

**BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION**

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

In the Matter of the Petition of

PUGET SOUND ENERGY

For an Order Authorizing Deferred
Accounting Treatment for Puget Sound
Energy's Share of Costs Associated
with the Tacoma LNG Facility

DOCKET UE-220066 and UG-220067
(*consolidated*)

DOCKET UG-210918

TESTIMONY OF BRADLEY T. CEBULKO

ON BEHALF OF THE ENERGY PROJECT

EXHIBIT BTC-1T

***Performance Based Ratemaking
Time Varying Rates***

July 28, 2022

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EXHIBIT LIST

- BTC-2** **Qualifications**
- BTC-3** **The Energy Project Data Request No. 119: Performance Incentive Mechanisms**
- BTC-4** **The Energy Project Data Request No. 18: Performance Measures**
- BTC-5** **The Energy Project Data Request No. 34: Time Varying Rate Pilot**
Exhibit A: Sanem Sergici, Ahmad Faruqui, et al., PC44 Time of Use Pilots: Year One Evaluation, Brattle Group (September 15, 2020).
- BTC-6** **The Energy Project Data Request No. 36: Time Varying Rate Pilot**

1 **I. Introduction**

2 **Q: Please state your name and business address.**

3 A. My name is Bradley Cebulko. I am a Manager at Strategen Consulting whose
4 business address is 10265 Rockingham Drive, Suite #100-4061, Sacramento, CA
5 95827.

6 **Q: How long have you been employed by Strategen Consulting?**

7 A: I have been employed by the Strategen since August 2021. Before Strategen, I
8 served as a Senior Advisor to the commissioners at the Washington Utilities and
9 Transportation Commission (WUTC).

10 **Q: Please state your educational and professional background.**

11 A: At Strategen, I work with a range of clients on electric and natural gas utility
12 regulatory issues including new regulatory business models, integrated resource
13 planning, and natural gas decarbonization.

14 Prior to joining Strategen in 2021, I worked at WUTC for 8 years. From
15 2016-2021, I was an Advisor to the commissioners of the WUTC, where I led the
16 commissioners' review of major filings and adjudications, rulemakings, and
17 integrated resource plans. From 2013-2016, I was an analyst with the WUTC
18 Commission Staff focused on electric and natural gas integrated resource planning
19 ("IRP"), electric and natural gas energy efficiency programs, and new program
20 design and implementation.

21 I have a Master's in Public Policy and Governance from the University of
22 Washington and a Bachelor of Arts in Political Science from Colorado State
23 University.

1 **Q. Have you testified before the Washington Utilities and Transportation**
2 **Commission?**

3 A: Yes. I testified regarding service quality and reliability metrics in 2014 and 2015,
4 and in 2016 on Puget Sound Energy's proposed appliance leasing program.¹

5 I have also recently submitted testimony before the Commissions in
6 Massachusetts, Minnesota, Michigan, and Oregon. Before the Massachusetts
7 Department of Public Utilities, I testified on behalf of the Sierra Club on the
8 approval of an agreement for a natural gas utility to enter a 20-year contract for
9 the purchase of renewable natural gas. Before the Minnesota Public Utilities
10 Commission, I testified on behalf of the Minnesota Citizens Utility Board on the
11 natural gas expenditures of three utilities during the February 2021 Winter Storm.
12 Before the Michigan Public Service Commission, I testified on behalf of a
13 coalition of advocacy groups in a natural gas utility rate case regarding a gas
14 utility's renewable natural gas (RNG) proposal and gas line extension policy.
15 Finally, before the Oregon Public Utilities Commission, I recently testified on an
16 electric utility's proposed voluntary renewable energy tariff on behalf of a large
17 customer.

18 **Q: Please describe Strategen's work on performance-based ratemaking.**

19 A: My team at Strategen is nationally recognized for thought leadership and
20 expertise in regulatory innovation and performance-based regulation (PBR).

21 Currently, we work with the Connecticut Public Utilities Regulatory Authority to

¹ See *Washington Utilities and Transportation Commission v. Avista Corporation*, Dkts. UE-140188 & UG-140189; *Washington Utilities and Transportation Commission v. Avista Corporation*, Dkts. UE-150204 & UG-150205; *Washington Utilities and Transportation Commission v. Puget Sound Energy*, Dkts. UE-151871 & UG-151872.

1 develop a performance-based regulation (PBR) framework. Through this multi-
2 year process, we are providing technical assistance to the Authority in its
3 investigation into appropriate performance metrics and leading the Authority's
4 stakeholder management process. My team has also designed or participated in
5 PBR-related proceedings across the country including in Vermont, New
6 Hampshire, Illinois, North Carolina, Massachusetts, Minnesota, Oklahoma, and
7 Hawaii.

8 **Q: On whose behalf are you testifying?**

9 A: I am testifying for The Energy Project (TEP), an intervenor in this proceeding.
10 TEP represents low-income customers and vulnerable populations in Washington
11 state, as well as the Community Action Partnership (CAP) agencies that provide
12 low-income energy efficiency and bill payment assistance for customers in PSE's
13 service territory.

14 **Q: Are you sponsoring any exhibits?**

15 A: Yes, as described in the Exhibit List I am sponsoring exhibits BTC-2 through
16 BTC-5.

17 **Q: Will you please summarize the purpose of your testimony?**

18 A. I am testifying on behalf of TEP regarding the Company's proposed metrics for
19 evaluating its performance during its proposed multi-year rate plan period and the
20 Company's proposed Time Varying Rates (TVR) Pilots

21 **Q: Please summarize your recommendations regarding the performance based
22 ratemaking metrics.**

23 A. With respects to performance metrics used for evaluating the Company's
24 performance during the multi-year rate plan, I recommend the following:

- 1 (a) Reject the Company’s request for setting performance incentive
2 mechanisms (PIMs) in this case.
- 3 (b) Reject the Company’s proposal to assign targets to the Company’s
4 performance metrics in this case.
- 5 (c) Adopt the Company’s proposed metrics, with the following three
6 exceptions:
- 7 (i) Reject “number of light duty electric vehicles in service territory.”
8 (ii) Modify the following metrics:
- 9 1. “Number of EV chargers used in managed load programs or
10 TOU rates (single family residents)” to “Percentage of load
11 shifted to off-peak periods attributable to TE tariff offerings
12 by use case”
- 13 2. “Number of EV chargers used in managed load programs or
14 TOU rates” to “Percentage of EV load subject to managed
15 charging programs (E)
- 16 (d) Adopt my proposed metrics to measure if the Company is providing
17 affordable rates and equitable service.

18 **Q. Please summarize your recommendations regarding the Time Varying Rates**
19 **pilots.**

20 A: For the TVR pilots, I recommend that the Commission approve the Company’s
21 proposals with the following modifications:

- 22 (a) Test the impact of bill protection on TVR pilots by requiring PSE to
23 provide bill protection to half of the low-income customers (up to
24 80% AMI or 200% FPL) who participate in the TVR pilots.

- 1 (b) Test the impact of providing enabling technology to low-income
- 2 customers by providing enabling technology to half of the low-
- 3 income customers (up to 80% AMI or 200% FPL) who participate in
- 4 the TVR pilots.
- 5 (c) Require the Company’s TVR recruitment materials and language to
- 6 be vetted by the Commission’s Consumer Protection Division.
- 7 (d) Require the evaluation measurement & verification (EM&V) plan’s
- 8 post treatment survey to ask questions to determine if customers
- 9 understood their rates and the impact to their bills during the pilot.

10 **II. Performance-Based Ratemaking**

11 **A. Principles for Performance-Based Ratemaking**

12 **1. Performance-Based Ratemaking in Washington**

13 **Q. Does this case address performance-based ratemaking?**

14 A: Yes. In 2021, the legislature passed Senate Bill 5295, which encouraged the
15 Commission and investor-owned utilities to implement multi-year rate plans
16 (MYRP) and performance-based ratemaking (PBR).² After January 1, 2022, the
17 law requires every general rate case to include a proposal for a multiyear rate plan
18 and for the Commission to determine a set of performance metrics that it will use
19 to assess the utility’s performance during the course of the MYRP.³ SB 5295 also
20 authorized the Commission to approve proposals to recover from ratepayers up to
21 5 percent of total revenue requirement each year for a tariff that reduces the

² RCW 80.28.425; 2021 Wash. Laws Ch. 188, (Senate Bill 5295 or SB 5295).

³ RCW 80.28.425(7).

1 energy burden of low-income residential customers, including bill assistance and
2 a unique rate class.⁴

3 **Q: Did SB 5295 provide any other context for performance-based ratemaking?**

4 A: Yes. The legislature required the Commission to conduct a proceeding to develop
5 a policy statement addressing alternatives to traditional cost of service
6 ratemaking, including performance metrics or goals, targets, incentives, and
7 penalties.⁵ In October 2021, the Commission opened Docket U-210590 with the
8 intention to develop a policy statement to provide clarity and certainty to
9 stakeholders regarding alternatives to traditional cost of service ratemaking,
10 including performance-based regulation. The Commission's workplan expects
11 that the proceeding will run through at least the end of 2025.⁶

12 **Q: Has the Energy Project submitted comments in that proceeding?**

13 A: Yes. In April 2022, TEP filed comments identifying the regulatory goals and
14 outcomes that should be pursued through performance-based ratemaking in
15 Washington.⁷ TEP also filed comments in June 2022 that discussed how well
16 current regulatory mechanisms accomplish the regulatory goals and outcomes
17 identified in the first round of comments, as well as on the specific principles for
18 designing performance metrics.⁸

⁴ RCW 80.28.425(2).

⁵ 2021 Wash. Laws Ch. 188, Sec. 1.

⁶ Docket U-210590, Letter to the Legislature regarding an update on the process to date, expected duration, and work plan of the Commission's proceeding to develop a policy statement addressing performance-base regulation of investor-owned electric and natural gas companies. Appendix, PBR Work Plan Final (January 27, 2022).

⁷ Docket U-210590, Comments of The Energy Project on Goals and Outcomes for Regulation in Washington (April 27, 2022).

⁸ Docket U-210590, Second Comments of The Energy Project on Performance-Based Regulation in Washington (June 13, 2022).

1 **Q: Will you briefly recap the regulatory goals TEP identified in its comments in**
2 **Docket U-210590?**

3 A: Yes. TEP recommended that the Commission adopt four regulatory goals.

- 4 1. Provide affordable service
- 5 2. Provide equitable service
- 6 3. Advance societal outcomes, and
- 7 4. Satisfy customer needs.⁹

8 For each regulatory goal, TEP identified two to four desired outcomes. For
9 example, TEP's regulatory goal of "provide affordable service" includes the
10 following outcomes: 1) Reasonable bills for all customers, 2) Reasonable energy
11 burdens for all customers, 3) Provision of economic service does not result in
12 economic harm to customers, and 4) efficient use of grid investments are
13 distributed energy resources.

14 The ultimate purpose of the regulation is to ensure that the public interest
15 is met, focused on outcomes for customers. The public interest includes
16 maintaining energy services that are affordable, clean, safe, reliable, and equitably
17 distributed.¹⁰ In exchange, the utility has the opportunity to earn a fair rate of
18 return, although this opportunity does not need to be tied to its investments in rate
19 base. Through PBR, the Commission can better align the utility's financial
20 incentives with customers' interests. The purpose of identifying the regulatory
21 goals is to articulate customers' interests.

22 **Q: Does the Commission have any experience with performance-based**

⁹ Docket U-210590, Second Comments of The Energy Project on Performance-Based Regulation in Washington, at 3-6 (June 13, 2022).

¹⁰ RCW 80.28.425

1 **regulation?**

2 A: Yes, and in particular with revenue adjustment mechanisms. In TEP's comments
3 to the Commission in the generic proceeding on June 13, 2022, TEP identified a
4 number of PBR tools of which the Commission has employed, including revenue
5 decoupling, power cost adjustments, purchase gas adjustments, and service
6 quality and reliability Scorecards.¹¹ These tools can all be part of the well-
7 designed PBR framework that is rounded out by a focus on adopting other PBR
8 tools that incentivize affordable and equitable service.

