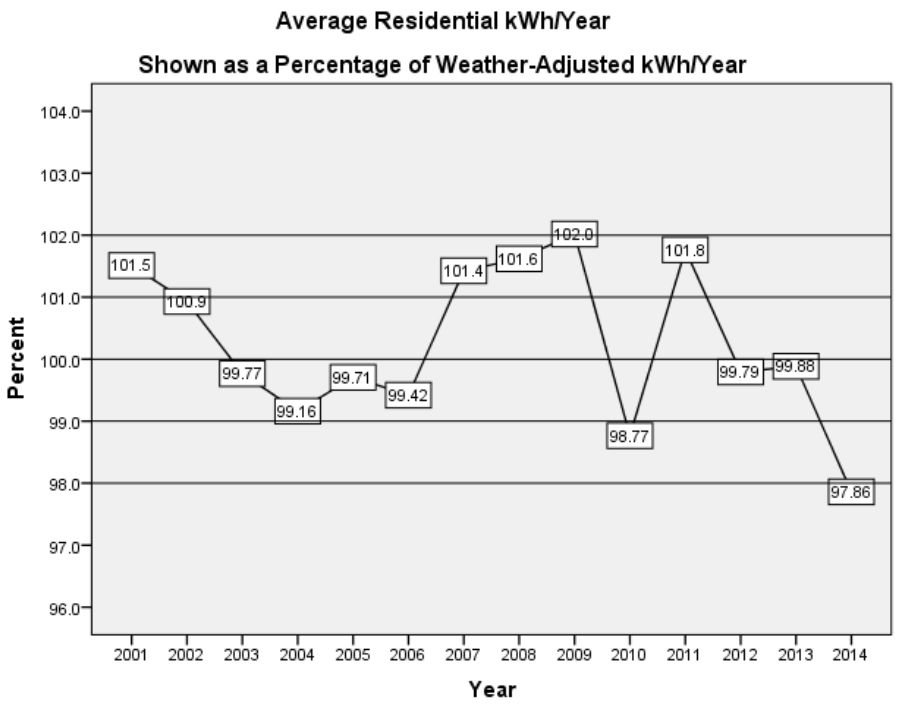

Figure 29: Percentage Fluctuation in Electricity Cost per Year.

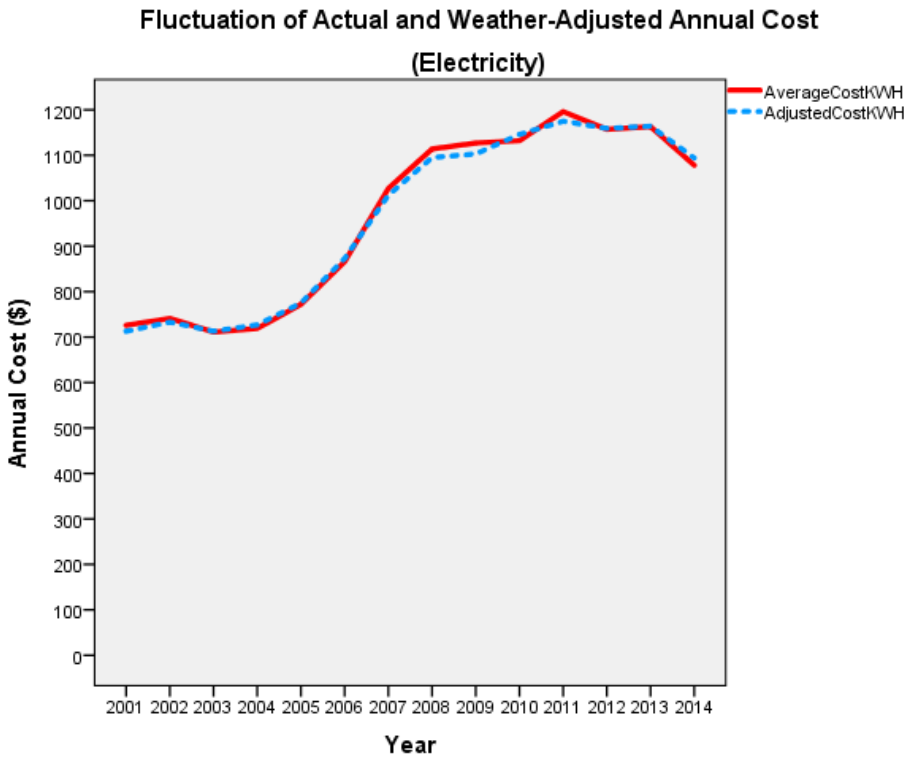

Figure 30: Actual vs. Weather-Adjusted Annual Cost of Electricity.

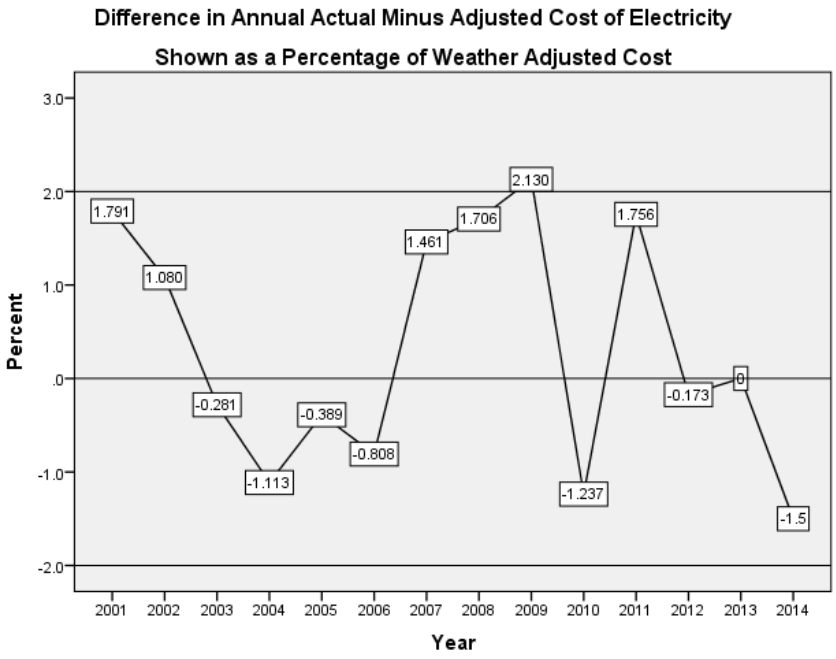

Figure 31: Percentage Fluctuation in Average Residential Electricity Cost.

Figure 20 through Figure 31 cover the first two years of decoupling. They provide a picture of the relative size of yearly variations to which residential customers have become accustomed. *So long as decoupling effects are within these bands, the effects will likely not be discernable by customers from normal year-to-year variation. Yearly decoupling impacts for both years are within these normal variations.*

Patterns

The effect on rates for the first Evaluation Year is simply the K-factor, except for the last two months (May and June 2014) for which the first deferral adjustment takes effect. The effect on the second Evaluation Year is this deferral adjustment, except for the last two months (May and June 2015) for which the second deferral adjustment takes effect. The "K-factor only" nature of the first Evaluation Year and the limited two-year evaluation make pattern identification difficult in this study. With the benefit of a longer historical record, patterns of impact (if any) will be more identifiable.

Section Summary

For the first and second Evaluation Years *we find no conclusive evidence to suggest that the decoupling mechanism has any adverse effects*.[81] Also, the fact that exceeding conservation targets is not an automatic concern of executive management (Footnote 65) may be considered a positive impact.'[82] Plus, PSE's annual average increase in O&M costs has declined when compared to the historical growth rate presented in the decoupling rate plan proceedings under Docket Nos. UE-121697, et al.

[81] ICNU, in reviewing the first Evaluation Year study, requested that the limitation of the finding of no adverse impacts be more explicitly acknowledged. Public Counsel, in its review of the first Evaluation Year, suggested that the point be made more prominent. We now have two Evaluation Years of information, so this conclusion is stronger.

[82] Public Counsel, in its review of the study of the first Evaluation Year commented that that conservation spending is *not* a measure of success because these costs are passed directly through to the customers via the Schedule 120 tariff rider, and evaluation should take that into consideration. The evaluation team believes that increased conservation spending *is* one of a set of indicators of success and, actually, one of the primary indicators used to contrast the effects of decoupling.

VII. Impact on Conservation by Schedule 26 & 31 Customers

Task element 7 in the Statement of Work calls for an evaluation of the impact on conservation achievements of rate design changes associated with the implementation of decoupling. Rate design is separate from decoupling.

Conservation achievements planned to be considered in this task include accomplishments made through PSE energy efficiency programs as well as independently acquired conservation savings (although independently acquired conservation savings are not pursued in this study, as discussed below).

Task Element 7: Impact on Conservation Achievements by Schedule 26 and 31 Customers

An examination of whether and how the changes in rate design for Schedule 26 and 31 affects conservation achievement by these customers. The evaluation will examine whether there is conclusive evidence that the change had an appreciable effect on customers' energy efficiency achievements, including but not limited to achievements made through customer participation in PSE's energy efficiency programs.

Figure 32: Conservation and Schedule 26 & 31 Customers.

The relevant aspect of rate design for Schedule 26 & 31 customers is the significant shift toward cost recovery through demand charges. This resulted in significantly higher demand charges and lower energy rates. At the same the rate design changes took effect (January 1, 2004) the decoupling mechanism for these customers was changed to work through the demand charge rather than through the energy charge. The impact of the rate redesign on rates is shown in the table below.[83]

Effective Date	Rate Per kWh	Rate Per kW
July 1, 2013	$ 0.062539	$ 8.94
January 1, 2014	$ 0.056733	$ 11.53
Percent Change	-9%	29%

Table 44: Total Winter Rates Before & After Rate Redesign (Schedule 26)

[83] Source: PSE response to H. GIL PEACH & ASSOCIATES Data Request No. 20.44 Attachment A.

The winter (October through March) rates for Schedule 26 are shown in the table above to illustrate the nature and magnitude of the rate redesign for Schedule 26 and 31 customers. Percentage changes are similar for Schedule 31 and across seasons. The shift in billing away from energy usage and toward demand is evident and resulted in nearly 30% higher demand charges and 9% lower energy charges.

As shown in Figure (below), the higher kW rate with redesign is due almost entirely to the new higher base rate per kW with only 1% to 3% of the total kW charge coming decoupling (from the Schedule 142 rate).

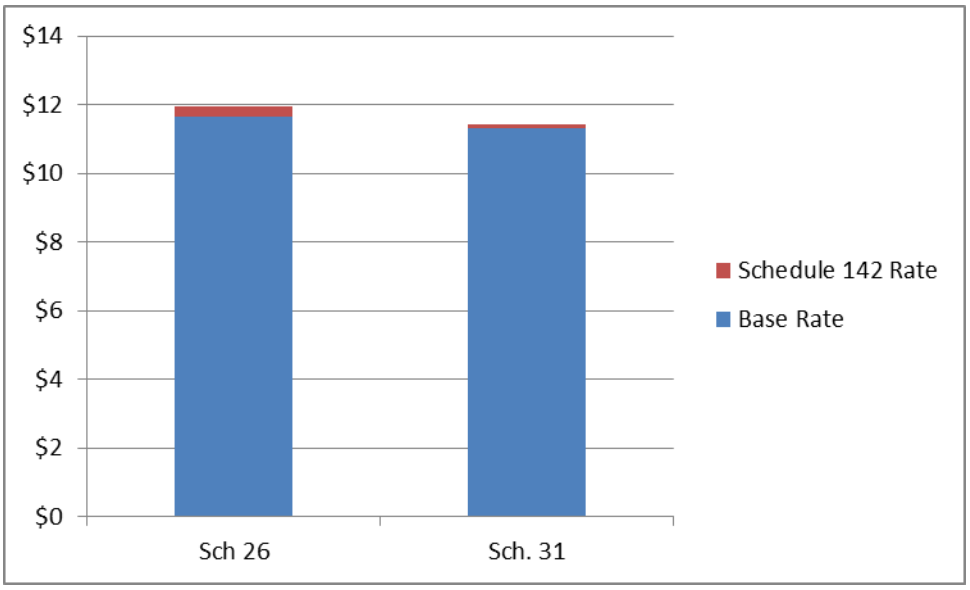

Figure 33: Average Winter Rate per kW since January 2014.

