EXH. RJR-1T
DOCKET UG-230393
WITNESS: RONALD J. ROBERTS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**Docket UG-230393**

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF

RONALD J. ROBERTS

ON BEHALF OF PUGET SOUND ENERGY

MAY 25, 2023

PUGET SOUND ENERGY

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PUGET SOUND ENERGY

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF RONALD J. ROBERTS

I. INTRODUCTION

Q. Please state your name, business address, and position with Puget Sound Energy.

A. My name is Ronald J. Roberts, and my business address is Puget Sound Energy, 355 110th Ave. NE, Bellevue, WA 98004. I am the Vice President of Energy Supply for Puget Sound Energy ("PSE" or the "Company").

Q. Have you prepared an exhibit describing your education, relevant employment experience, and other professional qualifications?

A. Yes, I have. It is Exhibit RJR-2.

Q. What are your duties as Vice President of Energy Supply for PSE?

A. I am responsible for all electric generation facilities and natural gas storage facilities owned by PSE, as well as PSE's electric generation and transmission development, and the energy supply merchant function.

Q. What topics are you covering in your testimony?

A. The purpose of my testimony is to discuss PSE's efforts to complete construction of the Tacoma LNG Project in a manner that is consistent with the Commission's

prudence standard. I also provide testimony regarding PSE's operation and maintenance of the Tacoma LNG Facility. My testimony also includes PSE's request that the Commission find that all costs incurred after the decision was made on September 22, 2016 to construct and operate the Tacoma LNG Project are prudent and recoverable and that the O&M costs for the Tacoma LNG Facility that PSE has been deferring are recoverable.

II. BACKGROUND ON PRUDENCE OF COSTS INCURRED PRIOR TO THE SEPTEMBER 22, 2016 PSE BOARD OF DIRECTORS DECISION AUTHORIZING CONSTRUCTION AND OPERATION OF THE TACOMA LNG PROJECT

Q. Please briefly describe the Tacoma LNG Project.

A. The Tacoma LNG Project is a dual-use project located at the Port of Tacoma, adjacent to the Hylebos waterway. The project includes the Tacoma LNG Facility, which is capable of liquefying approximately 250,000 gallons of LNG per day and storing 8 million gallons of LNG on site. The Tacoma LNG Facility is capable of injecting 66,000 dekatherms per day ("Dth/day") of vaporized gas and diverting 19,000 Dth/day of gas into PSE's distribution system to provide 85,000 Dth/day of peak-day supply for customers. That is enough gas to serve the design peak day gas requirements of approximately 85,000 homes.

As a dual-use project, the Tacoma LNG Project is also used by a PSE affiliate, Puget LNG, to make and dispense LNG as fuel to transportation customers in the

maritime and trucking industries.[1] By serving these dual purposes, the costs to develop, construct and operate the project are shared, making the Tacoma LNG Project a cost-effective way to help meet the peak-day resource needs of PSE's gas utility customers.

Q. What does PSE mean when it uses the phrase "Tacoma LNG Facility"?

A. PSE uses the term "Tacoma LNG Facility" to refer to the following:

- buildings, gas processing, storage and support equipment, and foundations located on PSE's leased site at the Port of Tacoma;
- underground LNG fuel line connecting the LNG tank to TOTE Maritime Alaska's ("TOTE") berthing area, marine fueling system and in-water platform at TOTE's site;
- LNG tanker truck loading racks;
- the lease from the Northwest Seaport Alliance; and
- the ground lease from the Port of Tacoma.

Q. What does PSE mean when it uses the phrase "Tacoma LNG Project"?

A. PSE uses the term "Tacoma LNG Project" to refer to the following:

- the development, construction and operation of the Tacoma LNG Facility;
- improvements to PSE's gas distribution system needed to integrate the Tacoma LNG Facility into PSE's gas system;
- regulatory approval to operate the Tacoma LNG Facility to provide peaking capability for PSE's regulated core gas utility customers; and
- commercial contracts to sell LNG to non-utility customers for use as fuel as a non-regulated service.

[1] As approved in Docket UG-151663, PSE's parent, Puget Energy, Inc., formed Puget LNG, a non-regulated subsidiary, to undertake all non-regulated activities at the Tacoma LNG Facility, including non-regulated sales of LNG as transportation fuel; *see* Final Order 10 Approving and Adopting Settlement Stipulation; Reopening Record and Amending Order 08 in Docket U-072375, dated Nov. 1, 2016 ("Order 10").

Q. Please describe the ownership structure of the Tacoma LNG Facility.

A. The Tacoma LNG Facility is jointly owned by PSE and Puget LNG as tenants in common. The settlement approved by the Commission in Order 10 established the cost allocation methodology, which defines the percentage of capital and operating and maintenance ("O&M") costs for the Tacoma LNG Facility to be applied to the regulated PSE business and the non-regulated Puget LNG business.[2] Consistent with that cost allocation methodology, PSE owns the project capacity used to serve the peak day needs of its core gas customers as part of its regulated operations, and Puget LNG owns the project capacity used for marine and any other non-regulated transportation fuel sales. PSE is seeking a prudence determination in this proceeding on the costs it incurred after the September 22, 2016 decision to construct and operate the Tacoma LNG Facility so it can include those costs in its gas rate base.

Q. Why does your testimony address the prudency of costs that were incurred after the September 22, 2016 decision to construct and operate the Tacoma LNG Project?

A. In the December 22, 2022 order in Dockets UE-220066/UG220067 and UG-210918 (consolidated), the Commission found that "PSE acted prudently in developing and constructing the Tacoma LNG Facility up through the initial decision to authorize construction of the facility on September 22, 2016" and that

[2] *See* Order 10, ¶¶ 56-60.

later-incurred construction and operation costs could be reviewed in a future proceeding.[3]

Q. What is the significance of September 22, 2016 for purposes of the Tacoma LNG Project?

A. On September 22, 2016, the PSE Board of Directors made the decision to go forward with construction of the Tacoma LNG Project by approving execution of the engineering, procurement, and construction ("EPC") contract with Chicago Bridge & Iron ("CB&I") contingent on receipt of U.S. Army Corps of Engineers permits and Commission approval of the regulatory settlement ultimately approved and adopted in Order 10 in Docket UG-151663. Execution of the EPC contract followed an August 4, 2016, affirmation by the PSE Board of Directors of a strategy for development and construction of the Tacoma LNG Project. At the time both of these decisions were made by the PSE Board of Directors, PSE had a forecasted gas resource need of 7.95 MDth/day in 2016-17 and a need of 269.5 MDth/day in 2037-38.[4]

[3] *WUTC v. PSE,* Dockets UE-220066 and UG-220067/210918 (consolidated) Order 24/10, ¶ 449, (Dec. 22, 2022) ("Order 24/10"); *see also* ¶¶ 473, 497.

[4] 1 MDth is equal to 1000 Dth. The forecasted need was equal to 7,950 Dth/day in 2016-17 and 269,500 Dth/day in 2037-38.

Q. Please provide a brief description of PSE's decision making to develop and construct the Tacoma LNG Project up to September 22, 2016.

A. PSE first identified a potential need for an LNG storage facility to meet demand in its 2009 Integrated Resource Plan ("IRP"). PSE next identified a need for an LNG liquefaction and storage facility to meet demand in its 2011 IRP.

PSE presented a business case for an LNG storage facility to the PSE Board of Directors at a meeting held on May 9, 2012, and the PSE Board of Directors authorized PSE to continue investigating the potential for ownership of an LNG liquefaction and storage facility. PSE's continued need for new peak-day resources to serve its retail natural gas customers was set forth in the 2013 IRP.

Table 1 below shows decisions made by the PSE Board of Directors between January 2013 and September 22, 2016, concerning development and initial construction of the Tacoma LNG Project and the forecasted need at the time those decisions were made.

Table 1: Major Actions of the PSE Board of Directors

Date	PSE Board of Directors Action	Immediate Forecasted Need	Forecasted Need at Year 20
January 23, 2013	Approve continuing pursuit of LNG strategy	13.65 MDth/day 2019-20	274.61 MDth/day 2032-33
November 8, 2013	Authorize continued execution of LNG business strategy	19.24 MDth/day 2017-18	425.35 MDth/day 2033-34
January 22, 2014	Authorize continued execution of LNG business strategy	8.82 MDth/day 2015-16	389.94 MDth/day 2034-35
July 30, 2014	Authorize execution of lease with Port of Tacoma	8.82 MDth/day 2015-16	389.94 MDth/day 2034-35

April 28, 2015	Authorize proceeding with hybrid model (PSE to own assets to meet peak load; unregulated subsidiary of Puget Energy to own remaining assets and make unregulated transportation fuel sales)	2.4 MDth/day 2016-17	304.42 MDth/day 2035-36
August 6, 2015	Authorize selection of CB&I as EPC contractor	2.4 MDth/day 2016-17	304.42 MDth/day 2035-36
February 26, 2016	Authorize continued pursuit of all transportation fuel sales as unregulated and defend permits	2.4 MDth/day 2016-17	304.42 MDth/day 2035-36
August 4, 2016	Affirmed strategy for development and construction of Tacoma LNG Project	7.95 MDth/day 2016-17	269.50 MDth/day 2037-38
September 22, 2016	Approve execution of EPC contract contingent on receipt of Corps of Engineers permits and WUTC approval of regulatory settlement	7.95 MDth/day 2016-17	269.50 MDth/day 2037-38

As shown in Table 1, PSE's ongoing analysis was presented in multiple reports to the PSE Board of Directors, including in July of 2014, and later updated in subsequent reports to the PSE Board of Directors in September of 2015 and August of 2016, just prior to the September 22, 2016, decision by the PSE Board of Directors to go forward with construction of the Tacoma LNG Project.

