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**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Docket UG-230393

Complainant,

v.

PUGET SOUND ENERGY

Respondent.

**TESTIMONY OF
RANAJIT SAHU
ON BEHALF OF THE PUYALLUP TRIBE OF INDIANS**

SEPTEMBER 8, 2023

PUYALLUP TRIBE OF INDIANS

**TESTIMONY OF
RANAJIT SAHU**

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1 **PUYALLUP TRIBE OF INDIANS**

2 **TESTIMONY OF**
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10 Tacoma LNG (excerpt) (5/25/2018)
- 11 **Exh. RXS-5** PSE Response to Public Counsel Data Request No. 391 in WUTC
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14 WUTC Consolidated Dockets UE-220066 and UG-220067
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- 19 **Exh. RXS-9** Notice of Construction (NOC) Worksheet for NOC No 11386
- 20 **Exh. RXS-10** Serve Tacoma Letter re Recommendation to initiate a supplemental
21 review of the proposed LNG plant (4/15/2019)
- 22 **Exh. RXS-11** PSCAA map, Most Impacted Areas Central Pierce County
- 23 **Exh. RXS-12** PSE Response to Public Counsel Data Request No. 373 in WUTC
24 Consolidated Dockets UE-220066 and UG-220067
- 25 **Exh. RXS-13** PSE Notice of Construction Application for Tacoma LNG (excerpts)
26 (5/22/2017)

- 1 **Exh. RXS-14** US EPA, Health Effects Notebook for Hazardous Air Pollutants, Benzene
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- 7 (11/9/2015)
- 8 **Exh. RXS-19** Shutdown Extended of Fire-Damaged Texas LNG Export Site,
- 9 Engineering News-Record (6/20/2022)
- 10 **Exh. RXS-20** Exh. RXS-24, Deposition of Matthew Stobart (excerpt) (2/18/2021)
- 11 **Exh. RXS-21** Deposition Appearance Pages (Various)
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- 13 **Exh. RXS-22** Appearance Pages, Depositions of Ranajit Sahu on March 4 & 5, 2021
- 14 **Exh. RXS-23** Washington Department of Health, Washington Environmental Health
- 15 Disparities Map Rankings for communities adjacent to the Tacoma LNG
- 16 Facility.
- 17 **Exh. RXS-24** Order on Motion to Dismiss and for Partial Summary Judgment, PCHB
- 18 No. 19-087c (3/26/2021)
- 19 **Exh. RXS-25** Email from J. Lewis, UTC with “PSE LNG Draft Overview.docx”
- 20 attachment (4/10/2019) (highlighting added for ease of reference)
- 21 **Exh. RXS-26** Final Environmental Assessment, SP 20534 Special Permit to transport
- 22 LNG by rail in DOT-113C120W rail tank cars, Docket No. PHMSA-
- 23 2019-0100 (12/5/2019)
- 24 **Exh. RXS-27** Map of Puyallup Indian Reservation and Surrounding Area
- 25 **Exh. RXS-28** PSE Response to Public Counsel Data Request No. 28
- 26 **Exh. RXS-29** PSE Response to Public Counsel Data Request No. 29

- 1 **Exh. RXS-30** Inslee announces opposition to two gas projects in Washington (5/8/2019)
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- 3 **Exh. RXS-31** *Advocates for a Cleaner Tacoma, et al. v. Puget Sound Clean Air Agency,*
4 *et al.*, Washington Court of Appeals Div. II No. 56938-8, Amicus Brief of
5 the Attorney General of the State of Washington (7/1/2022)
- 6 **Exh. RXS-32** PSE Response to Public Counsel Data Request No. 46
- 7 **Exh. RXS-33** Document describing Tacoma LNG Project, produced by PSE in PCHB
8 Case No. 19-087c (PSE02708467-PSE02708470)
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1 **PUYALLUP TRIBE OF INDIANS**

2 **TESTIMONY OF**
3 **RANAJIT SAHU**

4 **I. PROFESSIONAL BACKGROUND AND QUALIFICATIONS**

5 **Q. Please state your name and business address.**

6 **A:** My name is Ranajit Sahu. I am now, and at all times mentioned herein, a citizen of
7 the United States and a resident of the State of California. I am over 18 years of age, competent to
8 make this declaration, and make this declaration from my own personal knowledge. If called to
9 testify verbally before the Washington Utilities and Transportation Commission (WUTC or
10 Commission) regarding the contents of this pre-filed testimony, my testimony would be consistent
11 with this written testimony. My business address is: 311 North Story Place, Alhambra, CA 91801.

12 **Q: Please describe your education and employment experience that is relevant to**
13 **your testimony here.**

14 **A:** I have over thirty years of experience in the fields of environmental, mechanical,
15 and chemical engineering, including: program and project management services; design and
16 specification of pollution control equipment for a wide range of emissions sources including
17 stationary and mobile sources; soils and groundwater remediation including landfills as remedy;
18 combustion engineering evaluations; energy studies; multimedia environmental regulatory
19 compliance (involving federal statutes including the Clean Air Act and its Amendments, the Clean
20 Water Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, the
21 Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund
22 Amendments and Reauthorization Act, and the National Environmental Policy Act, as well as
23 various related state statutes); transportation air quality impact analysis; multimedia compliance
24 audits; multimedia permitting (including air quality New Source Review/Prevention of Significant
25 Deterioration permitting, Title V permitting, NPDES permitting for industrial and storm water
26 discharges, and Resource Conservation and Recovery Act permitting), multimedia/multi-pathway

1 human health risk assessments for toxics; air dispersion modeling; and regulatory strategy
2 development and support.

3 I have over twenty-eight years of project management experience and have successfully
4 managed and executed numerous projects in this time period. This includes basic and applied
5 research projects, design projects, regulatory compliance projects, permitting projects, energy
6 studies, risk assessment projects, and projects involving the communication of environmental data
7 and information to the public.

8 I have provided consulting services to numerous private sector, public sector, and public
9 interest group clients. With respect to my air quality experience, clients over the past thirty years
10 have included various trade associations as well as individual companies such as steel mills,
11 petroleum refineries, chemical plants, cement manufacturers, aerospace companies, power
12 generation facilities, lawn and garden equipment manufacturers, spa manufacturers, and chemical
13 distribution facilities. I have also done work on non-air matters for clients in these industries and
14 for other types of clients such as land development companies.

15 In addition to consulting, for approximately twenty years, I have taught numerous courses
16 at universities in several Southern California, including UCLA (air pollution), UC Riverside (air
17 pollution, process hazard analysis), and Loyola Marymount University (air pollution, risk
18 assessment, hazardous waste management). I have also taught at the California Institute of
19 Technology (Caltech), my alma mater (various engineering courses), at the University of Southern
20 California (air pollution controls), and at California State University, Fullerton (transportation and
21 air quality).

22 In sum, my education and experience inform my testimony here because I have a
23 multifaceted understanding of the relevant technology and processes utilized at the Tacoma LNG
24 Project and the applicable regulatory regime, as well as substantial knowledge regarding details of
25 the design and construction of the facility and PSE's proffered rationale for constructing the
26 Tacoma LNG facility. This background provides a foundation for my analysis of the inequities

1 involved in the operation of the LNG plant and the prudence of the costs incurred by PSE for the
2 Tacoma LNG Project.

3 **Q: Have you previously testified as an expert witness before a court or an**
4 **administrative tribunal?**

5 **A:** Yes. Several times. I have provided, and continue to provide, expert witness
6 services in a number of environmental areas discussed above in both state and federal court
7 proceedings, as well as before administrative bodies. In 2022, my prefiled written testimony and
8 written response testimony were submitted to the Commission by the Puyallup Tribe as Exhibits
9 RSX-1T and RSX-30T in WUTC Consolidated Dockets UE-220066 and UG-220067. Even
10 though I was asked no questions regarding my written testimony, I attended and was available to
11 testify at the evidentiary hearing in that matter. A copy of my resume is provided as Exhibit RXS-
12 2 to this testimony.

13 **Q: Can you please describe how you became familiar with the Tacoma LNG**
14 **facility?**

15 **A:** Yes. With regard to the Tacoma LNG facility, I was retained by the Puyallup Tribe
16 in early 2018 to review various documents such as the Draft Environmental Impact Statement
17 (DEIS), various safety-related analyses, and subsequently, to analyze the technical adequacy of
18 the Tacoma LNG air permit application. Over time, I have also reviewed the draft and final air
19 permits, the Draft and Final Environmental Impact Statement (EIS), the draft and final
20 Supplemental EIS and various documents related to safety aspects and analyses associated with
21 the Tacoma LNG facility.

22 I have carefully reviewed the Final Environmental Impact Statement for Tacoma LNG
23 (“FEIS”) as well as the Final Supplemental Environmental Impact Statements (“SEIS”) concerning
24 greenhouse gas (“GHG”) emissions from Tacoma LNG, as well as the SEIS’ supporting
25 documents, including the PSE Tacoma LNG Project GHG Analysis Final Report (“GHG Report”)
26 appended to the SEIS as Appendix B.

1 I have reviewed thousands of documents produced to the Puyallup Tribe by PSE, by PSE's
2 vendors and consultants, and by government agencies who have been involved in the permitting
3 and commissioning of Tacoma LNG (including the WUTC). I have additionally reviewed
4 documents produced by Chicago Bridge & Iron (and its subcontractors), PSE's contractor who
5 designed and constructed Tacoma LNG—as well as those produced by LFG Specialties LLC, who
6 designed and manufactured the flare at Tacoma LNG. In addition, I have reviewed numerous
7 documents pertaining to, NAES Corporation, the operating contractor for the Tacoma LNG
8 facility.

9 I have carefully reviewed documents relevant to PSE's request now pending before the
10 Commission, and I have likewise reviewed questions raised and information produced in this
11 matter pertaining to the issue of prudence for the Tacoma LNG facility; these include PSCAA's
12 Order of Approval No. 11386 (hereafter "OOA") as well as related materials, including PSCAA's
13 Engineering Worksheet, PSCAA's Comment Responses ("Appendix A" to the OOA), and Puget
14 Sound Energy's submissions in support of its permit application.

15 **Q. What information did you evaluate in conducting your analyses in this case?**

16 **A:** In addition to the materials identified in my answer to the preceding question, I
17 reviewed the direct testimony and exhibits of relevant PSE witnesses, and PSE's responses to a
18 number of data requests in this proceeding. I also reviewed similar materials in WUTC
19 consolidated dockets UE-220066 and UG-220067 when preparing my written testimony in that
20 prior proceeding.

21 **II. SCOPE AND SUMMARY OF TESTIMONY**

22 **Q. Please explain the purpose of your testimony.**

23 **A:** I understand that the Commission's decision in the prior WUTC consolidated
24 dockets UE-220066 and UG-220067 addressed the prudence of costs incurred through PSE's
25 September 22, 2016 decision to construct the Tacoma LNG Project. This testimony addresses the
26 prudence of costs incurred by PSE for the Tacoma LNG Project following PSE's September 22,

1 2016 decision to construct the project. My analysis is informed by, and presented in, the context
2 of the negative externalities of the Tacoma LNG Project and its patently inequitable impacts on
3 the Puyallup Tribe and surrounding communities.

4 To the extent that this testimony restates information I provided to the Commission in
5 consolidated dockets UE-220066 and UG-220067, it is to ensure that all facts, information and
6 evidence that I bring to bear on the issues now before the Commissioners in this proceeding are
7 included in this record.

8 **Q: So, you are not attempting to re-litigate the previous UTC matter?**

9 **A:** Correct. However, it is impossible to separate many of the issues regarding
10 inequities and the public interest that were raised in the prior proceeding from my current analysis
11 of the prudence of PSE's post-September 22, 2016 decisions and expenditures for Tacoma LNG
12 Project.

13 **Q: Are you attempting to re-litigate issues surrounding the air permit that the**
14 **Puget Sound Clean Air Agency issued to PSE for the Tacoma LNG facility?**

15 **A:** No, I am not. That is a tactic that PSE used to confuse the issues before the
16 Commission in the previous rates case proceedings. The Tribe is challenging the air permit before
17 the Court of Appeals, not here. My understanding that the issues in that litigation have been fully
18 briefed and oral argument is before the Court on September 14, 2023.