Schedule 142 rates account for a small portion of kW charges. It is clear that the rate design that became effective January 1, 2014 resulted in significantly higher demand charges and that the Schedule 142 adjustment was only a small part of the demand rate increase. The question to address in this task is how the rate design change impacted conservation achievements of Schedule 26 and Schedule 31 customers, if at all. The rest of this section addresses this question.

Conservation through PSE Energy Efficiency Programs

PSE provided detailed records for conservation projects undertaken by Schedule 26 and 31 customers through PSE energy efficiency programs.[84] The records provided include customer rate schedules, conservation schedules, estimated energy savings, date completed and other variables relevant to conservation project tracking. The workbooks also contain a summary table showing energy savings for the periods examined (July 2013 – June 2015) and the year immediately preceding (July2012 – June 2013). Achievements are shown for these periods in Figure 34.

Conservation achievements for customers on both rate schedules 26 and 31 increased in the year ending with June 2014 and then fell in the year ending June 2015 for an overall decline since the year ending June 2013 (Figure 34).

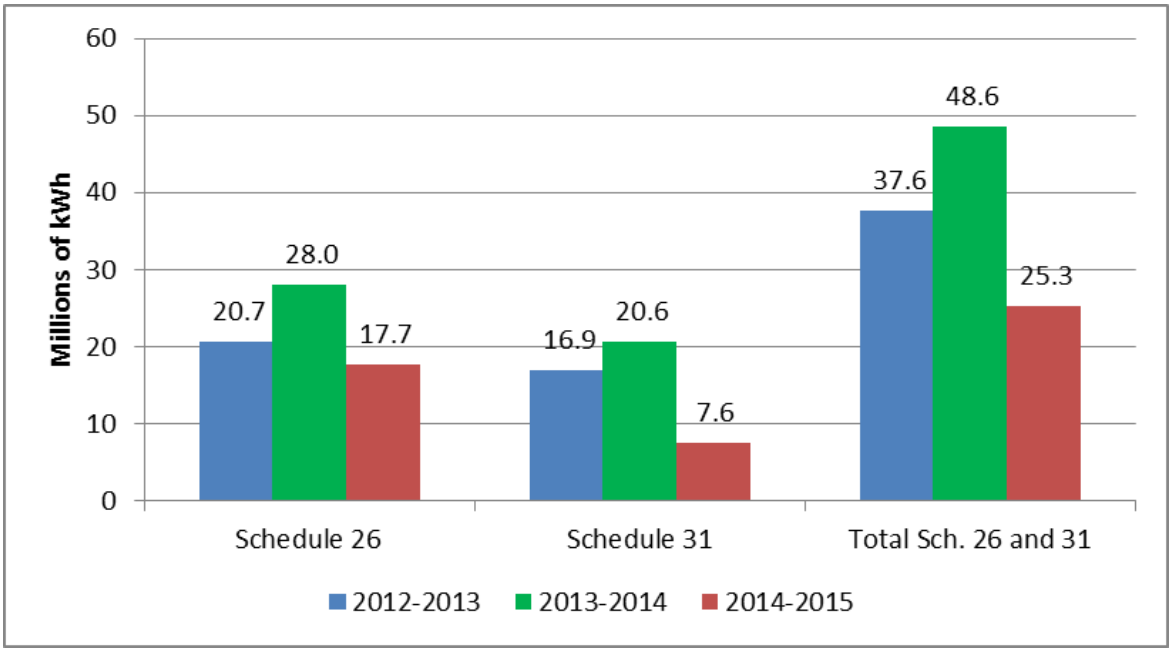

Figure 34: Schedule 26 & 31 Customers, Electric Conservation Achievement.

While both rate schedules show the same pattern, the drop was steepest for Schedule 31 customers. Considered together in the bars at the far right of Figure 34, conservation achievements of Schedule 26 and 31 customers were 25.3 million kWh in the year ending June 2015, down from 48.6 million kWh for 2014 and down from 37.6 million kWh in the year prior to decoupling (2013). As a percentage, this is an increase of a little over 29% from 2013

[84] See PSE response to H. GIL PEACH & ASSOCIATES Data Request No. 01.25, Attachment A and No. 20.14, Attachment A.

to 2014, then a drop of about 33% in relation to the 2013 pre-decoupling year). In approximation, there was an increase of about 30% followed by a decrease of about 30% in relation to 2013. Conservation projects for large business customers can take several months to plan and implement and, to be effective, require extensive organizational effort. They are also often quite large in magnitude. These factors may cause the timing of savings to jump around from year to year depending on when projects reach the completed stage and are counted as savings.

Conservation Beyond PSE Energy Efficiency Programs

It was decided not to run special surveys to gather this information, so the information is not included in this report. The basic problem was that special surveys would likely not have returned useful quantitative information:

- A qualitative survey aimed at understanding (or what social scientists like to call a "grounded theory" or "Verstehen" approach) would have developed categories of independent projects without being able to determine quantitative results. It might provide some insights, but results could not be quantified. Results would not be useful for calculations.

- The other alternative, a full set of quantitative surveys, would be expected to have a high non-response rate so that a reported precision and confidence would not be true; and it would involve more than one survey per customer for large customers, and a high cost. The required size of an effective quantitative effort would have been out of scope for the evaluation budget (and would have taken resource from other required areas of the evaluation).[85]

Attribution in Conservation Achievements

Would a higher demand rate (and a corresponding lower energy rate) find a reflection in these customers' incentive to conserve by materially reduce the payback for conservation? Although we now have two years of actual experience to examine, it is not possible to derive firm conclusions regarding the influential factors behind the initial increase of approximately 30%, followed by a similarly sized decrease of roughly the same percentage (compared with the year prior to decoupling) in conservation achievements. Our conclusions based on data thus far available are as follows:

[85] By analogy, it would be like an elephant and a mouse with the elephant being the required survey budget required to develop reasonably precise results based on sample design and probability theory (rather than a set of heroic assumptions and adjustments) and the mouse being the existing evaluation budget.

- The decoupling surcharge for these customers, applied to kW, was small and little changed during the first three decoupling rate years. The overall electric energy savings first increase and then fall during this two-year time window, in roughly equal percentages, suggesting that customers are making conservation decisions independent of the decoupling rate.

- The underlying reality is that customers have an economic reason to adopt cost effective conservation regardless of the presence or absence of the decoupling mechanism and associated rate. Regardless of the mechanism used to recover energy efficiency program costs from customers, customers who participate in programs to lower their usage receive the benefit of lower usage while costs are spread over all customers – those who do and do not participate. Decoupling does not change the benefit-cost calculus of conservation adoption facing the customer.

- In our experience, projects in this sector are particularly "large and lumpy" and take a comparatively long lead time to secure corporate approvals and to execute. A roughly 30% or 40% swing is typical for this sector. We have assessed energy savings from programs in other jurisdictions for several years and find that goals for this sector are typically much lower or, alternatingly, much higher than planned due to the size of the projects. At the end of each program cycle it is not unusual for some large industrial and commercial projects to significantly lag the plan; but if a few more than usual are finished just prior to the new cycle, the result is to significantly exceed the plan.[86] Conservation projects for large business customers tend to have relatively large savings and may take several months to develop and implement. This can result in significant impacts on annual savings depending on when these projects are registered as complete. This causes savings to exhibit greater volatility between years and happens regardless of decoupling.

- Changing levels of energy efficiency potential are another possible factor in the change in conservation achievements of Schedule 26 and 31 customers. PSE provided annual energy efficiency goals developed on the basis of a Conservation Potential Assessment developed by Cadmus. PSE Resource Planning in concert with Energy Efficiency, then developed the conservation goals consistent with Council methodology and with the engagement of the Conservation Resource Advisory Group (CRAG).[87] A summary of annual conservation goals for all Business Programs is shown in the table below.

[86] This long-term experience coincides with PSE's statement that "The majority of savings from this program occur between the last quarter and the first quarter of each two-year cycle." See the discussion of the "hockey stick" effect in the response to H. GIL PEACH & ASSOCIATES Data Request No.20.14.

[87] See PSE response to H. GIL PEACH & ASSOCIATES Data Request No. 1.21, Attachment A, B, C, and D and to H. GIL PEACH & ASSOCIATES Data Request 20.15, Attachment A. Goals are presented by conservation program (schedule) and summed for all business programs. Because Schedule 26 and 31 customers participate across all business programs, the goal for all business programs is used. Also see PSE response to H. GIL PEACH & ASSOCIATES Data Request 20.45, referenced links to the 2013 Integrated Resource Plan and Attachment A for additional information on how PSE used Cadmus IRP information in establishing conservation targets.

Year	MWH	Percent Change	Therms (millions)	Percent Change
2011	177,719		2.675	
2012	159,800	-10%	2.985	12%
2013	156,980	-2%	2.643	-11%
2014	130,962	-17%	1.443	-45%
2015	112,126	-14%	1.612	12%

Table 45: PSE Annual Electric Conservation Goals, Business Energy Management Sector.

These goals, presented for calendar years, are useful for tracking changing market conditions. There has been a clear downward trend in the goals for electric savings since 2011, indicating that market potential, under current benefit/cost calculation methods, has fallen significantly in the business sector. The 2015 target for electric savings of 112,126 MWH is 63% of the 2011 target for electricity savings. Although electric conservation achievements for Schedule 26 and 31 customers actually increased in the year ending June 2014, achievements in the year ending June 2015 were down to 67% of achievements in the year ending June 2013, *consistent and in-line with the third party assessment of a potential.*

This is consistent with a number of potential studies which show increased energy efficiency available at increasing costs (think of the upward sloping curve of cost per conserved kWh or therm in virtually all potential studies). Also, the PSE 2015 Annual Report of Energy Conservation Achievements suggests the trend towards decreased savings "…reflects the market saturation of several key measures, revisions to measure UES values, updated energy codes, some increased incentive amounts, marketing efforts, and staff rigor required to achieve ambitions savings goals while sustaining prudent use of customer funding."[88]

However, we believe this drop is not a long-term drop but more like what happens in the ending of a particular wave of DSM with declining returns. There is much more potential out there if we move beyond DSM to include microgrids, distributed energy resources, distributed energy resource management systems, new capabilities in demand control and combine these within project boundaries with energy efficiency and conservation including net zero and zero plus construction and deep savings whole building retrofits. The problem is with our current project boundaries (parallel silos) and cost benefit tests, not with physical reality. Moreover, "U.S. industry is markedly less efficient in using energy than industry in other industrialized nations, due in part to the historical abundance of low-priced energy in this country. In addition,

[88] Puget Sound Energy, *2015 Annual Report of Energy Conservation Accomplishments,* Section 4, Five Year Trends, P. 11.

other industrialized nations impose high taxes on energy."[89] Potential studies are arranged in terms of an increasing cost curve – there is much more potential out there but the reality is that prices are higher as we go forward.