9 **2. Best Practices for Performance-Based Ratemaking**

10 **Q: How did PSE witness Mark Lowry describe why regulators are interested in**
11 **pursuing PBR in this case?**

12 A: PSE Witness Mark Lowry testified that, "Dissatisfaction with the traditional cost
13 of service approach to ratemaking ("COSR") has prompted the development of
14 diverse alternative approaches that are collectively called "alternative regulation"
15 or 'Altreg.' These Altreg approaches vary in the incentives they provide to
16 utilities to perform well. Altreg approaches that provide relatively strong
17 performance incentives are called performance-based regulation."¹² I agree with
18 this statement, but think it is worth explicitly identifying *why* there is
19 dissatisfaction with the traditional approach, because that should help the
20 Commission, utilities, and stakeholders determine the appropriate regulatory goals
21 and outcomes.

¹¹ Dkt. U-210590, Second Comments of The Energy Project on Performance-Based Regulation in Washington, at 6-14 (June 13, 2022).

¹² Lowry, Exh. MNL-1T at 4:5-10.

1 **Q: Why is there dissatisfaction with the traditional cost-of-service approach to**
2 **ratemaking?**

3 A: The traditional cost-of-service model does not align the utilities and customers'
4 interests. First, the traditional cost-of-service regulatory structure has an
5 infrastructure bias.¹³ Utilities are financially rewarded for investing capital and
6 not for reducing electricity sales, procuring energy efficiency, or initiating
7 services in lieu of capital expenditures.¹⁴ At the time that the traditional model
8 was developed more than 100 years ago, customer and utility incentives were
9 generally aligned. Customer demand was increasing, and utilities were trying to
10 keep pace with that demand by building out the general, transmission, and
11 distribution systems.¹⁵ The traditional cost-of-service model built a safe and
12 reliable system. Then, over time, the way Washingtonians live changed. Customer
13 demand flattened, new cost saving technologies emerged, and the imperative of
14 climate change entered the public consciousness. In certain areas of the value
15 chain, such as generation, the utility no longer has a natural monopoly.¹⁶ As a
16 result of these changes the traditional cost-of-service model no longer aligns the
17 interests of customers and utilities in the same way. This is particularly true for

¹³ See Harvey Averch and Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, THE AM. ECON. REV. 1052-1069 (1962).

¹⁴ Hawaii Pub. Util. Comm., Dkt. No. 2018-0088, Proceeding to Investigate Performance-Based Regulation, Staff Proposal for Updating Performance-Based Regulations (Feb. 7, 2019) (Hawaii Staff Proposal), <https://puc.hawaii.gov/wp-content/uploads/2019/02/2018-0088-PBR-Staff-Proposal.pdf>.

¹⁵ Whited, M., Woolf, T., Napoleon, A., *Utility Performance Incentive Mechanisms, A Handbook for Regulators*, Synapse Energy Economics (March 9, 2015) (Synapse PIM Handbook), https://www.synapse-energy.com/sites/default/files/Utility%20Performance%20Incentive%20Mechanisms%2014-098_0.pdf.

¹⁶ Independent power producers compete against utilities at macro-level, and customers are siting renewable resources (sometimes paired with storage) on their own premises.

1 low-income customers, vulnerable populations, and people living in highly
2 impacted communities. These populations are, by definition, most likely to
3 experience adverse impacts, which the current regulatory model does not attempt
4 to alleviate.

5 The traditional cost-of-service model also does not incent equitable
6 service or advance societal outcomes. Until the passage of the Clean Energy
7 Transformation Act (CETA), the Commission generally only focused on a subset
8 of vulnerable populations: low-income customers. With the passage of CETA in
9 2019, and subsequently the HEAL Act,¹⁷ the Legislature articulated that the
10 equitable distribution of benefits and burdens as a state regulatory goal. However,
11 simply passing legislation does not alter a regulated utility's financial incentives.
12 Instead, this requires modifying the regulatory paradigm to ensure that the
13 outcomes articulated by the legislature are realized.

14 Finally, the utilities financial incentives are generally not aligned with
15 advancing societal outcomes, namely transitioning to a decarbonizing economy.
16 The utility's current incentive is to build plant and that bias is indifferent to the
17 source of energy or its carbon content.

18 **Q: What are the characteristics of a well-designed PBR framework?**

19 **A:** A well-designed PBR framework should result in a risk-sharing structure that
20 encourages utility performance to meet the Commission's identified regulatory
21 goals, outcomes, and objectives. A PBR framework should provide a utility with
22 the opportunity to earn a fair return in relation to its risk, based on a business

¹⁷ 2021 Wash. Laws Ch. 314 (SB 5141).

1 model that is aligned with achieving public priorities. It is imperative that the
2 Commission set the PBR framework correctly to avoid poor outcomes for
3 customers. Poorly thought out MYRPs and performance incentive mechanisms
4 can lead to worse outcomes for customers than traditional cost of service. The
5 Commission should still reorient around PBR because PBR's objective of
6 aligning utility and customers interests is a better model than cost-of-service's
7 objective of building rate base. My point is that there is a risk when transitioning
8 to PBR.

9 A well design PBR framework should also account for geography,
10 considering the types of utilities in the region, local regulatory practices, and state
11 law. For example, Washington state often follows the lead of the Northwest
12 Power and Conversation Council in planning decisions, and the legislature
13 identified the equitable distribution of energy benefits and reduction of burdens to
14 vulnerable populations and highly impacted communities as an important state
15 policy for the Commission to effectuate.

16 **Q: What are the types of alternative regulatory mechanisms that are typically**
17 **used in PBR frameworks?**

18 A: Although there can be some overlap, PBR mechanisms can typically be grouped
19 into three categories:¹⁸

- 20 1. **Revenue adjustment mechanisms** focus on how an electric company's
21 target revenues are determined, collected, and/or adjusted over time, and
22 include policy tools that shift regulation away from a backward-looking

¹⁸ Hawaii Staff Proposal at 12.

1 focus on costs and sales to a more forward-looking approach that
2 promotes cost control and improved performance. This Commission has
3 extensive experience with revenue adjustment mechanisms.

4 2. **Performance mechanisms** provide focused incentives for an electric
5 company to reach performance targets aligned with policy and identified
6 customer priorities through the public display of metrics or Scorecards, or
7 more overtly through financial reward for achieving certain levels of
8 exemplary performance. This Commission has extensive experience with
9 performance mechanisms, including bands for power cost adjustments and
10 service quality and reliability metrics and Scorecards.

11 3. **Other regulatory mechanisms** include those that provide electric
12 companies an opportunity to earn revenues from the procurement of cost-
13 effective, third-party solutions, such as cloud-based computing or
14 aggregated DERs.

15 **Q: Could you speak to why a comprehensive and balanced performance-based**
16 **regulatory framework is key to achieving public policy goals?**

17 **A:** Aligning the utility's interests with its customers interests necessitates building a
18 customer-centric regulatory framework. Balance is somewhat subjective but at a
19 high-level it is about the appropriate level of risk sharing between shareholders
20 and ratepayers. To ensure that the framework is designed to achieve multiple
21 regulatory goals and outcomes, the framework cannot be constructed in an ad-hoc
22 manner. Rather, the best practice is to select the right combination of alternative
23 regulatory mechanisms to achieve a balanced approach that is in the public
24 interest. An appropriately structured PBR framework provides clear regulatory

1 boundaries, highlights areas of focus, aligns financial incentives with customer
2 interests and public policy goals, and creates fair, transparent risk sharing.

3 **Q: What are some guiding principles that should ground and inform**
4 **performance based regulatory frameworks?**

5 A: There are three guiding principles that should help inform development of
6 performance based regulatory frameworks:¹⁹

- 7 1. Customer-centric approach,
- 8 2. Administrative efficiency, and
- 9 3. Utility financial integrity.

10 A customer-centric approach means expanding opportunities for customer
11 choice and participation in all appropriate aspects of utility system functions.
12 Administrative Efficiency means that the implementation of PBR is an
13 opportunity to simplify the regulatory framework and enhance the overall
14 efficiency of the regulatory process. Finally, regarding utility financial integrity, a
15 fundamental goal has been to ensure the utility's financial health. The financial
16 integrity of the utility is essential to its basic obligation to provide safe and
17 reliable electric service for its customers. Moreover, the utility is a critical
18 community partner and serves an integral role in achieving the state's energy
19 policy goals and serves as an essential credit-worthy off-taker for contracts for
20 non-utility power purchases and new evolving grid services providers. A PBR
21 Framework should help to reduce regulatory lag and preserve the utility's

¹⁹ Hawaii Staff Proposal at 11.

1 opportunity to earn a fair return on its business and investments, while
2 maintaining attractive utility features, such as access to low-cost capital.

3 **Q: How should the Commission consider performance metrics and performance**
4 **incentive mechanisms (PIMs)?**

5 A: TEP addressed this issue in its comments to the Commission in Docket U-210590
6 in June 2022.²⁰ I conceptually categorize metrics into three different levels:

- 7 1. Reported metrics,
- 8 2. Scorecards, and
- 9 3. Performance incentive mechanisms.

10 The three levels of metrics are best depicted as a pyramid. At the base,
11 regulators should establish a large number of metrics to track outcomes across
12 each of the regulatory goals. Of those reported metrics, regulators should then
13 select a subset to place on the Scorecard and assign targets or benchmarks.
14 Finally, regulators should select a limited number of performance incentive
15 mechanisms (PIMs) to associate with financial incentives or penalties.

16 **Q: Please describe reported metrics.**

17 A: Reported metrics are a set of publicly available data that measure a utility's
18 progress towards identified outcomes. Each outcome should have at least one
19 metric, although some metrics can help determine the achievement of two or more
20 outcomes. In general, metrics should be outcome-based, although in certain,
21 limited circumstances it may be appropriate for a metric to identify an input.
22 However, the Commission should be reticent to attach a target or incentive to an

²⁰ Docket U-210590, Second Comments of The Energy Project on Performance-Based Regulation in Washington, at 14 (June 13, 2022).

1 input-based metric. The purpose of reported metrics is primarily to determine if
2 the utility is making progress towards an outcome. The mere act of reporting and
3 publishing the metrics can incent utility performance, although that incentive is
4 not as strong as metrics in Levels 2 or 3.

5 **Q: Please describe the Scorecard.**

6 A: A Scorecard is a set of metrics, each including a target or benchmark. A target is a
7 desired or expected level of performance, while a benchmark is most often a
8 comparison to peer utilities. In either case, through the Scorecard the Commission
9 identifies a specific threshold for determining if the utility is meeting the
10 outcome. As described earlier, this concept is not new to the Commission as
11 Puget Sound Energy currently provides an annual score card, with targets and
12 benchmarks, that is focused on customer service and reliability. A Scorecard
13 should use a clear visual so the public can easily understand how the utility is
14 performing relative to its targets. Scorecards can incent utilities to meet goals,
15 even in the absence of a financial incentive. Ideally, a Scorecard includes a
16 limited number of metrics, anywhere from 12-24 metrics.

17 **Q: Please describe PIMs?**

18 A: A performance incentive mechanism (PIM) is a metric with a benchmark or target
19 to which the Commission attaches a financial incentive. The purpose of a PIM is
20 to focus a utility's attention on achieving the most important outcomes by
21 providing a financial incentive. The financial incentive can include penalties,
22 rewards, or both. This Commission has a long history using PIMs as a part of its
23 existing SQI report cards, which include financial penalties but not rewards. The
24 Commission should use PIMs where shareholder incentives and customer

1 interests are not currently aligned. For example, I would caution against assigning
2 a PIM for reliable service as reliability is already required by law, therefore the
3 law largely serves the purpose of aligning customers interests and shareholder
4 incentives.