In Order 24/10, the Commission found that "PSE acted prudently in developing and constructing the Tacoma LNG Facility up through the initial decision to authorize construction of the facility on September 22, 2016". Those costs are therefore not at issue in this proceeding.

Q. Please describe the estimated costs for development and construction of the Tacoma LNG Project at the time the PSE Board of Directors made the decision to move forward with construction.

A. In September 2016 when the PSE Board of Directors made the decision to move forward with construction of the Tacoma LNG Project, the total plant cost was estimated to be $422 million, including $332 million for the Tacoma LNG Facility, $39 million for PSE's gas distribution system upgrades, and $51 million for allowance for funds used during construction/interest during construction ("AFUDC/IDC"). Of the $332 million estimated costs for the Tacoma LNG Facility, the PSE regulated portion was approximately $165 million.[5]

Q. Please provide a breakdown of the $332 million cost estimate for the Tacoma LNG Facility as of September 2016.

A. The $332 million cost estimate for the Tacoma LNG Facility as of September 2016 included: $20 million for development costs; $197 million for the fixed price EPC contract; $55 million for miscellaneous construction; $16 million project management and outside services; $2 million for insurance; $14 million for sales tax; $19 million for contingency; and $10 million for construction overheads.[6]

[5] *See* Exhibit RJR-3 at 4.

[6] *See id.* at 3. The cost estimate for the fixed price EPC contract is further broken down at page 5 of Exh. RJR-3.

III. COSTS PSE INCURRED AFTER THE SEPTEMBER 22, 2016 DECISION TO DEVELOP AND CONSTRUCT THE TACOMA LNG PROJECT WERE PRUDENT

A. The Commission's Prudence Standard

Q. What determination is PSE seeking in this proceeding for costs that were incurred after the September 22, 2016 decision to construct and operate the Tacoma LNG Project?

A. PSE seeks a determination by the Commission that costs PSE incurred after the Board of Directors' September 22, 2016 decision to move forward to construct and operate the Tacoma LNG Project to serve as a natural gas peaking resource for PSE's customers, were prudently incurred and should be included in rates. Support for such a prudency determination is set forth in further detail in PSE's testimony and exhibits in this proceeding.

Q. What is PSE's understanding of the Commission's prudence standard?

A. In PSE's 2003 Power Cost Only Rate Case proceeding, Docket UE-031725, the Commission reaffirmed the standard it applies in a prudence review.

> The test the Commission applies to measure prudence is what a reasonable board of directors and company management would have decided given what they knew or reasonably should have known to be true at the time they made a decision. This test applies both to the question of need and the appropriateness of the expenditures. The company must establish that it adequately studied the question of whether to purchase these resources and made a reasonable decision, using the data and methods that a reasonable management would have used at the time the decisions were made.[7]

[7] *WUTC v. Puget Sound Energy,* Docket UE-031725*,* Order 12, ¶ 19 (Apr. 7, 2004).

In addition to this reasonableness standard, the Commission has cited several specific factors that inform the question of whether a utility's decision to construct or acquire a new resource was prudent. These factors include:

- First, the utility must determine whether new resources are necessary;[8]
- Once a need has been identified, the utility must determine how to fill that need in a cost-effective manner. When a utility is considering the purchase of a resource, it must evaluate that resource against the standards of what other purchases are available, and against the standard of what it would cost to build the resource itself;[9]
- The utility must analyze the resource alternatives using current information that adjusts for such factors as end effects, capital costs, impact on the utility's credit quality, dispatchability, transmission costs, and whatever other factors need specific analysis at the time of a purchase decision;[10]
- The utility should inform its board of directors and/or management about the purchase decision and its costs. The utility should also involve the board of directors and/or management in the decision process;[11] and
- The utility must keep adequate contemporaneous records that will allow the Commission to evaluate its actions with respect to the decision process. The Commission should be able to follow the utility's decision process; understand the elements that the utility used; and determine the manner in which the utility valued these elements.[12]

As the Commission has recently affirmed, the prudence analysis is not based on hindsight but is determined at the point in time when a company made its decision. Once that point in time is identified, "the Commission can consider whether the Company's decision was prudent *at the time* it was made, in light of

[8] *See, e.g.*, *WUTC v. Puget Sound Power & Light Co.*, Docket UE-921262, *et al*., Nineteenth Supplemental Order at 11 (Sept. 27, 1994).
[9] *Id*.
[10] *Id*. at 2, 33-37, 46-47.
[11] *Id*. at 37, 46.
[12] *Id*. at 2, 37, 46.

what the Company knew or reasonably should have known."[13]

Q. Has PSE adhered to the Commission's prudence standards as it incurred costs to construct the Tacoma LNG Project after the September 22, 2016 Board of Directors decision to move forward?

A. Yes. PSE's management of construction of the Tacoma LNG Project closely adhered to the Commission's prudence standard.

B. PSE Updated Its Gas Resource Need After September 2016 During Construction of the Tacoma LNG Project

Q. Did the Commission address PSE's demonstration of a need for the Tacoma LNG Facility in Order 24/10?

A. Yes, the Commission "agreed that PSE has demonstrated a need for the Tacoma LNG Facility at least through the initial decision to build the facility on September 22, 2016." The Commission also found that "PSE reasonably relied on its forecasts for gas demand, which showed a need for an LNG peak-shaving facility."[14] Moreover, the Commission found that PSE had adequately considered alternatives to the Tacoma LNG Facility.[15]

[13] *WUTC v. Avista,* Dockets UE-200900 *et. al,* Order 08/05, ¶ 267 (Sept. 27, 2021); *see also* Order 24/10, ¶498 Conclusion of Law (19).

[14] *See* Order 24/10, ¶ 394; *see also* ¶¶ 395-399.

[15] *See* Order 24/10, ¶ 412; *see also* ¶¶ 412-416.

Q. Did PSE continue to update its gas resource need analysis during construction of the Tacoma LNG Project?

A. Yes. PSE updated its natural gas resource need analysis in each of the 2017 IRP, the 2019 IRP Progress Report, and the 2021 IRP. PSE also updated the load forecasts in each of the F2017, F2018, and F2019 forecasts. Table 2, Updated Load Forecast, shows the need for new gas resources in each of those years.

Table 2: Updated Load Forecast[16]

YEAR	LOAD FORECAST
F2017	27.22 MDth/day in 2017-2018
F2018	39.98 MDth/day in 2018-2019
F2019	2.35 MDth/day in 2019-2020

Each of the F2017, F2018, and F2019 updated load forecasts continued to demonstrate an immediate need for new gas resources, such as the Tacoma LNG Facility, to meet peak-day demand.

Q. Please describe the gas resource need that PSE identified in the November 2017 IRP.

A. The 2017 IRP was issued in November 2017, assumed the Tacoma LNG Facility would become used and useful in the winter of 2019-20, and projected the following needs for the gas portfolio: the Base Case scenario projected an

[16] *See* Exh. RJR-4.

immediate need for the Tacoma LNG Facility; the high demand projected an immediate need for the Tacoma LNG Facility; and the low demand forecast projected adequate gas portfolio resources until approximately the winter of 2030-31.[17]

Q. Please describe the gas resource need that PSE identified in the 2019 IRP Progress Report.

A. PSE issued an IRP Progress Report on December 1, 2019, in lieu of a full IRP. The 2019 IRP Progress Report, based on the 2018 forecast, assumed the Tacoma LNG Facility would become used and useful in the winter of 2021-22, and projected the following needs for the PSE core gas portfolio: the base case scenario projected an immediate need for the Tacoma LNG Facility; the high demand scenario projected an immediate need for the Tacoma LNG Facility; and the low demand forecast scenario projected adequate gas portfolio resources until approximately the winter of 2039-40.[18]

[17] A link to the 2017 IRP is here: https://www.pse.com/-/media/PDFs/IRP/2017/chapters_documents/8a_2017_PSE_IRP_Chapter_book_compressed_110717.pdf?sc_lang=en&modified=20220307183248&hash=FE2B96462F7EAFEFECA229FEC19BAD9B ; *see also* Exh. RJR-5 at 4-5.

[18] A link to 2019 IRP Progress Report is here: https://www.pse.com/-/media/PDFs/IRP/2019/docs_opening/UE-180607-UG-180608-PSE-2019-IRP-Progress-Report-Revision_12-10-19.pdf?modified=20220307183526; *see also* Exh. RJR-6 at 4-6.