Section Summary

In summary, with two years of data, our general finding is that we see a business as usual pattern for these schedules in a context of declining returns under the current DSM paradigm.

[89] Lave, Lester B., "The Potential of Energy Efficiency: An Overview", *The Bridge*, National Academy of Engineering Bridge Energy Efficiency, Summer 2009 issue.

VIII. Facing Forward

Having introduced the information on changing market potential for 2001 through 2015, we want to note that these recent changes are eclipsed by research by Cadmus in support of PSE's newest Integrated Resource Plan, which shows substantial future achievable potential.[90]

Along these lines, and facing forward, we would like to offer the following brief comments on potential based on our work in other jurisdictions, which we, like Cadmus, see as substantial. Other forces are at work outside of the small increase in demand charges. These are driven by climate adaptation, national priorities, and by independent market forces. With regard to considerations of market potential it is important also to remember as we go forward that in four jurisdictions, New York[91], California[92], Massachusetts and Connecticut traditional DSM is being seen as coming to be replaced in a wider vision that includes Distributed Energy Resources (DER), Distributed Energy Resources Management (DERM) and, through public utility commission encouragement of micro-grids which can combine traditional generation, renewables (particularly solar and wind with their continuing increases in efficiency and decreasing cost), Demand Response (DR) and DSM in localized micro-grid packages. If new battery technologies perform as expected and at a reasonable price point their addition to microgrids has an aggressive potential to replace older baseload plants and to keep newer baseload plants cost-effective.

Of course, the idea of microgrids with DER, including batteries, is not really new, though it is now put forward as a Revised Energy Vision (REV) by the New York Department of Public Service, for climate goals by the California Public Utility Commission and as pragmatic next steps in Connecticut and Massachusetts as well as in individual utility or utility/USDOE pilots in several states including Illinois, Pennsylvania and Maryland. When the silos that traditionally separate DSM energy savings programs, Demand Reduction (DR) programs, renewable and non-renewable DERs, DERMs and energy storage are joined together either from a market perspective or from a climate adaptation perspective, DSM becomes a subcomponent of an ecology of intelligent micro-grids and a whole new cycle of possibilities opens with very high potential, particularly in the context of state, county and city climate adaptation goals. And, with climate change already here and moving much more rapidly than recently projected there

[90] The 2015 Puget Sound Energy, Inc. Integrated Resource Plan was supported by research effort from Cadmus. See: http://pse.com/aboutpse/EnergySupply/Pages/Resource-Planning.aspx. This information was provided in response to H. GIL PEACH & ASSOCIATES Data Request No. 20.31.

[91] We have served as an advisor for the NY Department of Public Service since 2009.

[92] We are working with engineers in California in the context of California's climate research and climate adaptation efforts and other projects with inclusive project boundaries.

is strong motivation to move to increase system resilience and to include what happens on the customer side of the meter in formulating plans.

It looks like progress will develop along the lines sketched out in this section and we can look forward to another wave of much more powerful and cost-effective programs but with very different project boundaries.. In any case, and regardless of what the future brings, we bring this study to a close with the following statements for the two years examined.

For the two-years examined:

(1) We find that the decoupling mechanism worked as intended, including the operation of the "soft cap" control tool.

(2) Although theoretical concerns about bill increases and motivation to do good work are sometimes raised in the planning phase for decoupling. We did not find these harms to be operative in the two years studied. In this sense, decoupling for the two years studied is, in a word, *harmless.* The theoretical speculation regarding harms remained theoretical and did not occur in actual practice for the two years studied.

(3) In this case study decoupling is a careful and incremental reform with positive features such as increasing the surety of revenue recovery and removing potential barriers to conservation (including the broadening of conservation to include rooftop solar). It supports an organizational reality in which it is OK for staff to exceed saving goals and in which DSM and renewable energy are included in a positive organizational outlook.

(4) Decoupling removes barriers but does not create a "demand-pull" There is no "pulling force" because it does not have the "Decoupling 2.0"[93] monetization of incentives for the utility.

(5) For the two years studied, decoupling is without a downside. There are cost increases but there are no *net* cost increases beyond what would have needed to happen in a rate

[93] Decoupling 2.0 is a shorthand way that people working on evaluation of decoupling refer to the addition to the decoupling mechanism of a reliable new revenue stream for the utility for meeting or surpassing energy efficiency and conservation (and possibly including distributed energy resource, demand control or micro-grid) goals. These goals could be of any type. The critical concept is to create a "demand-pull" that creates a continuing revenue stream by monetizing some of the values attached to the goals. In discussion about decoupling, the kind of decoupling in play for PSE for the time window studied would be called "Decoupling 1.0". If values of energy efficiency and conservation (and possibly including micro-girds, distributed energy resources and demand control) were partially monetized to create a continuing payment stream to the utility, we call the combined package "Decoupling 2.0".

case.[94] Decoupling can create the impression of more increases because increase happens in small increments each year rather than in larger increments in more widely spaced rate cases. Since there are fewer rate cases you get to the same place with less cost (fewer rate cases). There is an impact on conservation but because PSE has been doing well on achievement vs. goal, before decoupling as well as in decoupling it is not as easy to notice the impact and the impact may be small. A continuing good record is not an indication of a problem, but it does mean that the impact may have occurred with or without decoupling.

(6) The size of the decoupling adjustment for the two years studied is small, small enough so as not to influence customer energy conservation; small enough to be within general customer experience of normal variation of energy cost from year to year. We have some data that would apply to the third Evaluation Year, which is not included in the study that indicates that for the third year the increases for small residential, the campus rate class and the high voltage class may be higher (on the order of 3% to 5%). We don't know the result for the third Evaluation Year since it is not included in the study; however, facing forward, we call attention to this indication of a more sizable, but still not large increase (see last two columns for May and June in Table 5).[95] At the same point in time (May 2015) the 3% soft cap was reached for electric Schedule 10 and natural gas Schedule 31. This provided an opportunity to see the "soft cap" part of the decoupling mechanism working.

(7) There are potential harms in the socioeconomic environment in which decoupling takes place but they all originate from outside decoupling rather than from within decoupling and would happen with or without decoupling. If households have insufficient incomes they will have trouble with energy bills. Federal low-income support is very important but erratic as to amount and timing. The federal CPI that is used to determine poverty and eligibility levels loses about half of the actual inflation faced by households in an approximately eleven-year period. In every customer class, customers who use more energy will have higher energy bills and customers who use less energy will have lower energy bills (the decoupling offset is very small and does not affect that result).

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[94] Industrial Customers of Northwest Utilities comments they see increased cost and no impact on conservation. We agree there is increased cost but no net increased cost in rates because the counterfactual would be achieving equivalent bottom-line rate increases through rate cases rather than an automatic mechanism. Plus, have fewer rate cases creates a decrease in cost. On impact, we are in a context of declining returns and good performance in pre-decoupling years that continues in decoupling in terms of achievement vs. energy efficiency goals. This makes the decoupling improvement harder to see, but it does not mean that it is not there.

[95] Industrial Customers of Northwest Utilities questions if the assertion of a finding of a small effect (as stated in point 6, above) would continue to be asserted if third year results for some classes reached 4-5% at the end of the third year. We do assert a "very small" effect for the first Evaluation Year and "small" for the second Evaluation Year. We would also remove the modifier "very" for a 5% effect for an Evaluation Year.

IX. Reference Appendix I – Conservation Savings and Expenditures

Appendix 1, which follows this page, is an extract of PSE's 2011-2014 "Exhibit 1: Savings and Expenditures from its Annual Report of Energy Conservation Accomplishments".