19 While I am sure that the Tribe is looking forward to having its issues concerning the air
20 permit addressed by the Court of Appeals, the instant testimony concerns separate issues. Here,
21 my testimony concerns the impacts of releases of pollutants from the Tacoma LNG facility, not on
22 whether PSCAA's decision to issue an air permit was lawful. Any discussion herein of the PSCAA
23 air permit or the related decision of the Pollution Control Hearings Board (PCHB) is intended to
24 (1) highlight the impacts of air pollution associated with the Tacoma LNG facility on health and
25 the human environment and/or (2) to inform the Commission's analysis of the prudence of costs
26

1 incurred after September 22, 2016. That's it. To the best of my knowledge, the Tribe is not
2 attempting to re-litigate the air permit here.

3 **Q. Please summarize your conclusions on the issues addressed in your testimony.**

4 **A:** First, I find that a significant portion of the costs incurred by PSE after September
5 22, 2016 to design and construct the Tacoma LNG Project were avoidable or incurred solely for
6 the benefit of PSE's marine fueling business, and that those investments made for PSE's
7 shareholder's benefit result in a disparate burden on the Tribe and surrounding community. In
8 other words, PSE oversells the benefits of the Tacoma LNG Project to rate payers and is attempting
9 to overburden rate payers with inappropriate costs. Because of this, and the other equitable public
10 interest factors I discuss below, I find that under the Commission-established standards the costs
11 incurred by PSE for the Tacoma LNG project were responsive to the ratepayer needs articulated
12 by PSE as a rationale for constructing this facility and therefore not prudent.

13 Second, all of PSE's post-September 22, 2016 decisions regarding the design and
14 construction of the Project were made with the knowledge that the Tribe and nearby communities
15 opposed the facility due to its pollution and adverse health impacts as well as significant safety
16 risks. With that knowledge, it was contrary to the public interest for PSE to proceed without further
17 investigation to establish and mitigate those impacts. Tacoma LNG presents: (1) disparate impacts
18 related to its risk of a catastrophic accident adjacent to minority and low-income communities; and
19 (2) disparate impacts related to ongoing and increased air pollution to those communities located
20 near Tacoma LNG, which consist of the Tribe and other low-income and minority populations in
21 the Tacoma Tidelands area. It is my understanding that these communities are synonymous with
22 "vulnerable populations and highly impacted communities" under Washington's Clean Energy
23 Transformation Act (CETA). It is my opinion that the absence of information in the record
24 regarding the impacts of the facility, and how those impacts could best be mitigated, prevents the
25 Commission from making an informed decision that costs incurred by PSE after its September 22,
26 2016 decision to construct the Tacoma LNG facility are prudent. Costs incurred cannot and should

1 not be presumed to be prudent, just because PSE concludes them to be so. The Commission should
2 disallow any such costs that cannot be shown to be prudent.

3 I note and stress that PSE made the decision to move forward with building the Tacoma
4 LNG facility prior to receipt of the air permit that it needed from PSCAA to lawfully construct the
5 facility. PSE took a risk in proceeding with the design and construction of a facility with the
6 capacity to produce 500,000 gallons/day of LNG. Rate payers should not be required to pay for
7 excess capacity when the facility's air permit limits its production to 250,000 gallons/day. Rate
8 payers receive no benefit from the excess capacity, nor is there any information in the record
9 suggesting that rate payers would see any benefit from that excess capacity, if the permit is revised
10 in the future to allow PSE to produce and sell more LNG through its non-regulated business.
11 Ratepayers should not be required to subsidize the facility's large and speculative unused capacity.

12 Furthermore, PSE incurred significant costs to design and construct enhanced pretreatment
13 processes to remove heavy hydrocarbons from the pipeline supply gas. This pretreatment process
14 is necessary only to ensure LNG produced at the facility meets the specific requirements of the
15 marine customer—TOTE. That requirement, a specific minimum LNG methane number provides
16 no benefit to rate payers. PSE routinely provides rate payers with gas of a lower quality than it
17 provides to TOTE vessels in LNG form. None of the costs associated with Tacoma LNG's
18 pretreatment hydrocarbon removal system should be passed through to rate payers.

19 In addition, it is my opinion, based on the facts in the record, that PSE's decision to remove
20 and dispose of the heavy hydrocarbons removed from supply pipeline gas to meet TOTE's fuel
21 specification, and the resulting and unnecessary increase in air pollution from the facility, was the
22 primary driver of the redesign of the flare which is used to dispose of these excess hydrocarbons.
23 Costs associated with redesign of the flare and construction of the waste gas disposal system should
24 not be passed to rate payers because they were necessary only to meet the needs of PSE's non-
25 regulated business.

1 My prior opinion that it was not prudent to construct the Tacoma LNG Project at this
2 location to meet rate payer needs has not changed. Given my familiarity with the facility, I am
3 concerned that PSE continues to request that rate payers cover the cost of design and construction
4 of portions of the facility that are necessary only for PSE's non-regulated marine fueling business
5 since those costs provide no benefit to ratepayers. I continue to hold the opinion that the
6 Commission should protect ratepayers by precluding PSE from passing any of the costs related to
7 Tacoma LNG to ratepayers.

8 III. TESTIMONY

9 **A. Prudency Factors to be Considered by the Commission**

10 **Q. What is your understanding of the standard that the WUTC utilizes to**
11 **determine whether ratepayers can be required to support Tacoma LNG through rates?**

12 **A:** My understanding is that the Commission applies a "prudence" standard in making
13 this determination. Overall, the prudence standard is a reasonableness standard that is described in
14 *WUTC v. Puget Sound Energy, Inc.*, Docket UE-031725:

15 The Commission has consistently applied a reasonableness standard
16 when reviewing the prudence of decisions relating to power costs,
17 including those arising from power generation asset acquisitions.
18 The test the Commission applies to measure prudence is what would
19 a reasonable board of directors and company management have
20 decided given what they knew or reasonably should have known to
21 be true at the time they made a decision. This test applies both to the
22 question of need and the appropriateness of the expenditures. The
23 company must establish that it adequately studied the question of
24 whether to purchase these resources and made a reasonable decision,
25 using the data and methods that a reasonable management would
26 have used at the time the decisions were made.¹

¹ *WUTC v. Puget Sound Energy, Inc.*, Docket UE-031725, Order 12 at ¶ 19 (April 7, 2004) (footnotes and related citations omitted).

1 **Q. What is your understanding of the “prudence” factors the Commission utilizes**
2 **to evaluate whether ratepayers can be required to support Tacoma LNG?**

3 **A:** My understanding is that, in general, the Commission has generally focused on the
4 following four factors:

5 *The Need for the Resource* - The utility must first determine whether new resources are
6 necessary. Once a need has been identified, the utility must determine how to fill that need in a
7 cost-effective and equitable manner. When a utility is considering the purchase of a resource, it
8 must evaluate that resource against the standards of what other purchases are available, and against
9 the standard of what it would cost to build the resource itself.²

10 *Evaluation of Alternatives* - The utility must analyze the resource alternatives using current
11 information that adjusts for such factors as end effects, capital costs, dispatchability, transmission
12 costs, and whatever other factors need specific analysis at the time of a purchase decision. The
13 acquisition process should be appropriate.³

14 *Communication With and Involvement of the Company’s Board of Directors* - The utility
15 should inform its board of directors about the purchase decision and its costs. The utility should
16 also involve the board in the decision process.⁴

17 *Adequate Documentation* - The utility must keep adequate contemporaneous records that
18 will allow the Commission to evaluate the Company’s decision-making process. The Commission
19 should be able to follow the utility’s decision process; understand the elements that the utility used;
20 and determine the manner in which the utility valued these elements.⁵

21
22 _____
23 ² *WUTC v. Puget Sound Power & Light Co.*, Docket UE-921262, *et al.*, Nineteenth Supplemental Order at 11
(September 27, 1994).

24 ³ *WUTC v. Puget Sound Energy, Inc.*, Docket UE-031725, Order 12 at ¶ 20 (April 7, 2004).

25 ⁴ *Id.*

26 ⁵ *Id.*

1 I also understand that there is no single set of such factors. For example, in Cause U-83-
2 26, the Commission applied thirteen factors, which the Commission characterized as “unique” and
3 stated that “[a]dditional factors may be considered in subsequent cases as dictated by the facts.”⁶

4 Further, the Commission recently issued an order in *WUTC v. Cascade Natural Gas*
5 *Corporation*, Docket UG-210755, which describes how it will consider factors such as
6 environmental health and equity in determining whether decisions were prudent and in the public
7 interest.

8 **Q: Does the Commission’s guidance regarding the public interest analysis**
9 **presented in *WUTC v. Cascade Natural Gas Corporation*, Docket UG-210755 impact the**
10 **prudency analysis regarding the Tacoma LNG Project?**

11 **A:** Yes. On August 23, 2022, the Commission issued a final order (“Final Order 09”)
12 in *WUTC v. Cascade Natural Gas Corporation*, Docket UG-210755.⁷ That order discusses how,
13 in determining the public interest, the Commission will consider factors such as environmental
14 health and equity as required under Chapter 80.28 RCW. Final Order 09 addresses the lack of
15 specific guidance regarding the Commission’s application of the equity analysis that is authorized
16 under RCW 80.28.425(1) by “defin[ing] and discuss[ing] equity at a high level in this Order to
17 clarify the Commission’s definitions and expectations.”⁸ Final Order 09 discusses how the
18 Commission envisions an equitable outcome pursuant to the requirements of RCW 80.28.425(1),
19 as informed by the equity lens of the Clean Energy Transformation Act (CETA).⁹

20
21 _____
22 ⁶ *WUTC v. The Wash. Water Power Co.*, Cause U-83-26, Fifth Supplemental Order at 15-16 (January 19, 1984).

23 ⁷ See Final Order 09, Approving and Adopting Settlement Agreement Subject to Conditions, *WUTC v. Cascade*
Natural Gas Corporation, Docket UG-210755 (August 23, 2022) at Section II, Standard of Review.

24 ⁸ *Id.* at ¶ 53.

25 ⁹ See RCW 80.28.425(1) (“The commission's consideration of a proposal for a multiyear rate plan is subject to the
26 same standards applicable to other rate filings made under this title, including the public interest and fair, just,
reasonable, and sufficient rates. In determining the public interest, the commission may consider such factors
including, but not limited to, environmental health and greenhouse gas emissions reductions, health and safety

1 **Q: Did the Commission discuss the principles of equity that it will apply on a case-**
2 **by-case basis in Final Order 09?**

3 **A:** Yes. The Commission adopted the following principles of equity, enumerated by
4 the Washington Office of Equity, and it committed to ensuring that systemic harm is reduced rather
5 than perpetuated by WUTC processes, practices, and procedures:¹⁰

- 6 • *Equity requires developing, strengthening, and supporting policies and procedures*
7 *that distribute and prioritize resources to those who have been historically and*
8 *currently marginalized, including tribes;*
- 9 • *Equity requires the elimination of systemic barriers that have been deeply*
10 *entrenched in systems of inequality and oppression; and*
- 11 • *Equity achieves procedural and outcome fairness, promoting dignity, honor, and*
12 *respect for all people.*¹¹

13 Further, the Commission noted that CETA expresses the Legislature’s intent that “there
14 should not be an increase in environmental health impacts to highly impacted communities.”
15 Under this analysis, the public interest includes: “equitable distribution of energy benefits and
16 reduction of burdens to vulnerable populations and highly impacted communities; long-term and
17 short-term public health, economic, and environmental benefits and the reduction of costs and
18 risks, and energy security and resiliency.”¹²

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22 concerns, economic development, and equity, to the extent such factors affect the rates, services, and practices of a
23 gas or electrical company regulated by the commission.”)

23 ¹⁰ Final Order 09 at ¶ 55.

24 ¹¹ Final Order 09 at ¶ 54 (citing RCW 43.06D.020(3)(a)).

25 ¹² Final Order 09 at ¶ 52 (citing RCW 19.405.010(6)). The Commission acknowledges that CETA applies only to
26 electric utilities but explains that CETA’s objective and language are instructive to the Commission’s regulatory
work as it clarifies its definition of “public interest” to include equity considerations.

1 **Q: Does the updated standard of review authorized by RCW 80.28.425 apply to**
2 **this rate case and the prudency analysis for costs incurred by PSE after September 22, 2016**
3 **regarding the Tacoma LNG facility?**

4 **A:** Yes, I believe it does. The discussion of the standard of review in Final Order 09
5 is directly relevant to this proceeding. In fact, Final Order 09 specifically refers to the prior
6 proceedings in this rate case, noting that because the statutory effective date of PSE's multiyear
7 rate plan is January 1, 2023, the Commission's review of Dockets UE-220066 and UG-220067 is
8 subject to the requirements of RCW 80.28.425 and the updated public interest analysis.¹³ That
9 analysis also applies here in Docket UG-230393.