Q. Please describe how the Tacoma LNG Facility was included in the 2021 IRP analysis.

A. The capacity provided by the Tacoma LNG Facility was shown as an existing resource in the 2021 IRP.[19] PSE explained in the 2021 IRP that the Tacoma LNG Facility was shown as an existing resource because "the facility is currently under construction and anticipated to be in service and available late in the winter of 2021-22."[20]

Q. Did PSE use the same methods for identifying the need for natural gas resources and updating its load forecasts in the period after September 2016 that it used prior to September 2016 when it was developing the Tacoma LNG Project?

A. Yes. PSE used the same methods of analyzing the need for natural gas resources and the same load forecasting techniques throughout the time-period it was developing and then constructing the Tacoma LNG Facility. In Order 24/10, the Commission stated that it "agree[d] that PSE has demonstrated a need for the Tacoma LNG Facility at least through the initial decision to build the facility…" and that it found arguments challenging PSE's forecasting methods "unpersuasive." *See* Order 24/10 at ¶ 394. The Commission also endorsed PSE's

[19] A link to PSE's 2021 IRP is here: https://www.pse.com/-/media/PDFs/IRP/2021/IRP21_Chapter-Book-Compressed_033021.pdf?modified=20220307225041; *see also* Exh. RJR-7 at 6.

[20] *See* Exh. RJR-7 at 6, n. 5.

design day standard as "intended to ensure a more robust natural gas system that will not run short of resources when they are needed most." *Id*. at ¶ 395

Q. What is PSE's request with respect to the need for the Tacoma LNG Facility?

A. The Commission should find that PSE demonstrated a need for the Tacoma LNG Facility up to the 2021 IRP, when the Tacoma LNG Facility was included as part of the natural gas resource stack, and that PSE's decision to continue constructing the Tacoma LNG Facility was prudent.

C. Costs PSE Incurred After September 2016 to Construct the Tacoma LNG Facility Were Prudent.

1. Capital Costs of the Tacoma LNG Project Are Based on the Allocation Approved in Order 10 in Docket UG-151663

Q. What is the total capital cost of the Tacoma LNG Project?

A. As of December 31, 2022, the total capital cost of the Tacoma LNG Project is $489 million. Of that total capital cost, the portion allocable to PSE is $243 million. See, Table 3, Allocation of Capital Costs for the Tacoma LNG Project, below.

Table 3: Allocation of Actual Capital Costs ($1,000s) for the Tacoma LNG Project

Facility Services	Capital Allocated to Each Source	Regulated PSE	Non-Regulated Puget LNG
Liquefaction	$ 99,091	10%	90%
Storage	$ 105,830	79%	21%

Bunkering	$ 30,969	0%	100%
Truck Loading	$ 6,304	5%	95%
Vaporization	$ 17,660	100%	0%
Total Before Common	$ 259,855	$ 111,491	$ 148,365
Common Allocation Factor		43%	57%
Common Items	$184,937	$ 79,495	$105,441
Gross Allocated Capital	$444,792	$190,986	$253,806
Capital Allocation Ratio		43%	57%
Manufacturers Tax Exemption	$ (27,531)	Not-Eligible	$ (27,531)
AFUDC/IDC	$ 72,201	$ 52,213	$ 19,989
Total Plant Closings	$489,463	$ 243,199	$246,264

Q. How does the total capital cost allocable to PSE compare to the estimated capital cost allocable to PSE in September 2016 when the PSE Board of Directors made the decision to go forward with the Tacoma LNG Project?

A. In September 2016 when the PSE Board of Directors made the decision to go forward with the Tacoma LNG Project, the estimated capital cost for the Tacoma LNG Project was $422 million; of this amount, $332 million was estimated for the Tacoma LNG Facility and, $165 million of that amount was allocable to PSE.[21] As shown above in Table 3, Allocation of Capital Costs for the Tacoma LNG Project, the actual total capital cost for the Tacoma LNG Project is $489 million and $243 million of the total capital costs are allocable to PSE.

[21] *See* Exh. RJR-3 at 4.

2. Capital Cost Increases in 2017

Q. Please explain the reasons for increases in the capital costs of the Tacoma LNG Project in 2017 as compared to the capital cost estimate in September 2016.

A. By November 2, 2017, the estimated capital costs of the Tacoma LNG Project had increased by $29.6 million ($11 million to PSE). This increase is approximately seven percent of the total estimated capital costs which is reasonable for a new construction project of this size and scale. Moreover, many of the cost increases could not have been anticipated by PSE, such as the sales tax increase, the change in gas quality, and the permitting activities with the Puget Sound Clean Air Agency ("PSCAA"). The increased costs were due in part to increases in the EPC contract ($17 million), miscellaneous construction ($2 million), project management and outside services ($5 million), increase in the sales tax rate ($1 million), an increase in the construction overhead rate ($7 million), and an increase in AFUDC/IDC ($6 million).[22] Contributing to the increased costs for the EPC contract were changes in pipeline gas quality over the previous 12 to 18 months such that the then-current pipeline gas quality was significantly different from the design basis for the Tacoma LNG Facility.[23] In Order 24/10, the Commission addressed the need for the redesign based on changes in gas quality

[22] *See* Exh. RJR-8 at 30.
[23] *See* Exh. RJR-8 at 15.

and stated that it was not persuaded "that PSE incurred unreasonable costs in redesigning the facility due to changing composition of imported natural gas."[24]

The increased costs for outside services were due, in part, to permitting activities with the PSCAA. In August 2015, PSCAA issued a communication to PSE confirming that prior to the issuance of the air permit needed to operate the Tacoma LNG Facility, it was acceptable for PSE to undertake activities not directly part of LNG processing and that have no emissions. In November 2016, PSE began work that it believed would not require an air permit such as site demolition, clearing, grading, and soil stabilization work. In April 2017, PSE received a Notice of Violation from PSCAA stating that PSE had committed a violation by commencing construction of the Tacoma LNG Facility without filing a Notice of Construction application and without receiving an Order of Approval. PSE filed the Notice of Construction application on May 22, 2017. On October 3, 2017, PSCAA issued a determination confirming that PSE's Notice of Construction application was complete. At the time, PSE expected that PSCAA would issue a draft air permit by December 5, 2017, followed by a 45-day comment period. On November 27, 2017, and December 1, 2017, PSCAA held public information meetings. *See* Exh. RJR-8 at 41.

[24] Order 24/10 at ¶ 403.

3. In Early 2018 PSE Re-evaluated the Tacoma LNG Project

Q. Please describe the events that led up to PSE management re-evaluating the Tacoma LNG Project.

A. The primary driver of the re-evaluation of the Tacoma LNG Project was delay in issuance of the air permit PSE needed from PSCAA. Although PSE had completed the permit application in June 2017, PSCAA posted a communication on its website in December 2017 stating that it was extending the timing of publication of a draft air permit. On January 24, 2018, PSCAA made the unprecedented decision to require a Supplemental Environmental Impact Statement ("SEIS") that included a Life Cycle Analysis of project-related greenhouse gas ("GHG") emissions. PSCAA also estimated that the SEIS would not be completed until October 31, 2018.

Q. Please describe the 2018 re-evaluation of the Tacoma LNG Project.

A. Please see the Seventh Exhibit to the Prefiled Direct Testimony of Ronald J. Roberts, Exh. RJR-8C, at 48-78 for materials presented to the PSE Board of Directors related to PSE's re-evaluation of the Tacoma LNG Project. Given the likely cost and schedule impacts expected as a result of the PSCAA decision to require a SEIS, PSE management identified three potential construction scenarios for the Tacoma LNG Project:

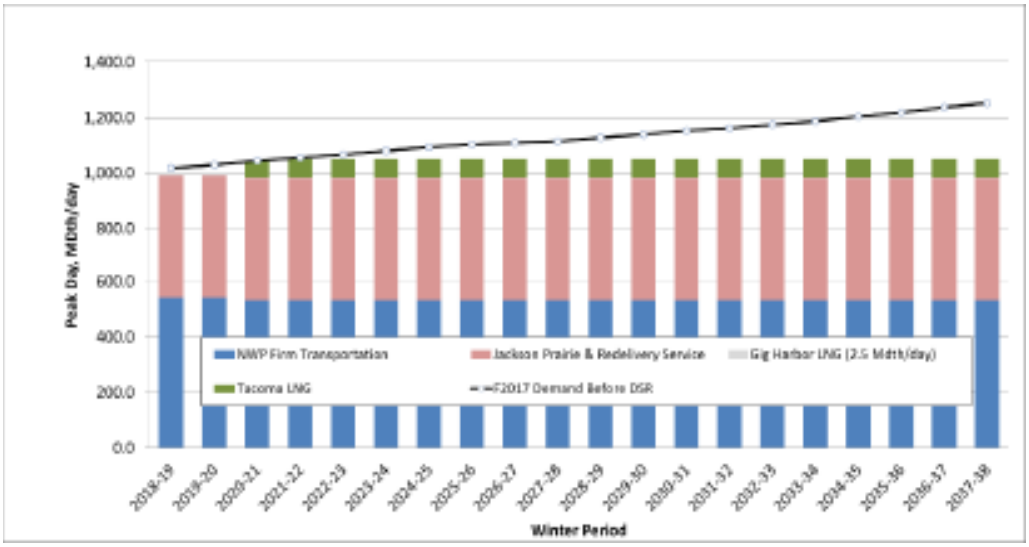
> (1) modified construction - suspend construction involving emissions regulated by PSCAA until the air permit is issued, but continue with other parts of construction;

(2) pause and wait - suspend all elements of construction until the air permit is issued; or

(3) termination - terminate construction of the Tacoma LNG Project.[25]

In addition, PSE management re-evaluated the resource need, alternatives analysis, and Tacoma LNG Project cost and availability analysis.[26] Figure 1 below, presents the results of PSE's February 2018 peak-day gas resource need analysis, which continued to show a need for Tacoma LNG.

