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**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY

Respondent.

**Docket UE-220066
Docket UG-220067
(Consolidated)**

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

JULY 28, 2022

PUYALLUP TRIBE OF INDIANS

PREFILED TESTIMONY OF

RANAJIT SAHU

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1 **PUYALLUP TRIBE OF INDIANS**

2 **PREFILED TESTIMONY OF**

3 **RANAJIT SAHU**

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- 7 **Exh. RXS-3** Puget Sound Clean Air Agency Order of Approval No. 11386 (Excerpt)
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- 20 **Exh. RXS-11** Findings of Fact, Conclusions of Law and Order on Issues 2a, 2c, 2d, 2e,
21 2f, and 9 (Excerpt)
- 22 **Exh. RXS-12** Findings of Fact, Conclusion of Law, and Order on NOC Issues 4, 4a, 4b,
23 4c, 4d, 4e, 4f, 4g, 4h, 4i, 4j, 4k, 4o, 4p, 4u, 6, and 8 (Excerpt)
- 24 **Exh. RXS-13** Notice of Construction (NOC) Worksheet for NOC No 11386
- 25 **Exh. RXS-14** Serve Tacoma Letter re Recommendation to initiate a supplemental
26 review of the proposed LNG plant (4/15/2019)

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2	Exh. RXS-16	PSE Response to Public Counsel Data Request No. 373
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15	Exh. RXS-24	Exh. RXS-24, Deposition of Matthew Stobart (excerpt), (Feb. 18, 2021)
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1 **PUYALLUP TRIBE OF INDIANS**

2 **PREFILED TESTIMONY OF**

3 **RANAJIT SAHU**

4 **I. PROFESSIONAL BACKGROUND AND QUALIFICATIONS**

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

6 My name is Ranajit Sahu. I am now, and at all times mentioned herein, a citizen of the
7 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 relevant employment experience.**

13 I have over thirty years of experience in the fields of environmental, mechanical, and
14 chemical engineering including: program and project management services; design and
15 specification of pollution control equipment for a wide range of emissions sources including
16 stationary and mobile sources; soils and groundwater remediation including landfills as remedy;
17 combustion engineering evaluations; energy studies; multimedia environmental regulatory
18 compliance (involving statutes and regulations such as the Federal CAA and its Amendments,
19 Clean Water Act, TSCA, RCRA, CERCLA, SARA, OSHA, NEPA as well as various related state
20 statutes); transportation air quality impact analysis; multimedia compliance audits; multimedia
21 permitting (including air quality NSR/PSD permitting, Title V permitting, NPDES permitting for
22 industrial and storm water discharges, and RCRA permitting), multimedia/multi-pathway human
23 health risk assessments for toxics; air dispersion modeling; and regulatory strategy development
24 and support including negotiation of consent agreements and orders.

25 I have over twenty-eight years of project management experience and have successfully
26 managed and executed numerous projects in this time period. This includes basic and applied

1 research projects, design projects, regulatory compliance projects, permitting projects, energy
2 studies, risk assessment projects, and projects involving the communication of environmental data
3 and information to the public.

4 I have provided consulting services to numerous private sector, public sector, and public
5 interest group clients. Clients over the past thirty years include various trade associations as well
6 as individual companies such as steel mills, petroleum refineries, chemical plants, cement
7 manufacturers, aerospace companies, power generation facilities, lawn and garden equipment
8 manufacturers, spa manufacturers, and chemical distribution facilities – focusing on air quality-
9 related matters. I have also done work on non-air matters for clients in these industries and for
10 other types of clients such as land development companies.

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

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

20 Yes. Many times. I have provided, and continue to provide, expert witness services in a
21 number of environmental areas discussed above in both state and federal courts as well as before
22 administrative bodies. A copy of my resume is provided in Exhibit RXS-2 to this testimony, which
23 is incorporated by this reference as though fully set forth herein.

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

25 Yes. With regard to the Tacoma LNG facility, I was retained by the Puyallup Tribe in early
26 2018 to review various documents such as the Draft Environmental Impact Statement (DEIS),

1 various safety-related analyses, and subsequently, to analyze the Tacoma LNG air permit
2 application and ascertain its technical adequacy. Over time, I have also reviewed the draft and final
3 air permits, the Draft and Final Environmental Impact Statement (EIS), the draft and final
4 Supplemental EIS and various documents related to safety analyses.

5 I have carefully reviewed documents relevant to PSE's request and questions pertaining to
6 the issue of prudence for the Tacoma LNG facility; these include PSCAA's Order of Approval
7 No. 11386 (hereafter "OOA") as well as related materials, including PSCAA's Engineering
8 Worksheet, PSCAA's Comment Responses ("Appendix A" to the OOA), and Puget Sound
9 Energy's submissions in support of its permit application.

10 I have also carefully reviewed the Final Environmental Impact Statement for Tacoma LNG
11 ("FEIS") as well as the Final Supplemental Environmental Impact Statements ("SEIS") concerning
12 greenhouse gas ("GHG") emissions from Tacoma LNG, as well as the SEIS' supporting
13 documents, including the PSE Tacoma LNG Project GHG Analysis Final Report ("GHG Report")
14 appended to the SEIS as Appendix B.

15 I have also reviewed thousands of documents produced to the Puyallup Tribe by PSE, by
16 PSE's vendors and consultants, and by government agencies who have been involved in the
17 permitting and commissioning of Tacoma LNG (including the WUTC). I have additionally
18 reviewed documents produced by Chicago Bridge & Iron (and its subcontractors), PSE's
19 contractor who designed and constructed Tacoma LNG -- as well as those produced by LFG
20 Specialties LLC, who designed and manufactured the flare to be utilized at Tacoma LNG.

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

22 In addition to the materials identified in my answer to the preceding question, I reviewed
23 the direct testimony and exhibits of relevant PSE witnesses, and PSE's responses to a number of
24 data requests.