5 **Q: How should the Commission go about developing performance metrics, a**
6 **Scorecard, and PIMs?**

7 A: The Commission should, through a robust discussion with utilities and
8 stakeholders, identify its regulatory goals and outcomes to align utility and
9 customer incentives. The Commission is undergoing this process through its
10 proceeding in Docket U-210590. As I stated earlier, a poorly conceived PBR
11 framework can produce a worse outcome than the Commission's current
12 regulatory practices, so the Commission should act deliberately. In docket U-
13 210590, the Commission established a schedule to identify its goals, outcomes,
14 and metrics for measurement. Ideally, the Commission will produce in docket U-
15 210590 a portfolio of performance mechanisms for utilities that spans across all
16 three levels.²¹ Concurrently, the process in docket U-210590 can identify for
17 which metrics sufficient historical data is available, and which metrics need
18 additional information, before setting targets and incentives.

19 **Q: What criteria should the Commission use when developing metrics?**

20 A: The Commission identified several of the most important criteria in its request for
21 comment in docket U-210590. In response, TEP identified that metrics should
22 reflect the desired outcomes of the regulatory goals, be clearly defined, be

²¹ Reported metrics, Scorecards, and PIMs.

1 quantifiable through reasonably available data, be easily interpreted, and be easily
2 verified. Some PBR literature argues that utilities should completely control the
3 indicator, or that the metric is “largely free from exogenous influences.”²² We do
4 not recommend adopting that design principle. It is certainly true that the
5 Commission should consider the relative influence of outside factors when
6 reviewing performance metrics, and the Commission should be diligent in its
7 approach if it considers targets or incentives for metrics with significant outside
8 influence. However, many of the most important metrics for evaluating utility
9 performance are influenced by exogenous influences. It is nearly impossible to
10 identify a metric that does not have some level of outside influence. For example,
11 a utility does not have complete control over the costs it incurs (*e.g.*, inflation,
12 weather, and market commodity costs to name a few outside factors), but the
13 Company does have significant control over its capital and operational expenses,
14 as well as the timing of those costs. TEP strongly encourages the Commission to
15 adopt a portfolio of affordability metrics, including total customer bill. If the
16 Commission adopts a broadly written principle that metrics be completely free of
17 exogenous influence, that may hamper efforts to measure utility performance for
18 meeting some of the most fundamental regulatory goals.

19 **Q: When should the Commission establish PIMs?**

20 A: PIMs should incentivize utilities to meet stretch goals in new and difficult
21 territory. Conversely, PIMs should not incentivize utilities to meet the Company’s
22 core obligations, such as delivering safe and reliable service, nor statutory

²² Synapse PIM Handbook at 30.

1 obligations, such as the requirements of CETA or the Climate Commitment Act.
2 Further, PIMs should be associated with metrics that measure outcomes tied to the
3 Commission's regulatory goals, not inputs. Finally, a PIM should only be
4 established if the Commission has confidence in its ability to set an optimal target
5 using suitable data.

6 **Q: Will you please expand on what data is suitable to use to set a target?**

7 A: Yes. Data sources should be reputable, complete, verifiable, and available for
8 anyone to view. Incomplete or insufficient sets of historical data may distort the
9 Commission's analysis when developing a target. The Commission should also
10 refrain from using confidential data as transparency is a necessary for setting
11 targets and imperative for setting an incentive or penalty. Finally, if the
12 Commission is setting a benchmark comparison to peer utilities, the data should
13 be reputable, complete, verifiable, and available to the public. Synapse's
14 Handbook for Regulators on Utility Performance Incentive Mechanism includes a
15 useful appendix of available data sources.²³

16 **Q: You testified that a PIM should only be established if the Commission has**
17 **confidence in its ability to set an optimal target using suitable data. Will you**
18 **please expand upon that statement?**

19 A: Yes. Once the Commission is comfortable with the breadth and depth of the
20 underlying data, the Commission then needs to be confident that it can identify
21 the optimal target for a PIM. Targets should be tied to achieving regulatory and
22 policy goals²⁴ and should be a stretch for the utility, but not unobtainable. Setting

²³ Synapse PIM Handbook at 96.

²⁴ Synapse PIM Handbook at 34.

1 a target will likely involve some mix of quantitative and qualitative analysis to
2 support the Commission's judgment and may require periodic adjustments.

3 **Q: How many PIMs should the Commission establish?**

4 A: There should only be a handful of PIMs, around 3-6. There can be dozens of
5 reported metrics, but to make the PIMs truly meaningful, the Commission should
6 focus on identifying only a few measurements for financially incentivizing the
7 utility's performance where its incentives are not already aligned with customers.

8 **Q: Do you have any other thoughts on PBR in general?**

9 A: Yes. PBR is not just metrics and PIMs. PBR does not inherently control costs, it
10 just measures costs and possibly rewards the Company for controlling costs to a
11 certain extent. The Commission should carefully consider and clearly state in its
12 Final Order how the design of the MYRP incents the Company controls its costs.
13 For example, the Commission may track which costs are allowed to be recovered
14 outside of the MYRP and make decisions that place most of the costs that are
15 within the utility's control in base rates.

16 **B. Analysis of PSE's Performance-Based Ratemaking Proposal**

17 **1. PSE's Proposed Performance Metrics**

18 **Q: Please provide a summary PSE's proposed performance metrics.**

19 A: PSE is proposing 31 metrics in two broad categories: Customer Cost and
20 Affordability, and Service Quality and Safety.²⁵ PSE is proposing targets
21 associated with 15 of the metrics, and two PIMs.

²⁵ Lowry, Exh. MNL-1T at 22-23.

1 The Customer Cost and Affordability metrics include demand side
2 management, transportation electrification,²⁶ a greenhouse gas emissions metric,
3 advanced metering infrastructure,²⁷ and equity metrics.²⁸ The Service Quality and
4 Safety metrics include the service quality and reliability metrics from PSE's
5 existing Scorecard with the addition of separately tracking the SAIDI and SAIFI
6 scores for highly impacted communities and vulnerable populations.

7 **Q: What is your reaction to PSE's proposed performance metrics?**

8 A: In general, I think the Company put forth a good first effort identifying
9 performance metrics and targets. I strongly support PSE's effort to identify SAIDI
10 and SAIFI for named communities. Tracking the electric service reliability for
11 named communities is an important step for ensuring that all customers are
12 sharing in the benefits and burdens of the transition to 100 percent clean energy. I
13 also appreciate that PSE extended beyond its Service Quality and Reliability
14 Report Card metrics to identify priority areas such as measuring peak load
15 management savings, transportation electrification, greenhouse gas emissions, and
16 equity metrics. However, I have several concerns with the Company's proposal,
17 which I will address in the remainder of my testimony. First, I think that the
18 Company proposes too many metrics that focus on measuring inputs (e.g., number
19 of electric vehicle chargers enrolled in a load management program) when it
20 could have proposed an outcome-focused metric (e.g., load shifted due to electric
21 vehicle load management program). I am also concerned that the suite of

²⁶ Lowry, Exh. MNL-1T at 33:8.

²⁷ Lowry, Exh. MNL-1T at 45:3.

²⁸ Lowry, Exh. MNL-1T at 47:6.

1 Company proposed metrics does not cover important regulatory goals such as
2 affordable rates and equitable service, and that its list of metrics is not complete.
3 As such, later in my testimony I propose additional metrics for measuring the
4 utility's performance.

5 **Q: Do you recommend rejecting or modifying any of PSE's proposed**
6 **performance metrics?**

7 A: Yes. I think the Commission should reject or modify three of PSE's proposed
8 electric vehicle metrics. The proposed metrics measures an input, not an outcome
9 that benefits customers. For example, I am not certain of the purpose of
10 measuring the number of light-duty electric vehicles in the Company's service
11 territory. Light duty-EVs are a subset of the EV market and the metric is almost
12 completely outside the control of the utility. As I discuss later, identifying
13 geographic gaps in EV adoption may have some utility. However, if the
14 Commission were to adopt this metric, I strongly recommend against assigning
15 any target, benchmark, or incentive to it.

16 I am particularly concerned with the Company's proposal to measure and
17 incentivize the number of EV chargers used in managed load programs or TOU
18 rates. The number of chargers in a program is not useful for measuring customer
19 benefits. The Commission should modify this metric to measure an outcome that
20 benefits customers, namely the capacity (MW) that the programs shift from on
21 peak to off peak. Transitioning to an outcome-based metric will help the
22 Commission determine if the Company is achieving regulatory goals such as
23 providing affordable service and reducing greenhouse gas emissions.

24 **Q: Do you recommend that the Commission approve PSE's proposed metric to**

1 **track the number of public charging ports serving named communities?**

2 A: It is appropriate for the Company to track the number of public charging ports
3 serving named communities if there is a geographic location component of the
4 metric. Tracking the number of ports in highly impacted communities and serving
5 vulnerable populations could help the utility identify gaps or insufficient
6 deployment of chargers in heavily trafficked areas. However, this metric measures
7 an input that is somewhat outside the control of the utility, and therefore is not
8 appropriate for an incentive or PIM. If the Commission decides to provide the
9 Company a PIM to incent EV charging infrastructure in named communities, it
10 should select a different, more appropriate metric to incentivize.

11 **Q: Are there other transportation electrification metrics that you recommend**
12 **the Commission measure?**

13 A: Later in my testimony, I offer a handful of “grid benefit” metrics that include
14 measuring the impact of transportation electrification programs. However, my
15 expectation is that other intervenors who are more focused on this area may offer
16 alternative transportation electrification metrics as well. I look forward to
17 reviewing those proposals.

18 **2. PSE’s Proposed PIMs**

19 **Q: PSE witness Mark Lowry testified that the Commission should take cautious**
20 **steps in the development of PIMs.²⁹ Do you agree?**

21 A: Yes. As I discussed earlier in my testimony, when transitioning to a performance-
22 based ratemaking and tracking metrics, there is risk that a poorly developed

²⁹ Lowry, Exh. MNL-1T at 19-20:23-1.

1 framework, particularly when setting PIMs, leads to worse outcomes for
2 customers. Incentives or penalties may be poorly conceived and too easy/difficult
3 to reach, resulting in an unnecessary windfall or harm to the utility. There could
4 also be unintended consequences from the design of a PIM that were not easily
5 identifiable prior to implementation. As I described earlier in my testimony, the
6 Commission should be patient and thoughtful, start collecting data on a wide
7 variety of metrics, and deliberately select which metrics to associate with targets
8 and incentives, and carefully design penalties and rewards. I agree with Witness
9 Lowry that the Commission's proceeding in Docket U-210590 is the appropriate
10 venue for those considerations.

11 **Q: Did PSE propose any PIMs in this case?**

12 A: Yes. PSE is proposing two reward-only PIMs, a demand response and an electric
13 vehicle incentive. Unsurprisingly, PSE proposes to provide its shareholders
14 rewards-only PIMs, failing to balance its PIMs with penalties. This underscores
15 the need for the Commission to take a holistic approach identifying which metrics
16 to incentivize, designing the rewards and penalties, and determining how much
17 money should be on the line for shareholders and ratepayers. I also note that PSE
18 proposes electric-only PIMs. PSE is a dual-fuel utility, and the Commission
19 should be equally concerned with aligning utility and customer interests for
20 methane gas customers as well.

21 **Q: Please explain PSE's proposed demand response PIM.**

22 A: PSE proposes a rewards-only PIM for achieving incremental effective capacity
23 targets of 5 MW in 2023, 6 MW in 2024, and 12 MW in 2025. The PIM provides

1 shareholders a percentage of the estimated lifetime cost of developing and
2 administering DR programs.

3 **Q: Do you agree with PSE's proposed demand response PIM?**

4 A: No, for three reasons. First, in PSE's Clean Energy Implementation Plan docket
5 stakeholders criticized PSE's DR target as inadequate.³⁰ PSE has a peak capacity
6 need of nearly 6,000 MW³¹ and identified a need for an additional 1,386 MW of
7 new resources by the end of 2025.³² The purpose of a PIM is to incentivize a
8 stretch goal, and it is difficult to conclude that acquiring 24 MW of demand
9 response by 2025 is a stretch goal for the utility. For example, Portland General
10 Electric, whose peak capacity is nearly half of PSE's,³³ identified a need to
11 acquire 141 MW of demand response in the winter and 211 MW in the summer.³⁴

12 Second, PSE proposes to give shareholders a reward for achieving just 90
13 percent of its target.³⁵ This particular aspect of the proposal is confounding. Why
14 should ratepayers reward shareholders for coming close, but not actually
15 achieving its target? By providing an incentive for failing to meet the target, the
16 Company's proposal renders the concept of a target meaningless. Further,

³⁰ Docket UE-210795, NW Energy Coalition's Comments on Puget Sound Energy's Final Clean Energy Implementation Plan, at 7 (March 2, 2022); Docket UE-210795, Commission Staff's Comments on Puget Sound Energy's Final Clean Energy Implementation Plan, at 10 (March 2, 2022).