Figure 1. February 2018 Gas Resource Need Update (No DSR)



Updates included: a change to the available online date for the Tacoma LNG Project (winter 2020-2021), which is shown in green; a revised gas price forecast (based on a fall 2017 update from Wood-Mackenzie and forward marks in the

[25] *See* Exh. RJR-8C at 57.
[26] *See* Exh. RJR-8C at 76.

early years); and an updated load forecast (F2017). The F2017 load forecast showed a peak-day need of 27.22 MDth/day (27,220 Dth/day) in 2017-2018.[27]

PSE also considered the costs and benefits of the Tacoma LNG Project by considering the project with and without sunk costs and compared those scenarios to a portfolio without LNG. As shown in Table 4 below, as of February 1, 2018, at the time the 2018 re-evaluation was performed, the "sunk capital costs" of the Tacoma LNG Project were equal to $212 million (PSE portion $95.4 million) and the "termination costs" were estimated to be $61 million. Of the $273 million total sunk capital costs and estimated termination, the PSE portion was $123 million.

Table 4. Sunk Costs Analysis for Tacoma LNG Project Peaking Resource

	At 2/28/2018	**Peaking Portion 0.45**
Sunk CapEx		
As of 12/31/17	$186,937,530	$84,121,889
Jan/Feb 2018	$25,000,000	$11,250,000
	$211,937,530	$95,371,889
Termination Costs	$40,741,000	$18,333,450
Lease Termination	$20,115,328	$9,051,898
Other Termination Costs*	$60,856,328	$27,385,348
Total Sunk + Termination Costs	$272,793,858	$122,757,236

* Includes Site Restoration and Resolution of Contracts

[27] *See* Exh. RJR-4 at line 2017-18 (column F2017).

Q. Please describe the analysis PSE performed to compare the costs needed to complete construction of the Tacoma LNG Project "With Tacoma LNG" and to the cost of the alternatives "Without Tacoma LNG."

A. PSE considered two "With Tacoma LNG" scenarios, (1) a "With Tacoma LNG and 47 percent CAPEX" scenario, which represented the incremental cost to complete the Tacoma LNG Project; and (2) a "With Tacoma LNG and 100 percent CAPEX" scenario, which represented the total cost of the Tacoma LNG Project from start to finish. PSE also evaluated a "Without LNG" scenario which assumed the Tacoma LNG Facility was not available. In the "Without Tacoma LNG" scenario, the least-cost resource alternative to meet PSE's peak capacity need was additional pipeline capacity on the Westcoast system and Northwest Pipeline ("NWP") from northern British Columbia to PSE's system. For comparison purposes, PSE added the Tacoma LNG sunk costs incurred to date and the termination costs that PSE would incur if PSE were to stop construction of the Tacoma LNG Facility and pursue an alternative resource, to the "Without Tacoma LNG" scenario.

PSE compared the net present value portfolio cost of meeting PSE's gas resource need over a 20-year planning horizon at the least cost, with and without the Tacoma LNG Facility. To do this, PSE began by updating its cost and availability assumptions for the Tacoma LNG Facility and the gas resource alternatives included in the SENDOUT model. PSE first ran SENDOUT with the Tacoma LNG Facility unavailable as a resource to identify the least-cost portfolio

of resources without the Tacoma LNG Facility. PSE ran SENDOUT again, this time with the Tacoma LNG Facility available as a resource. In this way, SENDOUT derived a portfolio cost with and without LNG, which PSE compared to determine the portfolio benefit or cost of continuing to build the Tacoma LNG Facility.

Because the SENDOUT analysis evaluates a 20-year planning period and the useful life of the Tacoma LNG Facility is 50 years, PSE considered the end effects of the "Without Tacoma LNG" portfolio in years 21 through 50 to align with the full useful life of the plant. That is, PSE compared the benefits of the Tacoma LNG Facility over its entire useful life to the entire cost of a "Without Tacoma LNG" portfolio over the same time period.

Q. Please describe the results of PSE's analysis of the "With Tacoma LNG" scenarios and the "Without Tacoma LNG" scenario.

A. The following Table 5 compares the "With Tacoma LNG" and "Without Tacoma LNG" scenarios. The results reaffirm that the Tacoma LNG Facility continued to be the least-cost resource alternative to meet PSE's gas peak-day resource need. When compared to the "Without Tacoma LNG" scenario, the "With Tacoma LNG (full 100% of CAPEX)" scenario demonstrated a $112.5 million benefit to the existing gas portfolio.

Table 5. Summary of February 2018 Portfolio Benefit Analysis

Scenario	NPV @7.777 - 2018-2070 (millions)	Portfolio benefit compared to Without Tacoma LNG scenario (millions)
With Tacoma LNG (only 47% CAPEX to go)	$13,109	$190.6
With Tacoma LNG (full 100% of CAPEX)	$13,187	$112.5
Without Tacoma LNG (includes sunk CAPEX and termination costs)	$13,300	

Absent the Tacoma LNG Facility, the long-term (defined as winter 2023-2024 and beyond) alternative identified by the SENDOUT model remained additional natural gas pipeline capacity from Station 2 in Canada to Sumas on Westcoast's system, as well as pipeline additions on the NWP system from Sumas to PSE's distribution system, all updated to include current pricing and availability. In the short-term (winter 2018-2019 to 2022-2023), additional interim resources were assumed to be utilized, including short-term NWP contracts, an earlier upgrade to SWARR, and LNG from the Plymouth LNG facility. Table 6 below shows the updated resource stack from SENDOUT, which represents the alternatives to the Tacoma LNG Facility.

Table 6. Least Cost Gas Portfolio, if Tacoma LNG is Not Available as a Resource

Winter Period	NWP Additions + Westcoast	Short Term NWP	Cross Cascades - AECO	Cross Cascades - Malin	Swarr	LNG Distr. Upgrade	LNG PLY	DSR (Incl Standard Bundle)	Total New Resources	Sendout Resource Surplus/(Need)
Option	#1	#2	#3	#4	#7	#5	#6			
2018-19		9					15	2	26	1
2019-20		16					15	6	37	0
2020-21		0			30		15	11	56	5
2021-22		4			30		15	15	64	1
2022-23		11			30		15	19	75	0
2023-24	68				30			23	121	33.5
2024-25	68				30			27	125	25
2025-26	68				30			32	130	20
2026-27	68				30			37	135	18
2027-28	68				30			41	139	17
2028-29	68				30			45	143	9
2029-30	68				30			49	147	1
2030-31	68		30		30			54	182	23
2031-32	68		30		30			58	186	17
2032-33	68		30		30			63	191	8
2033-34	68		30		30			67	195	1
2034-35	68		80		30			72	250	40
2035-36	68		80		30			76	254	28
2036-37	68		80		30			80	258	14
2037-38	68		80		30			84	262	2

Table 7 below shows the cost and timing assumptions for the incremental pipeline capacity alternative in which Westcoast pipeline delivers gas from northern British Columbia to NWP near Sumas, Washington, and NWP delivers gas to PSE.

Table 7: 2018 Analysis Pipeline Assumptions

Assumption	Cost	Timing available
NWP Costs ($/Dth/Day):	.61	Nov. of 2023, 24, 25, 30 & 2035
Westcoast Pipeline Costs ($/Dth/Day):	.63	Nov. of 2023, 24, 25, 30 & 2035
Westcoast Capacity (% of Firm):	100%	

The updated analysis assumed a commercial online date of the fourth quarter of 2021 (winter 2021-2022), which represented a delay of roughly one year from the schedule approved by the PSE Board of Directors in September of 2016. A more detailed version of the results and scenario assumptions is provided in Exh. RJR-8C at 76.