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

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

1 My testimony addresses the prudence of PSE’s Tacoma LNG facility.

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

3 I have found that, under Commission-established standards, PSE’s decision to construct
4 the Tacoma LNG facility at its current location was not a prudent response to meet the needs
5 articulated by PSE as its rationale for constructing this facility.

6 There are several reasons for my opinion that construction of the Tacoma LNG facility was
7 not prudent and certainly not prudent at its current location:

8 First, PSE could have pursued alternatives to meeting peak demand that did not present the
9 public health and safety risks posed by Tacoma LNG. Tacoma LNG presents: (1) disparate impacts
10 related to siting a facility with a risk of catastrophic explosion near minority and low-income
11 communities; and (2) disparate impacts related to increased air pollution to those communities
12 located near Tacoma LNG, which consist of the Tribe and other low-income and minority
13 populations in the Tacoma Tidelands area. It is my understanding that these communities are
14 synonymous with “vulnerable populations and highly impacted communities” under Washington’s
15 Clean Energy Transformation Act (CETA).

16 Second, given my familiarity with the facility, I am concerned that PSE appears to be
17 attempting to inappropriately foist most of the costs of the facility on ratepayers that cannot and
18 should not be appropriately allocated to ratepayers in this instance.

19 **III. TESTIMONY**

20 **Q. What is the importance of the “used and useful for service” issue?**

21 For a resource to be included in rate base for ratemaking purposes, the resource must be
22 “used and useful for service” in Washington State.¹ The Commission has stated that the phrase
23 “used and useful for service in this state” means “to benefit the ratepayers of Washington, either
24 directly (*e.g.*, flow of power from a resource to customers) and/or indirectly (*e.g.*, reduction of cost

25
26 ¹ RCW 80.04.250.

1 to Washington customers through exchange contracts or other tangible or intangible benefits).”²
2 The Commission also has stated that “the [c]ompany must demonstrate tangible and quantifiable
3 benefits to Washington of resources in the system before we will include the resources in rates.”³

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

5 No. Although PSE attempts to present Tacoma LNG as a peak-shaving facility, PSE only
6 intends to use a miniscule portion of the facility’s end-product (LNG) for its peak-shaving needs.
7 The benefits to Washington and its ratepayers are far outweighed by the costs, in the form of
8 negative externalities, that Tacoma LNG presents. PSE has less-expensive and more-benign ways
9 to meet ratepayer needs without burdening the communities adjacent to the current location of the
10 LNG facility.

11 **A. PRODUCTION LIMITS ON AMOUNT OF LNG PRODUCED AND**
12 **DURATION OF PEAK SHAVING USE**

13 **Q. How much LNG produced at Tacoma LNG will be provided to ratepayers annually?**

14 The exact number is not knowable. Because Tacoma LNG is supposed to only furnish re-
15 vaporized LNG gas during times of “peak” demand, the number could be zero if PSE does not
16 have a need for Tacoma LNG’s gas to meet customer demands.

17 It is critical to note that this is not PSE’s only facility that it can use to meet “peak” demand.
18 In its current system, PSE has a large (and recently expanded) gas storage facility (Jackson
19 Prairie)⁴ as well as another LNG vaporization facility (Gig Harbor). Both of these can be used to
20 meet peak demand.

21 What is knowable are the limits on how much natural gas that Tacoma LNG can provide
22 to ratepayers each year.

23 **Q. What limits are you aware of?**

24 ² *WUTC v. PacifiCorp, d/b/a Pacific Power & Light Co.*, Docket UE-050684, Order 04 at ¶ 50 (April 17, 2006).

25 ³*Id.* at ¶ 68.

26 ⁴ Exh. RXS-5, Jackson Prairie Underground Natural Gas Storage Facility, PSE facility description.

1 First, the air permit for Tacoma LNG limits use of the facility’s vaporizer, which is utilized
2 to re-gasify LNG so that it can be introduced into PSE’s distribution network, stating that “[t]he
3 LNG vaporizer shall only operate no more than 240 hours per any 12 consecutive month period.”⁵
4 In other words, Tacoma LNG can operate as a peak shaving facility ten days per year *at most*.
5 Based on documents in the air permitting record, this constraint was proposed by PSE.⁶

6 I note that this maximum allowable production rate, which drives the size and cost of the
7 facility, does not seem to be based on available data. Relating to the basis for the facility’s sizing,
8 including its choice of having a storage of 8 million gallons and its vaporized injection capacity of
9 66,000 Dtherm/day, I have carefully reviewed PSE’s response to Public Counsel’s Data Request
10 No. 391 which provides PSE’s following rationale for these values:

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

14 66 MDth/day of vaporization was chosen since it was possible to
15 expand the reach of the vaporized LNG with a future upgrade of
distribution and that was an “off the shelf” vaporizer size.”⁷

16 PSE provides no basis for the six consecutive days of vaporization that drove the tank size.
17 I have reviewed PSE’s daily gas deliveries provided in response to Data Request No. 378 in
18 Attachment A.⁸ The top 12 days, when the daily usage was 800,000 Dth/day are shown below
19 along with the dates on which they occurred.

20
21 _____
22 ⁵ Exh. RXS-3, Puget Sound Clean Air Agency Order of Approval No. 11386 (excerpt) (12/10/2019).

23 ⁶ See Exh. RXS-4, Response to SEIS Data and Information Request Puget Sound Energy for Tacoma LNG (excerpt)
24 (May 25, 2018) (“The maximum allowable production rate is limited to approximately 85,000 Dth/day (~1 million/day
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.”).

25 ⁷ Exh. RXS-5, PSE’s response to Public Counsel’s Data Request No. 391.

26 ⁸ Exh. RXS-6, PSE’s Response to Data Request No. 378, Attachment A (native .xlsx file).