10 **Q. What prudency factors does your testimony concern?**

11 **A.** My testimony goes primarily to the first two of the Commission's four primary
12 factors, (1) the need for the resource and (2) the evaluation of alternatives. I am not providing
13 testimony regarding the third factor regarding communications with and involvement of PSE's
14 Board of Directors. I also touch on the fourth factor relating to the adequacy of PSE's
15 documentation.

16 In the context of the first two factors, I address the equities (or rather inequities) directly
17 resulting from the Tacoma LNG Project under the public interest inquiry that is defined and
18 clarified by the Commission in Final Order 09. My testimony focuses on whether, given available
19 alternatives, the post-September 22, 2016 decisions of PSE regarding costs incurred for the design
20 and construction of Tacoma LNG Project were prudent and in the public interest given the negative
21 externalities the Project presents. I conclude that they were not prudent and not in the public
22 interest.

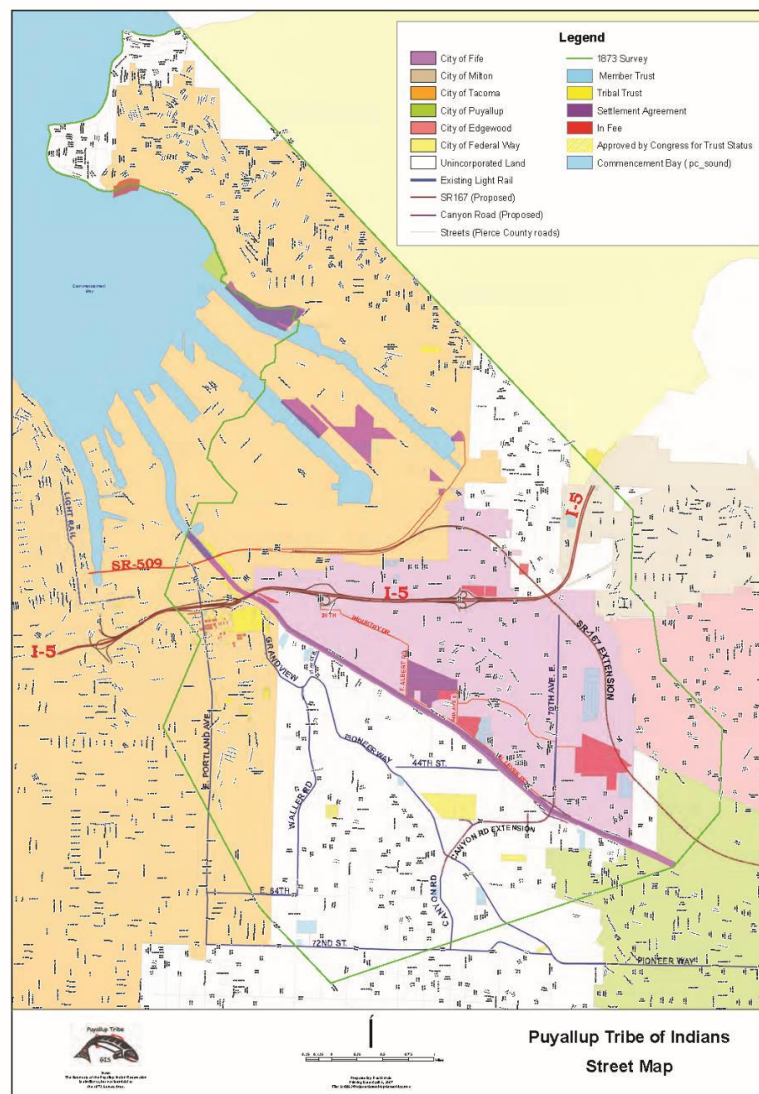
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¹³ See Final Order 09 at FN 31.

1 **B. Negative Externalities Caused by the Tacoma LNG Project Present Disparate Impacts**
2 **to the Puyallup Tribe and Other Environmentally-Overburdened Communities**

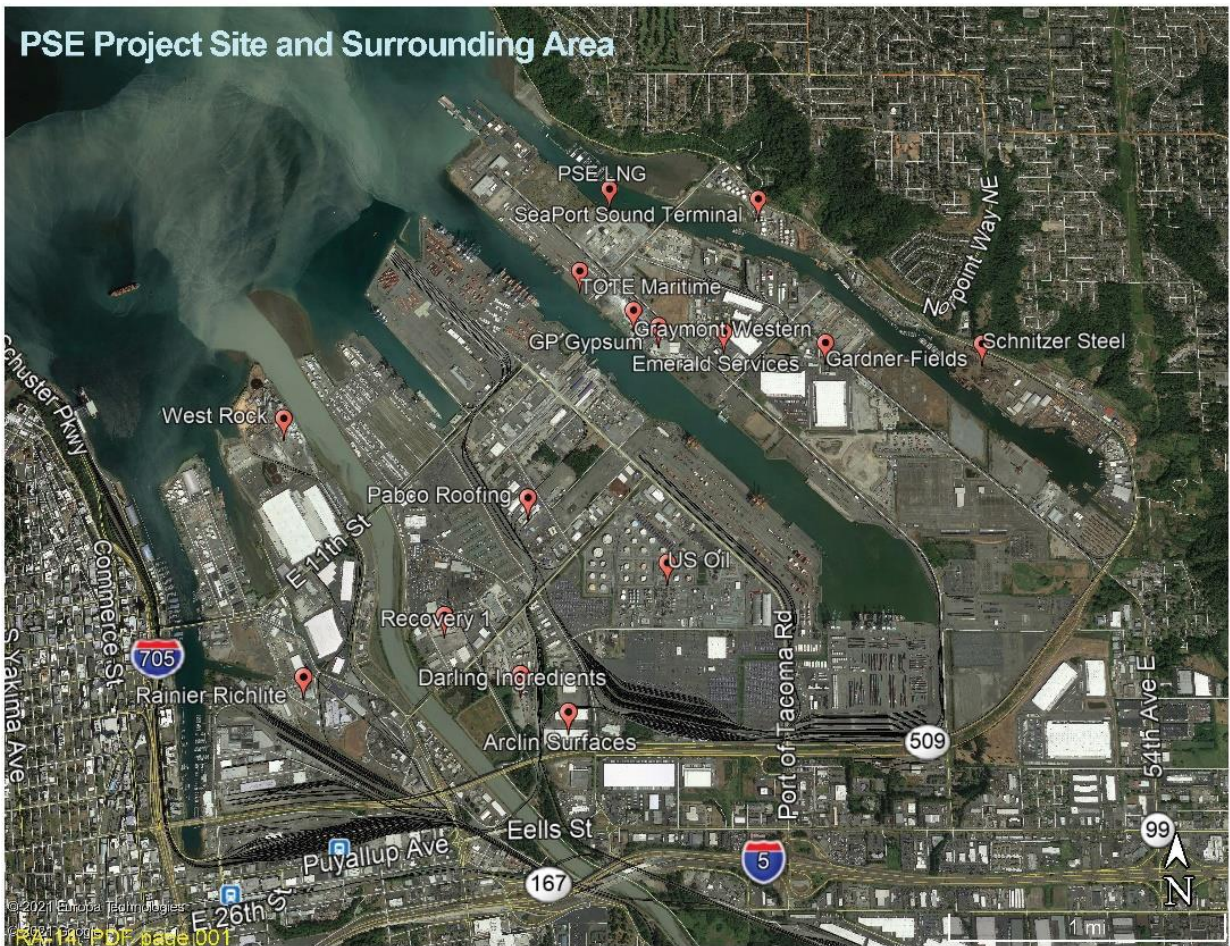
3 **Q. Please describe the area where Tacoma LNG is sited.**

4 **A.** Tacoma LNG is located on the Tribe's doorstep. PSE sited Tacoma LNG on the
5 peninsula between the Blair and Hylebos waterways in Tacoma, directly adjacent to the Puyallup
6 Tribe's Reservation. The Puyallup Reservation Survey Boundary is denoted by the green outline
7 in the map below:



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1 The Tacoma LNG facility is denoted as “PSE LNG” on the map below:



18 Further, the Puyallup Reservation is crisscrossed by train tracks, running both east/west
19 and north/south. Tribal members live near the railroad tracks, and important cultural and natural
20 resources are located along the rail lines.

21 **Q. What is an externality?**

22 **A.** An externality or external cost is a cost, direct or indirect, to an uninvolved third
23 party that emanates from another party’s activities. In the environmental or safety contexts,
24 externalities often involve natural resources or public health. For example, a negative externality
25 is where a facility, operated for the benefit of a party, causes pollution due to routine emissions or
26 due to unanticipated events and diminishes the health and/or safety of other uninvolved parties and
impacted persons in the surrounding area. Those are negative externalities associated with Tacoma

1 LNG. The negative externalities identified herein increased costs for the design, construction,
2 permitting, and operations of the facility.

3 **Q. What negative externalities are associated with the Tacoma LNG facility?**

4 **A.** First, I note that to the extent that the facility has positive externalities, they are
5 speculative, ephemeral, and regional—while the negative externalities are real, sustained, and
6 local. But in response to the question, the Tacoma LNG project presents several types of negative
7 externalities to those who live and/or work nearby. The Tacoma LNG facility diminishes the
8 health and safety of those in its vicinity through its uncontrolled emissions of a wide range of
9 pollutants to the air, including toxic air pollutants. And Tacoma LNG presents the risk of a
10 catastrophic accident that, if it were to occur, would pose a serious risk to human life and the
11 surrounding environment. Neither of these negative externalities are necessary. Because PSE
12 could have met rate payer needs in ways other than over-building an LNG production and storage
13 facility on the border of the Tribe’s Reservation, it is proper to factor the adverse public health
14 impacts of siting this facility in this location in assessing its prudence.

15 **Q. Why is the location of the Tacoma LNG Facility relevant to the prudence of**
16 **the Tacoma LNG facility?**

17 **A.** I believe that it is undisputed that PSE sited Tacoma LNG where it did because of
18 TOTE, which operates two marine vessels. In any event, there can be no serious doubt that the
19 siting of the facility at its current location is driven by PSE’s non-regulated service obligations to
20 TOTE. While this location is advantageous to PSE’s marine fueling business, it is directly
21 detrimental to ratepayers because it increases the costs of utilizing the facility for peak shaving.
22 During peak shaving, vaporized gas must travel many additional miles through an expensive new
23 pipeline to reach the nearest injection point on PSE’s current gas supply system. A prudent option
24 in the interest of ratepayers—if a peak shaving facility was needed at all—would have been to
25 minimize the costs of this expensive new pipeline by siting the peak shaving facility closer to the
26

1 injection point, with PSE bearing any additional cost of building a pipeline to bring LNG to TOTE
2 and any other marine customers. But that is obviously not what PSE did.

3 **Q. Let's first look at the facility's impacts on air quality. Will Tacoma LNG**
4 **pollute the air?**

5 **A.** Yes. There is no dispute that Tacoma LNG will emit pollution to the ambient air
6 that would otherwise not be emitted but for the operation of the LNG facility. Indeed, materials
7 relating to Tacoma LNG's air permit make clear that Tacoma LNG will emit regulated criteria air
8 pollutants, numerous toxic air pollutants ("TAPs"), including many volatile organic compounds
9 ("VOCs"), and greenhouse gases ("GHGs"). Thus, Tacoma LNG will emit air pollution relevant
10 at local, regional, and global scales.

11 In that context, it also bears noting that Governor Inslee and the Attorney General have
12 publicly stated that they do not support Tacoma LNG.¹⁴ Indeed, as the Tribe informed the
13 Commission at the October 3, 2022 hearing in the prior consolidated proceedings, the Washington
14 State Attorney General's Office (AGO) has appeared as amicus in active litigation challenging
15 Tacoma LNG's air permit because the AGO is concerned that Tacoma LNG's greenhouse gas
16 (GHG) impacts are negative and significant.¹⁵

17 **Q. What are the sources of air pollutants emitted by Tacoma LNG?**

18 **A.** There are a number of air emission units at Tacoma LNG. Two key emission units
19 are the facility's flare and its vaporizer.¹⁶ The flare, a complex device consisting of four burners,
20 is supposed to properly combust varying quantities and compositions of waste gases generated by
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23 _____
24 ¹⁴ Exh. RXS-30, Inslee announces opposition to two gas projects in Washington (May 8, 2019).