Q. Please describe the results of PSE management's re-evaluation of the Tacoma LNG Project.

A. The re-evaluation showed that as of March 1, 2018, the Tacoma LNG Facility continued to be the least-cost resource alternative to meet PSE's gas peak-day resource need. PSE management recommended and the PSE Board of Directors approved a "modified construction" process for the Tacoma LNG Facility that included: (1) PSE and CB&I would modify the existing work schedule using the change order procedure in the EPC Contract; (2) Work to be performed on "emitter" aspects of the Tacoma LNG Facility would not be started until issuance of the air permit by PSCAA; (3) PSE and CB&I would agree up front on an escalation rate or cost-adder applicable to the delayed work; and (4) PSE would not trigger the option of formal suspension of the EPC Contract.[28] The total costs for the modified construction process were estimated to be nearly $483 million, including $366 million for the Tacoma LNG Facility ($158 million for the PSE

[28] *See* Exh. RJR-8C at 60.

portion), $39 million for gas distribution system upgrades, and $78 million for AFUDC/IDC.[29]

4. Additional Capital Costs PSE Incurred Due to Litigation of the Air Permit Required for the Tacoma LNG Facility

Q. Please describe the increased capital costs for outside services PSE incurred due to litigation of the air permit issued by PSCAA for the Tacoma LNG Facility.

A. On March 29, 2019, PSCAA issued the Final SEIS, which concluded that the Tacoma LNG Project would result in a net decrease in GHG emissions. On December 10, 2019, PSCAA issued the air permit needed to operate the facility and a notice to proceed with construction. On December 19, 2019, Advocates for a Cleaner Tacoma, Sierra Club, Washington Environmental Council, Washington Physicians for Social Responsibility, and Stand Earth (collectively, the "Other Appellants") and the Puyallup Tribe each appealed the Final SEIS under the State Environmental Protection Act and Notice of Construction air permit issued by PSCAA.

In the consolidated appeals, the Puyallup Tribe and Other Appellants raised over forty individual issues under the Washington Clean Air Act, State Environmental Policy Act, U.S. and Washington constitutions, Civil Rights Act, and federal treaties. In addition, the administrative record reflects the protracted discovery

[29] *See* Exh. RJR-8C at 58.

and numerous prehearing motions filed by the Puyallup Tribe and Other Appellants. The defending parties, PSCAA and PSE, successfully eliminated eighteen of the over forty issues before the hearing through dispositive motions. The remaining issues involved highly technical analysis and complex scientific principles spanning a broad range of topics, ranging from lifecycle (wellhead to end user) GHG modelling, to slip rates from certain marine vessel engines, to flare design and air modelling, that required specialized expert witness testimony in a variety of areas. More specifically, the defense of PSCAA's air permit required PSE to present nine fact and expert witnesses and PSE presented ten witnesses in defense of the Final SEIS. On November 19, 2021, following an evidentiary hearing that lasted ten days, the Pollution Control Hearings Board ("PCHB") issued two orders, Decision 11447[30] and Decision 11448,[31] addressing the remaining twenty-three claims and affirming issuance of the air permit and the Final SEIS. PSCAA and PSE prevailed on all issues.

These details illustrate the scope of litigation expenses PSE incurred to defend just one permit and environmental review document; the Puyallup Tribe, however, filed three separate appeals (including on the Notice of Construction and Final SEIS), two of which proceeded through the appellate level. Although PSE has prevailed on all permits and at all levels of judicial review, these successive appeals increased the capital costs that PSE incurred for outside services to defend

[30] Decision 11447, *Advocates for a Cleaner Tacoma, et al. v. Puget Sound Clean Air Agency, et al.*, PCHB Docket No. 19-087c (Nov. 19, 2021).

[31] Decision 11448, *Advocates for a Cleaner Tacoma, et al. v. Puget Sound Clean Air Agency, et al.*, PCHB Docket No. 19-087c (Nov. 19, 2021).

the permits. In addition, AFUDC/IDC costs for the Tacoma LNG Facility increased by approximately $20 million, due in large part to delays that were created by legal maneuvering by the Puyallup Tribe, as well as the additional time required to prepare the Draft and Final SEIS's. In Order 24/10, the Commission found that the Puyallup Tribe's challenges to PSE's recovery of litigation costs that PSE incurred in defending its permits were not "credible." *See*, Order 24/10 at ¶ 420.

5. Additional Capital Costs PSE Incurred Under the EPC Contract Due to Delayed Issuance of the SEIS

Q. Please describe the increased EPC costs PSE incurred due to delayed issuance of the SEIS.

A. In addition to the increased capital costs due to litigation expenses, during the delay in issuance of the permit and Final SEIS, PSE was unable to move forward with certain construction efforts. PSE's construction contractor, CB&I, had mobilized its employees to the Tacoma LNG Project site and the two companies worked together to reach resolution of the likely cost impacts of delay created by the PSCAA process. PSE and CB&I agreed upon pricing and terms and conditions for a change order necessitated by the delay under which PSE agreed to pay a firm price of $10,837,951 to CB&I, with an approximate $2 million PSE allowance for escalation and an approximate $100,000 PSE allowance for additional warranty extensions on key components. All told, PSE projected that the delay associated with the PSCAA process would increase the budget for the

Tacoma LNG Project by $56 million—from the $451 million approved by the PSE Board of Directors in November of 2017 to a total of $507 million.[32] These increased costs are explained in more detail in Exh. RJR-8C at 95, 99-100.

D. PSE Management Continued to Inform the PSE Board of Directors about the Tacoma LNG Project and Involve the PSE Board of Directors in Decisions after September 2016

Q. Did PSE Management conform to the prudence standard by informing and involving the PSE Board of Directors in Tacoma LNG Project decisions after September 2016?

A. Yes. Just as it had before September 2016, PSE management continued to inform the PSE Board of Directors about the Tacoma LNG Project after the decision to execute the EPC with CB&I was made, and the PSE Board of Directors was involved in decision making after September 2016. The information provided to the PSE Board of Directors and decisions made by the PSE Board of Directors are described below.

Q. Please describe the report PSE management presented to the PSE Board of Directors in April 2017 regarding construction of the Tacoma LNG Project.

A. On April 6, 2017, PSE management provided an informational report to the PSE Board of Directors regarding initial work performed during the construction phase of the Tacoma LNG Project. Please see Exh. RJR-8C at 2-6 for a copy of

[32] *See* Exh. RJR-8C at 98.

materials presented to the PSE Board of Directors at the April 6, 2017 meeting. The informational report stated that demolition work at the site of the Tacoma LNG Facility was approximately 95 percent complete as of mid-March of 2017 and ground improvement work was 50 percent complete as of March 30, 2017. *See* Exh. RJR-8C at 4-5.

Q. Please describe the report PSE management presented to the PSE Board of Directors in June 2017 regarding the Tacoma LNG Project.

On June 22, 2017, PSE management provided an informational report to the PSE Board of Directors regarding construction and other activities for the Tacoma LNG Project. Please see Exh. RJR-8C at 7-25 for a copy of materials presented to the PSE Board of Directors regarding the Tacoma LNG Project at the June 22, 2017 meeting. Among other things, PSE management relayed to the PSE Board of Directors that construction of the Tacoma LNG Project was on budget and on schedule. *See* Exh. RJR-8C at 12-13. PSE management also apprised the PSE Board of Directors of changes in pipeline gas quality over the previous 12 to 18 months and that the then-current pipeline gas quality was significantly different from the design basis for the Tacoma LNG Facility. *See* Exh. RJR-8C at 15.

PSE management also updated the PSE Board of Directors regarding the permitting process with PSCAA. At the time, PSE represented that the Tacoma LNG Facility was considered a minor source of emissions under the Clean Air Act and the project plan was based upon securing notice of construction and a

permit from PSCAA during the early phase of construction work. PSE had completed the permit application in June 2017. *See* Exh. RJR-8C at 18.

Q. Please describe the report PSE management presented to the PSE Board of Directors in November 2017 regarding the Tacoma LNG Project.

A. On November 2, 2017, PSE management informed the PSE Board of Directors that the Tacoma LNG Project had exceeded budget. Please see Exh. RJR-8C at 26-37 for a copy of materials presented to the PSE Board of Directors at the November 2, 2017 meeting. As more fully described in section III.C.2 above, PSE requested an increase in the total project budget of $29.6 million, with $11.0 million allocable to PSE. See Exh. RJR-8C at 30, 36.

Q. Please describe the report PSE management presented to the PSE Board of Directors in January 2018 regarding the Tacoma LNG Project.

A. In January of 2018, PSE management provided an informational update to the PSE Board of Directors that largely focused on permitting, construction, and other matters with respect to the Tacoma LNG Project. Please see Exh. RJR-8C at 38- 47 for materials presented to the PSE Board of Directors at the January 2018 meeting.

A considerable portion of the January 2018 meeting of the Board of Directors focused on PSCAA permitting activities. PSE management identified three potential outcomes associated with PSCAA's air permit review. First, PSCAA could deny the air permit. Second, PSCAA could reopen the State Environmental

Protection Act process. Finally, PSCAA could delay the issuance of an air permit. *See* Exh. RJR-8C at 42.

PSE management also identified activities it had undertaken to mitigate the potential impacts of these various outcomes. PSE retained a consultant to perform an independent review of the permit and retained Dennis McLerran, former Executive Director of PSCAA and Region X Director for the Environmental Protection Agency, for advice and consultation. *See* Exh. RJR 8C at 42.

Q. Please describe the report PSE management presented to the PSE Board of Directors on March 1, 2018 regarding its re-evaluation of Tacoma LNG Project.