Day	Est.Gas Deliveries - PSE Gas System (Dth)
12/27/21	857,067
02/05/14	845,599
02/04/19	843,756
02/06/14	841,181
12/07/13	833,336
01/03/17	819,043
12/26/21	810,930
02/05/19	809,565
01/04/17	809,140
01/05/17	808,640
12/28/21	802,664
12/06/13	801,181

In the table above, I have provided the days in years prior to 2016 in larger font because this data was available to PSE prior to its decision to size the facility in 2016. High usage days after 2016 are shown in smaller font. In addition, in the table above, I have grouped days that occurred in the same month using different colors. Thus, the consecutive high usage days in 2013 numbered just **two** (namely December 6th and 7th) and also **two** in 2014 (February 5th and 6th). In other words, based on days with colder temperatures and/or winds, there were just two consecutive high usage days in the years prior to PSE’s decision to size the facility. 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. Thus, the tank size (and cost) is significantly overestimated.⁹

I also note that, even accepting if demand exists 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

⁹ PSE’s statement in response to Public Counsel Data Request No. 391 that “the cost savings associated with reducing the capacity of the plant were less than two percent of the budgeted costs of the Tacoma LNG Facility” is simply not credible and confirms the cavalier costing of this project and its alternatives. Exh. RXS- 5, PSE’s response to Public Counsel’s Data Request No. 391; *see also* Exh. RJR-3, pp 24-25; *see also* Exh. RJR-5C, pp. 864-872. There is no indication that PSE considered options to reduce its tank size commensurate with having to supply not 6 but, say, 4 or 3 consecutive days and what the resulting properly-estimated cost savings would have been.

1 working gas. PSE’s total seasonal peak shaving, even using 80,000 Dth/day for ten such days,
2 represents just 3.2% of Jackson Prairie. And, as to withdrawal capacity, given Jackson Prairie’s
3 withdrawal capacity of 1.15 billion cubic feet per day, 80,000 Dth/day would only represent around
4 7% of its withdrawal capacity.

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

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

14 I also note, however, that PSE confirmed that it could have met its peak-shaving needs by
15 diverting gas from its electric generating facilities, thus avoiding the need for the Tacoma LNG
16 plant as a peak-shaver.¹¹ Lastly, PSE’s 2015 projections indicated that Tacoma LNG would have
17 only met PSE’s needs for five years.¹² It is my opinion that investing in a facility that only satisfies
18 peak shaving needs for five years is imprudent.

19 Turning back to the SEIS, it indicates that only 1.1% to 2.2% of the LNG will be used for
20 the peak shaving services benefitting ratepayers.¹³ The SEIS also notes a sunset date for peak
21 shaving at Tacoma LNG, stating that:

22 “PSE indicated that peak shaving would occur for 10 years. The
23 values here show the average over 40 years or 1/4 of the level for
24

25 ¹⁰ Exh. RXS-4, Response to SEIS Data and Information Request Puget Sound Energy for Tacoma LNG.

26 ¹¹ *Id.*

¹² Exh. RXS-28, PSE Response to Public Counsel Data Request 354; Exh. RXS-29, PSE Response to Public Counsel
Data Request 354, Attachment B (native .xlsx file).

¹³ Exh. RXS-8, Final SEIS for Tacoma LNG (excerpt) at Table 2-1.

1 the first 10 years. After 10 years of peak shaving, LNG would be
2 used for other marine fuel.”¹⁴

3 I am aware that, in response to data requests, PSE has stated that “PSE has never indicated
4 that peak-shaving at Tacoma LNG Facility would only be utilized for 10 years.”¹⁵ Though PSE
5 contends that PSCAA came up with this key piece of information on its own– I do not find PSE’s
6 claim credible. It is my understanding that PSE had the opportunity to review and comment on the
7 SEIS and I cannot believe such a statement would have been included in such a heavily-reviewed
8 document if it was a misrepresentation. Without any correction to the limit on peak shaving to 10
9 years, the Air Permit was issued based upon use as a peak shaver for only 10 years. That limited
10 use as a peak shaver drove the outcome of the SEIS in PSE’s favor to receive its permits.

11 **Q. What do you understand to be Tacoma LNG’s primary purpose, if not peak shaving?**

12 By a wide margin, the vast majority of the product LNG will be used to provide LNG to
13 marine vessels. This fact is discussed further below and is made clear in the SEIS.

14 **B. PRUDENCY FACTORS AND ANALYSIS WITH REGARD TO**
15 **NEGATIVE EXTERNALITIES DRIVEN BY POLLUTANTS**
16 **DISCHARGED FROM THE FACILITY AS A RESULT OF THE**
17 **MARINE FUELING, NON-RATEPAYER USE**

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

20 My understanding is that the Commission applies a “prudence” standard in making this
21 determination. Overall, the prudence standard is a reasonableness standard that is described in
22 *WUTC v. Puget Sound Energy, Inc.*, Docket UE-031725:

23 The Commission has consistently applied a reasonableness standard
24 when reviewing the prudence of decisions relating to power costs,
25 including those arising from power generation asset acquisitions.
26 The test the Commission applies to measure prudence is what would

¹⁴ Exh. RXS-8, Final SEIS for Tacoma LNG, PSE Tacoma LNG Project GHG Analysis Final Report (excerpt) at Table 3.13.

¹⁵ Exh. RXS-9, PSE Response to WUTC Staff Data Request 091.