³¹ Puget Sound Energy 2021 Integrated Resource Plan, at 1-9 (March 30, 2021) (Figure 1-1: Electric Peak Hour Capacity Need), <https://www.pse.com/IRP/Past-IRPs/2021-IRP>.

³² Puget Sound Energy 2021 Integrated Resource Plan, at 1-13 (Figure 1-4: Electric Preferred Portfolio, Incremental Nameplate Capacity of Resource Additions).

³³ Portland General Electric's IRP estimates that its 2020 annual peak demand is 3,436 MW. Portland General Electric 2019 Integrated Resource Plan, at 103 (July 2019) (Table 4-7), <https://portlandgeneral.com/about/who-we-are/resource-planning>.

³⁴ Portland General Electric 2019 Integrated Resource Plan, Executive Summary, at 19.

³⁵ Lowry, Exh. MNL-1T at 29:17-30:7.

1 ratepayers should not reward shareholders for meeting a statutory obligation,
2 much less “nearly” meeting a statutory obligation.³⁶

3 PSE’s proposal is absurd. Consider the following realistic scenario. In its
4 Clean Energy Implementation Plan, PSE proposes a demand response target of 5
5 MW in 2023, rising to 12 MW in 2025. If PSE achieves only 11 MW of DR by
6 2025, under PSE’s proposals, the Commission would reward shareholders for
7 achieving only 90 percent of its CEIP target through the PIM, and penalize
8 shareholders for not meeting its DR target in its CEIP. The Commission should
9 reject PSE’s proposal to avoid this irrational outcome. If the Commission
10 authorizes an incentive for demand response performance, it should only reward
11 significant achievements beyond statutory obligations.

12 Finally, I am concerned with the design of the reward structure. The
13 Company proposes that ratepayers reward shareholders with a percentage of the
14 estimated costs of developing the program. This incentivizes the utility to increase
15 the costs of developing and administering the program. Instead, a more
16 appropriate reward would incentivize the utility to increase customers benefits.

17 **Q: Please describe PSE’s proposed electric vehicle PIMs.**

18 A: PSE proposes a reward-only PIM based on the number of new EV chargers
19 installed and providing service under either a managed load program or TOU
20 rates.³⁷ The reward applies each year to installations in excess of the target.

21 **Q: Did the Company propose a target for measuring the Company’s**

³⁶ Goldberg, C., Cross-Call, D., Billimoria, S., Tully, O., *PIMs for Progress, Using Performance Incentive Mechanisms to Accelerate Progress on Energy Policy Goals*, Rocky Mountain Institute, at 29 (2020), <https://rmi.org/insight/pims-for-progress/>.

³⁷ Lowry, Exh. MNL-1T at 43:2-4.

1 **performance with its electric vehicle PIM?**

2 A: No. Witness Lowry testified that PSE does not have targets for EV installations at
3 the time of filing but would propose them later.³⁸ To the best of my knowledge,
4 the Company still had not filed a proposed target in early July 2022, when I wrote
5 this testimony.

6 **Q: Earlier in your testimony you identified an issue with design of the EV metric**
7 **associated with this PIM. Do you also have concerns with the design of PSE's**
8 **EV PIM?**

9 A: Yes. I am concerned that PSE's proposed PIM does not incentivize appropriate
10 utility behavior or have a target. First, the reward is based on an input and not an
11 outcome. The public interest is not necessarily served by increasing the number of
12 customers that own an EV and are enrolled in a managed load program. If the
13 Company exceeds an as-of-yet unknown target but the load management program
14 fails to shift customer load, then customers are worse off, yet the Company still
15 gets its reward. This is an example of an unintended consequence of a poorly
16 conceived PIM. The benefit to the public is realized only when the Company cost-
17 effectively shifts charging load to non-peak hours. Accordingly, an outcome-
18 focused metric would evaluate the success of shifting loads. TEP looks forward to
19 discussing such a metric, and perhaps an associated PIM, with utilities and the
20 Commission in docket U-210590.

21 Finally, the Commission should dismiss the Company's EV PIM proposal
22 for being incomplete upon filing of the case. PSE's omission of a target by which

³⁸ Lowry, Exh. MNL-1T at 42:10-11.

1 to judge performance is a fatal flaw in its proposal. Intervenors need sufficient
2 time during the regulatory process to evaluate the Company's full proposal,
3 including the target.

4 **Q: Do you have any comments on the proposed structure of the incentive
5 payments for the two PIMs?**

6 A: Yes. First, I am concerned that PSE is not proposing an incentive cap for either
7 PIM.³⁹ Regarding the EV PIM, I understand that PSE designed the incentive
8 payment as a percentage of the savings it achieves. This type of shared benefit of
9 savings is an attractive approach for an incentive payment. However, if the
10 Commission were to adopt this type of incentive mechanism, I would encourage
11 the Commission at first to set a cap to ensure that the PIM is designed correctly
12 and that it does not unintentionally harm ratepayers.

13 Next, should the Commission adopt a PIM for DR achievements in the
14 future, I would encourage the Commission to adopt an incentive payment that ties
15 the reward and penalty to customers savings, like PSE's proposal for the EV PIM,
16 rather than the expenses the Company incurred. Tying the incentive to expenses
17 incentivizes the Company to increase its expenses regardless of if it benefits
18 customers or not.

19 **C. TEP's Proposed Metrics**

20 **Q: Are you proposing any metrics for the Commission to adopt in this**

³⁹ Cebulko, Exh. BTC-3 (PSE Response to PC DR 119).

1 **proceeding?**

2 A: Yes. I am proposing that the Commission adopt 27 metrics that fall under all four
3 regulatory goals that I identified earlier:

- 4 1. Provide affordable service
5 2. Provide equitable service
6 3. Advance societal outcomes, and
7 4. Satisfy customer needs.

8 Due to limitations of time and budget, I focus my testimony on metrics for
9 the first two regulatory goals: affordability and equity. However, I am including a
10 full slate of performance metrics across all four proposed regulatory goals to help
11 advance the Commission’s discussion.

12 **1. TEP’s Proposed Affordability Metrics**

13 **Q. Did PSE propose affordability metrics?**

14 A: PSE proposed a limited set of affordability metrics focused on the number of low-
15 income customers who receive bill assistance (electric and gas).⁴⁰ The Company
16 did not, unfortunately, propose metrics related to changes in whole bills and rates
17 because “they are substantially driven by business conditions, such as
18 environmental statutes, weather, and general price inflation, which are beyond
19 PSE’s control.”⁴¹

20 **Q: Should the Commission set a metric that measures PSE customers’ average**

⁴⁰ Lowry, Exh. MNL-1T at 23, Table 2.

⁴¹ Cebulko, Exh. BTC-4 (PSE Response to TEP DR 18).

1 **bill?**

2 A: Yes. A recent Rocky Mountain Institute survey of PBR legislation in 17 states
3 found that the most cited policy goal was affordability and cost control.⁴² States,
4 including Washington, economically regulate investor-owned utilities to ensure
5 that the monopoly’s service is affordable.⁴³ Affordability is first and foremost
6 measured by examining the customer’s energy bill.

7 PSE’s argument that a customer’s bill is substantially beyond PSE’s
8 control severely downplays PSE’s control over its own costs. I agree that each of
9 the factors PSE identified as outside influences that will have an impact on rates
10 and bills, but PSE has substantial control over much of the costs and expenses it
11 incurs, as well as the timing of those decisions.

12 It is also worth noting that PSE is proposing a number of metrics that are
13 substantially influenced by those same outside factors, such as reliability metrics
14 like SAIDI and SAIFI, and one metric, “number of light duty electric vehicles in
15 service territory,” which is completely outside the control of the utility. I do not
16 find the Company’s argument against measuring customers’ bills persuasive.

17 **Q: Will you please discuss the merit of including the other affordability metrics?**

18 A: Yes. I crafted a list of metrics that gives the Commission a broad understanding of
19 the impacts to customer bills and the drivers of those costs, with a particular focus
20 on customers in highly impacted communities and vulnerable populations,
21 including low-income customers. As is well understood at this point, economic

⁴² Wilson. G., Felder, C., Gold, R., *States Move Swiftly on performance-Based Regulation to Achieve Policy Priorities*, Rocky Mountain Institute (March 31, 2022), <https://rmi.org/states-move-swiftly-on-performance-based-regulation-to-achieve-policy-priorities/>.

⁴³ RCW 80.28.074(1).

1 pain, including inflation and rising energy bills, always falls hardest on low-
 2 income households.⁴⁴ Through CETA, the legislature found that the public
 3 interest includes the equitable distribution of energy benefits and reductions of
 4 burdens to vulnerable populations and highly impacted communities,⁴⁵ and
 5 required the electric utilities to ensure this outcome through the development and
 6 implementation of Clean Energy Implementation Plans.⁴⁶ As such, it is important
 7 for the Commission to measure a variety of indicators to determine if the utility is
 8 meeting this requirement.

9 **Q. What affordability metrics do you propose for PSE?**

10 A: Table 1 below identifies 15 affordability metrics for both the electric and gas
 11 utility.

12 **Table 1: Providing Affordable Service, Metrics (E= electric, G= gas)**

	Metric	Time Interval
1	Average annual bill, by class, and by census tract (E & G)	Annually
2	Average annual bill as a percentage of income, by class, and by census tract (E & G)	Annually
3	Average bill as a percentage of low-income customers' average income (E & G)	Quarterly
4	Average excess burden per household (E & G)	Annually
5	Total revenue occurring through riders and associated mechanisms not captured in the MYRP (E & G)	Annually
6	Rate base per customer (E & G)	Quarterly
7	O&M per customer (E & G)	Quarterly
8	Rate of annual revenue growth compared to inflation (E & G)	Quarterly
9	Number and percentage of residential electric and gas disconnections for nonpayment by month, measured by location and demographic information (zip code/census tract, KLI customers, Vulnerable Populations, Highly Impacted Communities, and for all customers in total) (E & G)	Annually

⁴⁴ See, e.g., Rachel Siegel and Andrew Van Dam, 'Survival mode': Inflation falls hardest on low-income Americans, Washington Post (Feb. 13, 2022), <https://wapo.st/3NIEpI7>.

⁴⁵ RCW 19.405.010(6).

⁴⁶ RCW 19.405.040(8).

10	Residential arrearages by month, measured by zip code or census tract and demographic information (zip code/census tract, KLI customers, Vulnerable Populations, Highly Impacted Communities, and for all customers in total) (E & G)	Annually
11	Percentage of low-income customers who participate in one or more bill assistance programs (E & G)	Annually
12	Number of households with a high-energy burden (>6%), separately identifying known low income and Named Communities (E & G)	Annually
13	Percentage of households with a high-energy burden (>6%), separately identifying known low income and Named Communities (E & G)	Annually
14	Ratemaking return on common equity	Quarterly
15	Utility credit ratings	Quarterly

1

2 **Q. Why do you propose metrics 1 and 2 that measure average annual bills?**

3 A: Customers first and foremost care about the amount of their energy bills. I
4 propose the Commission track the average annual bill by customer class and by
5 census tract, and as a percentage of income. Tracking customers' monthly bill is
6 the key indicator for understanding the total financial impact on customers. I
7 propose to track the information by customer class, census tract, and as a
8 percentage of income to better understand the impact to highly impacted
9 communities and vulnerable populations.