A. On March 1, 2018, PSE management informed the PSE Board of Directors of actions undertaken since PSCAA determined that a SEIS was necessary for the Tacoma LNG Facility. Please see Exh. RJR-8C at 48-78 for materials presented to the PSE Board of Directors at the March 1, 2018 meeting. The following actions had occurred following the PSCAA determination: PSCAA issued a Request for Proposals for a consultant for the SEIS, with a completion date of October 31, 2018; PSE had notified CB&I of the determination and provided notice that PSE considered the determination to be a force majeure event under the EPC Contract, a claim that CB&I rejected; and CB&I provided PSE with estimates for alternative construction scenarios. PSE determined that construction of those elements of the Tacoma LNG Facility that would have no emissions

(i.e., the LNG storage tank, cryogenic pipeline boring, Blair fueling pier, and the electric substation) could continue, but construction on emitting equipment (i.e., LNG processing equipment) would remain on hold until PSE received a Notice of Construction from PSCAA. *See* Exh. RJR-8C at 51.

As described above in section III.C.3, PSE management re-evaluated the resource need, alternatives analysis, and Tacoma LNG Project cost and availability analysis prior to the March 1, 2018 Board of Directors meeting. PSE management recommended that the PSE Board of Directors approve a "modified construction" process that resulted in estimated total project costs of nearly $483 million (including $366 million for the Tacoma LNG Facility, $158 million for the PSE portion). *See* Exh. RJR-8C at 56, 58. The PSE Board of Directors accepted management's recommendation to pursue a "modified" construction process and affirmed its commitment to complete the Tacoma LNG Project as a system peaking resource.

Q. Please describe the report PSE management presented to the PSE Board of Directors in May 2018 regarding the Tacoma LNG Project.

A. On May 3, 2018, PSE management provided an update to the PSE Board of Directors regarding permitting, construction, and other matters with respect to the Tacoma LNG Project. Please see Exh. RJR-8C at 79-90 for materials presented to the PSE Board of Directors at the May 3, 2018 meeting. PSE management apprised the PSE Board of Directors that construction of the non-emitting portions of the Tacoma LNG Facility was ongoing in accordance with the

modified construction process. Notable items included: site preparation was complete; roof raising for outer tank inner lining of the storage tank was complete; form work for the first concrete tank ring was complete; excavation of the send-out pit for the LNG cryogenic pipeline was underway; deck pour for the Blair Waterway fueling pier was complete; procurement of materials was 88 percent complete and fabrication was 81 percent complete with items stored on site; the Frederickson gate station and four-mile 16" pipeline were complete; and civil work and steel erection at the Tacoma Power substation were complete. *See* Exh. RJR-8C at 81.

PSE management also reported that the PSCAA SEIS requirement was estimated to delay the Tacoma LNG Project completion by approximately 15 months, and PSE was negotiating with CB&I to mitigate costs and schedule of project delay. *See* Exh. RJR-8C at 82-83.

Q. Please describe the report PSE management presented to the PSE Board of Directors in June 2018 regarding the Tacoma LNG Project.

A. On June 21, 2018, PSE management provided an update to the PSE Board of Directors regarding permitting, construction, and other matters with respect to the Tacoma LNG Project. Please see Exh. RJR-8C at 91-102 for materials presented to the PSE Board of Directors at the June 21, 2018 meeting. PSE management provided the PSE Board of Directors with information regarding the potential increase in costs for the Tacoma LNG Project associated with the continued delay resulting from the PSCAA process for the issuance of the SEIS.

Q. Please describe the reports PSE management presented to the PSE Board of Directors in August and September 2018 regarding the Tacoma LNG Project.

A. On August 2, 2018, PSE management updated the PSE Board of Directors on the status of the construction of the Tacoma LNG Project. Please see Exh. RJR-8C at 103-110 for materials presented to the PSE Board of Directors at the August 2, 2018 meeting. On September 20, 2018, PSE management updated the PSE Board of Directors on the status of the construction of the Tacoma LNG Project. Please see Exh. RJR-8C at 111-117 for materials presented to the PSE Board of Directors at the September 20, 2018 meeting. The September 20, 2018 presentation included a construction status summary, and a report that PSE expected a lull in construction activity between February and June 2019, as PSE waited for an air permit decision from PSCAA. *See* Exh. RJR-8C at 113.

Q. Please describe the report PSE management presented to the PSE Board of Directors in November 2018 regarding the Tacoma LNG Project.

A. On November 1, 2018, PSE management informed the PSE Board of Directors that PSCAA's Draft SEIS included a finding that the Tacoma LNG Project would reduce GHG emissions. Please see Exh. RJR-8C at 118-128 for materials presented to the PSE Board of Directors on November 1, 2018. PSE management recommended submitting comments that would support the determination in the Draft SEIS, while pointing out certain analytical areas that would further increase the amount of greenhouse gases emissions reduced by the project. PSE

management informed the PSE Board of Directors that PSE anticipated a Final SEIS would be issued on or about February 1, 2019, and that PSCAA would issue a final air permit on or about June 1, 2019. *See* Exh. RJR-8C at 121.

Q. Please describe the report PSE management presented to the PSE Board of Directors in September 2019 regarding the Tacoma LNG Project.

A. On September 19, 2019, PSE management provided an informational update to the PSE Board of Directors. Please see Exh. RJR-8C at 129-144 for materials presented to the PSE Board of Directors at the September 19, 2019 meeting. PSE management informed the PSE Board of Directors that the most efficient operating strategy would be to outsource operation of the Tacoma LNG Facility. PSE had conducted a competitive request for proposal process and retained NAES Corporation, a third-party operator in Issaquah, Washington, to operate the Tacoma LNG Facility. At the time, PSE anticipated retention of NAES would cost approximately $4 million per year, shared between PSE and Puget LNG, and that the Tacoma LNG Facility would have annual information technology maintenance costs of approximately $2 million. *See* Exh. RJR-8C at 140.

Q. Please describe the report PSE management presented to the PSE Board of Directors in May 2020 regarding the Tacoma LNG Project.

A. On May 6, 2020, PSE management provided an informational update to the PSE Board of Directors. Please see Exh. RJR-8C at 145-154 for materials presented to the PSE Board of Directors at the May 6, 2020 meeting. PSE management

informed the PSE Board of Directors that construction activity was ongoing and that the impact of the COVID-19 pandemic on construction activities for the Tacoma LNG Facility had been minimal and likely resulted in delays of 10 days or less.

Q. Please describe the report PSE management presented to the PSE Board of Directors in August 2020 regarding the Tacoma LNG Project.

A. On August 26, 2020, PSE management provided an informational update to the PSE Board of Directors. Please see Exh. RJR-8C at 155-165 for materials presented to the PSE Board of Directors at the August 26, 2020 meeting. PSE management informed the PSE Board of Directors that the impact of the COVID - 19 pandemic continued to be minimal, vacuum testing and pulling (installing) LNG supply lines to the TOTE Terminal had been completed, all contingency in the budget had been used and legal costs continued to accrue, the NAES plant manager and operation supervisor were on site, and staff hiring was on schedule. PSE management also reported to the PSE Board of Directors on the status of the Puyallup Tribe and Other Appellants' appeals to the PCHB.

Q. Did PSE management continue to update the PSE Board of Directors on the regulated portion of the Tacoma LNG Facility after August of 2020?

A. Yes. PSE management provided regular updates to the PSE Board of Directors concerning the Tacoma LNG Facility in the period after August 2020. However, the decision to go forward with the Tacoma LNG Project had been made over two

years earlier (in March 2018) and construction of the Tacoma LNG Facility was well underway. There were no longer major decisions for the PSE Board of Directors to make regarding the regulated portion of the Tacoma LNG Facility, and most of these updates were oral reports regarding the timeline for construction, the status of litigation regarding the Tacoma LNG Facility air permit, and updates on the budget. Additionally, reports on the status of the Tacoma LNG Facility were included in monthly letters sent by PSE's Chief Executive Officer to the Asset Management Committee of the PSE Board of Directors.

IV. PSE'S USE OF THE TACOMA LNG FACILITY DEMONSTRATES THE PRUDENCE OF COSTS INCURRED AFTER THE SEPTEMBER 22, 2016 DECISION TO CONSTRUCT AND OPERATE THE TACOMA LNG PROJECT

Q. Did the Commission address whether it might consider PSE's use of the Tacoma LNG Facility for peak shaving as part of its review of the prudency of costs in this proceeding?

A. Yes. In Order 24/10, the Commission stated:

> When we review the prudency of costs included in PSE's 2023 Tacoma LNG tariff filing, the Commission may also consider the extent to which the Facility was used as a peak-shaving resource.[33]

[33] Order 24/10 at ¶ 405.

Q. Did PSE use the Tacoma LNG Facility to meet the peak shaving needs of its distribution customers this past winter?

A. Yes. Once the Tacoma LNG Facility went in-service, PSE began filling the tank using its reserved liquefaction capacity. PSE then had LNG available for vaporization when it was needed in winter 2023. A summary of the vaporizer use at the Tacoma LNG Facility by PSE to meet its peak shaving and distribution system needs is shown in Table 8 below.

