



Verlon G. Otto
Director, Regulatory Affairs

Pacific Northern Gas Ltd.
2550 - 1066 West Hastings Street
Vancouver, BC V6E 3X2
Tel: (604) 691-5680
Fax: (604) 697-6210
Email: votto@png.ca

Via E-mail

September 18, 2019

B.C. Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

File No.: 4.2(2019)

Attention: Patrick Wruck
Commission Secretary and Manager, Regulatory Services

Dear Mr. Wruck:

**Re: Pacific Northern Gas Ltd.
Application for a Certificate of Public Convenience and Necessity for
Construction of Kitimat Regulating Station LDS#2
Response to BCUC Staff Questions No. 1**

Accompanying, please find a copy of PNG's responses to BCUC Staff Questions No. 1 on the referenced application.

Please direct any questions regarding the attached to my attention.

Yours truly,

A handwritten signature in black ink, appearing to read 'Verlon Otto', is written over a light grey rectangular background.

Verlon G. Otto

Attachment

Pacific Northern Gas Ltd.
Application for a Certificate of Public Convenience and Necessity
for Construction of Kitimat Regulating Station LDS#2

STAFF QUESTIONS NO. 1 TO PACIFIC NORTHERN GAS LTD.

Table of Contents		Page no.
A.	PROJECT NEED, ALTERNATIVES AND JUSTIFICATION	1
B.	PROJECT DESCRIPTION	13
C.	PROJECT COST ESTIMATE	16

A. PROJECT NEED, ALTERNATIVES AND JUSTIFICATION

1.0 Reference: CONTRACT DEMAND
Exhibit B-1, Section 2.1, 2.2.1 & 2.2.2, pp. 6-8.
Sizing of LDS#2

On page 6 of Pacific Northern Gas Ltd.'s (PNG) application for a Certificate of Public Convenience and Necessity for construction of Kitimat Regulating Station LDS#2 (Application), PNG states:

In recent years, PNG has been providing natural gas service to LNGC primarily for the purpose of space heating for existing buildings on the site at PNG's Small Commercial Sales Rate (RS2).

On page 7 of the Application, PNG states:

As noted in Schedule A to the GSA, firm annual contract demand at commencement date is approximately 385 GJ/day, ramping up to a firm annual contract demand of approximately 865 GJ/day effective November 1, 2020 and for the duration of the primary term.

On page 8 of the Application, PNG states:

Section 5.6 of the GSA also includes a provision for PNG to provide natural gas sales service to JFJV for demand that is in excess of the contracted firm demand on an interruptible basis, at PNG's sole discretion, as may be required.

- 1.1 Please explain how PNG is currently providing service to the LNG Canada liquefied natural gas export facility (LNGC). In your response, please provide an overview of the service provided, the peak capacity of the station serving LNGC (GJ/day) and the buildings currently being served.

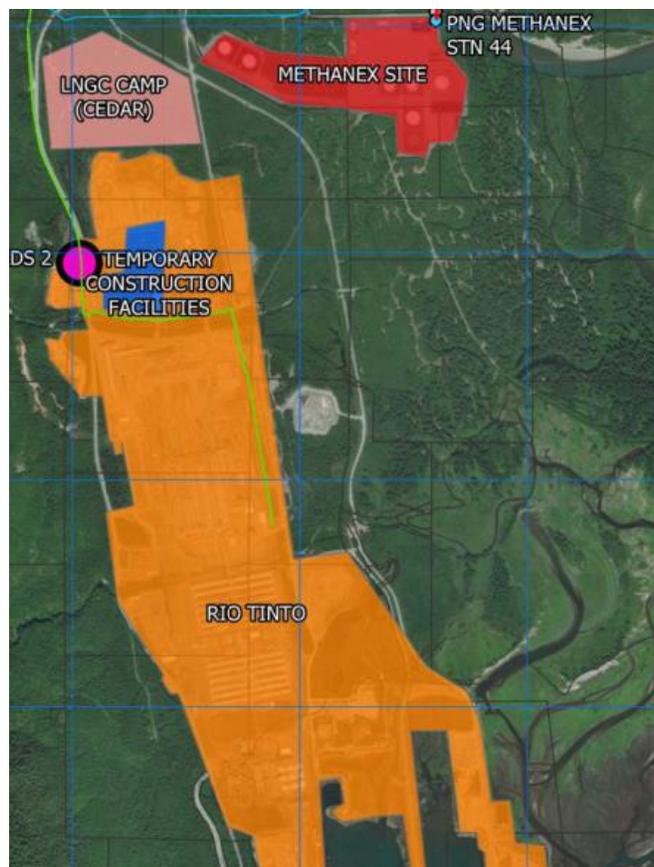
Response:

For their project, LNGC acquired the lands associated with the old Methanex site in Kitimat. Prior to 2005, Methanex was the largest customer on the PNG system and as a result, a legacy PNG regulating and metering station (Methanex Station) exists on the north east end of the associated property. In preparation for the future LNGC export facility, nearly all pre-existing buildings on the former Methanex site have been demolished. Only two buildings remain: an administration office building; and a first aid / maintenance building. Both buildings currently take gas service from PNG.

However, these two buildings and the full extent of the gas distribution system on the property are destined for demolition in October 2019 in order to accommodate LNGC facility construction. Remaining occupants and activities will be relocated to the Temporary Construction Facilities (TCF) associated with the LDS#2 service as per PNG's Application. The TCF will be located approximately 3km from the Methanex Station, the existing station. As noted in Section 2.1.3 of the Application, PNG anticipates the replacement of existing Methanex Station with a proposed new station (referred to as LDS#1).

Given that only two buildings on the old Methanex industrial site have been serviced by PNG in recent years, the existing Methanex Station was previously partially decommissioned with the associated equipment significantly downsized and simplified to meet needs of the small volume customer. This included the removal of oversized gas preheating equipment and significant downsizing of the meter and pressure regulators and associated station high pressure inlet piping. As a result, the existing station is limited to a capacity of approximately 170 GJ/d.

The image to the right illustrates the layout and location of the Rio Tinto lands, the Methanex Site, the LNGC Project construction camp, proposed LDS#2 and PNG's legacy Methanex Station.



- 1.2 Please provide the design capacity and the maximum capacity of the proposed LDS#2 (GJ/day).

Response:

The proposed LDS#2 has been designed to meet the forecasted maximum peak demand of JFJV as defined in an interface Agreement between PNG and JFJV that was executed on September 4, 2019. This forecast maximum demand and associated maximum station capacity is on an hourly peak basis of 3,231 m³/h. In the event of a sustained peak demand, this would equate to approximately 3,180 GJ/d.

A copy of the Interface Agreement has been provided for BCUC reference in response to BCUC Confidential Staff Question 4.1.

- 1.2.1 Please provide details on the basis for selecting the design capacity of LDS#2, including a comparison of the design capacity with the expected demand from JGC Fluor BC LNG Joint Venture (JFJV) and any other customers that LDS#2 is expected to serve.

Response:

As per response to Question 1.2, the proposed LDS#2 design capacity was based on the maximum peak demand provided by JFJV within the associated Interface Agreement. This hourly peak dictated requirements for station piping sizing, regulator and meter sizing, and gas preheater sizing. No additional sizing or design capacity considerations were given for prospective future customers. Please also see the response to Question 7.3.

- 1.3 Please confirm whether regulating station LDS#2 is the only investment required to supply JFJV under the gas sales agreement (GSA). If not confirmed, please elaborate on any additional capital costs required.

Response:

Regulating station LDS#2 is the only capital investment required by PNG to supply JFJV under the GSA.

**2.0 Reference: PROJECT ALTERNATIVES
Exhibit B-1, Section 2.3, p. 8.
Project Alternatives**

On page 8 of the Application, PNG states:

While LDS#2 will replace an existing regulating station, refurbishment of existing facilities is not an option due to insufficiency of existing infrastructure from a process-support perspective.

- 2.1 Please expand further on the refurbishment alternative, providing the following: (i) a description of the project scope, including the age of the infrastructure to be refurbished; (ii) costs; (iii) benefits; and (iv) associated risks.