Exhibit 1

EnergyEfficiency Services

PUGET SOUND ENERGY, INC.
ELECTRIC RIDER & GAS TRACKER CONSERVATION EXPENDITURES & SAVINGS
January - December 2011

100% of year 2011

Electric Schedule	Gas Schedule	Programs (Manager Name)	Electric YTD Actual $ Spent	Electric YTD Actual MWh Svgs.	Electric Percentage % of $ Budget	Electric Percentage % of Svgs. TOTAL	Electric Budget $ BUDGET	Electric Budget MWh Svgs. Target	Gas YTD Actual $ Spent	Gas YTD Actual Therms Svgs.	Gas Percentage % of $ Budget	Gas Percentage %of Svgs. TOTAL	Gas Budget $ BUDGET	Gas Budget Therms Svgs. Target
		Residential Programs:												
E214	G214	Single Family Existing	$ 17,753,219	110,163	90%	101%	$ 19,691,227	109,501	$ 3,774,794	1,106,352	49%	61%	$ 7,663,374	1,821,743
E217	G217	Multi Family Existing	$ 5,004,759	17,852	95%	102%	$ 5,246,290	17,463	$ 287,136	35,079	49%	42%	$ 606,776	83,713
E216		Single Family Fuel Conversion	$ 429,864	1,607	43%	38%	$ 1,003,618	4,249						
E215	G215	Single Family New Construction	$ 852,860	1,541	58%	50%	$ 1,463,949	3,094	$ 443,424	60,594	67%	59%	$ 665,394	102,850
E201	G203	Low Income Weatherization	$ 2,287,625	1,965	96%	131%	$ 2,391,463	1,501	$ 712,246	50,745	80%	110%	$ 889,379	46,020
		LIW REC Funding (Not Rider/Tracker) [1]	$ 1,925,015	1,750	64%	157%	$ 2,285,000	1,112						
E218	G218	Multi Family New Construction	$ 518,230	1,082	73%	92%	$ 708,536	1,175	$ 236,792	26,161	76%	75%	$ 310,921	34,702
E200	G206	Residential Energy Efficiency Information	$ 1,086,006	n/a	93%	n/a	$ 1,166,306	n/a	$ 540,093	0	111%	0%	$ 486,267	-
E202	G207	Energy Education	$ 114,011	0	58%	n/a	$ 199,053	n/a	$ 37,571	0	75%	0%	$ 49,765	-
E249	G249	Pilots[2], excluding:	$ 73,367	292	32%	39%	$ 227,024	750	$ 146,378	46,440	130%	184%	$ 112,397	25,200
		Home Energy Reports	$ 613,126	5,093	71%	n/a	$ 868,123	n/a	$ 211,016	321,006	83%	#DIV/0!	$ 255,644	-
		Total Residential Programs	**$ 28,734,067**	**141,345 MWh**	**87%**	**103%**	**$ 32,965,589**	**137,741 MWh**	**$ 6,399,452**	**1,646,377**	**58%**	**78%**	**$ 11,039,916**	**2,114,228 Therms**
		Business Efficiency Programs												
E250	G205	C/I Retrofit	$ 18,498,136	79,596	92%	102%	$ 20,071,487	78,000	$ 4,776,988	1,076,951	117%	138%	$ 4,083,403	781,000
E253	G208	Resource Conservation Manager - RCM	$ 1,035,262	25,191	58%	79%	$ 1,797,897	32,500	$ 662,184	1,432,151	87%	102%	$ 763,386	1,400,000
E255		Small Business Lighting Rebate	$ 7,465,414	25,059	108%	109%	$ 6,910,836	23,000						
E251	G251	C/I New Construction	$ 7,049,113	18,438	95%	119%	$ 8,249,734	15,500	$ 2,195,441	468,685	148%	164%	$ 1,487,218	286,000
E262	G262	Business Rebates	$ 2,462,425	25,227	94%	176%	$ 2,640,768	14,319	$ 466,668	562,557	91%	270%	$ 514,352	208,250
E258		Large Power User - Self Directed	$ 1,744,567	9,394	27%	68%	$ 6,568,725	13,900						
E257		LED Traffic Signals	$ 33,510	1,176	100%	235%	$ 33,543	500						
E260	G260	Business Energy Efficiency Information	$ 48,937	0	31%	n/a	$ 160,276	0	$ 35,072	0	34%	0%	$ 103,720	-
		Gas Conservation Comm/Ind Tracker AFUCE[3]							$ 1,035					
		Total Business Programs	**$ 39,157,384**	**184,080 MWh**	**84%**	**104%**	**$ 46,433,266**	**177,719 MWh**	**$ 8,137,388**	**3,540,344**	**117%**	**132%**	**$ 6,952,079**	**2,675,250 Therms**
		Regional Efficiency Programs												
E254		NW Energy Efficiency Alliance (Anderson)	$ 5,241,606	23,500	100%	100%	$ 5,260,640	23,500						
		Efficiency Support Activities												
		Program Evaluation	$ 1,546,379	n/a	98%	n/a	$ 1,581,303	n/a	$ 451,865	n/a	114%	n/a	$ 397,475	n/a
		Verification Team	$ 79,894	n/a		n/a		n/a	$ 15,345	n/a		n/a		n/a
		Strategic Planning & Market Research	$ 591,574	n/a	63%	n/a	$ 945,016	n/a	$ 150,215	n/a	64%	n/a	$ 236,254	n/a
		Mainstreaming Green	$ 293,364	n/a	57%	n/a	$ 511,000	n/a	$ 128,047	n/a	59%	n/a	$ 219,000	n/a
		Conservation Supply Curves[4]	$ 197,635	n/a	63%	n/a	$ 315,064	n/a	$ 55,889	n/a	71%	n/a	$ 78,766	n/a
		EES Market Integration	$ 173,193	n/a	65%	n/a	$ 265,625	n/a	$ 69,011	n/a	61%	n/a	$ 113,825	n/a
		Energy Efficient Green Communities	$ 174,647	n/a	72%	n/a	$ 243,545	n/a	$ 69,443	n/a	76%	n/a	$ 91,955	n/a
E270	G270	Local Infrastructure& Mkt Transformation	$ 43,240	n/a	61%	n/a	$ 71,049	n/a	$ 3,276	n/a	7%	n/a	$ 44,302	n/a
E261	G261	Energy Efficient Technology Evaluation	$ 667	n/a	4%	n/a	$ 18,777	n/a	$ 235	n/a	1%	n/a	$ 18,811	n/a
		Third-Party Evaluation Review (per condition K(6)(g))					$ 250,000							n/a
		Program Support	$ 214,209	n/a	51%	n/a	$ 417,257	n/a	$ 8,448	n/a	10%	n/a	$ 88,073	n/a
		Total Efficiency Support Activities	**$ 3,314,801**	**0**	**72%**	**0%**	**$ 4,618,636**	**0**	**$ 952,574**	**0**	**74%**	**n/a**	**$ 1,288,461**	-
		SUBTOTAL ELECTRIC ENERGY EFFICIENCY	**$ 76,447,858**	**348,926 MWh**			**$ 89,278,131**	**338,960 MWh**	**$ 15,489,414**	**5,186,721 Therms**			**$ 19,280,456**	**4,789,478 Therms**
			85.6%	**102.9%**										
		Total aMW Savings		**39.8 aMW**				**38.7 aMW**						
		Other Electric Programs [5]												
E249A		Residential Demand Response Pilot	$ 648,350	n/a	104%	n/a	$ 621,008	n/a	n/a		n/a	n/a	n/a	n/a
E248		Renewable Energy Education[6]	$ 267,752	n/a	77%	n/a	$ 348,659	0	n/a		n/a	n/a	n/a	n/a
E150		Net Metering	$ 229,346	n/a	83%	n/a	$ 277,687	n/a	n/a		n/a	n/a	n/a	n/a
E249A		C/I Load Control Pilot	$ 272,242	n/a	101%	n/a	$ 268,419	n/a	n/a		n/a	n/a	n/a	n/a
		Total Other Electric Programs	**$ 1,417,689**	**0 MWh**	**94%**	**0%**	**$ 1,515,773**	**0 MWh**						
		GRAND TOTAL ENERGY EFFICIENCY	**$ 77,865,547**	**348,926 MWh**			**$ 90,793,904**	**338,960 MWh**	**$ 15,489,414**	**5,186,721 Therms**			**$ 19,280,456**	**4,789,478 Therms**
		Total aMW Savings		**39.8 aMW**				**38.7 aMW**						
			85.8%	**102.9%**										
		PSE LIW Funding[7]		n/a		n/a		n/a	$ 259,913	n/a	87%	n/a	$ 300,000	n/a

Footnotes

1. LIW REC funding is reporting savings, but the source of funding is recorded against O&M budget. Figures noted in blue highlighting are included only to provide perspective for savings claims. These figures are EXCLUDED from the indicated Residential expenditure and budget subtotals.
2. Pilots = LED lamps, Heat Pump Sizing & Lock out Controls
3. Noted figure is not actual AFUCE. Actual cost is for printing, which was recognized against an incorrect order number. It wasn't possible to journal entry after year-end. The figure is included for transparency.
4. Conservation Supply Curves, associated with Resource Planning, is included in the EES R/T budget because EES pays part of two RP staff salary.
5. Other Electric programs are separated because they are not included in cost effectiveness calculations.
6. Renewable Energy Education, Schedule 248, was formerly referred to as Small Scale Renewables.
7. LIW shareholder funding is not limited to the gas fuel type. Condition G(14) indicates that $300,000 in shareholder funding may be applied to electric or gas LIW.