Table 8. Vaporizer Use at the Tacoma LNG Facility

DATE	VOLUME (DTH)	REASON
1/27/2023	11,552	Cold Weather Action Plan
1/28/2023	2877	Cold Weather Action Plan
1/29/2023	484	Cold Weather Action Plan
2/01/2023	37,098	B.C. Pipeline Curtailment
2/02/2023	155	B.C. Pipeline Curtailment
2/22/2023	2,714	Cold Weather Action Plan
2/23/2023	38,140	Cold Weather Action Plan
2/24/2023	7,159	Cold Weather Action Plan

Q. Please describe the situation that required PSE to use the Tacoma LNG Facility in January 2023.

A. The Tacoma LNG Facility was used to vaporize natural gas for delivery to the PSE distribution system in late January 2023, as part of PSE's routine cold-weather reliability testing. This cold-weather testing occurred immediately prior to the unplanned outage on the Enbridge Westcoast pipeline that is described below. Over the three days from January 27 through January 29, the Tacoma LNG Facility delivered 14,913 Dth of natural gas to the PSE distribution system.

Q. Please describe the situation that required PSE to use the Tacoma LNG Facility to meet its distribution needs in early February 2023.

A. The Tacoma LNG Facility was used to vaporize natural gas for delivery to the PSE distribution system to meet PSE's distribution system needs in early February 2023, due to an unplanned outage on Enbridge's Westcoast T-South natural gas pipeline system ("T-South system") in British Columbia. The T-South system can transport over 1.9 billion cubic feet (1.9 Bcf) of natural gas per day and connects production from northeastern British Columbia to downstream markets in British Columbia and the Pacific Northwest. From February 1 through February 2, the Tacoma LNG Facility delivered 37,253 Dth of natural gas to the PSE distribution system.

PSE's use of the Tacoma LNG Facility to respond to the unplanned outage on the T-South system shows that PSE's need for the Tacoma LNG Facility is not driven only by extreme cold weather or winter storms. In fact, the Tacoma LNG Facility offers an alternative source of natural gas to PSE's distribution system to respond to operational issues on interconnecting pipelines. The February 2023 unplanned outage on the T-South system is not the only outage on the T-South system that caused gas supply issues for the Pacific Northwest. The T-South system was out of service for deliveries south to the Canadian border with the United States at Huntingdon/Sumas starting in early October 2018 and it was not returned to full service until December 1, 2019. Had the Tacoma LNG Facility been in-service at

that time, it would have provided additional stability to the PSE distribution system.

Q. Please describe the situation that required PSE to use the Tacoma LNG Facility for peak shaving needs in late February 2023.

A. The Tacoma LNG Facility was used to vaporize natural gas for delivery to the PSE distribution system to meet PSE's peak shaving needs in late February 2023. Cold air from British Columbia moved into the Puget Sound region early the week of February 20th and a record setting 21° was recorded in western Washington on February 24th. Over the three-day period from February 22 through February 24, the Tacoma LNG Facility delivered 48,013 Dth of natural gas to the PSE distribution system.

Q. Is PSE using the Tacoma LNG Facility to provide LNG to its Gig Harbor LNG peak shaving facility?

A. Yes. PSE has delivered approximately 492,766 gallons of LNG (approximately 40,000 Dth) from the Tacoma LNG Facility to the Gig Harbor LNG facility.

Q. Please describe the Gig Harbor LNG peak shaving facility.

A. The Gig Harbor LNG facility is a storage and vaporization facility that PSE owns and has used for 20 years to provide peak natural gas to a remote section of PSE's distribution system. PSE has LNG delivered by truck to the Gig Harbor LNG facility where it is stored until it is needed to meet demand. The LNG stored at

the Gig Harbor LNG peak shaving facility is vaporized and injected into PSE's distribution system at Gig Harbor when it is needed for peak shaving. Prior to the Tacoma LNG Facility going in-service, PSE purchased the LNG that it delivered to the Gig Harbor LNG facility from outside suppliers. PSE is now using its own natural gas to supply LNG to the Gig Harbor LNG facility.

Q. Please explain the advantage to PSE of having the on-system LNG storage provided by the Tacoma LNG Facility.

A. The primary advantage of on-system LNG storage is that it provides physical natural gas. The Commission acknowledged that point in Order 24/10:

> We observe that [storage] capacity itself provides a benefit for customers. PSE confirms that the Facility is fully commissioned and ready to serve customers. Although PSE has not yet used the Facility for peak-shaving, we recognize that [storage] capacity is, by itself, a used and useful resource for customers when it is supported by credible forecasts for customer demand.[34]

In contrast, pipeline capacity only provides the physical capacity to deliver sufficient quantities of natural gas to PSE's system. It does not include the actual natural gas supply, which would have to be purchased independently.

Other advantages of having the on-system LNG storage provided by the Tacoma LNG Facility are that it reduces PSE's reliance on Northwest Pipeline, and it increases the underlying capacity of the adjoining PSE distribution system for peak-day service. LNG storage can also be used to reduce purchased gas costs by utilizing economic dispatch to avoid high market prices on winter days.

[34] Order 24/10 at ¶ 405 (internal footnotes omitted).

Q. Does the Tacoma LNG Facility provide benefits to the surrounding communities, including the Puyallup Reservation and neighborhoods with substantial minority and low-income populations?

A. Yes. Construction of the Tacoma LNG Facility improved onsite environmental conditions as compared to pre-construction conditions. PSE built the Tacoma LNG Facility on a brownfield site that contained historic warehouses, chipping lead paint, asbestos, and uncontrolled stormwater releases. PSE demolished an old, dilapidated warehouse, cleaned up the site, planted vegetation along portions of the 50-foot marine buffer, and installed a stormwater system that provides for treatment of diffuse water sources prior to discharge into the Hylebos Waterway. The Shorelines Hearings Board ("SHB") noted these material improvements at the Tacoma LNG Facility site in a decision denying an appeal by the Puyallup Tribe of the Shoreline Substantial Development Permit issued by the City of Tacoma.[35] Please see the Eighth Exhibit to the Prefiled Direct Testimony of Ronald J. Roberts, Exh. RJR-9, for a copy of the SHB Decision 9283 in SHB No. 16-002.

Off-site mitigation associated with the Tacoma LNG Facility also aids in improved ecological function in and around the Blair and Hylebos waterways. To mitigate for impacts associated with the construction of the new fuel loading facilities on the Blair Waterway, PSE removed creosote-treated piles from the Blair Waterway and the Sperry Ocean Terminal, removed creosote-treated

[35] *See* Exh. RJR-9, Findings of Fact 26-27, at 17:8 - 18:6.

overwater decking from the Hylebos Waterway and Sperry Ocean Terminal, all to an off-site mitigation site. The SHB found that "removal of creosote-treated materials will benefit surface water quality and salmonid habitat by removing a source of contamination."[36] The SHB found further that the Revised Mitigation Plan "achieves no net loss of ecological functions" and conditions in the Shoreline Substantial Development Permit "give special consideration to the preservation and enhancement of anadromous fish habitat."[37]

In addition, the Tacoma LNG Facility will reduce air emissions by helping to meet the demand for LNG as a fuel by regional maritime and heavy-duty trucking customers.

Q. Are you aware of any findings by environmental regulatory agencies concerning the Tacoma LNG Facility?

A. Yes. As I stated earlier in my testimony, the PSCAA concluded in the Final SEIS that the Tacoma LNG Project would result in a *net decrease* in GHG emissions. In addition, both the PSCAA and the PCHB determined that air emissions from the Tacoma LNG Facility are consistent with statutory requirements designed to protect human health and the environment.

[36] *See id.* Finding of Fact 50 at 31:11-13; *see also* Finding of Fact 41 at 25:2-17.
[37] *See id.* Finding of Fact 51 at 32:2-8.

V. OPERATING AND MAINTENANCE COSTS PSE HAS BEEN DEFERRING FOR THE TACOMA LNG FACILITY SHOULD BE RECOVERABLE

Q. How are Tacoma LNG Facility operating expenses allocated to PSE and Puget LNG?

A. Operating expenses, which include all fixed and variable costs of operating the Tacoma LNG Facility, are allocated to PSE and Puget LNG consistent with the allocation methodology and assumptions established in Order 10.

To the extent possible, operating costs are directly assigned to a specific plant service. When it is not possible to directly assign an operating cost to a particular plant service, the cost is allocated to one or more plant services based on the drivers of the cost. For example, plant electricity consumption is almost entirely driven by the cost to run compressors needed to liquefy gas. Therefore, variable electric expenses incurred over a particular time period will be allocated based on the LNG volumes liquefied in that same period. Costs that cannot be directly allocated to PSE and Puget LNG based on their utilization of specific plant services are allocated based on the cost allocation allocators in Table 9 below.