10 **Q. Please explain why you propose metrics 3 and 4, average bill as a percentage**
11 **of low-income customers' average income and the average excess burden per**
12 **household.**

13 A: The purpose of these two metrics is to understand the year-over-year relationship
14 between a low-income household's income and the average annual electric or gas
15 bill. It is important to understand if electric and gas bills are increasing at a rate
16 higher or lower than household income so the Commission can track the impact
17 on vulnerable populations of the clean energy transition.

1 **Q: Why do you propose metric 5, total revenue occurring through riders and**
2 **associated mechanisms not captured in the MYRP?**

3 A: All regulation is incentive regulation. If the Commission establishes a MYRP but
4 allows cost recovery outside of the plan, there is an incentive for the utility to try
5 to increase the revenue it recovers through riders and other rate recovery
6 mechanisms in the years during the MYRP. It is important that the Commission
7 and public can readily measure and understand costs that occur outside a MYRP.

8 **Q: Please explain metrics 6-8.**

9 A: The purpose of these three metrics is to help identify the cost drivers of
10 customers' bills. Metrics 6 measures rate base per customer and metric 7
11 measures O&M per customer. Recognizing relative changes in each metric will
12 help the Commission understand the overall pace of spending by the utility.
13 Metric 8, the Company's annual revenue growth relative to inflation, is simply a
14 benchmark for understanding energy cost increases relative to total average cost
15 increases.

16 **Q. Why do you propose to track metrics 9-13?**

17 A: These metrics focus on impacts to highly impacted communities and vulnerable
18 populations. These metrics will help the Commission determine if programs and
19 policies directed at highly impacted communities and vulnerable populations are
20 successful.

21 **Q. Please explain why you are proposing metrics 14 and 15?**

22 A: These two metrics concern a utility's capital formation. Like rate base and O&M
23 per customer, these two metrics help the Commission understand the financial
24 health of a utility and if debt is a driver of costs to customers.

1 **Q: Are you proposing any targets or PIMs for these metrics?**

2 A: Not at this time. Parties and the Commission do not have sufficient information to
 3 set targets for many of these metrics, nor has there been a public discussion about
 4 the incentive framework. The Commission's workplan in Docket U-210590
 5 includes developing performance metrics, setting targets, and ultimately
 6 developing performance incentives. Given the state of that discussion and the
 7 development of PBR in Washington, I do not see a need to jump to developing a
 8 Scorecard, much less incentives, at this time. If the record in this proceeding
 9 includes suitable data⁴⁷ to develop targets for any of these metrics, I would not
 10 uniformly oppose adopting targets now.

11 **2. TEP's Proposed Equitable Service Metrics**

12 **Q: Turning to the equity metrics, what do you recommend?**

13 A: I recommend that the Commission adopt 13 metrics to measure equity in utility
 14 service. They are identified in Table 2 below.

15 **Table 2: Providing Equitable Service**

	Metric	Time Interval
16	Percentage of customers that participate in energy efficiency programs (E & G)	Quarterly
17	Percentage of low-income customers that participate in demand response, distributed energy resources, or renewable energy utility programs (E & G)	Quarterly
18	Percentage of utility energy efficiency program spending that benefits highly impacted communities and vulnerable populations (E & G)	Quarterly
19	Percentage of utility spending on demand response, distributed energy resources, and renewable that benefits highly impacted communities and on vulnerable populations (E & G)	Annually
20	Percentage of low-income customers that participate in utility electric vehicle programs, by program (E)	Quarterly

⁴⁷ See above, Exh. BTC-1T at 20-21.

21	Percentage of utility electric vehicle program spending that benefits highly impacted communities and vulnerable populations (E)	Annually
22	Percentage of utility owned and supported EVSE by use case located within and/or providing direct benefits and services named communities (E)	Quarterly
23	Number of Public Charging Stations located in Named Communities	Quarterly
24	Incremental annual spending of investments in Named Communities	Annually
25	Percentage of non-pipeline alternative spending that occurs in highly impacted communities and on vulnerable populations (G)	Annually
26	Percentage of company engagements available with translation services	Quarterly
27	Percentage of PSE suppliers that are minority-owned, women-owned, or veteran owned	Quarterly
28	Percentage of PSE employees and senior management (separately identifying a) c-suite employees and b) directors and employees more senior than directors) who identify as i) female or non-binary; or ii) as a person of color	Quarterly

1

2 **Q: Please explain why you are proposing these metrics?**

3 A: Like with the affordability metrics, my goal was to build out a portfolio of metrics
4 that measure the outcomes of the utility's provision of equitable service, as well
5 as its investments in its highly impacted communities and vulnerable populations..

6 **Q: Please elaborate on why are you are proposing metrics 16-24?**

7 A: These metrics capture the utility's programmatic investments in energy efficiency,
8 demand response, distributed energy resources, transportation electrification, and
9 renewable generation. Rather than focus on the total amount invested into
10 programs for customers in highly impacted communities and vulnerable
11 populations, I am recommending that the Commission measure the relative share
12 of programmatic spending as part of all PSE investments. Measuring the

1 percentage share of spending is a better measure of, 1) the equitable distribution
2 of energy and non-energy benefits and 2) the reduction of burdens to named
3 communities as required by law,⁴⁸ than total revenue.

4 **Q: Metric 25 measures the percentage of spending on non-pipeline alternatives**
5 **occurring in highly impacted communities and on vulnerable populations.**

6 **What is a non-pipeline alternative (NPA), and how can the Commission**
7 **measure NPA's benefits in highly impacted communities and for vulnerable**
8 **populations?**

9 A: A non-pipes alternative is any targeted investment or activity that is intended to
10 defer, reduce, or remove the need to construct or upgrade components of a natural
11 gas system, or “pipeline investment.”⁴⁹ A NPA is the gas equivalent to the electric
12 “non-wires’ alternative.” Like non-wires’ alternates, NPAs can be a portfolio of
13 investments, including energy efficiency, demand response, and electrification,
14 that can defer or reduce the size of a pipeline investment. I am unaware of any
15 active utility NPAs in Washington; however, I believe that NPAs will grow to be
16 an important focus of a decarbonizing gas utility. NPAs can reduce costs, improve
17 safety, and decrease emissions. To ensure that all customers are benefiting from
18 the transition to a decarbonizing economy, I am proposing that the utility track the
19 percentage of its NPA spending occurs with customers in highly impacted
20 communities and for the benefit of vulnerable populations.

⁴⁸ RCW 19.405.040(8).

⁴⁹ National Grid, What is an NPA? (accessed July 25, 2022),
<https://www.nationalgridus.com/Business-Partners/Non-Pipeline-Alternatives/What-is-an-NPA>.

1 **Q: Please explain why you are proposing metric 26?**

2 A: The purpose of this metric is to measure PSE's engagement with customers who
3 do not speak, or have difficulty speaking, English. This is an important metric for
4 measuring the Company's success in reach this vulnerable population.

5 **Q: Please explain metrics 27 and 28?**

6 A: An important component of ensuring that all people are benefiting from the
7 transition to clean energy is examining the utility's internal hiring practices, as
8 well as encouraging the utility to expand its network of suppliers, particularly
9 with historically marginalized communities.

10 **Q: Are there other metrics outside providing affordable and equitable service
11 that you recommend the Commission consider?**

12 A: Yes. As stated earlier, TEP recommends that the Commission adopt regulatory
13 goals for advancing societal outcomes and satisfying customer needs. The
14 regulatory goal of satisfying customer needs is focused on measuring outcomes
15 related to reliability and customer experience. PSE proposes a fairly robust set of
16 metrics for measuring both of those categories. I do not have any additions at this
17 time, but may offer alternatives through the generic proceeding. As I said earlier
18 in my testimony, I strongly support PSE's proposal to track the SAIDI and SAIFI
19 scores for highly impacted communities.

20 The regulatory goal of advancing societal outcomes is focused on
21 measuring outcomes related to pollution and greenhouse gas emissions
22 reductions, benefits to the electric grid, and benefits to the gas system.

23 **3. TEP's Proposed Metrics for Advancing Societal Outcomes**

1 **Table 3: Advancing Societal Outcomes**

	Metric
29	Carbon intensity CO ₂ e/MWh; CO ₂ e/MW, CO ₂ e/customer (E)
30	Total emissions from electric utility systems (E)
31	Total emissions from gas systems, including customer direct use (G)
32	Annual utility system CO ₂ e emissions avoided through non-pipe alternative programs (G)
33	Weighted average days exceeding health levels in Company service territory (E & G)
34	Ratio of new gas customers to new electric customers (E & G)
35	Percentage of households that rely on wood for home heating
36	Criteria pollutants levels in service territory (E & G)
36A	Annual SO ₂ , by census tract
36B	Annual NO _x , by census tract
36C	Annual PM (particulate matter), by census tract
36D	Annual volatile organic compounds, by census tract
36E	Number of days of HAP, by census tract
37	Peak load reduction capability attributable to gas demand response programs (G)
38	Actual peak load reductions realized through dispatched demand response in top 100 hours (G)
39	Annual capital expenditures avoided through non-pipe alternative programs (G)
40	Percentage of load shifted to off-peak periods attributable to transportation electrification tariff offerings by use case (E)
41	Percentage of EV load subject to managed charging programs
42	Peak load reduction capability attributable to demand response programs
43	Actual peak load reductions realized through dispatched DR in top 100 hours
44	Annual capital expenditures avoided through non-wires alternative programs
45	Price PSE charges at utility owned and supported EVSE, by use case
46	Types of electric transportation technology supported by a utility portfolio as a percent of total investments i.e. micro-mobility, transit, etc.

2

3 **Q: Why are you proposing the Commission measure criteria pollutant levels**
4 **(metric 36) in the Company's service territory?**

5 A: The largest sources of criteria pollutants, such as sulfur dioxide (SO₂), nitrogen
6 oxide (NO_x), and particulate matter (PM), come from the combustion of fossil
7 fuels and wood products. Although the Company's operations are responsible for
8 some of these sources, according to Washington Department of Health, the largest

39

1 sources in Washington are from motor vehicles, outdoor burning, and wood
2 smoke.⁵⁰ It is fair to say that the sources of criteria pollutants in the Company’s
3 service territory are considerably outside the control of the utility. However, I
4 recommend tracking criteria pollutants because the Company has significant role
5 to play in the reduction of the criteria pollutants through its transportation and
6 building electrification programs. The legislature has identified the critical role
7 electric utilities play in electrifying the transportation sector, the largest source of
8 these pollutants.⁵¹ PSE can also help electrify customers who primarily rely on
9 wood heating. Because the Company plays a critical role in reducing these
10 pollutants, I recommend that the Commission track the pollutant levels.

11 **Q: Do you propose metrics in addition to, or as substitutes for, the metrics in**
12 **PSE’s initial testimony?**

13 A: TEPs proposed metrics are in addition to the Company’s proposed metrics, with a
14 few exceptions. I recommend removing the Company’s proposed electric vehicle
15 metrics “number of light duty electric vehicles in service territory.” I also
16 recommend modifying two other electric vehicle metrics. The PSE proposed
17 metrics are:

⁵⁰ Washington State Department of Health, Sources of Outdoor Air Pollution and Health Impacts (accessed July 25, 2022), <https://doh.wa.gov/community-and-environment/air-quality/outdoor-air> (“The main sources of outdoor air pollution in Washington State are motor vehicles, outdoor burning, and wood smoke. Gas and diesel-powered equipment, some industries and wildfires also contribute to air pollution.”).

⁵¹ 2015 Wash. Laws Ch. 220, Sec. 1(3) (“The legislature finds that utilities, who are traditionally responsible for understanding and engineering the electrical grid for safety and reliability, must be fully empowered and incentivized to be engaged in electrification of our transportation system.”); RCW 80.28.360.

- 1 1. Number of EV chargers used in managed load programs or TOU rates
2 (single family residents), and
- 3 2. Number of EV chargers used in managed load programs or TOU rates.

4 I proposed modifying these two metrics to:

- 5 1. Percentage of load shifted to off-peak periods attributable to TE tariff
6 offerings by use case (E)
- 7 2. Percentage of EV load subject to managed charging programs (E)

8 As explained earlier in my testimony, the Company’s proposed metrics
9 measure inputs rather than outcomes. My proposed modifications capture the
10 benefit to the grid of enrolling electric vehicles in managed load programs.