25 ¹⁵ Exh. RXS-31, *Advocates for a Cleaner Tacoma, et al. v. Puget Sound Clean Air Agency, et al.*, Washington Court
of Appeals Div. II No. 56938-8, Amicus Brief of the Attorney General of the State of Washington (July 1, 2022).

26 ¹⁶ Exh. RXS-8, Excerpt from Findings of Fact 4, 4a, 4b, 4c, 4d, 4e, 4f, 4g, 4h, 4i, 4j, 4k, 4o, 4p, 4u, 6, and 8 at ¶ 16.

1 the pretreatment, liquefaction, storage, and fuel transmitting processes.¹⁷ The purpose of the
2 vaporizer is to re-gasify LNG so that it can be introduced into PSE’s gas distribution network after
3 further conditioning.¹⁸

4 Tacoma LNG also releases large quantities of fugitive emissions (emissions that occur due
5 to unavoidable leaks in the facility’s thousands of components) of GHGs, VOCs and TAPs.¹⁹ The
6 permitting materials for Tacoma LNG identify its components leaking fugitive emissions as
7 “valves, pump seals, flanges, connectors, and compressor seals.”²⁰

8 **Q. What air pollutants does the Tacoma LNG release to the surrounding area?**

9 **A.** Tacoma LNG’s permit application acknowledges that a host of Toxic Air Pollutants
10 (TAPs) and Hazardous Air Pollutants (HAPs) will be emitted from the facility, including but not
11 limited to the following pollutants that will be emitted above specified regulatory threshold levels:

- 12 • 7,12-Dimethylbenz(a)anthracene;
- 13 • Benzene;
- 14 • Formaldehyde;
- 15 • Hydrogen sulfide;
- 16 • Arsenic;
- 17 • Beryllium;
- 18 • Cadmium;
- 19 • Manganese; and
- 20 • Vanadium.²¹

22 ¹⁷ *Id.*

23 ¹⁸ *Id.* at ¶18.

24 ¹⁹ *Id.* at ¶89.

25 ²⁰ Exh. RXS-9 - Notice of Construction (NOC) Worksheet for NOC No 11386

26 ²¹ Exh. RXS-13, PSE Notice of Construction Application for Tacoma LNG (5/22/2017) at 3-6 to 3-7 and Table 7.

1 These are not the only HAPs released by the Tacoma LNG facility. It emits other chemicals
2 that are of great concern because of their known or suspected toxic effects on humans. For
3 example, the facility’s flare emits benzene, toluene, and xylene.²² Benzene is a carcinogen, causes
4 blood disorders, and chronic exposure can cause leukemia.²³ Toluene can cause respiratory illness
5 and is a developmental toxicant.²⁴ Xylene can cause developmental effects such as delayed bone
6 development in fetuses, and chronic exposure can cause neurological effects.²⁵ And these health
7 issues are by no means limited to only three pollutants; many of the pollutants that Tacoma LNG
8 will emit to the airshed are carcinogenic, some are mutagenic or teratogenic, and most can have
9 toxic effects on the respiratory system, the skin, and other vital organs.²⁶

10 Tacoma LNG will also emit significant levels of a criteria pollutant, fine particulate matter,
11 for which Courts have recognized there is a “lack of a threshold concentration below which
12 [particulate matter and ozone] are known to be harmless.”²⁷ Notably, the Tacoma Tideflats area
13 where Tacoma LNG is located was in an nonattainment area for the 24-hour fine particulate matter
14 national standard until 2014, and the area is now on a maintenance plan.²⁸ Further, the Washington
15 Pollution Control Hearings Board acknowledged that Tacoma LNG will emit toxic fine particulate
16 matter in excess of the regulatory threshold set out in WAC 173-400-113.²⁹ Additional emissions

17 ²² *Id.* at Tables B-2 through B-11.

18 ²³ See Exh. RXS-14, US EPA, Health Effects Notebook for Hazardous Air Pollutants, Benzene.

19 ²⁴ See Exh. RXS-15, US EPA, Health Effects Notebook for Hazardous Air Pollutants, Toluene.

20 ²⁵ See Exh. RXS-16, US EPA, Health Effects Notebook for Hazardous Air Pollutants, Xylene.

21 ²⁶ See generally US EPA, Health Effects Notebook for Hazardous Air Pollutants, available at
22 <https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants>.

23 ²⁷ See *Am. Trucking Associations, Inc. v. E.P.A.*, 283 F.3d 355, 359–60 (D.C. Cir. 2002).

24 ²⁸ Ex. RXS-17, 80 Fed. Reg. 7347 (Feb. 10, 2015).

25 ²⁹ See Exh. RXS-8 at ¶121 (“The parties agree that new air dispersion modeling with the correct wind direction for
26 PM_{2.5} shows that TLNG’s PM_{2.5} emissions of 1.3 ug/m³ exceed WAC 173-400-113, Table 4a’s *threshold* of 1.2
ug/m³.”)

1 of PM_{2.5}, whether or not in excess of regulatory thresholds, pose health risks to humans and is an
2 example of an externality of the facility negatively impacting the health and safety of nearby
3 communities.

4 In sum, Tacoma LNG represents an increase in a large number of air pollutants to the
5 airshed that it shares with the Tribe and residential neighborhoods in Tacoma (including areas of
6 minority and low-income populations, including children). Many of the chemicals Tacoma LNG
7 will emit into the airshed are persistent and bioaccumulative, meaning they will remain in the
8 environment for generations and accumulate through the food chain.

9 All of these identified air emissions have driven costs higher due to the location of the
10 facility. Many, if not all, of the emissions requiring the higher cost elements—including increased
11 costs in design, permitting, construction and operations—are in part or wholly caused by
12 operations that are solely required to serve TOTE or other marine fuel customers and which
13 provide no benefit to rate payers.

14 **Q. Who will be most impacted by the pollutants emitted by the facility?**

15 **A.** Tacoma LNG will emit the aforementioned pollutants into an airshed that includes
16 the Puyallup Reservation and residential neighborhoods in Tacoma with substantial minority and
17 low-income populations, including children.³⁰ Environmental health disparity tools, including
18 EPA’s EJSCREEN³¹ and the Washington State Department of Health’s Environmental Health
19 Disparities Map,³² indicate that the population situated near Tacoma LNG, including residents of
20 the Puyallup Reservation, already suffer disproportionately high environmental burdens. And
21 environmental justice materials developed by PSCAA show that some of the highest levels of air
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23 ³⁰ Exh. RXS-10, Recommendation to initiate a supplemental review of the proposed LNG plant (Apr. 18, 2019).

24 ³¹ See <https://ejscreen.epa.gov/mapper/>

25 ³² See [https://www.doh.wa.gov/DataandStatisticalReports/EnvironmentalHealth/WashingtonTrackingNetworkWTN/Inform](https://www.doh.wa.gov/DataandStatisticalReports/EnvironmentalHealth/WashingtonTrackingNetworkWTN/InformationbyLocation/WashingtonEnvironmentalHealthDisparitiesMap)
26 [ationbyLocation/WashingtonEnvironmentalHealthDisparitiesMap](https://www.doh.wa.gov/DataandStatisticalReports/EnvironmentalHealth/WashingtonTrackingNetworkWTN/InformationbyLocation/WashingtonEnvironmentalHealthDisparitiesMap)

1 pollution in PSCAA’s jurisdiction, prior to the presence of the Tacoma LNG facility, are already
2 present at the Puyallup Reservation.³³

3 The emissions from the Tacoma LNG facility contribute to disparate impacts by releasing
4 additional pollution to the airshed of already environmentally-overburdened adjacent
5 communities. The University of Washington Department of Environmental & Occupational
6 Health Sciences (DEOHS) collaborated with partners across Washington to develop an interactive
7 tool, the Washington Environmental Health Disparities Map (WEHDM), which is hosted by the
8 Washington State Department of Health. The WEHDM ranks the cumulative risk each
9 neighborhood in Washington faces from environmental factors that influence health outcomes.³⁴

10 I have attached to this testimony the WEHDM’s Environmental Health Disparities rankings
11 assigned to the neighborhoods surrounding Tacoma LNG.³⁵ These maps demonstrate the
12 environmental burdens present in the area. The Tacoma Tideflats area, where the Tacoma LNG
13 facility is located, is ranked 10 out of 10 for Environmental Health Disparities and the ranks of the
14 surrounding areas range between 5 and 10.³⁶ It is important to note that the overall Environmental
15 Health Disparities rankings are based on four sub-factors: Environmental Exposures,
16 Environmental Effects, Socioeconomic Factors, and Sensitive Populations. When focused on the
17 environmental sub-factors, the communities adjacent to Tacoma LNG are ranked between 8 and
18 10 (out of 10) for Environmental Effects, and between 7 and 10 (out of 10) for Environmental
19 Exposures.³⁷ The information provided by the WEHDM unequivocally shows that the areas
20 impacted by the Tacoma LNG facility are carrying a disproportionate environmental burden.

21 _____
³³ See Exh. RXS-11, PSCAA map, Most Impacted Areas Central Pierce County.

22 ³⁴ See Washington Environmental Health Disparities Map Project website at
23 <https://deohs.washington.edu/washington-environmental-health-disparities-map-project>.

24 ³⁵ Exh. RXS-23, Washington Environmental Health Disparities Map Rankings.

25 ³⁶ *Id.*

26 ³⁷ *Id.*

1 In sum, Tacoma LNG heaps additional significant negative externalities to the surrounding
2 community, including the increased risk of adverse health impacts as well as the potential of a
3 catastrophic accident occurring in an already highly burdened area. The full extent of these wholly
4 inequitable and unnecessary externalities remains unassessed and unquantified.

5 **Q: To what extent did PSE consider the negative externalities when making**
6 **decisions about the Tacoma LNG Project’s design, construction, and operation?**

7 **A.** In the prior proceeding, which addressed costs incurred prior to September 22,
8 2016, PSE stated that it did not consider the impact of the Tacoma LNG facility on Highly
9 Impacted Communities and Vulnerable Populations because it “continues to hold” the belief that
10 the facility would provide benefits to such communities and that such communities were “defined”
11 “long after” the facility was built.³⁸ Neither of these responses made sense in those proceedings,
12 as characterizing the significant adverse air pollution and safety risks to the surrounding
13 communities as “benefits” is simply Orwellian. And, as to PSE’s lack of awareness of such
14 communities adjacent to the facility, that just confirms its lack of awareness and planning. EPA’s
15 EJSCREEN tool³⁹ has been available in one form or another since 2010 (i.e., long before
16 September 22, 2016) and could easily have provided information on vulnerable and impacted
17 communities near Tacoma LNG had PSE make an effort to look for it.

18 In his current testimony, PSE’s witness Mr. Roberts again tries to frame the Tacoma LNG
19 Project as having provided “benefits” to surrounding communities, including to the Tribe.⁴⁰ PSE
20 wants the Commission to believe that its construction of a polluting, hazardous facility that may
21 catastrophically explode is beneficial to the adjacent environmental justice communities because
22 PSE made “improvements” at the contaminated brownfield site where it is located.

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24 ³⁸ Exh. RXS-12, PSE Response to Public Counsel Data Request No. 373 in UTC Consolidated Dockets UE-220066
and UG-220067.

25 ³⁹ <https://ejscreen.epa.gov/mapper/>

26 ⁴⁰ Exh. RJR-1T at 44:4-45:10.

1 **Q: Do the “benefits” of these actions in any way mitigate the negative health and**
2 **safety externalities that you discuss in your testimony?**

3 **A:** No, they do not. Mr. Roberts refers to the work necessary to develop the Tacoma
4 LNG site, which involved demolishing an old warehouse, planting a vegetation buffer, and
5 installing a stormwater system.⁴¹ He also refers to the off-site mitigation associated with the
6 project- removal of creosote-treated piles from the Blair Waterway and the Sperry Ocean
7 Terminal. That work did nothing to mitigate the air pollution and/or risks of a catastrophic accident
8 that Tacoma LNG presents. And all of these beneficial actions could have been taken independent
9 of siting the LNG facility at this location.