Table 9: Cost Allocators for Operating Expenses

Common Cost Allocator	The common cost allocator is expressed as a percentage of the total weighted average capital cost attributable to each owner of the Tacoma LNG Facility (43% PSE, 57% Puget LNG).
Annual Capacity Allocator	The annual capacity allocator is based on forecasted LNG capacity for a given year and will be used to allocate fixed electric costs.
LNG Volume Allocator	The LNG volume allocator is based on actual LNG volumes liquefied and will be used to allocate variable electric costs and plant consumables.
Wharfage Allocator	The wharfage allocator is used to allocate Port of Tacoma volumetric charges. The Port of Tacoma volume charges only apply to LNG moved

	through the truck loading racks and bunkering system and will not apply to volumes liquefied for peak shaving.

Q. Please describe the Tacoma LNG Facility fixed operating expenses allocated to PSE and Puget LNG.

A. PSE grouped the fixed operating expenses associated with the Tacoma LNG Facility into seven categories: maintenance; facility staff; incremental insurance; allocated corporate overhead; lease; bunkering station; and fixed electricity costs. PSE is proposing to recover fixed operating expenses allocated to the peaking portion of the Tacoma LNG Facility through regulated rates. Table 10, below, describes the seven categories of fixed operating expenses and the means of allocating each category.

Table 10: Tacoma LNG Fixed Operating Expenses

Maintenance	This category includes all maintenance costs other than consumables and labor and includes replacement parts and maintenance services performed by outside service providers. Maintenance attributable to equipment used for a particular service is allocated based on the use of that service, e.g., the costs associated with maintenance on the storage tank are allocated in accordance with the allocation factor for storage services. General maintenance not directly attributable to a service, such as the cost of security or grounds maintenance, is based on the common cost allocator.
Facility Staff	This category includes the salaries and overhead for Tacoma LNG Facility staff, which are provided by NAES, the plant operator. To the extent possible, staff hours will be allocated based on the work of Tacoma LNG Facility staff. For staff time that cannot be directly assigned, the expense is allocated on the common cost allocator.
Incremental Insurance	Incremental insurance premiums are allocated based on the common cost allocator.
Allocated Corporate Overhead	All general costs are allocated, on a formula based on the underlying costs. The recovery of deferred maintenance is addressed further in the testimony of Susan E. Free. The administrative fee is largely based on the share of the Tacoma LNG Facility's total O&M expenses for the previous contract year, but a portion is charged based on gross plant balances at the beginning of the contract year. The administrative fee is set at the start of each contract year.

	The non-regulated portion of the Tacoma LNG Facility is also responsible for a portion of corporate overheads. PSE labor allocated to non-regulated LNG fuel sales is assessed an overhead rate that covers corporate expenses.
Lease	The Tacoma LNG Facility is located on land pursuant to a long-term lease with the Port of Tacoma. PSE and Puget LNG each pay their allocable share of the lease payments, which are subject to an annual increase equal to the previous year's average CPI-U.[38] The cost of the lease is allocated using the common cost allocator.
Bunkering Station	Costs specifically attributed to operating the bunkering facilities include the costs of an exclusive easement for the real estate rights. These costs are fully allocated to Puget LNG.
Fixed Electric	Fixed electric charges include fixed payments to Tacoma Power. Fixed electric costs are allocated based upon the annual capacity allocator.

Q. Please describe the Tacoma LNG Facility variable operating expenses allocated to PSE and Puget LNG.

A. Table 11, below, summarizes the categories of variable operating expenses associated with the Tacoma LNG Facility. Variable operating expenses are allocated based on actual gallons liquefied.

Table 11: Tacoma LNG Variable Operating Expenses

Plant Consumables	Consumables include nitrogen and other compounds used to treat and cool the natural gas. Consumable costs are allocated each month based on actual liquefaction volumes for that month.
Port of Tacoma Volume Charge ("Wharfage")	The Port of Tacoma charges a fee for any commodity that is sold in the Port. This fee is currently assessed at $0.097/volumetric barrel (approximately $0.1695/BOE). This rate is subject to an annual increase by CPI-U. The Port of Tacoma reserved the right to develop a Port Tariff for LNG that may be substituted in lieu of this charge. This cost is assigned to Puget LNG.
Variable Electric Costs	Electricity is the largest operating cost of the Tacoma LNG Facility. Electricity is provided and wheeled by Tacoma Power based on its Schedule CP Contract Industrial Service rate schedule plus 15 percent for the first 10-years, then according to the industrial rate schedule without an adjuster thereafter. Variable Electric Costs are allocated based on actual liquefaction volumes for that month.

[38] Consumer price index for all urban customers ("CPI-U").

Q. Please describe the allocation of O&M expenses for the Tacoma LNG Facility.

A. Based on the allocations described above, Table 12 Allocation of O&M Expenses for the Tacoma LNG Facility, below, shows the allocation of Tacoma LNG Facility fixed and variable O&M expenses to specific allocators in the allocation methodology column.

Table 12: Allocation of O&M Expenses for the Tacoma LNG Facility

Fixed Expenses	**Allocation Methodology**	**Regulated PSE**	**Non- Regulated Puget LNG**
Maintenance	Direct Assigned (or Common Cost Allocator)	TBD	TBD
Facility Staff	Direct Assigned (or Common Cost Allocator)	43%	57%
Incremental Insurance	Common Cost Allocator	43%	57%
Allocated Corporate Overhead	100% to Puget LNG	N/A	100%
Lease	Common Cost Allocator	43%	57%
Bunkering Station	Bunkering Allocator	0%	100%
Fixed Electric	Annual Capacity Allocator	10%	90%
Variable Expenses			
Plant Consumables	LNG Volume Allocator	TBD	TBD
Port Volumetric Charge	Wharfage Allocator	0%	100%
Variable Electric	LNG Volume Allocator	TBD	TBD

Q. How is PSE managing the operation of the Tacoma LNG Facility?

A. PSE determined that the most efficient operating strategy would be to outsource operation of the Tacoma LNG Facility to a third party. PSE conducted a

competitive request for proposal process in 2019 and selected NAES Corporation ("NAES"), of Issaquah, Washington as the operations contractor. NAES operates over 100 facilities throughout the United States, Canada, and other countries. With this breadth of facility experience and a solid reputation, NAES is able to leverage its size and structure to recruit talent in the power and process industries as well as obtain competitive subcontractor and supplier pricing.

Q. Please describe the agreement PSE executed with NAES.

A. PSE and NAES executed an Operations & Maintenance Services agreement ("NAES O&M Agreement") on January 27, 2020. A copy of the NAES O&M Agreement is included as the Ninth Exhibit to the Prefiled Direct Testimony of Ronald J. Roberts, Exh. RJR-10C. The NAES O&M Agreement has a five-year term that began on January 27, 2020, when the Tacoma LNG Facility transitioned to commercial operations. At the time the NAES O&M Agreement was executed, PSE had a nearly ten-year history with NAES operating PSE's Ferndale Generating Facility. The NAES O&M Agreement utilizes a cost-plus model with metric-based performance bonuses that was partly modeled off the existing PSE/NAES agreement for operating the Ferndale Generation Facility. Under the NAES O&M Agreement, NAES direct hires the facility operating staff.

Q. How is PSE managing the NAES O&M Agreement?

A. PSE assigned an Asset Manager to actively administer the NAES O&M Agreement, including budget, safety, and environmental review. The Asset

Manager meets during the third quarter of each year with NAES facility management to formulate the next-year's annual budget using predicted LNG production requirements and run profiles as well as historical maintenance cost data. PSE's Asset Manager meets monthly with NAES to review operating costs and variances.

Q. Please describe the pricing provisions in the NAES O&M Agreement.

A. The NAES O&M Agreement includes a cost-plus mechanism that incorporates an annual "Operations Fee" as well as an annual "Incentive Payment" that is based on meeting five performance factors. These performance factors include: (1) a Safety Factor linked to leading and trailing indicators; (2) an Environmental Factor linked to leading and trailing indicators; (3) a Vaporization factor tied to vaporization events; (4) a Truck Loading factor linked to LNG truck loading commitments; and (5) a Bunkering factor linked to maritime bunkering orders. Should performance on these factors not achieve PSE's goals, the Incentive Payment will be reduced and in an extreme case NAES would be required to pay liquidated damages to PSE.

VI. CONCLUSION

Q. Were the costs PSE incurred after the September 2016 decision to move forward to complete construction of the Tacoma LNG Project prudently incurred?

A. Yes. Over the course of completing construction and operating the Tacoma LNG Project, PSE managers examined the information that was known at the time concerning its future need for natural gas and the cost of alternatives to meet that need. PSE was therefore able to make informed decisions to continue constructing and then operate the Tacoma LNG Facility to meet customer natural gas demands into the future.

Q. Should the Commission approve PSE's request to recover operations and maintenance costs it has been deferring since the Tacoma LNG Facility went in-service?

A. Yes. PSE is allocating all fixed and variable costs of operating the Tacoma LNG Facility to PSE (and Puget LNG) consistent with the allocation methodology and assumptions established in Order 10. PSE's decision to outsource operation of the Tacoma LNG Facility to NAES has proven to be an efficient operating and maintenance strategy.

Q. Does that conclude your prefiled direct testimony?

A. Yes, it does.