1 a reasonable board of directors and company management have
2 decided given what they knew or reasonably should have known to
3 be true at the time they made a decision. This test applies both to the
4 question of need and the appropriateness of the expenditures. The
5 company must establish that it adequately studied the question of
6 whether to purchase these resources and made a reasonable decision,
7 using the data and methods that a reasonable management would
8 have used at the time the decisions were made.¹⁶

9 **Q. What is your understanding of the factors the Commission uses to evaluate the**
10 **“prudence” question?**

11 My understanding is that, in general, the Commission has generally focused on the
12 following four factors:

13 *The Need for the Resource* - The utility must first determine whether new resources are
14 necessary. Once a need has been identified, the utility must determine how to fill that need in a
15 cost-effective manner. When a utility is considering the purchase of a resource, it must evaluate
16 that resource against the standards of what other purchases are available, and against the standard
17 of what it would cost to build the resource itself.¹⁷

18 *Evaluation of Alternatives* - The utility must analyze the resource alternatives using current
19 information that adjusts for such factors as end effects, capital costs, dispatchability, transmission
20 costs, and whatever other factors need specific analysis at the time of a purchase decision. The
21 acquisition process should be appropriate.¹⁸

22
23 ¹⁶ *WUTC v. Puget Sound Energy, Inc.*, Docket UE-031725, Order 12 at ¶ 19 (April 7, 2004) (footnotes and related
24 citations omitted).

25 ¹⁷ *WUTC v. Puget Sound Power & Light Co.*, Docket UE-921262, *et al.*, Nineteenth Supplemental Order at 11
(September 27, 1994).

26 ¹⁸ *WUTC v. Puget Sound Energy, Inc.*, Docket UE-031725, Order 12 at ¶ 20 (April 7, 2004).

1 *Communication With and Involvement of the Company's Board of Directors* - The utility
2 should inform its board of directors about the purchase decision and its costs. The utility should
3 also involve the board in the decision process.¹⁹

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

8 I also understand that there is no single set of factors. For example, in Cause U-83-26, the
9 Commission applied thirteen factors, which the Commission characterized as "unique" and stated
10 that "[a]dditional factors may be considered in subsequent cases as dictated by the facts."²¹

11 **Q. What factors does your testimony concern?**

12 My testimony goes to the first two of the four factors, (1) the need for the resource and (2)
13 the evaluation of alternatives. I am not providing testimony regarding the third and fourth factors
14 regarding communications with and involvement of PSE's Board of Directors and the adequacy
15 of PSE's documentation. My testimony focuses on whether, given available alternatives, the
16 decision to construct Tacoma LNG was prudent given the negative externalities it presents.

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

18 An externality or external cost is an indirect cost to an uninvolved third party that emanates
19 from another party's activities. In the environmental or safety context, externalities often involve
20 natural resources or public health. For example, a negative externality is where a facility causes
21 pollution due to routine emissions or due to unanticipated events and diminishes the health and/or
22 safety of impacted persons in the surrounding area. Those are negative externalities associated

23 _____
24 ¹⁹ *Id.*

25 ²⁰ *Id.* at ¶ 20.

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

1 with Tacoma LNG. I note that PSE witnesses are quick to tout the environmental benefits of the
2 Tacoma LNG facility with no mention of the negative externalities. In fact, as I have noted prior,
3 they continue to hold the belief that these adverse impacts are “benefits.” The negative
4 externalities identified herein increased costs for both design, construction, permitting, and
5 operations of a facility. It is not reasonable nor prudent to ignore the negative externalities when
6 siting, designing, constructing, or operating such a facility.

7 **Q. And you are saying that Tacoma LNG diminishes the health and safety of those in its**
8 **vicinity?**

9 Yes. It diminishes the health and safety of those in its vicinity through its emissions of a
10 wide range of pollutants to the air. Additionally, Tacoma LNG presents the risk of a catastrophic
11 event that, if it materializes, would pose a serious risk to human life. Because PSE could have met
12 customer needs in ways other than building an LNG production and storage facility on the border
13 of the Tribe’s Reservation, I am looking at the public health impacts of siting this facility in this
14 location in assessing its prudence.

15 It is obvious that the siting of the facility at its current location is driven by its Tacoma
16 LNG’s service obligations to TOTE. In fact, this location, while advantageous to TOTE (and the
17 cost that TOTE may pay PSE for the LNG) is directly detrimental to ratepayers for the peak
18 shaving gas. That vaporized gas must travel many miles (using an expensive new pipeline) to the
19 nearest injection point on PSE’s system. A prudent option in the interest of ratepayers, even if such
20 a facility was needed at all, would have been to site it closer to the injection point, minimizing an
21 expensive new pipeline, and instead building the pipeline to bring LNG to TOTE, whose costs
22 should have been borne by the non-regulated entity.

23 The lengths to which PSE has bent over backwards to please TOTE, as is evident in the
24 record, is a bit perplexing because of how little TOTE has similarly reciprocated. For example,
25 TOTE vessels will be outfitted with dual-fuel engines that can run on both LNG and conventional
26

1 fuels.²² That means that unless it is economic to do so, TOTE will simply run its engines on diesel,
2 thereby not realizing any of the estimated environmental benefits of fuel switching. By using
3 Marine Gas Oil, TOTE has already been complying with MARPOL Annex VI, the regulations
4 requiring the use of cleaner marine fuels, for over five years. It does not need Tacoma LNG to
5 comply with any regulatory requirement.

6 **Q. Please tell us where Tacoma LNG is sited.**

7 PSE sited Tacoma LNG on the peninsula between the Blair and Hylebos waterways in
8 Tacoma, adjacent to the Puyallup Indian Reservation.²³

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

11 Yes. There is no dispute that Tacoma LNG will emit pollution to the ambient air. Indeed,
12 materials relating to Tacoma LNG's air permit make clear that Tacoma LNG will emit criteria air
13 pollutants, toxic air pollutants ("TAPs"), volatile organic compounds ("VOCs"), and greenhouse
14 gases ("GHGs").