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Exhibit 1

PUGET SOUND ENERGY, INC.
ELECTRIC RIDER & GAS TRACKER CONSERVATION EXPENDITURES & SAVINGS
January - December 2012

CustomerSolutions

Through December 2012			Electric						Gas					
Electric Schedule	Gas Schedule	Programs (Manager Name)	YTD Actual		Percentage		Budget		YTD Actual		Percentage		Budget	
			$ Spent	MWh Svgs.	% of $ Budget	% of Svgs. TOTAL	$ BUDGET	MWh Svgs. Target	$ Spent	Therms Svgs.	% of $ Budget	%of Svgs. TOTAL	$ BUDGET	Therms Svgs. Target
		Residential Programs:												
E201	G203	Low Income Weatherization	$ 2,414,265	1,606	82%	76%	$ 2,946,378	2,100	$ 378,512	22,622	63%	53%	$ 604,593	42,300
E214	G214	Single Family Existing	**$ 25,331,918**	**124,796**	**84%**	**100%**	**$ 30,332,921**	**125,400**	**$ 4,892,049**	**1,606,987**	90%	92%	**$ 5,442,844**	**1,739,615**
		Residential Lighting	*$ 12,605,565*	*86,687*	*99%*	*120%*	*$ 12,738,452*	*72,300*	$ -		*n/a*		$ -	
		Space heat	*$ 2,988,354*	*7,345*	*113%*	*124%*	*$ 2,638,136*	*5,900*	*$ 1,344,372*	*471,295*	*64%*	*63%*	*$ 2,113,267*	*742,700*
		Water heat	*$ 253,881*	*580*	*80%*	*73%*	*$ 317,119*	*800*	*$ 5,733*	*0*	*n/a*	*0%*	$ -	-
		HomePrint	*$ 1,054,381*	*1,942*	*59%*	*47%*	*$ 1,789,987*	*4,100*	$ -	*0*	*n/a*	*0%*	$ -	-
		Home Appliances	*$ 5,314,655*	*8,627*	*65%*	*34%*	*$ 8,125,988*	*25,100*	$ -	*29,463*	*n/a*	*72%*	$ -	*40,915*
		Showerheads	*$ 300,736*	*5,691*	*160%*	*407%*	*$ 188,495*	*1,400*	*$ 195,035*	*221,179*	*89%*	*334%*	*$ 219,746*	*66,300*
		Manufactured Homes								*0*				
		Weatherization	*$ 2,753,655*	*8,425*	*64%*	*82%*	*$ 4,319,891*	*10,300*	*$ 3,316,554*	*538,326*	*110%*	*95%*	*$ 3,012,163*	*543,000*
		Home Energy Reports	$ 80,691	5,498	38%	*100%*	*$ 214,853*	*5,500*	*$ 30,356*	*346,724*	*31%*	100%	*$ 97,668*	*346,700*
		Web-Enabled Thermostat							$ -					
E215	G215	Single Family New Construction	$ 1,301,065	1,496	117%	100%	$ 1,111,043	1,500	$ 159,626	744	52%	2%	$ 309,171	31,900
E215		Energy Star Manufactured Homes	$ 3,817											
E216		Single Family Fuel Conversion	$ 540,306	1,532	67%	61%	$ 803,973	2,500	$ -					
E217	G217	Multi Family Existing	$ 10,247,241	22,952	149%	137%	$ 6,887,604	16,800	$ 451,953	90,156	200%	361%	$ 226,525	25,000
E218	G218	Multi Family New Construction	$ 542,894	961	88%	96%	$ 617,485	1,000	$ 221,598	33,026	63%	62%	$ 353,589	53,600
E249	G249	Pilots	$ -	0	0%		$ -	0	$ 479	0			$ -	-
		Total Residential Programs	**$ 40,381,507**	**153,343 MWh**	**95%**	**103%**	**$ 42,699,404**	**149,300 MWh**	**$ 6,104,217**	**1,753,535**	**88%**	**93%**	**$ 6,936,722**	**1,892,415 Therms**
		Business Efficiency Programs												
E250	G205	Commercial Industrial Retrofit	$ 18,943,779	70,516	94%	103%	$ 20,084,250	68,500	$ 4,628,670	873,098	160%	183%	$ 2,895,320	478,000
E251	G251	Commercial Industrial New Construction	$ 2,181,743	5,268	99%	151%	$ 2,214,170	3,500	$ 694,300	129,777	114%	130%	$ 609,350	100,000
E253	G208	Resource Conservation Manager - RCM	$ 1,044,155	16,026	52%	80%	$ 1,993,900	20,000	$ 550,738	1,109,236	49%	111%	$ 1,119,120	1,000,000
E255		Small Business Lighting Rebate	$ 4,967,718	16,999	66%	71%	$ 7,548,030	24,100	$ -					
E258		Large Power User - Self Directed 449	$ 2,222,424	5,530	134%	105%	$ 1,653,936	5,280					$ -	-
E258		Large Power User - Self Directed Non 449	$ 4,982,409	16,953	142%	151%	$ 3,514,614	11,220					$ -	-
E261	G261	Energy Efficient Technology Evaluation	$ -	n/a			$ -	n/a	$ -	n/a	0%		$ 27,300	n/a
E262/251	G262	Business Rebates	$ 6,172,499	35,456	128%	130%	$ 4,832,280	27,200	$ 463,016	1,338,854	72%	95%	$ 640,900	1,407,000
		Total Business Programs	**$ 40,514,727**	**166,747 MWh**	**97%**	**104%**	**$ 41,841,180**	**159,800 MWh**	**$ 6,336,725**	**3,450,965**	**120%**	**116%**	**$ 5,291,990**	**2,985,000 Therms**
		Regional Efficiency Programs												
E254		NW Energy Efficiency Alliance	$ 4,687,146	19,400	89%	100%	$ 5,260,640	19,400	$ -	n/a	n/a	n/a	n/a	n/a
E292		Generation, Transmission and Distribution	$ -	0		0%	$ -	8,100	$ -	n/a	n/a	n/a	n/a	n/a
		Total Regional Programs	**$ 4,687,146**	**19,400**	**89%**	**71%**	**$ 5,260,640**	**27,500**						
		EES Portfolio Support												
		Customer Engagement and Education	**$ 1,179,797**	**n/a**	**72%**	**n/a**	**$ 1,635,405**	**n/a**	**$ 232,132**	**n/a**	**95%**	**n/a**	**$ 244,795**	**n/a**
		Energy Advisors	*$ 742,603*	*n/a*	*72%*		*$ 1,036,907*	*n/a*	*$ 151,200*	*n/a*	*98%*	*n/a*	*$ 154,772*	*n/a*
		Events	*$ 298,869*	*n/a*	*72%*		*$ 414,363*	*n/a*	*$ 47,912*	*n/a*	*76%*	*n/a*	*$ 62,631*	*n/a*
		Brochures	*$ 45,981*	*n/a*	*85%*		*$ 54,250*	*n/a*	*$ 12,235*	*n/a*	*150%*	*n/a*	*$ 8,169*	*n/a*
E202	*G207*	*Education*	*$ 92,345*	*0*	*71%*	*n/a*	*$ 129,885*	*n/a*	*$ 20,785*	*n/a*	*108%*	*n/a*	*$ 19,223*	*n/a*
		CS Web Experience	**$ 873,838**	**n/a**	**89%**	**n/a**	**$ 982,558**	**n/a**	**$ 155,496**	**n/a**	**105%**	**n/a**	**$ 147,442**	**n/a**
		Customer Online Experience	*$ 634,822*	*n/a*	*100%*	*n/a*	*$ 635,950*	*n/a*	*$ 100,993*	*n/a*	*106%*	*n/a*	*$ 95,650*	*n/a*
		Online customer tools							$ -	*n/a*				
		E-news	*$ 1,781*						*$ 1,077*	*n/a*				
		Market Integration	*$ 237,235*	*n/a*	*68%*	*n/a*	*$ 346,608*	*n/a*	*$ 53,426*	*n/a*	*103%*	*n/a*	*$ 51,792*	*n/a*
		Energy Efficient Communities	$ 251,803	n/a	89%	n/a	$ 282,827	n/a	$ 63,948	n/a	151%	n/a	$ 42,263	n/a
		Trade Ally Support	$ 36,517	n/a	79%	n/a	$ 46,300	n/a	$ -	n/a	0%	n/a	$ 18,000	n/a
		Marketing Research	$ 251,392	n/a	44%	n/a	$ 567,191	n/a	$ 37,693	n/a	44%	n/a	$ 84,752	n/a
		Total Portfolio Support	**$ 2,593,348**	**n/a**	**74%**	**n/a**	**$ 3,514,281**	**n/a**	**$ 489,269**	**n/a**	**91%**	**n/a**	**$ 537,252**	-
		EES Research & Compliance												
		Conservation Supply Curves	$ 388,262	n/a	92%	n/a	$ 423,659	n/a	$ 88,666	n/a	140%	n/a	$ 63,306	n/a
		Strategic Planning	$ 98,033	n/a	28%	n/a	$ 350,289	n/a	$ 17,685					
		Program Evaluation	$ 1,745,480	n/a	86%	n/a	$ 2,021,028	n/a	$ 514,680	n/a	101%	n/a	$ 508,480	n/a
		Program Support	$ 281,686	n/a	75%	n/a	$ 376,970	n/a	$ 23,503	n/a	39%	n/a	$ 60,435	n/a
		Verification Team	$ 432,335	n/a		n/a	$ -	n/a	$ 77,812	n/a		n/a	$ -	n/a
		Total Research & Compliance	**$ 2,945,796**	**n/a**	**93%**	**n/a**	**$ 3,171,946**	**n/a**	**$ 722,346**	**n/a**	**114%**		**$ 632,221**	-
		SUBTOTAL CUSTOMER SOLUTIONS - ENERGY EFFICIENCY	**$ 91,122,524**	**339,491 MWh**	**94.4%**	**100.9%**	**$ 96,487,451**	**336,600 MWh**	**$ 13,652,557**	**5,204,500 Therms**	**101.9%**	**106.7%**	**$ 13,398,185**	**4,877,415 Therms**
		Total aMW Savings		**38.8 aMW**				**38.4 aMW**						
		***Other Electric Programs*[1]**												
E150		Net Metering	$ 362,556	n/a	124%	n/a	$ 292,518	n/a	n/a	n/a	n/a	n/a	n/a	n/a
E248		Renewable Energy Education[2]	$ 104,074	n/a	73%	n/a	$ 142,463	0	n/a	n/a	n/a	n/a	n/a	n/a
E271		C/I Demand Response	$ 99,617	n/a	8%	n/a	$ 1,176,490	n/a	n/a	n/a	n/a	n/a	n/a	n/a
E249A		Residential Demand Response Pilot	$ 86,099	n/a	230%	n/a	$ 37,490	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		Total Other Electric Programs	**$ 652,346**	**0 MWh**	**40%**	**0%**	**$ 1,648,961**	**0 MWh**						
		GRAND TOTAL CUSTOMER SOLUTIONS	**$ 91,774,870**	**339,491 MWh**	93.5%	100.9%	**$ 98,136,412**	**336,600 MWh**	**$ 13,652,557**	**5,204,500 Therms**	**101.9%**	**106.7%**	**$ 13,398,185**	**4,877,415 Therms**
		Total aMW Savings		**38.8 aMW**				**38.4 aMW**						
		PSE LIW Shareholder Funding[3]	$ 93,923						$ 182,587	n/a	92%	n/a	$ 300,000	n/a

Footnotes

1 Other Electric programs are separated because they are not included in cost effectiveness calculations.
2 Renewable Energy Education, Schedule 248, was formerly referred to as Small Scale Renewables.
3 LIW shareholder funding is not limited to the gas fuel type. Condition G(14) indicates that $300,000 in shareholder funding may be applied to electric or gas LIW. Figures are based on reported primary heating fuel type.