11 **4. Public Access to Metric Data**

12 **Q: Where do you propose the Company file the results of these metrics?**

13 A: For this case, I recommend that the Company file results as a compliance filing to
14 these dockets and be required to post all current and historical information in an
15 easily accessible format on its website. I recommend the Company file the
16 performance metrics with the Commission as it is important information used to
17 build a record and determine if the Company is meeting regulatory objectives. I
18 also recommend that the Company be required to create an easily accessible, user-
19 friendly area on its website for customers to view this information. Transparency
20 is paramount for effective regulation, and customers and interested parties should
21 be able to find utility-specific performance metrics on its website and see how
22 performance has changed year-over-year. I anticipate that the Commission may
23 modify the filing requirements in its generic proceeding, Docket U-210590.

1 **Q: What do you mean by a “user-friendly” website?**

2 A: I mean that the website is intuitive, easy to navigate, and presents information as
3 simply as possible. For example, the Company should make widespread use of
4 bar-chart, line-charts, and other graphical displays that show how the utility’s
5 performance has changed from year to year. Current and historical data should be
6 accessible in downloadable files in tabular format, as well as an application
7 programming interface (API).

8 **III. Time Varying Rates (TVR) or Time of Use (TOU) Rates**

9 **Q: What are time varying rates (TVR) or time of use (TOU) rates?**

10 A: TVR is a pricing mechanism that encompasses a number of rate structures
11 including TOU rates, Peak Time Rebate (PTR), Critical Peak Pricing (CPP), and
12 Real Time Pricing (RTP), and is designed to shift usage away from peak demand
13 periods. These mechanisms vary in complexity and structure. TOU rates are tiered
14 rates that are determined by a peak and off-peak period. CPP similarly follows a
15 tiered rate structure where designated events during peak demand hours have a
16 higher rate. PTR is the positive mirror of CPP as it offers customers a rebate
17 based on load reductions during peak demand periods. RTP’s tiered rate structure
18 is typically determined by day-ahead market prices. TVR in its entirety is meant
19 to lower system costs by incentivizing customers to shift usage away from peak
20 hours through price signals.

21 **A. Review of Maryland’s TOU Pilots**

22 **Q: In the course of your review of PSE’s pilot, did you examine other**

1 **jurisdictions that have either implemented TOU programs or pilots?**

2 A: Yes. I reviewed an evaluation of three investor-owned utility TOU pilots in
3 Maryland. I chose to review these pilots as the evaluation included a specific
4 focus on the impacts to low and moderate income (LMI) customers. The
5 evaluation was also conducted by Brattle, which helped PSE design its proposed
6 TVR programs and will be conducting PSE’s evaluation as well.

7 **Q: Please summarize the three pilots with TOU rates introduced by three of**
8 **Maryland’s investor-owned utilities.**

9 A: Under Maryland Public Service Commissions’ PC44 proceedings, three investor-
10 owned utilities – Baltimore Gas and Electric (BGE), Pepco, and Delmarva Power &
11 Light (DPL) – introduced pilots with TOU rates.⁵² Each utility had its own
12 respective pilot with several shared fundamental designs for eligible residential
13 customers. Each pilot included a seasonal rate structure with June to September
14 being designated as the peak summer months and October to May designated as the
15 “non-summer”, off-peak months. In the peak, summer-designated months, peak
16 hours on non-holiday weekdays are from 2 pm to 7 pm and 6 am to 9 am during
17 winter-designated months. All other hours are off-peak.

18 There are several key features that make these three pilots unique compared
19 to other TOU rate designs. First, while most TOU pilots typically only include
20 higher peak prices on energy supply, all three pilots impose higher peak prices on
21 energy and delivery.⁵³ Second, on-peak hour rates are 4 to 6 times the off-peak hour

⁵² Cebulko, Exh. BTC-5, Sanem Sergici, Ahmad Faruqui, et al., PC44 Time of Use Pilots: Year One Evaluation, Brattle Group (September 15, 2020).

⁵³ Delivery refers to the transmission and distribution portions of the rate.

1 rates, which is a higher ratio than typically seen in TOU pilots. And finally, the
 2 pilot design specifically investigated the impacts on LMI customers. All three pilots
 3 created separate treatment groups for low-to-moderate income (“LMI”) customers
 4 to properly measure the statistical significance of impacts specifically on LMI
 5 customers.

6 Like the proposed PSE program, the pilot was structured in a quasi-
 7 experimental design. Customers were randomly selected through a recruitment
 8 process and then had the option to opt-in to the pilot. Non-eligible customers were
 9 used to create a matched control group for non-LMI and LMI customers using
 10 propensity score matching.

11 **Q: Please summarize the key findings from Brattle’s evaluation of the Maryland**
 12 **pilots.⁵⁴**

13 A: Customer enrollment rates for the three pilots ranged between 0.5 percent and 1.9
 14 percent. Of those customers, two-thirds saw bill reductions by enrolling in TOU
 15 rates without changing load behavior. The evaluation of the pilot found that peak
 16 summer impacts for all customers, on average, ranged between 10.4 percent and
 17 14.8 percent reductions. Overall, peak demand in the summer fell for all customer
 18 groups. In non-summer months, peak load reductions ranged between -5.1 percent
 19 and -6.1 percent for all customers. The study found that both LMI customers and
 20 non-LMI customers responded to the TOU rates, but that LMI customers responded
 21 at a reduced level.

22 **Table 4: Comparison of on-peak impacts for LMI and non-LMI customers in Maryland**

	BGE	PEPCO	DPL
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⁵⁴ Cebulko, Exh. BTC-5.

	LMI	Non-LMI	LMI	Non-LMI	LMI	Non-LMI
On-peak	8.1%	12.4%	10.7%	17.3%	13.7%	16.7%
Is the difference between LMI and non-LMI customers statistically significant?	Yes ⁵⁵		Yes ⁵⁶		No ⁵⁷	

1

2 **Q: What impacts were observed in the evaluation for LMI customers specifically?**

3 A: For BGE, LMI customers saw a peak load reduction of 8.1 percent, which was
4 lower, than the peak load reduction of 12.4 percent observed for summer weekdays
5 for non-LMI customers. Although both groups saw load reductions, LMI customers
6 experienced smaller reductions. Weekday consumption reductions for LMI
7 customers were not statistically significant, however they were significant for non-
8 LMI customers. In addition, a weekend spillover effect was observed where all
9 customers experienced a statistically significant load reduction during “peak” hours.
10 In the winter, weekday peak load reductions were lower than in the summer at 5.4
11 percent, and the difference between non-LMI and LMI customers was not
12 significant. There was little weekend spillover.

13 For Pepco, LMI customers experienced a peak load reduction of 10.7
14 percent, lower than the 17.3 percent reduction observed by non-LMI customers.
15 During off peak hours, LMI customers experienced lower load reductions than non-
16 LMI customers, but Brattle’s report concludes that the difference was not

⁵⁵ Cebulko, Exh. BTC-5, at 39.

⁵⁶ Cebulko, Exh. BTC-5, at 46.

⁵⁷ Cebulko, Exh. BTC-5, at 51. Brattle’s Evaluation noted that DPL’s sample size for LMI and non-LMI treatments are materially smaller than those of BGE and Pepco and therefore some of the impacts they estimated for individual customer groups (LMI and non-LMI) fall short of statistical significance.

1 statistically significant. Interestingly, Brattle observed significant weekend spillover
2 effects for all customers, which means that customers shifted their loads even
3 during periods where there wasn't a peak price signal.⁵⁸ In winter months, LMI and
4 non-LMI customers saw similar weekday peak load reductions.

5 For DPL's pilot, LMI customers had 13.7 percent peak load reductions in
6 summer weekday peak hours. Non-LMI customers experienced higher reductions
7 that Brattle concluded were not statistically significant in their difference from
8 impacts for LMI customers. During off-peak hours on weekdays, LMI customers
9 experienced a 4.6 percent reduction, while non-LMI customers experienced a 5.4
10 percent reduction. Like Pepco, weekend spillover effects were also observed. LMI
11 customers saw a reduction of 7 percent in weekend peak hours as compared to the
12 10.1 percent reductions for non-LMI customers.

13 **Q: What observations do you take from reviewing Brattle's evaluation of the**
14 **Maryland TOU pilots on the impacts to LMI customers?**

15 A: Based on my understanding of the evaluation, LMI customers experienced
16 comparable but slightly smaller impacts across the three pilots in both peak and off-
17 peak hours Brattle's evaluation concludes that during off peak hours the difference
18 between LMI and non-LMI customers was statistically insignificant. I do not doubt
19 the validity of Brattle's analysis. However, it is worth noting that the results were
20 statistically significant when measuring the difference in peak load reduction for
21 LMI and non-LMI customers. Furthermore, in every case that Brattle concluded the
22 difference was statistically insignificant the directionality was consistent- LMI

⁵⁸ Spillover is when a customer reduces their energy usage during the hours that correspond with a peak period but occur on days when there isn't a peak price signal.

1 customers always reported lower peak reductions than non-LMI customers. I think
2 it is fair to conclude that, based on this study, LMI customers in Maryland
3 experienced lower load reductions than non-LMI customers.

4 **B. PSE's Time Varying Rates Pilot**

5 **Q: Why is PSE proposing TVR pilots in this case?**

6 A: In the 2019 General Rate Case, the Commission Staff recommended that the
7 Company create a TOU and a Critical Peak Pricing (CPP) pilot.⁵⁹ Although the
8 Commission did not order the Company to file TOU pilots, PSE did so in this
9 case. Witness Jhaveri testifies that the proposed TVR pilots are in part a response
10 to interest expressed by the Commission in the final order of the 2019 General
11 Rate Case and take the initial steps towards modernizing electric rate designs.⁶⁰

12 **Q: What is the purpose of the TVR pilots?**

13 A: The purpose of the TVR pilots, as outlined by witness Faruqui's testimony, is to
14 develop and design rates that lower system costs by providing customers a "price
15 signal that encourages them to lower their monthly energy bills by reducing
16 consumption during the peak period and building it in the off-peak period."⁶¹ The
17 pilots are designed to evaluate the impacts of TVR and determine whether the
18 proposed rates effectively serve as price signals to get customers to lower peak
19 demand and provide customer benefits. Witness Jhaveri testifies that the proposed
20 pilots serve as an opportunity for the Company to utilize AMI and collect data on
21 revenue impacts, bill impacts, and other customer and system benefits.⁶²

⁵⁹ Docket UE-190529, Ball, Exh. JLB-1T at 37:1-37.

⁶⁰ Jhaveri, Exh. BDJ-1T at 92:16-20.

⁶¹ Faruqui, Exh. AF-1T at 2:12-13.

⁶² Jhaveri, Exh. BDJ-1T at 96:3-7.

1 **Q: What are PSE's stated goals for the TVR pilots?**

2 A: PSE witness Jhaveri testifies that the goal of the TVR pilots is to collect
3 information and evaluate the impacts of rate designs on a group of customers to
4 then develop a full scale TVR program.⁶³ PSE intends to study system load
5 impacts, customer response, and bill changes and determine how TVR minimizes
6 system costs, increases customer choice, improves equity and accessibility, and
7 increases and improves the integration of renewables.⁶⁴

8 **Q: What are the three TVR pilots that PSE's is proposing?**

9 A: PSE is proposing the following three TVR pilots:⁶⁵

- 10 • Two Period TOU – inclusive of on-peak and off-peak periods;
11 • Two Period TOU + Peak Time Rebate (PTR) – inclusive of on-peak
12 and off-peak periods with a PTR on a number of event days; and
13 • Three Period TOU – inclusive of on-peak, off-peak and super off-peak
14 periods.

15 **Q: Which customer classes will be treatment groups in the pilots?**

16 A: The pilots include a total of six separate treatment groups that are selected to
17 evaluate impacts on three customer classes: residential, residential low-income,
18 and small general service customers. The table below indicates which treatments
19 each customer class will receive.⁶⁶ These six different treatments create the six
20 treatment groups evaluated by the pilots.