10 **Q: Is Mr. Roberts’ statement that the Tacoma LNG Facility “will reduce air**
11 **emissions”⁴² correct?**

12 **A.** Mr. Robert’s testifies that the facility will reduce air emissions by helping meet
13 regional demand for LNG as a maritime and heavy-duty trucking fuel.⁴³ Setting aside the complex
14 assumptions inherent in Mr. Roberts’ assertion—that air emissions, broadly, will be “reduced”
15 when LNG displaces current “dirtier” fuels—even if this was true, the benefits occur over a large
16 region. For example, along the entire shipping route or across all the aggregate truck routes in the
17 region. Offsetting these regional benefits are the decidedly local negative externalities imposed
18 on the Tribe and surrounding residents due to the presence of the Tacoma LNG facility at its
19 current location. Per Mr. Roberts, the Tribe and surrounding residents should simply grin and bear
20 the local impacts for the greater regional good. That is the very definition of inequity.

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24 ⁴¹ Exh. RJR-1T at 44:5-10.

25 ⁴² Exh. RJR-1T at 45:8-10.

26 ⁴³ Exh. RJR-1T at 45:8-10.

1 **1. Tacoma LNG is actively causing and contributing to human health impacts that**
2 **inequitably impact neighboring communities.**

3 **Q: Does operation of the Tacoma LNG facility in compliance with the air permit**
4 **issued by the Puget Sound Clean Air Agency ensure it causes no health impacts?**

5 **A:** No. It is important that the Commission recognize that permitted pollution is still
6 pollution. PSCAA's air permit, and the PCHB review of that permit, cannot not satisfy the
7 Commission's inquiry into the equities (or lack thereof) of the Tacoma LNG facility's negative
8 externalities. PSCAA's issuance of the air permit and the PCHB's subsequent review of that permit
9 do not establish that Tacoma LNG does not disparately impact the Tribe.

10 As a practical matter, the Commission should recognize that virtually all facilities emitting
11 air pollution have a Clean Air Act permit that – like Tacoma LNG's Clean Air Act permit – has
12 been determined to comply with the requirements of the Clean Air Act. However, the pollution
13 emitted by Tacoma LNG is real and has real and adverse impacts even if it is in compliance with
14 all applicable permit conditions. Air permits do not guarantee safety. If they did, there would be
15 no environmental justice communities located near facilities emitting air pollution—but there are
16 many such communities throughout the country.

17 And because it could only compare Tacoma LNG's emissions to regulatory thresholds on
18 a pollutant-by-pollutant basis, the PCHB did not address the *cumulative* impacts of those toxic
19 pollutant emissions – for example, for all carcinogens. This is important because Washington
20 Department of Health tools show that the airshed into which Tacoma LNG emits its carcinogens
21 (and other pollutants) is already degraded and over-burdened by pollution -- even before Tacoma
22 LNG began operating. Tacoma LNG's additional emissions will only make an already degraded
23 airshed worse from a health standpoint. This is exactly the outcome that environmental justice
24 principles aim to prevent.

25 In short, air pollution laws and regulations, and the permits that are issued pursuant to them,
26 do not mean that pollution emitted to the air is benign to individuals who breathe air containing

1 the carcinogens and toxic pollutants emitted by the permitted source(s). I say this based on my
2 three-plus decades of experience with the Clean Air Act.

3 A proper assessment of harms to the Tribe and neighborhoods located near Tacoma LNG
4 can only be accomplished by using tools that assess and evaluate the *cumulative* harms of exposure
5 to pollution.⁴⁴ The need for such an assessment is not rendered moot simply by the act of receiving
6 a permit.

7 **Q: Are you aware of whether PSE has operated the Tacoma LNG Facility in**
8 **compliance with the conditions of its air permit?**

9 **A:** It appears that PSE has not remained in compliance with those permit conditions.
10 In its response to a data request from Public Counsel, PSE admits that PSCAA issued “Notices of
11 Violation” (PSE does not indicate how many such notices it received) for the Tacoma LNG facility
12 on June 8, 2023.⁴⁵ This admission demonstrates that PSE has not remained in compliance with
13 the conditions in the air permit, which are designed to reduce harm to the surrounding community.

14 PSE also admits that Tacoma LNG has liquefied more than 250,000 gallons of LNG per
15 day, the maximum production limit set forth in the air permit.⁴⁶ PSE explains that though this
16 appears to be a violation of the terms of the permit, that it has proposed to PSCAA that the permit
17 be interpreted more broadly, so the facility can instead produce 250,000 gallons of new LNG per
18 day, in addition to liquefying any additional quantity of boil-off gas generated from the storage
19 tank.⁴⁷ My understanding is that PSCAA has not yet responded to PSE’s request.

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23 ⁴⁴ As I discuss below in my testimony, a Health Impact Assessment (HIA) is one such tool.

24 ⁴⁵ Exh. RXS-32, PSE Response to Public Counsel Data Request No. 46.

25 ⁴⁶ *Id.*

26 ⁴⁷ *Id.*

1 **Q: How does violation of air permit conditions impact the credibility of PSE's**
2 **conclusion that the Tacoma LNG facility does not diminish the health of people in its vicinity**
3 **through emissions of pollutants to the air?**

4 **A:** Though it is unclear at this time the cause of the Notices of Violation issued to
5 Tacoma LNG in June, it is my opinion that PSE cannot credibly conclude that the Tacoma LNG
6 facility does not diminish the health of people in its vicinity through emissions of pollutants to the
7 air. Any contention that the Tacoma LNG facility does not diminish the health of people in the
8 vicinity is undermined by these admitted exceedances of its permitted production limits.

9 **Q: Did the PCHB make any decisions concerning environmental justice issues or**
10 **disparate impacts caused by Tacoma LNG?**

11 **A:** No. The PCHB specifically declined to reach (much less resolve) issues concerning
12 environmental justice and disparate impacts from Tacoma LNG because doing so was outside of
13 its jurisdiction:

14 Resolving whether PSCAA's order of approval is contrary to
15 environmental justice principles, including Executive Order 12898
16 and PSCAA's mandates on environmental injustices, would require
17 the Board to adjudicate and/or enforce a federal executive order and
PSCAA plans and policies, matters which the Board has ruled that
it lacks subject matter jurisdiction. Such a conclusion compels the
Board to dismiss Issue 4(1).⁴⁸

18 Notably, the PCHB determined those issues were outside of its jurisdiction because PSE moved to
19 dismiss them from the case on that basis.⁴⁹

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24 ⁴⁸ Exh. RXS-24 (Order on Motion to Dismiss and for Partial Summary Judgment, PCHB No. 19-087c, 3/26/2021) at 36 (internal citation omitted).

25 ⁴⁹ *Id.* at 34-34 (“PSE moves to dismiss Issue 4(1) [whether order of approval is contrary to principles of
26 environmental justices, including Executive Order 12898 as well as PSCAA's mandate concerning avoiding
environmental injustices], joined by PSCAA, on the basis that the Board lacks jurisdiction to consider it.”).

1 **Q: What is the takeaway for the Commission regarding the PCHB decision on the**
2 **PSCAA air permit?**

3 **A:** First, as I mentioned at the outset, my testimony here regarding the PSCAA air
4 permit for the Tacoma LNG facility is presented to illustrate the known impacts of Tacoma LNG’s
5 permitted emissions, not to relitigate issues decided by the PCHB and now before the Court of
6 Appeals.⁵⁰ The takeaway for the Commission is that the PCHB concluded, after giving deference
7 to the Puget Sound Clean Air Agency, only that the Tacoma LNG air permit complies with the
8 requirements of the Clean Air Act (once certain defects in the permit are cured). The PCHB did
9 not conclude that Tacoma LNG’s emissions of air pollutants cannot and will not have disparate
10 impacts to Tribe or the surrounding community. The PCHB did not address equities.

11 **Q: Earlier you mentioned that the PCHB determined it was precluded from deciding**
12 **issues involving environmental justice or disparate impacts. If the PCHB did not reach or**
13 **resolve Tacoma LNG’s disparate health impacts on the Tribe and nearby neighborhoods, is**
14 **there a way of ascertaining those?**

15 **A:** Yes, there is a way of doing that. In Washington, the impacts of a proposed facility
16 on adjacent communities are ascertained through what is called a Health Impact Assessment (or
17 HIA).

18 **Q: What is a Health Impact Assessment?**

19 **A:** A HIA is a process that helps support the required review and analysis of potential
20 health effects of a plan, project, or policy before it is built or implemented. A HIA can provide
21 mitigation and higher-level policy recommendations that may increase positive health outcomes
22 and minimize adverse health outcomes. A HIA is a public health tool that uses available technical
23 and scientific information to help communities understand how plans, projects, and policies affect
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25 ⁵⁰ My understanding is that the sufficiency of the PSCAA air permit for the Tacoma LNG facility has still not been
26 resolved. The permit is currently under review by Division II of the Washington State Court of Appeals in matter No.
56938-8-II.

1 their health. These studies can also explain how to maximize the likely health benefits and
2 minimize the potential harms of a given project, plan, or policy.

3 HIAs are routinely performed after the issuance of an EIS. For example, on November 27,
4 2018, Cowlitz County and the Washington State Department of Health issued a Health Impact
5 Assessment for the Millennium Bulk Terminal–Longview, outlining the health effects that
6 proposal would have on the residents of Longview, Cowlitz County. Notably, the EIS for the
7 Millennium Bulk Terminal included a modeled cancer risk rate for new emissions associated with
8 the facility but a HIA was still performed. The EIS for Tacoma LNG, in contrast, included no such
9 modeling or assessment associated with the emissions of all expected toxic air pollutants
10 associated with Tacoma LNG.

11 **Q: Has a HIA been prepared for Tacoma LNG?**

12 **A:** No.

13 **Q: Has the Tribe requested that a HIA be prepared?**

14 **A:** Yes.

15 **Q: Has PSE agreed to develop information that would quantify the actual and
16 cumulative impacts of the Tacoma LNG Facility on human health?**

17 **A:** No. It is my understanding that, to date, PSE has been unwilling to prepare a HIA.

18 **2. Tacoma LNG presents an undefined, unmitigated, and inequitable risk of
19 catastrophic accident.**

20 **Q. You mentioned Tacoma LNG presents negative externalities regarding safety
21 and risk to human life – can you please explain that?**

22 **A.** Yes. Beyond routinely adding pollutants into the air, the operation of LNG
23 production and storage facilities like Tacoma LNG present significant safety risks, including the
24 risk of explosions and other catastrophic events.

25 It is my understanding the PSE does not dispute that Tacoma LNG, like all natural gas or
26 methane liquefaction facilities, presents an inherent risk of catastrophic explosion. In fact, that risk

1 is disclosed in the November 2015 Final Environmental Impact Statement for Tacoma LNG⁵¹ – a
2 document that PSE accepted as evidenced by the fact that PSE has not challenged or appealed that
3 EIS after a full opportunity to do so.

4 It is also my understanding is that the WUTC is aware that liquefaction facilities, like
5 Tacoma LNG, present the risk of a catastrophic explosion. In 2019 the WUTC Pipeline Safety
6 staff, the WUTC experts responsible for reviewing compliance of facilities like the LNG Facility,
7 required additional computer modeling to assess catastrophic risks in its review because of
8 deficiencies in CB&I's Siting Study Report and Fire Protection Evaluation. Presumably, the
9 WUTC would not require such modeling for a facility that did not present safety risks.

10 **Q. Has there ever been a catastrophic event at a methane liquefaction facility like**
11 **Tacoma LNG?**

12 **A.** Yes, there have been numerous accidents and other catastrophic events at
13 liquefaction facilities. A little more than a year ago, on June 8, 2022, there was an explosion at the
14 Freeport LNG liquefaction facility in Texas.⁵² In fact, the FEIS for Tacoma LNG identified two
15 accidents: the 1944 accident in Cleveland, Ohio, which had 128 deaths; and the 1979 Cove Point
16 accident. More recently, the following accidents have occurred: Buncefield, United Kingdom
17 (2005); Jaipur, India (2009); San Juan, Puerto Rico (2009); and Amuay, Venezuela (2012). Last,
18 in 2014, there was an explosion at the Plymouth LNG facility in Washington state.

19 PSE's decisionmakers know that the presence of the Tacoma LNG facility on the peninsula
20 between the Blair and Hylebos waterways poses very real safety risks to the surrounding
21 population and to other industrial facilities located in the area. I note that at every facility
22 referenced above was subject to safety evaluations. And yet, explosions later occurred. Thus, the
23 mere fact that safety was evaluated does not at all preclude the occurrence of a catastrophic event.