Exhibit 1: 2013 Expenditures and Savings

PUGET SOUND ENERGY, INC.
ELECTRIC & GAS RIDER CONSERVATION EXPENDITURES & SAVINGS
January - December 2013

EnergyEfficiency

Through December 2013

Electric Schedule	Gas Schedule	Programs	Electric YTD Actual $ Spent	Electric YTD Actual MWh Svgs.	Electric Percentage % of $ Budget	Electric Percentage % of Svgs. TOTAL	Electric Budget $ BUDGET	Electric Budget MWh Svgs. Target	Gas YTD Actual $ Spent	Gas YTD Actual Therms Svgs.	Gas Percentage % of $ Budget	Gas Percentage %of Svgs. TOTAL	Gas Budget $ BUDGET	Gas Budget Therms Svgs. Target
		Please note that each indented amount sums to the colored heading above.												
		Residential												
E201	G201	Low Income Weatherization	$ 2,373,466	1,591	98%	132%	$ 2,425,000	1,201	$ 372,176	32,948	124%	156%	$ 301,000	21,179
E214	G214	Single Family Existing	$ 33,710,664	144,763	112%	115%	$ 30,183,000	125,947	$ 5,417,278	1,441,851	88%	75%	$ 6,127,000	1,920,851
		Residential Lighting	$ 17,520,974	103,551	134%	124%	$ 13,123,000	83,239	$ -	-	n/a		$ -	-
		Space heat	$ 3,275,154	8,585	105%	132%	$ 3,104,000	6,538	$ 1,612,308	571,028	68%	76%	$ 2,355,000	747,889
		Water heat	$ 501,414	874	85%	102%	$ 589,000	857	$ -	0	n/a	0%	$ -	-
		HomePlus	$ 986,033	1,796	52%	44%	$ 1,899,000	4,082		0	n/a	0%	$ -	-
		Home Appliances	$ 6,872,639	9,123	89%	74%	$ 7,752,000	12,445	$ -	9,980	n/a	25%	$ -	38,920
		Showerheads	$ 250,857	4,664	111%	133%	$ 226,000	3,496	$ 219,863	137,949	74%	74%	$ 296,000	179,280
		Weatherization Total	$ 3,466,305	9,002	68%	58%	$ 5,432,000	10,243	$ 2,604,223	422,735	80%	76%	$ 2,022,000	553,238
		Weatherization	$ 1,448,839	1,673	48%	38%	$ 2,334,000	6,315	$ 2,601,139	422,735	89%	79%	$ 2,922,000	553,238
		Middle Home Duct Sealing	$ 1,189,808	1,137			$ 557,000	1,248	$ -	0				
		ARRA Weatherization	$ 827,640	1,090			$ 741,000	2,845	$ 3,085	0				
		Home Energy Reports	$ 864,288	6,769	396%	127%	$ 218,000	5,498	$ 344,235	251,283	346%	72%	$ 99,000	348,774
		Web-Enabled Thermostat							$ 637,148	55,296			$ 455,000	54,000
E215	G215	Single Family New Construction	$ 1,781,097	2,344	149%	211%	$ 1,199,000	1,112	$ 10,035	412				
E215		Energy Star Manufactured Homes	$ 17,845	113			$ 50,000	418		200				
E216		Single Family Fuel Conversion	$ 649,666	1,623	60%	61%	$ 1,084,000	2,649	$ -					
E217	G217	Multi Family Existing	$ 10,952,743	21,256	160%	127%	$ 6,862,000	16,747	$ 206,731	64,927	175%	366%	$ 118,000	17,736
E218	G218	Multi Family New Construction	$ 621,227	1,237	92%	136%	$ 674,000	955	$ 306,921	59,857	57%	130%	$ 317,000	46,713
E249	G249	Pilots[1]	$ -	0	0%		$ -	0	$ -	0			$ -	-
		Total Residential Programs	**$ 50,106,708**	**172,927 MWh**	**118%**	**116%**	**$ 42,477,000**	**149,029 MWh**	**$ 6,313,140**	**1,601,195**	**92%**	**80%**	**$ 6,003,000**	**2,005,679 Therms**
		Business												
E250	G250	Commercial Industrial Retrofit	$ 17,831,194	74,916	94%	105%	$ 18,986,000	71,375	$ 3,037,634	886,668	112%	102%	$ 2,702,000	437,100
E251	G251	Commercial Industrial New Construction	$ 1,366,578	3,059	93%	87%	$ 1,470,000	3,500	$ 299,462	56,384	48%	36%	$ 622,000	156,000
E253	G253	Resource Conservation Manager - RCM	$ 1,225,833	16,881	79%	96%	$ 1,558,000	18,758	$ 651,480	1,305,271	77%	218%	$ 851,000	600,000
E255		Small Business Lighting Rebate	$ 3,685,147	12,524	65%	78%	$ 5,640,000	16,043	$ -					
E258		Large Power User - Self Directed	$ 5,159,352	13,831	123%	106%	$ 4,189,000	13,000					$ -	-
E261	G261	Energy Efficient Technology Evaluation	$ -	n/a	0%		$ 31,000	n/a	$ -	n/a	0%		$ 28,000	n/a
E262	G262	Business Rebates	$ 8,319,853	46,526	125%	136%	$ 6,648,000	34,311	$ 660,920	2,689,003	84%	192%	$ 784,000	1,630,163
		Total Business Programs	**$ 37,587,949**	**167,737 MWh**	**98%**	**107%**	**$ 38,522,000**	**156,976 MWh**	**$ 4,649,496**	**4,937,266**	**93%**	**107%**	**$ 4,987,000**	**2,643,263 Therms**
		Regional												
E254		NW Energy Efficiency Alliance	$ 4,574,812	19,400	87%	100%	$ 5,261,000	19,414	$ -	n/a	n/a	n/a	n/a	n/a
E292		Generation, Transmission and Distribution	$ -	1,328		16%	$ -	8,078	$ -	n/a	n/a	n/a	n/a	n/a
		Total Regional Programs	**$ 4,574,812**	**20,728**	**87%**	**75%**	**$ 5,261,000**	**27,492**	$ -					
		EE Portfolio Support												
		Customer Engagement and Education	$ 1,092,488	n/a	72%	n/a	$ 1,518,000	n/a	$ 125,340	n/a	54%	n/a	$ 231,000	n/a
		Energy Advisors	$ 799,910	n/a	74%		$ 1,083,000	n/a	$ 61,161	n/a	38%	n/a	$ 162,000	n/a
		Events	$ 194,324	n/a	65%		$ 297,000	n/a	$ 48,047	n/a	99%	n/a	$ 48,000	n/a
		Brochures	$ 43,307	n/a	80%		$ 54,000	n/a	$ 7,776	n/a	95%	n/a	$ 8,000	n/a
		Education	$ 54,947	0	65%	n/a	$ 84,000	n/a	$ 8,355	n/a	62%	n/a	$ 13,000	n/a
		Customer Online Experience	$ 958,551	n/a	96%	n/a	999,000	n/a	$ 198,813	n/a	200%	n/a	$ 150,000	n/a
		Customer Online Experience	$ 497,970	n/a	79%	n/a	$ 632,000	n/a	$ 77,265	n/a		n/a	$ 55,000	n/a
		Automated Benchmarking Support	$ 168,440	n/a			$ -		$ 71,530	n/a		n/a	$ -	n/a
		Market Integration	$ 292,147	n/a	79%	n/a	$ 367,000	n/a	$ 50,019	n/a	91%	n/a	$ 55,000	n/a
		Energy Efficient Communities	$ 264,034	n/a	69%	n/a	$ 381,000	n/a	$ 71,253	n/a	125%	n/a	$ 57,000	n/a
		Trade Ally Support	$ 30,955	n/a	50%	n/a	$ 62,000	n/a	$ -	n/a	0%	n/a	$ 25,000	n/a
		Marketing Research	$ 238,971	n/a	39%	n/a	$ 608,000	n/a	$ 31,883	n/a	35%	n/a	$ 91,000	n/a
		Total Portfolio Support	**$ 2,585,005**	**n/a**	**72%**	**n/a**	**$ 3,568,000**	**n/a**	**$ 427,289**	**n/a**	**77%**	**n/a**	**$ 554,000**	-
		EE Research & Compliance												
		Conservation Supply Curves	$ 166,347	n/a	65%	n/a	$ 255,000	n/a	$ 34,703	n/a	91%	n/a	$ 38,000	n/a
		Strategic Planning	$ 118,392	n/a	50%	n/a	$ 237,000	n/a	$ 15,867				$ 35,000	
		Program Evaluation	$ 2,212,512	n/a	102%	n/a	$ 2,159,000	n/a	$ 315,182	n/a	57%	n/a	$ 550,000	n/a
		Program Support	$ 216,337	n/a	48%	n/a	$ 454,000	n/a	$ 57,934	n/a	109%	n/a	$ 53,000	n/a
		Verification Team	$ 582,914	n/a	92%	n/a	$ 633,000	n/a	$ 105,810	n/a		n/a	$ 101,000	n/a
		Total Research & Compliance	**$ 3,296,502**	**n/a**	**88%**	**n/a**	**$ 3,738,000**	**n/a**	**$ 529,496**	**n/a**	**68%**		**$ 777,000**	-
		SUBTOTAL CUSTOMER SOLUTIONS - ENERGY EFFICIENCY	**$ 98,150,976**	**361,392 MWh**			**$ 93,566,000**	**333,497 MWh**	**$ 11,919,421**	**6,538,000 Therms**			**$ 13,181,000**	**4,649,000 Therms**
			104.9%	**108.4%**					**90.4%**	**140.6%**				
		Total aMW Savings		**41.3 aMW**				**38.1 aMW**						
		Other Electric Programs[2]												
E150		Net Metering	$ 369,302	n/a	80%	n/a	$ 461,000	n/a	n/a		n/a	n/a	n/a	n/a
E248		Renewable Energy Education	$ 50,876	n/a	42%	n/a	$ 120,000	n/a	n/a		n/a	n/a	n/a	n/a
E271		C/I Load Control	$ 44,598	n/a	18%	n/a	$ 244,000	n/a	n/a		n/a	n/a	n/a	n/a
E249A		Residential Demand Response Pilot	$ 166	n/a	2%	n/a	$ 10,000	n/a	n/a		n/a	n/a	n/a	n/a
		Total Other Electric Programs	**$ 464,941**	**0 MWh**	**56%**	**0%**	**$ 835,000**	**0 MWh**						
		GRAND TOTAL CUSTOMER SOLUTIONS	**$ 98,615,917**	**361,392 MWh**			**$ 94,401,000**	**333,497 MWh**	**$ 11,919,421**	**6,538,000 Therms**			**$ 13,181,000**	**4,649,000 Therms**
		Total aMW Savings		**41.3 aMW**				**38.1 aMW**						
			104.9%	**108.4%**					**90.4%**	**140.6%**				
		PSE LIW Shareholder Funding[3]							$ 266,655	n/a	89%	n/a	$ 300,000	n/a

Footnotes

1 Neither the Residential no Business Energy Management Sectors pursued pilot measures in 2013.
2 Other Electric programs are separated because they are not included in cost-effectiveness calculations.
3 LIW Shareholder funding is not limted to th egas fuel type. Condition G(14) indicates that $300,000 in Shareholder funding may be applied to electric or gas LIW.