⁶³ *Id.*

⁶⁴ Jhaveri, Exh. BDJ-1T at 96:8-13.

⁶⁵ Jhaveri, Exh. BDJ-1T at 99:16-21.

⁶⁶ Faruqui, Exh. AF-1T at 3:8.

1

Table 5: PSE's Proposed Treatment Groups in the Pilots

Rate	Non-Low-Income Residential	Low Income Residential	All Residential	Small Business
TOU	√	√	N/A	N/A
TOU+PTR ¹	√	√	N/A	√
Three-period TOU (EV)	N/A	N/A	√	N/A

2

3 **Q: What is the size of the pilots?**

4 A: The table below shows the size of each treatment group.⁶⁷ PSE has not specified
5 the number of low income participants it hopes to enroll in each program.

6

Table 6: PSE's Proposed Cap Allowance

Treatment	Reserved for Pilot Treatments	Schedule Cap (inclusive of pilot)
Residential Service Time-of-Use	1,000 customers	2,000 customers
Residential Service Time-of-Use Bill Discount Rate(s)	1,000 customers	2,000 customers
Residential Service Time-of-Use with Peak Time Rebate	1,500 customers	3,000 customers
Residential Service Time-of-Use with Peak Time Rebate Bill Discount Rate(s)	1,500 customers	3,000 customers
General Service Time-of-Use with Peak Time Rebate	2,000 customers	4,000 customers
Residential Service Time-of-Use 3-Tier with Super Off-Peak	500 customers	750 customers
TOTAL	7,500 customers	14,750 customers

7

8 **Q: Are you concerned with the size of the pilots?**

9 A: I have no specific concerns with the proposed size of the pilots. However, finding
10 enough willing participants in an opt-in program could be challenging. The

⁶⁷ Jhaveri, Exh. BDJ-1T at 109.

1 Company recognizes that and include a low and high range for the number of
2 participants. As the Company has a relatively ambitious program size and the
3 program is opt-in only, it will be important to review the Company's recruitment
4 language and literature to ensure that the marketing approach is in the public
5 interest. I will discuss this issue later in this testimony.

6 **Q: How does the Company propose to evaluate the pilots?**

7 A: PSE proposes four EM&V activities: 1) load impact evaluation after the first year
8 of the pilot, 2) load impact evaluation after the second year of the pilot, 3) process
9 evaluation after the second year of the pilot, and 4) customer feedback throughout
10 the pilot process.⁶⁸

11 **Q: What is the cost of the pilots?**

12 A: Witness Einstein testified that PSE anticipated the cost of the pilot, through 2025,
13 to be \$7.5 million.⁶⁹ The estimated split between capital versus operating and
14 maintenance expenditures for the pilot are expected to be approximately 79
15 percent capital versus 21 percent for O&M.⁷⁰

16 **Q: Is TEP challenging the cost of the pilots?**

17 A: No, TEP is not challenging the cost of the pilots in this case.

18 **C. Analysis of Company's TVR Proposals**

19 **Q: Based on your review, do you think PSE has laid out the correct goal and**

⁶⁸ Faruqui, Exh. AF-1T at 28:12-15.

⁶⁹ Einstein, Exh. WTE-1T at 21:18-19.

⁷⁰ Einstein, Exh. WTE-1T at 22:3-4.

1 **objectives of the pilot?**

2 A: Yes, for the most part. When developing and implementing a new program, best
3 practice is to have clearly identified objectives and goals, and a plan for
4 evaluating performance tied to achieving those objectives and goals. Witness
5 Faruqui testifies that the Company’s objective is “to lower system costs by
6 providing customers a price signal that encourages them to lower their monthly
7 energy bills by reducing consumption during the peak period and building it in the
8 off-peak period.”⁷¹ It has been and always will be important for a utility to
9 continuously identify pathways for reducing system costs for customers. This is
10 especially true now as PSE and the other electric utilities embark on a transition to
11 100 percent clean energy by 2045. To achieve this goal, the Company will have to
12 replace its gas peaker plants used for meeting peak needs with clean resources.
13 Peaking plants are typically the most expensive resources in a utility’s portfolio.
14 A TVR program holds promise because it can reduce the size of clean peaking
15 resources PSE needs to bring online.

16 It can take time to develop TVR programs, acclimate customers, and build
17 a significant resource that can be relied upon to reduce peak demand. Recognizing
18 this need is important for understanding the costs and benefits of the pilots and
19 crafting the next iteration.

20 **Q: What objectives do you think the Company is missing?**

21 A: I recommend that the Company be more explicit in its objective of studying the
22 impacts of the TVR pilots to low-income customers. Specifically, I recommend

⁷¹ Faruqui, Exh. AF-1T, at 15:11-13.

1 that the Commission require PSE to set two more objectives:

2 1. Test the impacts of offering enabling technology with a focus on
3 measuring the impact of pairing enabling technology with low-income
4 participants.

5 2. Test the impacts of offering bill protection to low-income customers.

6 PSE's testimony only makes passing remark that the pilots "will address the
7 issues of equity and accessibility," but the Company provides no details as to their
8 explicit questions they hope to answer.⁷² In response to TEP discovery, the
9 Company articulated that it plans to conduct detailed bill analysis on the low-
10 income treatment groups during and after the TVR pilot.⁷³ That is one necessary
11 step as part of the evaluation. But the Company should expand its pilot and
12 evaluation to include measuring the impacts of policies that can better ensure the
13 equitable distribution of benefits from the pilots.

14 Witness Faruqui's work in other jurisdictions has shown that customers
15 experience greater benefits from TOU rates if TOU is paired with enabling
16 technologies.⁷⁴ PSE agrees that enabling technologies can provide benefits to
17 customers and increase overall program deliverables.⁷⁵ Given Brattle's evaluation
18 in Maryland that shows LMI customers experience lower peak reductions, it is
19 worth testing if pairing TOU rates with enabling technology helps overcome that
20 difference for low-income customers. This is also an ideal opportunity for PSE to

⁷² Faruqui, Exh. AF-1T at 2:17-18.

⁷³ Cebulko, Exh. BTC-5 (PSE Response to TEP DR 34).

⁷⁴ Trabish, H., *An Emerging Push for Time-of-Use Rates Sparks New Debates about Customer and Grid Impacts*, Utility Dive (January 28, 2019), <https://www.utilitydive.com/news/an-emerging-push-for-time-of-use-rates-sparks-new-debates-about-customer-an/545009/>.

⁷⁵ Cebulko, Exh. BTC-6 (PSE Response to TEP DR 36).

1 develop a program that will help it meet its CETA requirement to ensure that all
2 customers are benefiting from the transition to a clean energy future. As I will
3 discuss later in my testimony, I recommend that the Company offering enabling
4 technology to half of the low-income participants to measure the impact of the
5 intervention.

6 I also recommend that the Commission require the Company to test the
7 impacts of bill protection. Witness Faruqui testifies that bill protection “may
8 obscure the true customer response” because a customer may act differently
9 knowing that they have bill protection.⁷⁶ Witness Faruqui’s assumption may be
10 correct – it seems to align with basic economic theory. However, as I will explain
11 later in my testimony, it is worth testing this hypothesis during a pilot when the
12 Company plans to extensively measure and evaluate the program to better inform
13 parties should PSE propose to transition to TVR for all customers.

14 **1. Expected Bill Impacts**

15 **Q: Did PSE perform an expected bill impact analysis from the TVR pilots?**

16 A: Yes. PSE witness Faruqui testified that based on an analysis of AMI data from
17 residential customers, if PSE transitioned customers to TOU rates without any
18 sort of demand response, 44 percent of customers would pay less, on average
19 \$6/month, and 56 percent of customers would pay more, on average \$4/month.⁷⁷
20 With a demand response, PSE estimates that 64 percent of customers would
21 experience lower bills, with an average monthly bill reduction per customer of
22 about \$3.

⁷⁶ Faruqui, Exh. AF-1T at 27:5-16.

⁷⁷ Faruqui, Exh. AF-1T at 22:3-12.

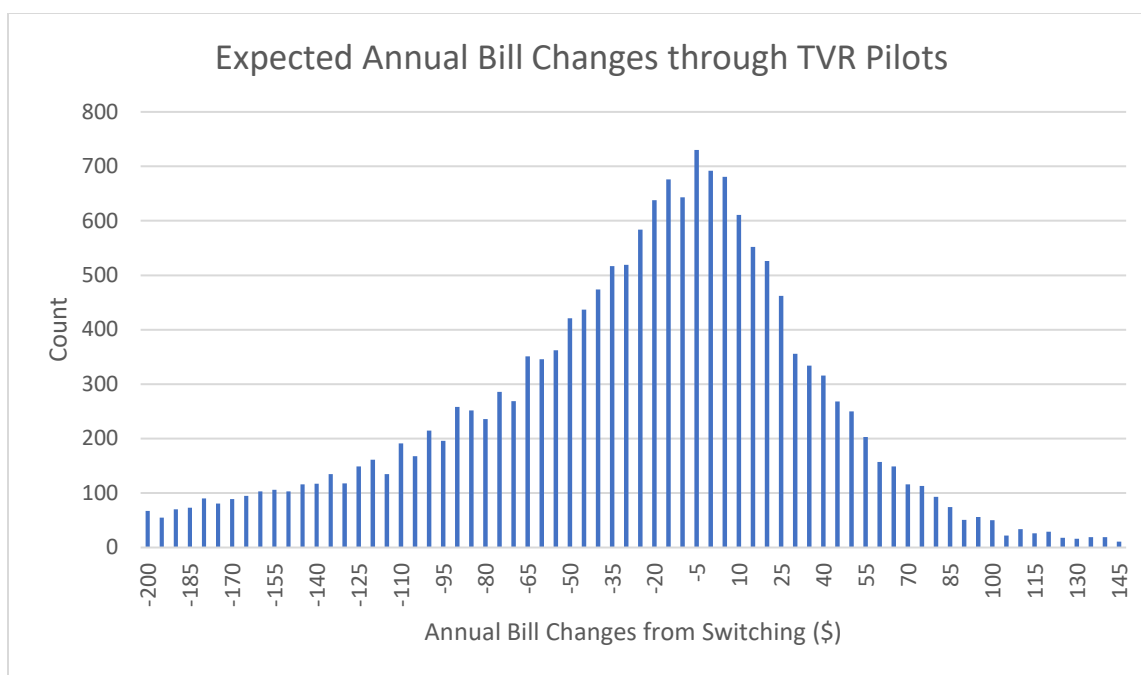
1 **Q: Did you find PSE's costs analysis satisfactory?**

2 A: Providing only average bill increases and reductions does not give us a complete
3 picture of the expected bill impacts. PSE designed the pilots to be revenue neutral,
4 which means that there will be winners and losers by design. If the program
5 succeeds, customers as a whole will benefit from the reduction to peak demand.
6 So, this is a worthwhile program to pursue. Recognizing that the program creates
7 winners and losers does not negate the overall purpose of the program. But it is
8 important to understand that not all customers are equally positioned to take
9 advantage of the program. Customers that already have enabling technology, or
10 can easily purchase enabling technology, are more likely to "win" in this program.
11 Moreover, for a customer that is already experiencing high-energy burden,
12 "losing" means more on a relative basis. PSE shows the average bill impact, but a
13 significant number of people will end up having bills that are much higher than
14 the average. A more complete picture would show the distribution of costs to
15 customers.

16 **Q: Did you look at the expected distribution of costs from the TVR programs?**

17 A: Yes. For the customers who would experience a bill increase after receiving a
18 price signal (demand response), the 50th percentile customer experienced a
19 \$26/year increase under the TOU with demand response program. This means that
20 50 percent of customers who experience a bill increase will see an even greater
21 increase than \$26/year. Just over 6 percent of customers will see an increase over
22 \$50/year and 1 percent will see an increase over \$100/year.