15 There are a number of emission units at Tacoma LNG. Two key emission units are the
16 facility's ground flare and its vaporizer.²⁴ The flare combusts a varying quantity and composition
17 of waste gases generated by the pretreatment, liquefaction, and fuel transmitting processes. *Id.*
18 The vaporizer is used to re-gasify LNG so that it can be introduced into PSE's gas distribution
19 network after further conditioning.²⁵

22 ²² Exh. RXS-10, Phase 1 of TOTE Maritime Conversion to LNG Complete ("TOTE Maritime was the first maritime
23 shipping company in the world to announce its intention to convert their fleet, enabling the engines to use both LNG
and diesel.").

24 ²³ Exh. RXS-11, Findings of Fact, Conclusions of Law and Order on Issues 2a, 2c, 2d, 2e, 2f, and 9 at ¶1.

25 ²⁴ Exh. RXS-12, 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.

26 ²⁵ *Id.* at ¶18.

1 Tacoma LNG also releases fugitive emissions (emissions that occur due to leaks in the
2 facility’s components) of GHGs, VOCs and TAPs.²⁶ The permitting materials for Tacoma LNG
3 identify its components leaking fugitive emissions as “valves, pump seals, flanges, connectors,
4 and compressor seals.”²⁷

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

6 Tacoma LNG will emit the aforementioned pollutants into an airshed that includes the
7 Puyallup Reservation and residential neighborhoods in Tacoma with substantial minority and low-
8 income populations.²⁸

9 Environmental health disparity tools, including EPA’s EJSCREEN²⁹ and the Washington
10 State Department of Health’s Environmental Health Disparities Map,³⁰ indicate that the population
11 situated near Tacoma LNG, including residents of the Puyallup Reservation, already suffer
12 disproportionately high environmental burdens. Environmental justice materials developed by
13 PSCAA show that some of the highest levels of air pollution in PSCAA’s jurisdiction are already
14 present at the Puyallup Reservation.³¹

15 I have carefully reviewed PSE’s response to Public Counsel Data Request No. 373 in which
16 PSE states that it did not consider the impact of the Tacoma LNG facility on Highly Impacted
17 Communities and Vulnerable Populations because it “continues to hold” the belief that the facility
18 would provide benefits to such communities and that such communities were “defined” “long
19

20 ²⁶ *Id.* at ¶89.

21 ²⁷ Exh. RXS-13 - Notice of Construction (NOC) Worksheet for NOC No 11386

22 ²⁸ Exh. RXS-14 – Recommendation to initiate a supplemental review of the proposed LNG plant (Apr. 18, 2019).

23 ²⁹ See <https://ejscreen.epa.gov/mapper/>

24 ³⁰ See
25 [https://www.doh.wa.gov/DataandStatisticalReports/EnvironmentalHealth/WashingtonTrackingNetworkWTN/Inform
ationbyLocation/WashingtonEnvironmentalHealthDisparitiesMap](https://www.doh.wa.gov/DataandStatisticalReports/EnvironmentalHealth/WashingtonTrackingNetworkWTN/InformationbyLocation/WashingtonEnvironmentalHealthDisparitiesMap)

26 ³¹ See Exh. RXS-15, PSCAA map, Most Impacted Areas Central Pierce County.

1 after” the facility was built.³² Neither of these responses makes sense. To characterize the
2 significant adverse air pollution and safety risks to the surrounding communities as “benefits” is
3 simply Orwellian. And, as to PSE’s lack of awareness of such communities adjacent to the facility,
4 that confirms its lack of planning. EPA’s EJSCREEN tool³³ has been available in one form or
5 another since 2010 (i.e., long before its decision to build the facility “which was 2016” per PSE)
6 and could easily have provided information on vulnerable and impacted communities near Tacoma
7 LNG has PSE bothered to look.

8 Tacoma LNG’s permit application acknowledges that a host of Toxic Air Pollutants
9 (TAPs) and Hazardous Air Pollutants (HAPs) will be emitted from the facility, including the
10 following pollutants that will be emitted above specified threshold levels: 7,12-
11 Dimethylbenz(a)anthracene; Benzene; Formaldehyde; Hydrogen sulfide; Arsenic; Beryllium;
12 Cadmium; Manganese; and Vanadium.³⁴ These are not the only HAPs that will be emitted by the
13 facility. Other HAPs, like toluene and xylenes, will also be emitted, supposedly at less than
14 threshold levels. These chemicals are of great concern because of their known or suspected toxic
15 effects on humans. For example, the facility’s flare would emit large quantities of hazardous air
16 pollutants, including benzene, toluene, and xylene.³⁵ Benzene is a carcinogen, causes blood
17 disorders, and chronic exposure can cause leukemia.³⁶ Toluene can cause respiratory illness and
18 is a developmental toxicant.³⁷ Xylene can cause developmental effects such as delayed bone
19

20
21 ³² Exh. RXS-16, PSE Response to Public Counsel Data Request No. 373.

22 ³³ <https://ejscreen.epa.gov/mapper/>

23 ³⁴ Exh. RXS-17, PSE Notice of Construction Application for Tacoma LNG (5/22/2017) at 3-6 to 3-7 and Table 7.

24 ³⁵ *Id.* at Tables B-2 through B-11.

25 ³⁶ See Exh. RXS-18, US EPA, Health Effects Notebook for Hazardous Air Pollutants, Benzene.

26 ³⁷ See Exh. RXS-19, US EPA, Health Effects Notebook for Hazardous Air Pollutants, Toluene.

1 development in fetuses, and chronic exposure can cause neurological effects.³⁸ And these health
2 issues are by no means limited to only three chemicals; many of the pollutants that Tacoma LNG
3 will emit to the airshed are carcinogenic, some are mutagenic or teratogenic, and most can have
4 toxic effects on the respiratory system, the skin, and other vital organs.³⁹ And, pollutants such as
5 7,12-Dimethylbenz(a)anthracene, which is a polycyclic aromatic compound, are also
6 bioaccumulative.