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25 ⁵¹ See, e.g., Exh. RXS-18, Final Environmental Impact Statement for Tacoma LNG (excerpts).

26 ⁵² Exh. RXS-19, Shutdown Extended of Fire-Damaged Texas LNG Export Site, Engineering News-Record (June 20, 2022).

1 I note that the Tacoma LNG facility presents a large target to any number of bad actors in
2 the US and abroad. In today's dangerous and uncertain world this unnecessary facility that
3 provides relatively little public good is imprudent by definition simply due to its siting,

4 **Q. Does the WUTC determination that Tacoma LNG meets the requirements of**
5 **49 CFR Part 193 resolve your concerns regarding the prudency PSE's decision?**

6 **A.** No. Whether Tacoma LNG meets the requirements of 49 CFR Part 193 is a very
7 different and narrow question from whether it is prudent to build the (unnecessary) facility in this
8 location, particularly when PSE had more benign alternatives available for meeting its rate payers'
9 limited peak shaving needs. I reiterate that, as was learned with Plymouth LNG – and, more
10 recently (in June of 2022), with the Freeport LNG facility in Texas – even permitted, code-
11 compliant facilities pose the risk of a catastrophic, explosive event. Whether the facility meets the
12 requirements of 49 CFR Part 193 is a different issue.

13 **Q: Were all the potential safety risks posed by the Tacoma LNG facility**
14 **considered in the design and permitting process?**

15 **A:** No. PSE only looked at higher probability/low-consequence scenarios and chose
16 to ignore the more concerning high-consequence scenarios. This is allowed by PHMSA
17 regulations. To my knowledge, no worst-case-scenario risk analysis has been performed for
18 Tacoma LNG. Further, during development of the facility, WUTC staff acknowledged that the
19 “design spill” scenario that PSE did model for the facility does not represent all reasonably
20 anticipatable risks posed by the facility. A UTC memorandum dated July 18, 2018 (produced to
21 the Tribe under Washington's Public Records Act) titled “Overview and Status of the PSE Tacoma
22 LNG Facility” includes a “Staff Background Note” stating that:

23 As indicated in the evaluation process for the much larger export
24 LNG facility proposed for Coos Bay Oregon, **the existing**
25 **regulatory process has a few fundamental flaws regardless of**
26 **ones position on a project.** LNG siting is deemed acceptable if the
project can show that any consequences of an accident will not
extend beyond its property line. In order to “calculate” the
consequence and impact, the projects use a process called “designed

1 spills” in order to determine exclusion distances. The Final PSE
2 Tacoma LNG EIS has the “design spill” concept outlined and there
3 are numerous mitigation measures in place due to the calculation.
4 Unlike a “worst case discharge of oil” which would assume all
5 contents of the largest tank, the “design spill” only takes the largest
6 transfer line to develop its model.

7 The modeling of the exclusionary zones and impact outside of the
8 property lines is based on the location of the “design spill” collection
9 points. **This means that a mechanical failure in the loading arm
10 of the bunkering operations would not necessarily be part of the
11 model or exclusionary zone distance.**⁵³

12 **Q: Can you explain how the “design spill” analysis does not account for all
13 reasonably anticipated risks?**

14 **A:** As the above quote acknowledges, the “design spill” is a standardized scenario in
15 which a small-quantity spill and its low consequences are analyzed. These events are commonly
16 modeled because these types of spills can occur with higher frequency. While this is useful, it
17 does not account for all potential risks presented by methane liquefaction facilities, including those
18 that are more significant in volume and duration – and which would have far greater consequences.

19 **Q: What is the consequence of these shortcomings regarding the “design spill”
20 analysis?**

21 **A:** The UTC memo above points out some of the shortcomings. Without a complete
22 analysis of all reasonably anticipated risks, PSE cannot has not demonstrated that Tacoma LNG
23 presents no danger to the public. And, without looking at worst-case scenarios, regulators cannot
24 consider whether mitigation of such risks is even possible. The absence of such information
25 prevents the Commission from making an informed decision as to whether construction of Tacoma
26 LNG is in the public interest, in light of the fact that the nearby community is potentially being put
at risk of serious harm, including loss of life, if there is a catastrophic accident at Tacoma LNG.

⁵³ See Exh. RXS-25 at 2 (highlighting in document added for ease of reference).

1 **3. PSE’s interest in selling LNG to be transported by rail expands the likelihood and**
2 **zone of catastrophic impacts associated with the Tacoma LNG Project.**

3 **Q: Beyond the facility polluting the air and creating the risk of a catastrophic accident,**
4 **does Tacoma LNG present any other negative externalities that disparately impact the**
5 **Puyallup Tribe?**

6 Yes.

7 **Q: And what additional threats does it pose?**

8 PSE has announced aspirations for Tacoma LNG to load rail cars with LNG for
9 transportation elsewhere. In a document produced to the Tribe in litigation, PSE indicates plans
10 for Tacoma LNG to load LNG onto rail cars in the future.⁵⁴

11 In July 2020, PHMSA promulgated the LNG by Rail Rule, which amended the Hazardous
12 Materials Regulations to allow for the bulk transport by rail of Methane, refrigerated liquid,
13 commonly known as liquefied natural gas (LNG).⁵⁵ Following that regulatory change, PSE
14 (through its Civil Rule 30(b)(6) designee) indicated in 2021, that its marketing team has been
15 discussing Tacoma LNG loading LNG onto rail care to be transported elsewhere.⁵⁶

16 This LNG by Rail Rule is currently being litigated before the D.C. Circuit of Appeals.
17 Though PHMSA recently announced a suspension of the rule, the suspension will extend only
18 until the completion of a replacement LNG by Rail rule or until June 30, 2025, whichever occurs
19 first.⁵⁷

22 ⁵⁴ See RXS-33 Document identified as Bates Nos. PSE02708467-PSE02708470, produced in discovery by PSE in
23 PCHB Case No. 19-087c (noting a “[r]ail spur on site [at Tacoma LNG] for future potential rail car loading.”).

24 ⁵⁵ 85 Fed. Reg. at 44995.

25 ⁵⁶ Exh. RXS-34 (PSE designated portions of Mr. Hogan’s 30(b)(6) deposition testimony confidential, this excerpt is
26 not from the portion designated confidential).

26 ⁵⁷ 88 Fed. Reg. 60356 (09/01/2023)

1 **Q: If PSE's plans are realized and Tacoma LNG provides LNG to be transported by rail,**
2 **why does that impact the Tribe?**

3 First of all, the Commission should be aware that the Puyallup Reservation is crisscrossed
4 by train tracks, running both east/west and north/south.⁵⁸ Tribal members live near the railroad
5 tracks, and important cultural and natural resources are located along the rail lines.

6 Given PSE's plans and the fact that LNG can now lawfully be transported by rail, there is
7 a likelihood that tank cars filled with LNG will soon be traveling through the Puyallup Reservation
8 to reach Tacoma LNG to load LNG, and then again traverse the Tribe's reservation to transport
9 the LNG elsewhere.

10 **Q: How does LNG trains traversing the Tribe's reservation because of Tacoma LNG**
11 **pose a threat to the Tribe, its members, homeland, and resources?**

12 The risks inherent in the LNG rail traffic occasioned by Tacoma LNG cannot be
13 overstated.⁵⁹ Indeed, PHMSA's recognition of these risks is illustrated by the fact that the LNG
14 by Rail Rule requires evacuation of a one-mile radius around any incident involving this
15 substance.⁶⁰

16 Further, train accidents are unfortunately common. As the Commission likely knows,
17 Washington has had its share of unfortunate incidents in recent years -- including the 2017
18 derailment of an Amtrak train near DuPont, and the 2020 derailment and fire involving oil train
19 cars in Custer.

20 Train accidents involving combustible fuels present extraordinary risks to rail-adjacent
21 communities. For example, the 2014 Lac-Mégantic accident in Quebec, Canada was caused by
22

23 ⁵⁸ See e.g., Exh. RXS-27 Map of Puyallup Reservation and Surrounding Area.

24 ⁵⁹ See generally Exh. RXS-26 Final Environmental Assessment, SP 20534 Special Permit to transport LNG by rail in
25 DOT-113C120W rail tank cars, Docket No. PHMSA-2019-0100 (12/5/2019) at Section 4 – Environmental and Human
26 Health Impacts of the Selected Action and No Action Alternative.

⁶⁰ 85 Fed. Reg. at 45021.

1 the derailment of a 74-car freight train carrying crude oil. Newspaper reports described a 1-
2 kilometre (0.6 mi) blast radius. Forty-two people were confirmed dead, with five more missing
3 and presumed dead because of the fire and explosion of multiple tank cars. Roughly half of the
4 buildings in the downtown area were destroyed and all but three of the thirty-nine remaining
5 downtown buildings had to be demolished due to petroleum contamination of the townsite.⁶¹ LNG
6 is more volatile than crude oil and, when burned, emits far more heat. Thus, had the Lac-Mégantic
7 disaster involved LNG, the impacts likely would have been more extensive.

8 As evidenced by the impacts of the recent freight train derailment in in East Palestine,
9 Ohio, which occurred on February 3, 2023 and involved 20 cars containing hazardous materials,⁶²
10 a train accident involving LNG could have profound effects on the Reservation and the Tribe.

11 **Q: Does Tacoma LNG providing LNG to the rail industry pose any additional negative**
12 **externalities that will be disproportionately foisted upon the Tribe?**

13 Yes, more air pollution to be suffered by the Tribe. As PHMSA's rulemaking
14 acknowledges, the transportation of rail tank cars filled with LNG would result in air pollution
15 associated with increased use of diesel-powered trains traversing the Tribe's Reservation.⁶³

16 The air impacts associated with trains coming to and going from Tacoma LNG will not be
17 widely-dispersed. Instead, the majority of those impacts will be suffered by those in proximity to
18 Tacoma LNG and the rail corridors; this means the Puyallup Tribe, its members, and its
19 Reservation.

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23 ⁶¹ See Transportation Safety Board of Canada, Rail transportation safety investigation R13D0054, available at:
<https://www.bst-tsb.gc.ca/eng/enquetes-investigations/rail/2013/R13D0054/R13D0054.html>.

24 ⁶² See U.S. EPA, East Palestine, Ohio Train Derailment website, available at: <https://www.epa.gov/east-palestine-oh-train-derailment>

25 ⁶³ See Exh. RXS-26 Final Environmental Assessment, SP 20534 Special Permit to transport LNG by rail in DOT-
26 113C120W rail tank cars, Docket No. PHMSA-2019-0100 (12/5/2019) at 18.

1 **C. PSE Incurred Significant Costs After September 22, 2016 that Provide No Benefit to**
2 **Rate Payers**

3 **1. PSE asks the Commission to require rate payers to assume the cost of constructing**
4 **an oversized facility intended to produce twice the amount of LNG allowed by**
5 **permit.**

6 **Q. How much LNG produced at Tacoma LNG will be for the benefit of rate**
7 **payers annually?**

8 **A.** The exact number is not knowable. Because Tacoma LNG was constructed to
9 furnish re-vaporized LNG to rate payers only during times of “peak” demand, Tacoma LNG could
10 provide no vaporized LNG at all to ratepayers if demand does not exceed the capacity of pipeline
11 gas available to PSE. What is knowable are the limits on how much natural gas that Tacoma LNG
12 can provide to ratepayers each year.

13 **Q. What limits on the amount of vaporized gas that Tacoma LNG can provide to**
14 **rate payers are you aware of?**

15 **A.** First, the air permit for Tacoma LNG limits use of the facility’s vaporizer, which is
16 utilized to re-gasify LNG so that it can be introduced into PSE’s distribution network, stating that
17 “[t]he LNG vaporizer shall only operate no more than 240 hours per any 12 consecutive month
18 period.”⁶⁴ In other words, Tacoma LNG can operate as a peak shaving facility benefitting rate
19 payers ten days per year *at most*. Based on documents in the air permitting record, this constraint
20 was proposed by PSE.⁶⁵ Further, the SEIS it indicates that only 1.1% to 2.2% of the LNG will be
21 used for the peak shaving services benefitting ratepayers.⁶⁶

22 _____
23 ⁶⁴ Exh. RXS-3, Puget Sound Clean Air Agency Order of Approval No. 11386 (excerpt) (12/10/2019).