1 **Table 7: Distribution of Costs from TVR Programs on an Annual Basis**



2

3 **Table 8: TOU with Demand Response Program Rate Impacts**

Annual Bill Increase	Bill Impact	Annual Percentage Increase
10th percentile	\$5	0%
25th percentile	\$12	1%
50th percentile	\$26	2%
75th percentile	\$50	4%
90th percentile	\$79	6%

4

5 **Q: Do you know if low-income customers are more or less likely to experience**
 6 **higher bill impacts from participation in the TVR programs?**

7 **A:** Not definitively. But low-income customers are less likely to have access to
 8 capital to purchase enabling technology and are less likely to have enabling
 9 technology already in their homes. As we saw from the Maryland TOU pilots,
 10 low-income customers experienced lower peak reduction savings in the TOU

1 program. This indicates that low-income customers are less likely to be “winners”
2 under the TOU program. We also know that TOU programs take time to develop
3 and for customers to appropriately respond to the price signals. As such, I will
4 recommend that the Commission require PSE to study the impacts of providing
5 bill protection for some low-income customers⁷⁸ during the pilot.

6 **2. Bill Protection**

7 **Q: What is bill protection?**

8 A: Bill protection is a guarantee to the customer that they will not face bill increases
9 under a TOU rate for a period of time. A customer can benefit from the program
10 but will not be harmed if they are unable to adequately shift consumption.

11 **Q: What are the benefits of bill protection?**

12 A: The benefit is that it eliminates the harm to the customer that could be
13 experienced in a TVR program. Customers will take time to adapt to a new
14 pricing structure. Some of those changes are behavioral and other changes require
15 investments in enabling technologies like smart thermostats and smart appliances.
16 Either way, there is an adjustment period. All customers, not just low-income
17 customers, will go through a period of adjustment. However, low-income
18 customers with a high-energy burden are the least likely to be able to afford
19 enabling technology and can least afford a bill increase. It is also worth
20 remembering that customers whose rates increase due to this program will also
21 experience all other PSE rate increases.

⁷⁸ As defined in statute, up to 80 percent AMI or 200 percent FPL.

1 **Q: Have other utilities offered bill protection when implementing TOU rates?**

2 A: Yes. When the California utilities transitioned to standard TOU rates, all utilities
3 that I examined included one year of bill protection for all customers.

4 **Q: Why didn't PSE propose to offer bill protection?**

5 A: Witness Faruqui testifies that the Company is not offering bill protection for three
6 reasons.⁷⁹ First, bill protection may not be available during the full-scale
7 deployment and the pilot should mirror full deployment to the extent possible.
8 Second, bill protection may obscure the true customer response because they
9 know their lack of response may not affect their monthly bill. Third, low-income
10 customers will still be eligible for PSE's low-income discount program.

11 **Q: Do you agree with PSE reasons for not offering bill protection?**

12 A: No. First, neither PSE nor any other party knows the design of a future full-scale
13 program. The Company is experimenting with three designs in just this pilot
14 phase. The Commission may require an opt-in or opt-out program and may
15 require bill protection for certain customers or for a certain length of time.

16 Witness Faruqui's concern that bill protection for low-income customers
17 may have an impact on the pilot deserves some consideration, but the concern
18 doesn't necessarily outweigh the benefits of bill protection. The purpose of a pilot
19 is to test design features and measure the impact. The results of the study should
20 inform the parties of the magnitude of impact from bill protection and the
21 Commission can then determine if the benefits outweigh the costs.

⁷⁹ Faruqui, Exh. AF-1T at 27:5-16.

1 Finally, witness Faruqui’s argument that low-income customers will still
2 be eligible for PSE’s low-income discount program may not be entirely correct.
3 PSE’s proposed low-income discount program does not cover all low-income
4 customers. PSE is proposing that discounts go up to 50 percent AMI, not 80 AMI
5 or 200 percent of Federal Poverty Level percent as low income is defined in
6 Commission rule. Thus, under the company’s proposal, there would be some
7 number of low-income customers enrolled in the TVR program but do not have
8 access to PSE’s discount rate.

9 **Q: What is your specific bill protection recommendation?**

10 A: I recommend that the Commission require PSE to provide bill protection to half
11 the low-income customers who enroll in the pilot. The Company will then have
12 treatment and control groups to test if the impact of bill protection on customer’s
13 behavior.

14 **3. Enabling Technology**

15 **Q: What is enabling technology?**

16 A: Enabling technology is a device that can increase customer responsiveness to a
17 price signal. This includes technologies that help customers create schedules and
18 requirements to, for example, automatically adjust temperature or to move
19 appliance operating times away from peak periods. These technologies allow
20 customers to passively shift load away from peak periods without changing
21 behaviors. Examples of enabling technologies are smart thermostats, smart water
22 heaters, or electric vehicle chargers.

23 **Q: Is the Company proposing to offer enabling technology in conjunction with**

1 **the TVR pilots?**

2 A: No, witness Einstein testifies that the pilot will “focus on customer responsiveness
3 to pricing without imposing enabling technology requirements.”⁸⁰ Einstein
4 conceded that it is “widely established” that enabling technologies increase and
5 improve customer responsiveness and the Company will encourage customers to
6 use such tools.⁸¹ Einstein continues that the Company may explore opportunities
7 to study the impact of customers who participate in the program and have
8 enabling technology.

9 **Q: Why do you recommend that the Company study the impacts of offering**
10 **enabling technology as part of the study?**

11 A: By not studying the impacts of pairing TOU with enabling technology, the
12 Company is missing two opportunities. First, the Company could examine if
13 pairing a TOU rate with enabling technology for low-income customers helps
14 them achieve the same results as non-low-income customers relative to no
15 intervention. PSE may also be able to observe whether the transition to TOU rates
16 is eased for customers with the inclusion of enabling technologies. This would
17 inform best practices for establishing a TOU rate after the completion of the pilot
18 program.

19 Second, the Company is missing an opportunity to deliver on PSE’s
20 requirement that all customers, including vulnerable populations like low-income
21 customers, are sharing in the benefits of the energy transition. By providing free,
22 enabling technology to a contingent of low-income customers in the program,

⁸⁰ Einstein, Exh. WTE-1T at 17:15-16.

⁸¹ Einstein, Exh. WTE-1T at 17:17-19.

1 PSE could provide direct investment into a subset of vulnerable populations to
2 ease their energy burden, improve their comfort, and help them participate in a
3 load shifting program to the benefit of all customers.

4 **Q: Have other utilities offered enabling technology as part of their TOU pilots?**

5 A: Yes. In 2013, Oklahoma Gas and Electric provided a free smart thermostat as part
6 as an incentive for participating in the program.⁸² In one year, the Company was
7 able to register 40,000 homeowners into a TOU rate plan and reduced the utility's
8 demand by 70 MW. Also in 2013, two Indiana utilities, one gas and one electric,
9 partnered together to provide smart or programmable thermostats to 1,400
10 customers in a pilot program.⁸³ Both Indiana utilities recorded significant peak
11 reduction savings through the program, and noted that customers with smart
12 thermostat outperformed customers with only programmable thermostats.

13 **Q: What is your specific recommendation for studying the impact of enabling
14 technologies?**

15 A: I recommend that the Company provide, at no cost to the customer, enabling
16 technology to half the low-income customers who enroll in the program. The
17 Company will measure the benefits and costs of enabling technology as part of a
18 TVR program.

19 **Q: Please describe the interaction of your recommendation for testing bill**

⁸² St. John, J., *Oklahoma Gets Big Home Energy Savings Out of Smart Grid*, Greentech Media (June 10, 2013), <https://www.greentechmedia.com/articles/read/oklahoma-gets-big-home-energy-savings-out-of-smart-grid>.

⁸³ Cadmus, *Indiana: Smart Thermostat Pilot Studies* (accessed July 25, 2022), <https://cadmusgroup.com/case-studies/indiana-smart-thermostat-pilot-studies/>.

1 **protection and enabling technology for low-income customers.**

2 A: As shown in Figure 2 above, the Company expects to enroll low-income
3 residential customers in the TOU and TOU + PTR programs. Each program will
4 enroll between 1000-2000 customers. As the Company has not enrolled any
5 customers to date, we do not know the proportion of those customers that will be
6 low-income. For sake of an example, I will assume 500 low-income customers for
7 each of the programs. I recommend four low-income treatment groups for each
8 program:

- 9 • Treatment Group 1: Bill protection only
- 10 • Treatment Group 2: Enabling technology only
- 11 • Treatment Group 3: Bill protection and enabling technology
- 12 • Treatment Group 4: Neither bill protection nor enabling technology

13 The Company's EM&V plan will then evaluate the costs, benefits, and impacts of
14 each offering.

15 **4. Other Recommendations**

16 **Q: Do you have any other recommendations for the TVR pilots?**

17 A: Yes, I have two recommendations. First, the Commission should require the
18 Company's TVR recruitment materials and language to be vetted by the
19 Commission's consumer protection division before being issued. Second, the
20 Company's EM&V plan's post treatment survey should ask questions to
21 determine if customers understood their rates and the impact to their bills during
22 the pilot.

23 **Q: Please start with your first recommendation. Why should the Company's**

1 **TVR recruitment materials be vetted through the Commission’s customer**
2 **protection division?**

3 A: The Company will be marketing to its customer base for an opt-in program with
4 an opportunity decrease their bills. However, by design, the program is revenue
5 neutral. So, some customers will not benefit. It is important that the Company use
6 clear, forthright language that discusses the benefits and risks of participation in
7 the program, including making the opt-out clause clear. Reviewing marketing
8 materials is well within the Commission’s Consumer Protection division’s role, as
9 reflected by the Divisions’ review and approval of the Company’s annual Service
10 Quality and Reliability Report since its inception, and its review of rate case
11 notices.

12 **Q: Why should the Company’s EM&V plan evaluate if customers understood**
13 **their rates?**

14 A: Customers experience variable pricing almost every day from gasoline prices and
15 airline tickets. But for most people in PSE’s service territory, the concept of
16 variable electricity rates is new. Concepts like energy and capacity can be
17 confusing. By studying how PSE conveyed its rate structure and the clearness of
18 its bills and marketing materials, PSE will gain additional information on how to
19 fully implement TOU rates for the entire service territory.

20 **IV. Conclusion**

21 **Q: Please summarize your recommendations.**

22 A: Regarding the performance metrics used for evaluating the Company’s
23 performance during the multi-year rate plan, I recommend the following:

- 1 (b) Reject the Company’s request for setting performance incentive
- 2 mechanisms (PIMs) in this case.
- 3 (c) Reject the Company’s proposal to assign targets to the Company’s
- 4 performance metrics in this case.
- 5 (d) Adopt the Company’s proposed metrics, with the following three
- 6 exceptions:
- 7 (i) Reject “number of light duty electric vehicles in service territory.”
- 8 (ii) Modify the following metrics:
 - 9 1. “Number of EV chargers used in managed load programs or
 - 10 TOU rates (single family residents)” to “Percentage of load
 - 11 shifted to off-peak periods attributable to TE tariff offerings
 - 12 by use case”
 - 13 2. “Number of EV chargers used in managed load programs or
 - 14 TOU rates” to “Percentage of EV load subject to managed
 - 15 charging programs (E)
- 16 (e) Adopt my proposed metrics to measure if the Company is providing
- 17 affordable rates and equitable service.

18 For the TVR pilots, I recommend that the Commission approve the Company’s
19 proposals with the following modifications:

- 20 (f) Test the impact of bill protection on TVR pilots by requiring PSE to
- 21 provide bill protection to half of the low-income customers (up to
- 22 80% AMI or 200% FPL) who participate in the TVR pilots.
- 23 (g) Test the impact of providing enabling technology to low-income
- 24 customers by providing enabling technology to half of the low-

1 income customers (up to 80% AMI or 200% FPL) who participate in
2 the TVR pilots.

3 (h) Require the Company's TVR recruitment materials and language to
4 be vetted by the Commission's Consumer Protection Division.

5 (i) Require the evaluation measurement & verification (EM&V) plan's
6 post treatment survey to ask questions to determine if customers
7 understood their rates and the impact to their bills during the pilot.

8 **Q: Does this conclude your testimony?**

9 **A: Yes.**

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