7 Tacoma LNG will also emit significant levels of fine particulate matter, for which Courts
8 have recognized there is a “lack of a threshold concentration below which [particulate matter and
9 ozone] are known to be harmless.”⁴⁰ Notably, the Tacoma Tideflats area where Tacoma LNG is
10 located was in nonattainment for 24-hour fine particulate matter (a criteria pollutant) until 2014
11 and, is now on a maintenance plan.⁴¹

12 Further, the Washington Pollution Control Hearings Board recently acknowledged that
13 Tacoma LNG will emit toxic fine particulate matter in excess of the regulatory threshold set out
14 in WAC 173-400-113.⁴² Additional emissions of PM_{2.5}, whether or not in excess of the regulatory
15 threshold, pose health risks to humans and are yet another externality of the facility that negatively
16 impacts the health and safety of nearby communities.

17 In sum, Tacoma LNG represents an increase in a large number of air pollutants to the
18 airshed that it shares with the Tribe and residential neighborhoods in Tacoma (including areas of
19 minority and low-income populations). Many of the chemicals Tacoma LNG will emit into the

20 ³⁸ See Exh. RXS-20, US EPA, Health Effects Notebook for Hazardous Air Pollutants, Xylene.

21 ³⁹ 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 ⁴⁰ See *Am. Trucking Associations, Inc. v. E.P.A.*, 283 F.3d 355, 359–60 (D.C. Cir. 2002).

24 ⁴¹ Ex. RXS-21, 80 Fed. Reg. 7347 (Feb. 10, 2015).

25 ⁴² See Exh. RXS-12 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 airshed are persistent and bioaccumulative and, therefore, will remain in the environment for
2 generations and accumulate through the food chain.

3 All of the identified emissions have driven costs higher due to the location of the facility.
4 Many, if not all, of the emissions requiring the higher cost elements including increased costs in
5 design, permitting, construction and operations, are in part or wholly caused by operations that are
6 solely required to serve TOTE or other marine fuel customers.

7 The permit, like all other air permits, does not guarantee that individuals impacted by
8 pollution from the facility, will be safe. No such assessment was made when PSCAA granted the
9 permit to PSE.

10 **C. PRUDENCY ANALYSIS WITH REGARD TO SAFETY RISKS**

11 **Q. Now you mentioned another externality that Tacoma LNG presents regarding safety
12 and risk to human life – can you please explain that?**

13 Yes. Beyond routinely adding pollutants into the air, the operation of LNG production and
14 storage facilities like Tacoma LNG, present significant safety risks, including the risk of
15 explosions and other catastrophic events.

16 Although the testimony submitted by PSE is silent on this point, it is my understanding the
17 PSE does not dispute that Tacoma LNG, like all methane liquefaction facilities, presents a risk of
18 catastrophic explosion. In fact, that risk is disclosed in the November 2015 Final Environmental
19 Impact Statement for Tacoma LNG⁴³ – a document that PSE accepted as evidenced by the fact
20 that PSE has not challenged or appealed that EIS after a full opportunity to do so.

21 It is also my understanding is that the WUTC is aware that liquefaction facilities, like
22 Tacoma LNG, present the risk of a catastrophic explosion. In 2019 the WUTC Pipeline Safety
23 staff, the WUTC experts responsible for reviewing compliance of facilities like the LNG Facility,
24 required additional computer modeling to assess catastrophic risks in its review because of
25

26 ⁴³ See, e.g., Exh. RXS-22, Final Environmental Impact Statement for Tacoma LNG (excerpts).

1 deficiencies in CB&I's Siting Study Report and Fire Protection Evaluation. Presumably, the
2 WUTC would not require such modeling for a facility that did not present safety risks.

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

5 Yes, there have been numerous accidents and other catastrophic events at liquefaction
6 facilities. Mere weeks ago, on June 8, 2022, there was an explosion at the Freeport LNG
7 liquefaction facility in Texas.⁴⁴ In fact, the FEIS for Tacoma LNG identified two accidents: the
8 1944 accident in Cleveland, Ohio, which had 128 deaths; and the 1979 Cove Point accident. More
9 recently, the following accidents have occurred: Buncefield, United Kingdom (2005); Jaipur, India
10 (2009); San Juan, Puerto Rico (2009); and Amuay, Venezuela (2012). Last, in 2014, there was an
11 explosion at the Plymouth LNG facility in Washington state.

12 Given the timing of these events, PSE's decisionmakers likely knew, and certainly should
13 have known, that PSE's siting of the Tacoma LNG facility on the peninsula between the Blair and
14 Hylebos waterways posed very real safety risks to the surrounding population and to other
15 industrial facilities located in the area. I note that safety evaluations had been conducted for every
16 facility that I cite above where explosions later occurred. Thus, the mere fact that safety was
17 evaluated does not at all preclude the occurrence of a catastrophic event. This fact, i.e., that an
18 evaluation of safety risks does not preclude later catastrophic events, was not considered when
19 PSE decided to locate the LNG facility at its present location.

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

22 No. Whether Tacoma LNG meets the requirements of 49 CFR Part 193 is a very different
23 question from whether it is prudent to build the facility in this location, particularly when PSE had
24 more benign alternatives available for meeting its ratepayers' peak shaving needs. I reiterate that,
25

26 ⁴⁴ Exh. RXS-23, Shutdown Extended of Fire-Damaged Texas LNG Export Site, Engineering News-Record (June 20, 2022).

1 as was learned with Plymouth LNG – and, more recently (in June of 2022), with the Freeport LNG
2 facility in Texas – even permitted, code-compliant facilities pose the risk of a catastrophic,
3 explosive event. Whether the facility meets the requirements of 49 CFR Part 193 is a different
4 issue.