24 ⁶⁵ See Exh. RXS-4, Response to SEIS Data and Information Request Puget Sound Energy for Tacoma LNG (excerpt)
25 (May 25, 2018) (“The maximum allowable production rate is limited to approximately 85,000 Dth/day (~1 million/day
26 LNG) and regasification is not projected to occur more than 10 days per year (240 hours). Thus the maximum amount
of LNG that would be regasified in a year would be no more than 10 million gallons.”).

⁶⁶ Exh. RXS-7, Final SEIS for Tacoma LNG (excerpt) at Table 2-1.

1 **Q: What is your understanding of the reason PSE chose a storage tank capacity**
2 **of 8 million gallons of LNG?**

3 **A:** In data request responses submitted UTC under consolidated dockets UE-220066
4 and UG-220067, PSE provided the following rationale for the facility’s size:

5 “...Ultimately, 8 million gallons of storage was chosen because it
6 would provide, after heel gas of 350,000 gallons, 6 days of
7 vaporization and diversion make-up volumes of 6,025,000 gallons
8 for PSE and 7 ½ days equivalent liquefaction volume for the non-
9 utility customers or 1,625,000 gallons.

10 66 MDth/day of vaporization was chosen since it was possible to
11 expand the reach of the vaporized LNG with a future upgrade of
12 distribution and that was an “off the shelf” vaporizer size.”⁶⁷

13 I note that this maximum allowable production rate, which drives the size and cost of the
14 facility, does not seem to be based on available data. Relating to the basis for the facility’s sizing,
15 including its choice of having a storage of 8 million gallons and its vaporized injection capacity of
16 66,000 Dtherm/day.

17 However, PSE provides no basis for the six consecutive days of vaporization that drove
18 the tank size. In the prior WUTC proceedings, PSE also provided information regarding daily gas
19 deliveries showing only twelve days when the daily usage exceeded 800,000 Dth/day, which are
20 shown below along with the dates on which they occurred.⁶⁸

Day	Est. Gas Deliveries - PSE Gas System (Dth)
12/28/21	802,664
12/27/21	857,067
12/26/21	810,930
02/05/19	809,565
02/04/19	843,756
01/05/17	808,640

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24 ⁶⁷ Exh. RXS-5, PSE’s response to Public Counsel’s Data Request No. 391 in WUTC consolidated dockets UE-220066
& UG-220067.

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26 ⁶⁸ Exh. RXS-6, Attachment A (native .xlsx file) to PSE’s Response to Data Request No. 378 in WUTC consolidated
dockets UE-220066 & UG-220067.

01/04/17	809,140
01/03/17	819,043
02/06/14	841,181
02/05/14	845,599
12/07/13	833,336
12/06/13	801,181

This daily gas delivery information does not support the need to store 8 million gallons of LNG to meet ratepayer needs. Prior to PSE’s September 22, 2016 decision to construct the facility, only two consecutive high usage days occurred in a given year—two days in 2013 (December 6th and 7th) and also two days in 2014 (February 5th and 6th). Yet, PSE selected a size based on **six** consecutive days of need without any basis for its determination that 6 days was needed or prudent given the historic demand. PSE did not commence construction of the storage tank or receive the air permit for Tacoma LNG prior to September 22, 2016. Thus, the tank size (and cost) was significantly overestimated based on the information available on that date.

The post-September 22, 2016 daily delivery data information does not support a tank size capable of six days of consecutive peak shaving. There were three consecutive high usage days in both 2017 (January 3rd, 4th, and 5th) and 2021 (December 26th, 27th, and 28th), and two consecutive high usage days in 2019 (February 4th and 5th). PSE had every opportunity to review the historic and more current demand data after September 22, 2016 and reevaluate the necessary storage capacity to limit the facility size to meet rate payer needs. There is no indication that PSE considered options to reduce its tank size commensurate with having to accommodate less than six consecutive days of peak shaving. In sum, the historic demand information that PSE points to as justification for constructing such a large storage tank does not supported PSE’s decision to base the size of the facility on six consecutive days of peak shaving.

I also note that, even accepting if demand did exist for six consecutive days of peak shaving, PSE’s additional storage capacity and withdrawal needs could have been accommodated at its Jackson Prairie storage facility. Jackson Prairie has a capacity of 25 billion cubic feet of deliverable working gas. PSE’s total seasonal peak shaving, even using 80,000 Dth/day for ten

1 such days, represents just 3.2% of Jackson Prairie. And, as to withdrawal capacity, given Jackson
2 Prairie’s withdrawal capacity of 1.15 billion cubic feet per day, 80,000 Dth/day would only
3 represent around 7% of its withdrawal capacity.

4 PSE has not provided any analysis as to why these relatively small additional peak shaving
5 loads could not have been accommodated simply at Jackson Prairie. Instead, PSE provided the
6 following vague “reason:”

7 “Existing underground storage in the Pacific Northwest (e.g.,
8 Jackson Prairie) does not have available additional capacity, and,
9 even if additional capacity did exist, there is inadequate pipeline
10 and compressor infrastructure to transport the natural gas from
11 storage areas to PSE’s service area on the days where peaking
12 ability is necessary...”⁶⁹

13 I also note, however, that PSE confirmed that it could have met its peak-shaving needs by
14 diverting gas from its electric generating facilities, thus avoiding the need for the Tacoma LNG
15 plant as a peak-shaver.⁷⁰

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25 ⁶⁹ Exh. RXS-4, Response to SEIS Data and Information Request Puget Sound Energy for Tacoma LNG.

26 ⁷⁰ *Id.*

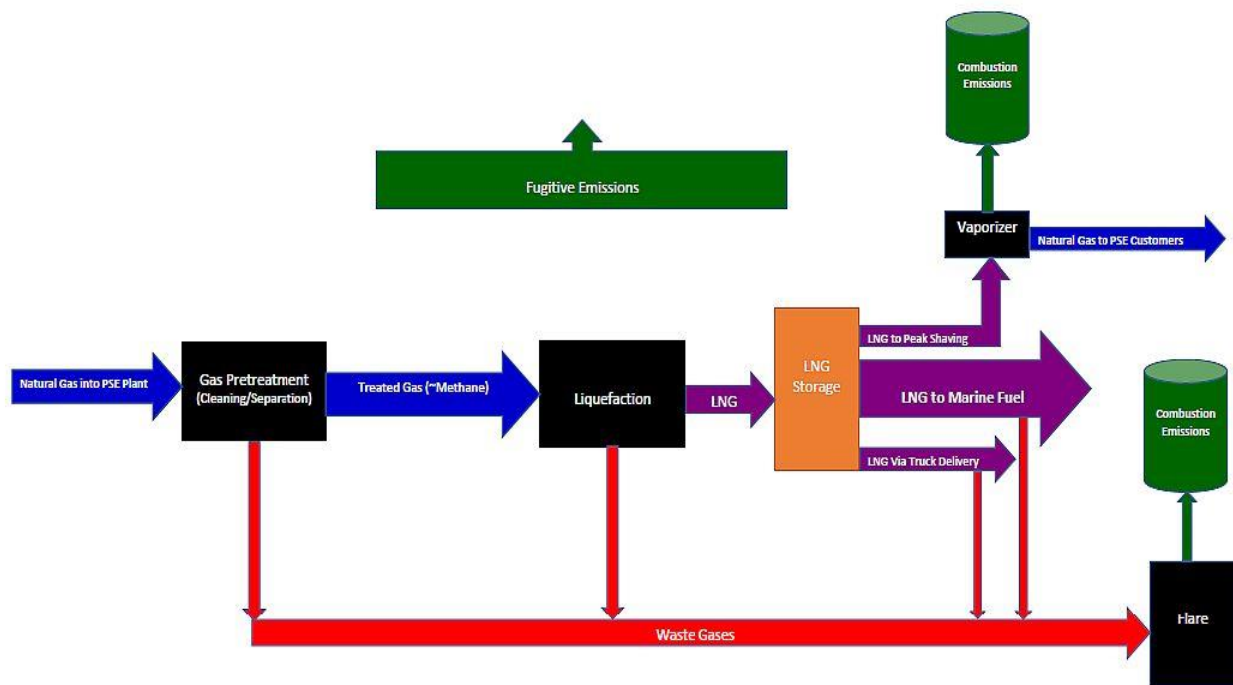
1 Q. What do you understand to be Tacoma LNG's primary purpose, if not peak
2 shaving?

3 A. By a wide margin, the vast majority of the product produced at Tacoma LNG will
4 be used to provide LNG to marine vessels. This fact is discussed further below and is made clear
5 in the SEIS.

6 **2. PSE is asking the Commission to require ratepayers to assume costs of design and**
7 **construction of facility features that are only needed because of PSE's marine fuel**
8 **contract requirements.**

9 Turning to the facility itself, Tacoma LNG was an expensive facility to design and
10 construct. But it was even more so mainly driven by its design to accommodate TOTE's needs
11 and specifications. The following diagram (which the Washington Pollution and Control Hearings
12 Board included in a decision it issued)⁷¹ shows Tacoma LNG's processes and main components:

13 Simplified Process Flow Diagram - Puget Sound Energy Tacoma Liquefied Natural Gas Plant



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26 ⁷¹ Exhibit RXS-8 Simplified Flow Process Diagram at pdf page 3.

1 I next discuss the key aspects of the facility one-by-one.

2 *First*, the supply natural gas comes into Tacoma LNG facility and undergoes pretreatment,
3 which removes a range of undesirable impurities in the feed gas prior to liquefaction. Initially, any
4 water and CO₂ contained in the natural gas is removed prior to the gas entering the liquefaction
5 system, which is necessary to prevent ice build-up on the walls of the plate-fin exchanger during
6 liquefaction.⁷² This amount of pretreatment is generally necessary for the production of LNG.

7 At Tacoma LNG—in addition to the removal moisture and CO₂ from the feed gas—
8 supplemental pretreatment occurs. PSE attempts to obscure the substantial difference between
9 these two processes, and their necessity for the natural gas liquefaction process, by discussing them
10 interchangeably as “pretreatment” without any distinction. The temperature of the natural gas
11 stream is reduced to between -60 and -100 degrees Fahrenheit, causing heavy hydrocarbons other
12 than methane (e.g., ethane, propane, butane, and pentane) to become liquid so they can be removed
13 from the methane “in order to achieve the desired purity of the liquefied natural gas product.”⁷³
14 The feed gas coming into Tacoma LNG is already pipeline-quality gas that PSE could provide to
15 customers without such pretreatment. The removal (and subsequent disposal) of heavy
16 hydrocarbons by PSE during pretreatment “to achieve the desired purity of the liquefied natural
17 gas product” is necessary only because PSE is contractually required to provide LNG to TOTE
18 that meets tight purity specifications (i.e., a minimum methane number of 80).⁷⁴

19 And I note that in an attempt to distract the Commission from the fact that a substantial
20 portion of the costs of the Tacoma LNG facility are for equipment and process that provide no
21 benefit to rate payers, PSE has now suggested that the gas quality from Tacoma LNG is needed
22 for rate payers because it meets a Wobbe Index, a different combustion characteristic of pipeline
23

24 ⁷² See RXS-28 at 2.

25 ⁷³ *Id.*

26 ⁷⁴ Exh. RXS-20, Deposition of Matthew Stobart (excerpt), (Feb. 18, 2021).

1 natural gas.⁷⁵ This is a curious argument because my understanding is that PSE does not conduct
2 pretreatment to remove heavy hydrocarbons from the non-liquefied pipeline-quality natural gas it
3 distributes to customers. If the removal of heavy hydrocarbons at Tacoma LNG is truly necessary
4 to ensure rate payers receive natural gas of satisfactory quality during peak shaving, that would
5 indicate that PSE is continuously supplying substandard quality gas (from a Wobbe Index
6 standpoint) to the vast majority of its ratepayers with no concerns at all.

7 PSE's reference to the Wobbe index should be dismissed as a red herring. If PSE was truly
8 worried about Wobbe Index and its adverse impacts on the combustion equipment across its
9 service territory, PSE would have proposed a gas quality enhancement project irrespective of
10 Tacoma LNG to correct the Wobbe Index in its pipeline-supplied natural gas. Because the costs
11 of pretreatment at Tacoma LNG are incurred only to meet TOTE's needs, the costs should not be
12 allocated to ratepayers.