Exhibit 1 ELECTRIC & GAS SAVINGS AND RIDER CONSERVATION EXPENDITURES

January - December 2014

Index	Schedule (Both electric and gas, unless otherwise noted)	Programs	Electric YTD Actual $ Spent	Electric YTD Actual MWh Svgs.	Electric Percentage % of $ Budget	Electric Percentage % of Svgs. TOTAL	Electric Budget/Goal $ BUDGET	Electric Budget/Goal MWh Svgs. Goal	Gas YTD Actual $ Spent	Gas YTD Actual Therms Svgs.	Gas Percentage % of $ Budget	Gas Percentage % of Svgs. TOTAL	Gas Budget/Goal $ BUDGET	Gas Budget/Goal Therms Svgs. Target
		Blue type indicates a sub-total. Sub-totals sum to the figure above.												
a														
b		**Residential Energy Management**												
c	201	Low Income Weatherization	$ 2,846,848	1,767	92%	112%	$ 3,098,684	1,575	$ 305,326	24,370	83%	89%	$ 369,443	27,391
d														
e	214	Single Family Existing	$ 34,745,718	122,126	110%	113%	$ 31,480,589	108,552	$ 6,020,622	1,639,779	114%	122%	$ 5,270,608	1,343,061
f		*Residential Lighting*	$ 18,354,571	78,615	174%	119%	$ 14,840,761	66,120						
g		*Space heat*	$ 3,687,729	8,811	90%	87%	$ 4,108,360	10,132	$ 1,548,363	528,266	95%	102%	$ 1,632,744	519,800
h		*Water heat*	$ 411,640	568	115%	104%	$ 357,004	545	$ -	0	n/a	0%	$ -	-
i		*Homefirst*	$ 1,741,341	2,676	79%	79%	$ 2,194,053	3,400	$ -	0	n/a	0%	$ -	-
j		*Home Appliances*	$ 6,527,288	8,986	109%	90%	$ 6,138,400	10,011	n/a	25,048	n/a	313%	$ -	7,998
k		*Mobile Home Duct Sealing*	$ 1,868,791	6,541	111%	182%	$ 1,683,057	3,591	$ -	0			$ -	-
l		*Web-Enabled Thermostats*							$ 32,659	0			$ 168,800	-
m		*Showerheads*	$ 375,258	4,302	57%	82%	$ 653,030	5,255	$ 280,759	145,777	120%	174%	$ 242,140	83,803
n		*Weatherization + MHA*	$ 1,626,414	5,736	120%	159%	$ 1,346,124	3,603	$ 4,120,712	363,980			$ 3,178,163	560,960
o		*Home Energy Reports*	$ 143,155	5,892	86%	100%	$ 166,590	5,896	$ 24,129	176,748	49%	104%	$ 48,795	170,500
p	215	Single Family New Construction	$ 8,016	215			$ -	0	$ 11,470	0			$ -	-
q	215	*Energy Star Manufactured Home*	$ 900	15			$ -	0	$ 150	200				
r	216	Fuel Conversion	$ 655,950	1,741	84%	92%	$ 779,020	1,800						
s	217	Multi Family Existing	$ 13,170,704	24,524	148%	120%	$ 9,143,960	20,446	$ 527,181	113,684	69%	109%	$ 758,929	104,232
t	218	Multi Family New Construction	$ 505,946	871	85%	94%	$ 594,747	926	$ 248,324	36,966	75%	19%	$ 332,111	191,833
u		**Total Residential Programs**	**$ 51,933,663**	**151,259 MWh**	**115%**	**113%**	**$ 45,105,000**	**133,308 MWh**	**$ 7,113,073**	**1,814,599**	**106%**	**109%**	**$ 6,732,091**	**1,666,557 Therms**
v		**Business Energy Management**												
w	250	Commercial Industrial Retrofit	$ 17,201,563	65,986	83%	92%	$ 20,842,366	71,596	$ 1,979,333	567,288	82%	134%	$ 2,427,580	379,000
x	251	Commercial Industrial New Construction	$ 1,456,770	4,287	94%	130%	$ 1,556,066	3,329	$ 298,621	44,440	121%	302%	$ 167,036	14,700
y	253	Resource Conservation Management - RCM	$ 1,570,877	14,081	106%	116%	$ 1,470,561	12,150	$ 556,956	893,309	97%	319%	$ 576,060	280,000
z	255	Small Business Lighting Rebate *(2013 YE rebates paid in Q1 & Q2 2014)*	$ 1,624,042	3,945	169%	197%	$ 607,015	2,000						
z	258	Large Power User - Self Directed Program, 449 + Non 449	$ 6,747,496	22,665	126%	148%	$ 5,290,686	15,350						
aa	261	Energy Efficient Technology Evaluation	$ 5,042	n/a	2%	n/a	$ 210,130	500	$ -	n/a	0%		$ 20,000	n/a
ab	262	Commercial Rebates	$ 7,872,398	37,865	118%	141%	$ 6,653,602	26,877	$ 741,036	316,469	101%	41%	$ 734,434	769,600
ac		**Total Business Programs**	**$ 35,877,388**	**148,830 MWh**	**98%**	**114%**	**$ 36,638,990**	**130,902 MWh**	**$ 3,478,045**	**1,761,586**	**89%**	**122%**	**$ 3,925,110**	**1,443,300 Therms**
ad		**Pilots**												
ad	249	Residential Pilots - Individual Energy Reports	$ 387,685	26,759	32%		$ 1,207,400	26,760 MWh	$ 294,014	760,956			$ 248,630	720,000 Therms
ae	249	Business Pilots - Individual Energy Reports	$ 416,850	0	114%		$ 365,059	0 MWh	$ -	-			$ -	
af		**Total Pilots**	**$ 804,535**	**26,759 MWh**	**51%**		**$ 1,572,459**	**26,760 MWh**	**$ 294,014**	**760,956**	**119%**		**$ 248,630**	**720,000 Therms**
ag		**Regional Efficiency Programs**												
ag	254	NW Energy Efficiency Alliance	$ 4,447,503	50,195	85%	100%	$ 5,260,640	50,195						
ah		NW Gas Market Transformation Collaborative							$ 151,068	n/a				
ai	292	Electric Generation, Transmission and Distribution	$ -	1,496		48%	$ -	3,100						
aj		**Total Regional Programs**	**$ 4,447,503**	**51,691 MWh**	**85%**	**97%**	**$ 5,260,640**	**53,295**	**$ 151,068**					
ak		**Energy Efficiency Portfolio Support**												
ak		Customer Engagement and Education	$ 1,019,594	n/a	66%	n/a	$ 1,552,503	n/a	$ 150,876	n/a	64%	n/a	$ 236,922	n/a
al		*Energy Advisors*	$ 596,628	n/a	93%		$ 1,054,694	n/a	$ 68,895	n/a	42%	n/a	$ 164,165	n/a
am		*Events*	$ 391,277	n/a	96%		$ 342,308	n/a	$ 84,149	n/a	117%	n/a	$ 56,783	n/a
an		*Brochures, non program-specific*	$ 19,926	n/a	70%		$ 56,250	n/a	$ 1,226	n/a	15%	n/a	$ 8,169	n/a
ao	282	*Education*	$ 81,762	0	139%	n/a	$ 99,341	n/a	$ 16,705	n/a	170%	n/a	$ 9,805	n/a
ap		Web Experience	$ 882,264				$ 935,427		$ 152,756	n/a	175%	n/a	$ 165,501	
aq		*Customer Online Experience*	$ 558,492	n/a	96%	n/a	$ 584,295	n/a	$ 30,045				$ 87,295	n/a
ar		*Market Integration*	$ 257,891	n/a	85%	n/a	$ 280,773	n/a	$ 50,909	n/a	118%	n/a	$ 43,299	n/a
as		*MyData (Automated Benchmarking System)*	$ 65,971			$	81,449		$ 21,002			$	34,907	
at		Rebate Processing *(formerly assessed costs - will be active 1/2015)*				*(Not budgeted in original 2014 Exhibit 1)*						*(Not budgeted in original 2014 Exhibit 1)*		n/a
au		Data and Systems Services *(formerly assessed costs-added 9/2014)*	$ 554,907			*(Not budgeted in original 2014 Exhibit 1)*		n/a	$ 79,730			*(Not budgeted in original 2014 Exhibit 1)*		n/a
av		Energy Efficient Communities	$ 328,292	n/a	41%	n/a	$ 796,402	n/a	$ 79,302	n/a	41%	n/a	$ 178,613	n/a
aw		Trade Ally Support	$ 56,347	n/a	106%	n/a	$ 54,183	n/a	$ 12,324	n/a	103%	n/a	$ 11,952	n/a
ax		**Total Portfolio Support**	**$ 2,841,408**	**n/a**	**85%**	**n/a**	**$ 3,358,605**	**n/a**	**$ 474,980**	**n/a**	**78%**	**n/a**	**$ 609,980**	**-**
ay		**Energy Efficiency Research & Compliance**												
ay		Conservation Supply Curves	$ 419,210	n/a	100%	n/a	$ 396,319	n/a	$ 62,776	n/a	106%	n/a	$ 59,221	n/a
az		Strategic Planning	$ 269,362	n/a	74%	n/a	$ 283,907	n/a	$ 39,195				$ 42,285	
ba		Market Research	$ 124,635				$ 233,917		$ 25,039				$ 35,736	
bb		Program Evaluation	$ 1,167,531	n/a	84%	n/a	$ 1,320,727	n/a	$ 152,787	n/a	114%	n/a	$ 134,378	n/a
bc		Biennial Electric Conservation Acquisition Review	$ 17,761				$ 175,000							
bd		Verification Team	$ 451,303	n/a	69%	n/a	$ 657,008	n/a	$ 60,788	n/a	71%	n/a	$ 97,408	n/a
be		Program Support	$ 270,451	n/a	64%	n/a	$ 419,597	n/a	$ 36,007	n/a		n/a	$ 42,301	n/a
bf														
bg		**Total Research & Compliance**	**$ 2,600,253**	**n/a**	**75%**	**n/a**	**$ 3,485,575**	**n/a**	**$ 374,576**	**n/a**	**91%**		**$ 411,323**	**-**
bh		**SUBTOTAL CUSTOMER SOLUTIONS - ENERGY EFFICIENCY**	**$ 98,504,770**	**378,539 MWh**			**$ 95,420,775**	**344,405 MWh**	**$ 11,888,463**	**4,346,141 Therms**			**$ 11,927,142**	**3,879,857 Therms**
bi			**103%**	**110%**					**100%**	**112%**				
bk		**Total aMW Savings**		**43.2 aMW**				**39.3 aMW**						
bl		*Other Electric Programs[1]*												
bl	150	Net Metering	$ 632,391	n/a	158%	n/a	$ 399,763	n/a						
bm	248	Renewable Energy Education[2]	$ 2,794	n/a		n/a	$ -	0						
bo	195	Electric Vehicle Charger Incentive	$ 195,200											
bp	271	CT Load Control	$ -	n/a		n/a	$ -	n/a						
bq	249A	Residential Demand Response Pilot	$ -	n/a		n/a	$ -	n/a						
br		**Total Other Electric Programs**	**$ 830,385**	**0 MWh**	**208%**	**0%**	**$ 399,763**	**0 MWh**						
bt		**GRAND TOTAL CUSTOMER SOLUTIONS**	**$ 99,335,154**	**378,539 MWh**			**$ 95,820,538**	**344,405 MWh**	**$ 11,888,463**	**4,346,141 Therms**			**$ 11,927,142**	**3,879,857 Therms**
bu		**Total aMW Savings**		**43.2 aMW**				**39.3 aMW**						
bv			**104%**	**110%**					**100%**	**112%**				
bw		PSE LIW Shareholder Funding[3]							$ 379,005	n/a	95%	n/a	$ 400,000	n/a

Some index lettering is purposely omitted.

Footnotes

1 Other Electric programs are separated because they are not included in cost effectiveness calculations.

2 Renewable Energy Education, Schedule 248, was formerly referred to as Small Scale Renewables.

3 LIW shareholder funding is not limited to the gas fuel type. Condition G(14) indicates that $300,000 in shareholder funding may be applied to electric or gas LIW. The decoupling Order in Docket Nos. UE-121697 & UG-121705 require that an additional $100,000 in shareholder funding be made avaiable to low-income agencies.

Exhibit 1

2015-specific PSE Conservation Rider Savings Goals and Budgets

EnergyEfficiency

Last revised: 10/6/15 2:23 PM

Titles are hyperlinks to 2015 Sector Views

Ref #	Schedule Nos. (Unless otherwise noted, applies to both electric and gas)	Program Name	MWh Savings	Electric Rider Budget	Therm Savings	Gas Rider Budget	Total Tariff Budget
		(All indented program or activity names are color-coded and comprise the totals of the above program or activity grouping. In some cases, there are sub-activities within another sub-grouping.)					
		Residential Energy Management					
a	201	Low Income Weatherization	1,571	$ 3,318,140	18,815	268,098	$ 3,586,237
b	214	Single Family Existing	101,368	$ 31,570,261	1,195,517	$ 5,522,571	$ 37,092,832
c		*Residential lighting*	*66,609*	*$ 15,379,407*			*$ 15,379,407*
d		*Space heat*	*7,842*	*$ 4,061,640*	*531,650*	*$ 1,595,778*	*$ 5,657,418*
e		*Water heat*	*635*	*$ 400,630*	*0*	*$ -*	*$ 400,630*
f		*HomePrint*	*3,009*	*$ 1,811,236*	*0*	*$ -*	*$ 1,811,236*
g		*Home Appliances*	*11,386*	*$ 6,297,053*	*32,736*		*$ 6,297,053*
h		*Mobile Home Duct Sealing*	*4,666*	*$ 1,665,636*	*0*	*$ -*	*$ 1,665,636*
i		*Web-Enabled Thermostats*			*54,000*	*$ 323,443*	*$ 323,443*
j		*Showerheads*	*4,139*	*$ 574,710*	*145,116*	*$ 387,115*	*$ 961,824*
k		*Weatherization*	*2,610*	*$ 1,227,724*	*432,015*	*$ 3,171,545*	*$ 4,399,269*
l		*Home Energy Reports*	*473*	*$ 152,226*	*0*	*$ 44,691*	*$ 196,916*
m	215 & 218	Residential New Construction	1,057	$ 486,591	147,072	$ 657,848	$ 1,144,439
n	216	Fuel Conversion	2,063	$ 785,783			$ 785,783
o	217	Multi Family Existing	25,862	$ 11,513,537	107,542	$ 499,044	$ 12,012,581
p		**Total, Residential Programs**	**131,921**	**$ 47,674,312**	**1,468,945**	**$ 6,947,561**	**$ 54,621,873**
		Business Energy Management					
q	250	Commercial / Industrial Retrofit	62,260	$ 19,421,153	381,000	$ 2,044,680	$ 21,465,833
r	251	Commercial/Industrial New Construction	9,350	$ 2,987,974	150,000	$ 606,236	$ 3,594,210
s	253	Resource Conservation Manager	16,350	$ 2,744,361	500,000	$ 636,260	$ 3,380,621
t	E258	Large Power User - Self Directed Program	1,700	$ 1,667,723			$ 1,667,723
u	261	Energy Efficient Technology Evaluation	500	$ 210,710		$ 20,000	$ 230,710
v	262	Commercial Rebates	21,967	$ 5,641,008	580,881	$ 698,839	$ 6,339,847
w		**Subtotal, Business Programs**	**112,126**	**$ 32,672,929**	**1,611,881**	**$ 4,006,015**	**$ 36,678,944**
		Pilots					
x	249	Residential Pilots - Individual Energy Reports	3,219	$ 1,127,007	0	$ 233,902	$ 1,360,909
y	249	Business Pilots - Individual Energy Reports	5,000	$ 140,704	0	$ -	$ 140,704
z		**Subtotal, Pilots**	**8,219**	**$ 1,267,712**	**0**	**$ 233,902**	**$ 1,501,613**
		Regional Efficiency Programs					
aa	E254	NW Energy Efficiency Alliance	22,338	$ 4,771,922	0	$ 738,000	$ 5,509,922
ab	E292	Generation, Transmission and Distribution	3,000	$ -			$ -
ac		**Subtotal, Regional Programs**	**25,338**	**$ 4,771,922**		**$ 738,000**	**$ 5,509,922**
		Energy Efficiency Portfolio Support					
ad		Customer Engagement and Education		$ 1,752,121		$ 264,482	$ 2,016,603
ae		*Energy Advisors*		*$ 1,060,385*		*$ 158,556*	*$ 1,218,941*
af		*Events*		*$ 530,379*		*$ 81,547*	*$ 611,926*
ag		*Brochures, non program-specific*		*$ 80,222*		*$ 12,752*	*$ 92,974*
ah	202	*Education*		*$ 81,135*		*$ 11,627*	*$ 92,762*
ai		Web Experience		$ 928,838		$ 155,097	$ 1,083,935
aj		Customer Online Experience		$ 562,455		$ 84,045	$ 646,500
ak		*Web Development*		*$ -*		*$ -*	*$ -*
al		*Web content, maintenance + analytics*		*$ 104,400*		*$ 15,600*	*$ 120,000*
am		*Online customer tools*		*$ 435,000*		*$ 65,000*	*$ 500,000*
an		*E-news*		*$ 10,005*		*$ 1,495*	*$ 11,500*
ao		*Miscellaneous applications*		*$ 13,050*		*$ 1,950*	*$ 15,000*
ap		Market Integration		$ 298,797		$ 44,648	$ 343,445
aq		Automated Benchmarking System		$ 67,586		$ 26,404	$ 93,990
ar		Programs Support		$ 1,279,676		$ 171,099	$ 1,450,775
as		Rebates Processing		$ 740,193		$ 110,214	$ 850,407
at		Energy Efficient Communities		$ 814,516		$ 200,854	$ 1,015,370
au		Trade Ally Support		$ 60,333		$ 12,792	$ 73,125
av		**Subtotal, Portfolio Support**		**$ 5,575,677**		**$ 914,537**	**$ 6,490,214**
		Energy Efficiency Research & Compliance					
aw		Conservation Supply Curves		$ 196,761		$ 29,397	$ 226,158
ax		Strategic Planning		$ 158,393		$ 23,663	$ 182,056
ay		Market Research		$ 316,165		$ 47,246	$ 363,411
az		Verification Team		$ 457,749		$ 68,399	$ 526,148
ba		Program Evaluation		$ 2,567,563		$ 313,714	$ 2,881,277
bb		Biennial Electric Conservation Acquisition Review		$ 110,000			$ 110,000
bc		**Subtotal, Research & Compliance**	**0**	**$ 3,806,632**		**$ 482,420**	**$ 4,289,051**
bd		**Total MWh, Efficiency Programs Included in CE Calculations**	**277,605**	**$ 95,769,183**	**3,080,826**	**$ 13,322,435**	**$ 109,091,617**
		Other Electric Programs					
be	E150	Net Metering		$ 760,196			$ 760,196
bf	E195	Electric Vehicle Charger Incentive		$ 2,878,146			$ 2,878,146
bg		**Subtotal, Other Electric Programs**		**$ 3,638,342**		**$ -**	**$ 3,638,342**
bh		**GRAND TOTAL All Programs**	**31.7 aMW**	**$ 99,407,525**	**3,080,826**	**$ 13,322,435**	**$ 112,729,960**
bi		**Electric Total, less NEEA**	**255,267 MWh 29.1 aMW**	**$ 94,635,604**			
bj		**Electric Total, less (NEEA + Pilots)**	**247,048 MWh 28.2 aMW**	**$ 93,367,892**			