Response:

As explained in the second paragraph of Section 2.3 of PNG's Application, a review of the existing station determined that it could not be refurbished as an alternative to station replacement. All equipment and piping was determined to be appreciably undersized and therefore could not support the peak demand specified by JFJV. Furthermore, the absence of a line heater and meter, and a station envelope internal footprint of insufficient size to facilitate sufficiently sized equipment replacement precluded the use of any of the remaining existing facilities.

**3.0 Reference: PROJECT JUSTIFICATION
Exhibit B-1, Section 2.4.1, pp. 8, 9.
Relocating LDS#2**

PNG states on page 8 of the Application that “[t]here is an initial primary service term of approximately 4.5 years, which is the projected time to complete construction of the first phase of the LNGC Project.”

On page 9 of the Application, PNG states “LDS#2 has been designed such that it can be used for future purposes at this site or can be relocated to meet needs elsewhere within the PNG system.”

- 3.1 Please describe the design elements included which allow LDS#2 to be repurposed in the future.

Response:

LDS#2 is designed to be constructed as a skid-mounted assembly that is fully transportable even when complete with building enclosure. The station skid is designed to be mounted on pile caps and secured in place via stitch welds. The skid-mounted design and mounting detail allow for ease of future relocation and repurposing.

- 3.1.1 Please provide the incremental costs of these design elements.

Response:

There are no incremental costs associated with the above referenced design elements. By leveraging the expertise of vendors who specialize in skid mounted packages, it has been found that costs are reduced when compared to field fabricated and erected station packages.

- 3.1.2 Please describe which elements of LDS#2 PNG will be able to relocate

Response:

The full station skid package (complete with building envelope), gas preheater, and above ground yard piping will be able to be relocated and repurposed. Physical elements of the project that will not be able to be relocated and reused include: driven piles used to support the station skid and gas preheater; the below ground station inlet piping and associated riser; above ground pipe supports; field electrical; and local earth works.

3.1.3 Please provide the value of the LDC#2 system that can be relocated.

Response:

Following the discounting and removal of items from the Class II Total Installed Cost (TIC) estimate that would not result in the realization of future value upon station relocation, PNG has determined that the value of the LDS#2 system works suitable for future relocation is approximately \$720,000. This includes value associated with materials procurement, construction and engineering services, PNG project management, quality inspection, and full design and construction documentation.

3.2 Please discuss how PNG anticipates relocating and reusing LDS#2, in the event that it is no longer used and useful at the project site.

Response:

In order to realize the maximum future value of the LDS#2 asset, PNG anticipates relocating the complete station package and gas preheater to a suitable storage site following use at the LNGC-related project. This relocation could easily be accomplished given the skid-mounted design of the station. As part of removal from the JFJV service for the LNGC Project, the station piping and equipment would be purged with an inert gas, the meter, regulators, and other sensitive components then removed, and the remainder of the facility subject to the application of an inhibitor to prevent internal corrosion during storage. The station would then be reused in its entirety when a similar future need presented itself.

**4.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, Section 2.4.1, p.9
Weighted Average Cost of Capital**

On page 9 of the Application, PNG states the “pre-tax weighted-average cost of capital for the PNG-West service area of 8.96% has been applied to the NPV [net present value] analysis.”

4.1 Please confirm, or explain otherwise, that 8.96 percent is PNG-West’s most recent pre-tax weighted-average cost of capital (WACC).

Response:

PNG confirms that 8.96 percent is PNG-West’s most recent approved pre-tax weighted average cost of capital (WACC) for 2019 as reflected in final regulatory schedules per PNG’s approved 2018/2019 Revenue Requirements Application (2018/19 RRA).

However, PNG notes that the short term and long term debt proportions and rates used in the NPV analysis modestly differ from those in the 2018/19 RRA. PNG has used a blended short term and long term debt rate and slightly different short term and long term debt proportions in the NPV analysis, which also results in the exact same pre-tax WAAC of 8.96%, thereby having no impact on the NPV analysis.

4.1.1 If not confirmed, please provide PNG-West’s most recent pre-tax WACC and provide reference and calculation supporting the pre-tax WACC.

Response:

Not applicable. Please see the response to Question 4.1.

4.1.1.1 Please update the net present value (NPV) analysis, as necessary. If no update to the NPV analysis is necessary, please explain.