13 Further, as shown above, pretreatment creates waste in the form of a varying composition
14 and quantity of waste gas with numerous heavy hydrocarbons and sulfur compounds. This waste
15 gas is sent to Tacoma LNG's flare – another piece of equipment for which PSE seeks
16 reimbursement from ratepayers. Because the need to clean the gas is driven by TOTE's Methane
17 Number requirements, so is the need to dispose of waste gas in Tacoma LNG's flare. The costs
18 associated with pretreatment, including Tacoma LNG's flare, are driven by the TOTE end use.
19 Thus, there exists a very real question as to why ratepayers should bear any costs associated with
20 pretreating the already pipeline-quality gas that comes into the facility or flaring the waste created
21 by that pretreatment.

22 *After pretreatment*, Tacoma LNG converts the cleaned gas to liquid form (“liquefaction”)
23 by chilling it using heavy refrigerants, which are toxic compounds. Again, Tacoma's ratepayers
24 do not use or need liquefied natural gas for peak shaving – Tacoma LNG's liquefaction

25 ⁷⁵ See RXS-28, PSE Response to Public Counsel Data Request No. 28; see also RXS-29, PSE Response to Public
26 Counsel Data Request No. 28.

1 infrastructure exists because its other end users – marine vessels and LNG tanker trucks – need
2 methane in liquid form. And again, as shown above, waste gas created in the liquefaction process
3 is sent to the flare for combustion. Thus, there exists a very real question as to why ratepayers
4 should bear any costs associated with liquefying the gas that comes into the facility or flaring the
5 waste created in the liquefaction process.

6 *After liquefaction*, the methane, now in liquid form, is stored in Tacoma LNG’s 8-million-
7 gallon storage tank. Again, the need for this large and expensive infrastructure is not driven by
8 ratepayers. Without the end users who will be using LNG – namely, marine vessels and LNG
9 tanker trucks – there would be no need for the LNG storage tank. At the very most, the costs to be
10 reimbursed by ratepayers should be commensurate with the maximum amount of end product that
11 is forecasted to go to rate payers: 2.2%. The current allocation of this large cost shifts the burden
12 substantially to ratepayers, leaving PSE to essentially get an almost free resource to use for its
13 commercial non-regulated customers. That is inappropriate and certainly the opposite of prudent.

14 *After storage*, LNG goes to the vaporizer (during the 10 days per year that peak shaving
15 may be necessary), to the TOTE marine vessels, or to LNG tanker trucks. Because LNG going to
16 marine vessels and tanker trucks does not benefit ratepayers, ratepayers should not be responsible
17 for costs associated with that infrastructure.

18 All or most of the excessive waste and pollution generated and requiring extraordinary
19 facility design features to handle those wastes and pollutants are a result of the needs of TOTE and
20 other marine fuel customers. Even with regard to the vaporizer, I understand that PSE seeks to
21 recoup 100% of the costs for the vaporizer from ratepayers. I do not believe this is appropriate for
22 the simple reason that there would be no need for a vaporizer to begin with but-for the fact that
23 PSE decided to make LNG for other end users in the first place. Peak shaving requires gas, not
24 vaporized LNG. At most a far smaller than 100 (ratepayer) / 0 (PSE) split of those costs would be
25 far more appropriate in this instance, particularly given the limited amount of end-product that will
26 be provided to ratepayers (if any).

1 Last, if ratepayers are to bear any costs of the Tacoma LNG ground flare, which they should
2 not have to, those costs should be commensurate with the maximum share of LNG to be produced
3 at the facility that is forecast to go to ratepayers over the life of the facility: 2.2.%.

4 **D. Excess Costs Incurred by PSE to Satisfy the Terms of its Contract with TOTE Should**
5 **Not be Borne by Rate Payers**

6 **Q. Is PSE asking the WUTC to make ratepayers reimburse costs that are driven**
7 **by PSE's business relationship with TOTE?**

8 **A.** Yes, it is. Having studied and assessed the facility over the last 5.5 years, I am
9 concerned that PSE is attempting to foist significant costs onto ratepayers that were incurred only
10 as a result of PSE's choices that were driven by non-ratepayer needs.

11 **Q. What do you mean by that?**

12 **A.** What I mean is that most of the costs that PSE is seeking ratepayers to reimburse
13 for Tacoma LNG in this case have little, if anything, to do with the facility's benefits to ratepayers.
14 Rather, the overwhelming majority of costs for which PSE seeks reimbursement (i.e., those driven
15 by the choice of the location of the facility as well as its size) are driven by the TOTE end use.

16 **Q. Can you explain what you mean by the costs for which PSE seeks**
17 **reimbursement are driven by the TOTE end use?**

18 **A.** Yes. I think it is important to first recognize that, as I have discussed above, PSE's
19 reason for building a liquefaction facility in this location is to conveniently and seamlessly provide
20 LNG to TOTE. For example, the distance that LNG has to travel to fill TOTE vessels is a very
21 short distance from the facility, only across the narrow peninsula, whereas the distance that the
22 vaporized LNG gas has to travel to be introduced into PSE's pipeline network is four miles –
23 requiring construction of the expensive, new pipeline for Tacoma LNG to serve the public.

24 For prudence purposes, all costs that PSE incurred Tacoma LNG need to be viewed in the
25 context of how PSE could have been a better steward of the public interest. If meeting its
26

1 obligations to TOTE did not control PSE's decisions regarding Tacoma LNG, and meeting its
2 ratepayers' peak shaving needs was its priority, PSE could have:

3 (1) determined how much peak shaving was required (i.e., how many consecutive days
4 based on its historic record, with a reasonable but not excessive margin);

5 (2) then properly sized Tacoma LNG only to meet peak shaving needs that could not be
6 supplied by its first two existing options i.e., Jackson Prairie and Gig Harbor;

7 (3) then pursued alternatives to meet ratepayer needs that do not involve liquefaction of
8 natural gas at all (such as diversion from its electric system);

9 (4) constructed an appropriately sized liquefaction facility in a more rate-payer
10 advantageous location – where air pollution and safety risks would not be as great and where costs
11 of reinjecting its vaporized gas would also not be as large as compared to its current location;

12 (5) limited pretreatment to only what is strictly necessary to liquefy the pipeline gas; and

13 (6) avoided the additional costs and negative externalities associated with redesigning and
14 constructing an expensive and complicated flare necessary to dispose of heavy hydrocarbons.

15 **Q. Based on your years of assessing Tacoma LNG, do you have knowledge as to**
16 **whether PSE incurred costs unnecessarily that it now seeks to recoup in this rates case?**

17 **A.** Yes, I have knowledge regarding several costs that PSE incurred unnecessarily. My
18 testimony focuses on two categories that are relevant to this case: (1) the costs PSE incurred by
19 designing and constructing an oversized facility with a daily production capacity significantly
20 exceeding the amount allowed under its air permit; (2) the costs PSE incurred in re-designing
21 Tacoma LNG to ensure the fuel it produces meets TOTE's methane number requirement; and (3)
22 the costs PSE incurred in redesigning and constructing a flare capable of disposing of heavy
23 hydrocarbons removed from feed gas prior to liquefaction, and (4) the litigation costs that PSE is
24 attempting to recoup in this matter.

1 **Q. Is Tacoma LNG used and useful for service in Washington?**

2 **A.** No, not sufficiently to warrant the rate payer expenditure requested by PSE.
3 Although PSE attempts to present Tacoma LNG as a peak-shaving facility, PSE only intends to
4 use a miniscule portion of the facility's end-product (LNG) for its peak-shaving needs, which
5 needs appear to have been significantly overestimated.

6 My understanding is that though the facility has vaporized and distributed gas to rate payers
7 on one occasion, that occurrence was in response to an incident that reduced available pipeline gas
8 supply, and unrelated to peak shaving. The small benefits to Washington and its ratepayers are far
9 outweighed by the costs, in the form of negative externalities, that Tacoma LNG presents. PSE has
10 less-expensive and more-benign ways to meet ratepayer needs without burdening the communities
11 adjacent to the current location of the LNG facility.

12 **Q. How do the negative externalities you have discussed relate to prudence?**

13 **A.** First, the Board is determining whether it was prudent for PSE to make the decision
14 to construct this facility in this location. Given the points above, building the Tacoma LNG facility
15 in a populated area and next to an Indian Reservation that is already burdened with significant air
16 pollution was not a prudent decision – particularly when there were alternatives to meeting
17 ratepayer needs that did not expose vulnerable populations to increased air pollution and safety
18 risks.

19 Second, PSE appears to be claiming that ratepayers should also be responsible for PSE's
20 litigation costs related to Tacoma LNG. It stands to reason that if PSE had decided to meet
21 ratepayer demands in a way that did not pollute the local air or pose explosion risks to the local
22 population, there would have been less opposition to the facility and thus less, or no, litigation.

23 Similarly, even if PSE needed a methane liquefaction facility to meet ratepayer needs,
24 Tacoma LNG would not have been as controversial a facility had PSE chosen to site it in a more
25 remote location. PSE's litigation costs appear to be driven by decisions that it made to
26

1 accommodate the non-regulated business serving TOTE, while refusing to define the associated
2 negative externalities because it was more profitable to do so.

3 **Q. What is your understanding of why PSE did not site its methane liquefaction**
4 **peak shaving facility in a more remote location closer to the source of its feed gas?**

5 **A.** PSE chose to site Tacoma LNG where it did because, as the FEIS accepted by PSE
6 recognizes, a key purpose of the facility is providing LNG to its one and only identified marine
7 fuel customer—TOTE.⁷⁶ Tacoma LNG needed to be sited in close proximity to the TOTE facility,
8 which is also located on the Blair-Hylebos peninsula, to reduce costs associated with the facility's
9 key purpose of providing LNG to TOTE.

10 **Q. Are you aware that PSE had to re-design Tacoma LNG, at substantial cost,**
11 **because of a change in the composition of its feed gas?**

12 **A.** Yes, I am aware that Tacoma LNG's feed gas changed such that it contained a
13 lesser-than-anticipated amount of methane and a greater-than-anticipated amount of other
14 hydrocarbons. I learned this during litigation regarding the facility's air permit before the
15 Washington Pollution Control Hearings Board.

16 **Q. Was it reasonable for PSE not to anticipate that Tacoma LNG's feed gas**
17 **composition would change in that way?**

18 **A.** No, PSE's failure to anticipate that was not reasonable. Pipeline gas composition
19 can vary. In its initial methane/non-methane composition assessment PSE did not look at a larger
20 historical time period for how these compositions can fluctuate. Nor did PSE discuss with the
21 pipeline gas supplier how these compositions may change. PSE and its engineering contractors
22 simply assumed, based on their review of a narrow time-period, that the gas composition would
23 remain steady during the life of the facility. That is not reasonable, and PSE's failure to consider
24
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26 ⁷⁶ See, e.g., FEIS at pp. 1-1 to 1-5.

1 fluctuations in pipeline gas composition resulted in significant, adverse design implications when
2 the gas composition changed.

3 **Q. You also mentioned legal fees that PSE incurred in litigation that it now seeks**
4 **to recoup from ratepayers?**

5 **A.** Yes, though I can only speak to what I am aware of. In the air permit litigation that
6 commenced in 2019, PSE was represented by at least ten attorneys from at least three different law
7 firms, including Baker Botts LLP's Washington, DC office. Having been involved in many cases
8 involving challenges to air permits in other instances, I can testify from experience that this is a
9 large contingent of attorneys.

10 Beyond having a very large (and presumably expensive) legal team comprised of multiple
11 law firms, PSE did not conserve resources in litigating the case. One example that I can speak to
12 from personal knowledge is during depositions. I was present for a number of depositions,
13 including my own. PSE typically had multiple attorneys attending depositions – even those
14 depositions that PSE was neither taking nor defending.⁷⁷ Five PSE attorneys (and multiple PSE-
15 retained experts) were present during my deposition.⁷⁸

16 Last, as I mentioned above, it stands to reason that if PSE had decided to meet ratepayer
17 demands in a way that did not add pollutants to the local air or pose explosion risks to the local
18 population, there would have been less opposition to the facility and thus less (or no) litigation.
19 Holding ratepayers responsible for PSE's decisions and resulting legal fees would not be
20 reasonable here, particularly when PSE made no effort to minimize its legal fees. In fact, by
21 demanding litigation cost recovery, PSE is adding insult to injury.

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25 ⁷⁷ Exh. RXS-21, Deposition appearance pages, various.

26 ⁷⁸ Exh. RXS-22, Depositions of Ranajit Sahu March 4 and 5, 2021, Appearance Pages.