5 **D. TACOMA LNG IS IMPRUDENT BECAUSE THE NEGATIVE**
6 **EXTERNALITIES CAUSED WHOLLY OR IN PART BY THE**
7 **MARINE FUELING, NON-RATEPAYER BUSINESS SHOULD**
8 **NOT BE BORNE BY RATEPAYERS**

9 **Q. How do these externalities relate to prudence?**

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

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

20 Similarly, even if PSE needed a methane liquefaction facility in order to meet ratepayer
21 needs, Tacoma LNG would not have been as controversial facility had PSE chosen to site it in a
22 different, more remote location. PSE’s litigation costs appear to be driven entirely by its decision
23 to site a methane liquefaction facility in a populated area comprised largely of vulnerable
24 populations and highly impacted communities because it was more advantageous to do so for the
25 water-dependent use of the non-regulated business serving TOTE and other marine fuel customers.
26

1 **Q. Do you have any understanding as to why PSE did not site its methane liquefaction**
2 **peak shaving facility in a more remote location?**

3 Yes. PSE chose to site Tacoma LNG where it did because, as the FEIS accepted by PSE
4 recognizes, a key purpose of the facility is providing LNG to its one and only identified marine
5 fuel customer, i.e., TOTE.⁴⁵ Tacoma LNG needed to be sited in close proximity to the TOTE
6 facility, also located on the Blair-Hylebos peninsula, to achieve the facility's key purpose of
7 efficiently providing LNG to TOTE.

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

10 Yes, it is. Having studied and assessed the facility over the last 4.5 years, I am concerned
11 that PSE is attempting to foist significant costs onto ratepayers that were incurred only as a result
12 of PSE's choices that were driven by non-ratepayer needs.

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

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

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

20 Yes. I think it is important to first recognize that, as I have discussed above, PSE's reason
21 for building a liquefaction facility in this location is to conveniently and seamlessly provide LNG
22 to TOTE or other marine fuel customers. For example, the distance that LNG has to travel to fill
23 TOTE vessels is a very short distance from the facility, only across the narrow peninsula, whereas
24 the distance that the vaporized LNG gas has to travel to be introduced into PSE's pipeline network

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26 ⁴⁵ See, e.g., FEIS at pp. 1-1 to 1-5.

1 is four miles – requiring construction of an expensive, new pipeline for Tacoma LNG to serve the
2 public.

3 If supplying TOTE was not a factor in the siting decision for Tacoma LNG, and meeting
4 its ratepayers’ peak shaving needs was instead the driver for the facility’s location, PSE could
5 have:

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

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

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

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

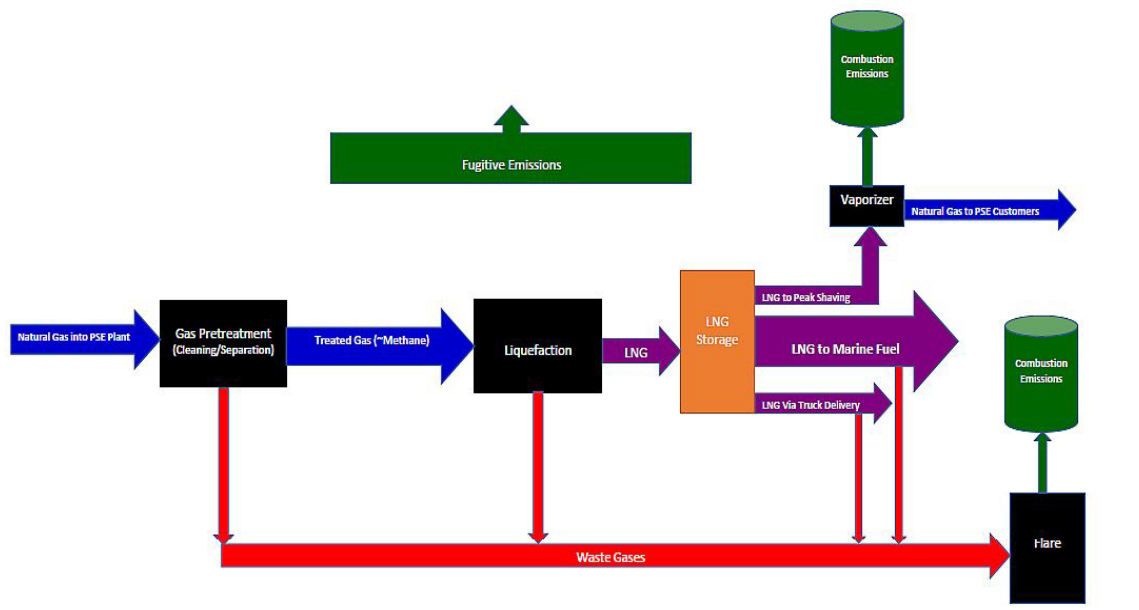
15 All of PSE’s costs that it has incurred for Tacoma LNG need to be viewed, for prudence
16 purposes, through this construct.

17 Turning to the facility itself, Tacoma LNG was an expensive facility to design and
18 construct. But it was so mainly driven by its design to accommodate TOTE. The following
19 diagram (which the Washington Pollution and Control Hearings Board recently included in a
20 decision it issued)⁴⁶ shows Tacoma LNG’s processes and main components:



26 ⁴⁶ Exhibit RXS-12.

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



Let's take the key aspects of the facility one-by-one. *First*, natural gas comes into Tacoma LNG and undergoes pretreatment, which removes a range of undesirable impurities in the feed gas. Pretreatment is required because the LNG that Tacoma LNG provides to TOTE has to meet tight specifications before it can be burned in TOTE's marine engines. Notably, the feed gas coming into Tacoma LNG is already pipeline-quality gas that PSE could provide to customers without such pretreatment. Pretreatment is necessary only because PSE must provide TOTE LNG with a minimum Methane Number of 80 for use in its vessels.⁴⁷ Because the costs of pretreatment at Tacoma LNG are incurred only to meet TOTE's needs, they should not be allocated to ratepayers.