bk Blue cells = use for 10% "info-only" calculation: 7.1% 8.6%

Add up all blue cells and divide by "Total, Efficiency Programs Included in CE Calculations" line.
HER-legacy program costs excluded from "info-only" calculation because savings will be measured.

bl Purple cells = use to indicate a reasonable amt. spent on EM&V: 3.9% 3.5%

Add up the sum of "Program Evaluation" + "Verification" pink cells and divide by the Residential + Business pink cells.

April, 2015: Please note that the Rebates Processing total budget amount (circled above in red: $740,193) is revised from the originally-filed (Nov. 26, 2014) Exhibit 1 total of $654,327. Due to a formula error in the "Overhead" table on the Rebates Processing detail page, (page # 81 of the PDF "UE-132043 PSE Volume 2_2015 Exhibits 1 thru 11) the correctly-calculated overhead amount of $293,058.40 was multiplied by the overhead rate of 70.7% *again*. The resulting amount noted in the originally-filed Exhibit 1 ($207,193.29) was incorrect by $85,866.11. The value noted in the blue "Overhead Total" in the Rebates Processing detail page now accurately reflects the anticipated labor overhead for Rebates Processing in 2015.

X. Reference Appendix II – Summary of Decoupling Deferrals

Appendix 2 is the Puget Sound Energy Summary of Decoupling Deferrals by Group for July 2013 through June 2014 and for July 2014 through June 2015.

Puget Sound Energy
Summary of Decoupling Deferrals by Group
July 2013 - June 2014

	Electric Residential	Electric Non-Residential (1)	Electric Schedule 26	Electric Schedule 31	Total Electric	Gas Residential	Gas Non-Residential (2)	Total Gas	Total Electric & Gas
July-13	$ (259,574)	$ (798,799)			$ (1,058,373)	$ 948,190	$ (199,466)	$ 748,724	$ (309,649)
August-13	$ (900,618)	$ (691,552)			$ (1,592,170)	$ 361,191	$ 839,910	$ 1,201,101	$ (391,069)
September-13	$ (644,010)	$ 148,491			$ (495,519)	$ 276,033	$ (132,528)	$ 143,505	$ (352,014)
October-13	$ (4,810,446)	$ (785,102)			$ (5,595,548)	$ (2,878,075)	$ (103,484)	$ (2,981,560)	$ (8,577,108)
November-13	$ (2,913,623)	$ 1,252,815			$ (1,660,808)	$ 273,016	$ 700,771	$ 973,787	$ (687,021)
December-13	$ (4,474,000)	$ (112,556)			$ (4,586,556)	$ (4,432,049)	$ (818,783)	$ (5,250,832)	$ (9,837,388)
January-14	$ 1,884,861	$ 604,600	$ 441,504	$ 359,690	$ 3,290,655	$ (431,949)	$ 1,096,276	$ 664,327	$ 3,954,982
February-14	$ 2,599,014	$ 1,300,880	$ 178,408	$ 395,325	$ 4,473,628	$ (1,007,277)	$ (817,310)	$ (1,824,588)	$ 2,649,041
March-14	$ 3,064,271	$ 1,723,236	$ (121,554)	$ (376,581)	$ 4,289,371	$ 1,783,807	$ 958,170	$ 2,741,977	$ 7,031,348
April-14	$ 4,708,449	$ 1,386,757	$ 11,061	$ (148,230)	$ 5,958,037	$ 2,446,407	$ 784,943	$ 3,231,350	$ 9,189,387
May-14	$ 1,774,495	$ (158,834)	$ 195,091	$ 300,183	$ 2,110,935	$ 2,782,447	$ 45,210	$ 2,827,658	$ 4,938,592
June-14	$ 1,824,668	$ 629,118	$ (206,458)	$ (119,838)	$ 2,127,490	$ 956,204	$ 682,910	$ 1,639,115	$ 3,766,604
Total	$ 1,853,486	$ 4,499,054	$ 498,052	$ 410,549	$ 7,261,141	$ 1,077,945	$ 3,036,618	$ 4,114,564	$ 11,375,704

Note 1: Deferral amounts above do not include revenue sensitive items.
Note 2: Deferral amounts above are restated for the Errata Adjustment that was approved by the Commission on April 22, 2014 (Order 14, Dockets UE-121697/UG-121705).

(1) Rate Schedules 26&31 were included in this group until December 31, 2014. Per Settlement Agreement they were split into their own decoupling groups effective January 1, 2014.
(2) Rate Schedules 85,85T,87&87T were included in this group until December 31, 2014. Per Settlement Agreement these schedules went on the rate plan effective January 1, 2014.

Puget Sound Energy

Summary of Decoupling Deferrals by Group

July 2014 - June 2015

	Electric Residential	Electric Non-Residential (1)	Electric Schedule 26	Electric Schedule 31	Total Electric	Gas Residential	Gas Non-Residential (2)	Total Gas	Total Electric & Gas
July-14	$ (1,216,630)	$ (1,284,018)	$ (228,340)	$ (21,835)	$ (2,750,823)	$ 988,170	$ 273,213	$ 1,261,383	$ (1,489,440)
August-14	$ (1,380,053)	$ (559,756)	$ (16,747)	$ 365,286	$ (1,591,269)	$ 915,535	$ 48,058	$ 963,593	$ (627,677)
September-14	$ 225,113	$ 764,976	$ 153,919	$ 6,471	$ 1,150,479	$ 1,950,525	$ 359,037	$ 2,309,561	$ 3,460,040
October-14	$ (1,664,689)	$ 198,463	$ 253,483	$ 101,299	$ (1,111,444)	$ 5,476,407	$ 1,299,857	$ 6,776,264	$ 5,664,820
November-14	$ (3,772,094)	$ 432,887	$ 295,380	$ 439,785	$ (2,604,043)	$ 930,627	$ (393,675)	$ 536,952	$ (2,067,091)
December-14	$ (422,196)	$ 1,089,953	$ 233,164	$ 179,240	$ 1,080,161	$ 4,370,775	$ 1,398,565	$ 5,769,341	$ 6,849,502
January-15	$ 3,647,972	$ 1,486,935	$ (229,809)	$ 83,597	$ 4,988,694	$ 5,948,277	$ 1,519,117	$ 7,467,394	$ 12,456,089
February-15	$ 8,665,193	$ 2,131,950	$ (68,495)	$ (105,452)	$ 10,623,197	$ 10,584,348	$ 2,843,848	$ 13,428,196	$ 24,051,393
March-15	$ 5,129,865	$ 1,731,114	$ 272,458	$ 275,695	$ 7,409,132	$ 7,233,606	$ 1,677,300	$ 8,910,907	$ 16,320,039
April-15	$ 4,187,841	$ 1,045,890	$ 187,610	$ 118,108	$ 5,539,449	$ 2,831,985	$ 513,913	$ 3,345,898	$ 8,885,347
May-15	$ 2,235,291	$ (61,743)	$ 221,348	$ 365,259	$ 2,760,155	$ 3,174,805	$ 691,963	$ 3,866,768	$ 6,626,923
June-15	$ 1,066,795	$ (198,529)	$ (82,677)	$ 103,522	$ 889,110	$ 2,412,067	$ 728,139	$ 3,140,206	$ 4,029,316
Total	$ 16,702,407	$ 6,778,121	$ 991,294	$ 1,910,977	$ 26,382,799	$ 46,817,127	$ 10,959,335	$ 57,776,462	$ 84,159,262

Note 1: Deferral amounts above do not include revenue sensitive items.

Note 2: Deferral amounts above are restated for the Errata Adjustment that was approved by the Commission on April 22, 2015 (Order 14, Dockets UE-121697/UG-121705).

(1) Rate Schedules 26&31 were included in this group until December 31, 2013. Per Settlement Agreement they were split into their own decoupling groups effective January 1, 2014.

(2) Rate Schedules 85,85T,87&87T were included in this group until December 31, 2013. Per Settlement Agreement these schedules went on the rate plan effective January 1, 2014.

“We are like tenant farmers chopping down the fence around our house for fuel when we should be using Nature's inexhaustible sources of energy — sun, wind and tide. … I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that.”

Thomas Alva Edison, in conversation with Henry Ford and Harvey Firestone, 1931

Peach, H. Gil, Mark Thompson & John Joseph, *Puget Sound Energy Electric and Natural Gas Decoupling Second Year Evaluation, an Independent Third-Party Evaluation of Puget Sound Energy's Electric and Natural Gas Decoupling Mechanism.* Beaverton, Oregon: H. Gil Peach & Associates LLC, Monograph 2016-04-02, April 2016.

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