Further, as shown above, pretreatment creates waste, in the form of a varying composition and quantity of waste gas. This waste gas is sent to Tacoma LNG's flare – another piece of equipment for which PSE seeks reimbursement from ratepayers. Because the need to clean the gas

⁴⁷ Exh. RXS-24, Deposition of Matthew Stobart (excerpt), (Feb. 18, 2021).

1 to the extent it is included in the design of the Tacoma LNG facility (in pretreatment) is driven
2 largely by TOTE's requirements for LNG meeting a TOTE-driven Methane number standard, so
3 is the need to dispose of waste gas in Tacoma LNG's flare. The costs associated with pretreatment,
4 including Tacoma LNG's flare, are driven by the TOTE end use and provide no benefit to
5 ratepayers. Thus, there exists a very real question as to why ratepayers should bear any costs
6 associated with pretreating the already pipeline-quality gas that comes into the facility or flaring
7 the waste created by that pretreatment.

8 *After pretreatment*, Tacoma LNG converts the cleaned or post-treated gas to liquid form
9 ("liquefaction") by chilling it using heavy refrigerants, which are toxic compounds. Again,
10 Tacoma's ratepayers do not use or need liquefied natural gas for peak shaving – Tacoma LNG's
11 liquefaction infrastructure exists because its other end users – marine vessels and LNG tanker
12 trucks – need methane in liquid form. And again, as shown above, waste gas created in the
13 liquefaction process is sent to the flare for combustion. Thus, there exists a very real question as
14 to why ratepayers should bear any costs associated with liquefying the gas that comes into the
15 facility or flaring the waste created in the liquefaction process.

16 *After liquefaction*, the methane, now in liquid form, is stored in Tacoma LNG's 8-million-
17 gallon capacity storage tank. Again, the need for this large and expensive infrastructure is not
18 driven by ratepayers. Without the end users who will be using LNG – namely, marine vessels and
19 LNG tanker trucks – there would be no need for the LNG storage tank. At the very most, the costs
20 to be reimbursed by ratepayers should be commensurate with the amount of end product that is
21 forecasted to go to rate payers: 2.2% for 25% (10 years of 40) of the facility's life, which comes
22 to 0.55%. The current allocation of this large cost, based on total volume of LNG that will be
23 supposedly used for peak-shaving only considering the 6 days that this may be needed, shifts the
24 burden substantially to ratepayers, leaving PSE to essentially get an almost free resource to use for
25 its commercial customers. That is inappropriate and certainly the opposite of prudent.

1 *After storage*, LNG goes to the vaporizer (during the 10 days per year that peak shaving
2 may be necessary), to the TOTE marine vessels, or to LNG tanker trucks. Because LNG going to
3 marine vessels and tanker trucks does not benefit ratepayers, ratepayers should not be responsible
4 for costs associated with that infrastructure. I note further that these non-ratepayer end uses,
5 especially the TOTE marine engines, are the only end uses that generate waste gases sent to
6 Tacoma LNG's flare.

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

16 Last, if ratepayers are to bear any costs of the Tacoma LNG ground flare at all, which they
17 should not have to, those costs should be commensurate with the share of LNG to be produced at
18 the facility that is forecast to go to ratepayers over the life of the facility: 0.55%.

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

21 Yes, I have knowledge regarding several costs that PSE incurred unnecessarily. My
22 testimony focuses on two categories that are relevant to this case: (1) the costs PSE incurred in re-
23 designing Tacoma LNG due to a change in the composition of its incoming feed gas; and (2) the
24 litigation costs that PSE is attempting to recoup in this matter.

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

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

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

7 No, PSE's failure to anticipate that was not reasonable. Pipeline gas composition can vary.
8 In its initial methane/non-methane composition assessment PSE did not look at a larger historical
9 time period for how these compositions can fluctuate; nor did not discuss with the pipeline gas
10 supplier how these compositions may change. PSE and its engineering contractors simply
11 assumed, based on their review of a narrow past time period, that the gas composition would
12 remain steady. PSE's failure to consider fluctuations in pipeline gas composition resulted in
13 significant, adverse design implications when the gas composition changed.

14 Additionally, there is evidence that PSE was seeing these feed gas changes in early 2013,
15 before Tacoma LNG's design had even been completed. A PSE employee, Mr. Bill Donahue,
16 testified to this before the PCHB:

17 Yes. That would be generally from -- and I think I said five years or
18 less. **But it is roughly 2013 through 2016 is where we saw a**
19 **relatively dramatic increase in the BTU content primarily from**
20 **the ethane. And that's what gave rise to the observation that we**
21 **needed to -- well, somebody needed to look at the plant design to**
22 **ensure that it was capable of handling that range.** My
23 understanding is that that was the purpose for the redesign on the
24 front end, to manage the additional higher content gas.⁴⁸

25 **Q. Did the PCHB rely on Mr. Donahue's testimony regarding changes in Tacoma LNG's**
26 **feed gas?**

Yes, that is my understanding.

⁴⁸ Exh. RSX-25, Hearing Transcript (excerpt) – Day 8, Advocates for a Cleaner Tacoma, et al. v. Puget Sound Clean Air Agency, et ano. Pg. 1820-1821 (4/22/2021) (emphasis added).

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

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

7 Beyond having a very large (and presumably expensive) legal team comprised of multiple
8 law firms, PSE did not conserve resources in litigating the case. One example that I can speak to
9 from personal knowledge is during depositions. I was present for a number of depositions,
10 including my own. PSE typically had multiple attorneys attending depositions – even those
11 depositions that PSE was neither taking nor defending.⁴⁹ Five PSE attorneys (and multiple PSE-
12 retained experts) were present during my deposition.⁵⁰

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

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25 ⁴⁹ Exh. RXS-26, Deposition appearance pages, various.

26 ⁵⁰ Exh. RXS-27, Depositions of Ranajit Sahu March 4 and 5, 2021, Appearance Pages.