Response:

As noted in response to Question 4.1, PNG has used the exact resultant pre-tax WACC of 8.96% and notes that there is no impact on the revised analysis. However, PNG has updated the NPV analysis to reflect the pre-tax WACC components for 2019 per the 2018/19 RRA as described in response to Question 4.1. The revised analysis has been provided on a confidential basis in response to BCUC Confidential Staff Question 1.9.

- 4.1.2 If confirmed, please provide reference to the PNG filing where the cost of each capital source and the corresponding weight is included as well as the calculation supporting the 8.96 percent pre-tax WACC.

Response:

PNG West's most recent pre-tax WACC is 8.96% was approved in the PNG-West's 2018/19 RRA based on the following:

Short Term Debt Proportion: 5.693%
Short Term Debt Rate: 4.934%

Long Term Debt Proportion: 47.807%
Long Term Debt Rate: 5.504%

Common Equity Proportion: 46.50%
Common Equity Rate: 9.50%

Using a tax rate of 27%, the calculation to determine the pre-tax weighted average cost of capital is as follows:

$(\text{Short Term Debt Proportion} \times \text{Short Term Debt Rate}) + (\text{Long Term Debt Proportion} \times \text{Long Term Debt Rate}) + (\text{Common Equity Proportion} \times \text{Common Equity Rate} \div (1 - \text{Tax Rate}))$

$[(5.693\% \times 4.934\%) + (47.807\% \times 5.504\%) + (46.50\% \times 9.50\%)] \div (1 - 27.00\%) = 8.96\%$

**5.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, Section 2.4.1, p. 10
NPV Analysis**

On page 10 of the Application, PNG presents in Exhibit 2-1 and 2-2, a summary of the NPV of incremental margin at a standard depreciation rate and at an accelerated depreciation rate, respectively.

- 5.1 Please identify all risks on the expected revenue over the term of the GSA as included in the NPV analysis, including but not limited to bankruptcy of either party to the GSA, termination of the LNGC project, etc.

Response:

The revenues modeled in the NPV analysis are based on a “take or pay” obligation within the GSA based on a contract demand, thereby “fixing” the minimum revenues expected through the contract term of 4.5 years. As per Article 14.16 “Several Liability” of the GSA, the parties are jointly and severally liable to Seller.

PNG has identified the following risks on the expected revenue over the term of the GSA:

1. Bankruptcy of both parties to the GSA concurrently.
2. A breach of contract for non payment.
3. Termination of the LNGC project.

PNG submits that possibility of any these events taking place is very low, as the joint venture partners are both subsidiaries of very large international entities who are working to build the LNG Canada export facility in Kitimat, one of the largest energy investments in the history of Canada.

- 5.1.1 Please explain the potential impact(s) to ratepayers and quantify the maximum expected impact.

Response:

As noted in response to Question 5.1, the probability of the risks noted are very low. PNG expects the maximum impact to ratepayers to be minimal as Article 8.2 of the GSA provides for an early termination payment equivalent to the net present value of the firm demand charge multiplied by the daily contract demand for the remainder of the primary term. In addition, as per Article 14.1 of the GSA, PNG may demand a guarantee from each party within the JFJV if PNG has reasonable grounds for insecurity regarding the payments for gas service.

- 5.1.2 Please estimate the likelihood that revenues provided in the NPV analysis may not be realized and discuss the efforts PNG is making to mitigate this risk, including specific references to the GSA if applicable.

Response:

Please see responses to Questions 5.1 and 5.1.1.

- 5.2 Please provide the detailed NPV analysis for the Standard Depreciation scenario and the Accelerated Depreciation scenario in a functional excel spreadsheet (with formula). Please respond confidentially if necessary.

Response:

A functional excel spreadsheet of the NPV analysis has been provided on a confidential basis in response to BCUC Confidential Staff Question 1.9.

**6.0 Reference: BACKSTOP ARRANGEMENTS
Exhibit B-1, Executive Summary, p. 1.
Costs of Backstop Agreement**

PNG states on page 1 of the Application that

PNG has also entered into a backstop agreement with JFJV to cover the costs of preliminary engineering design, cost estimate, permitting, and planning for LDS#2, and to facilitate the ordering of long-lead materials for this service request.

- 6.1 Please explain whether the costs covered by the backstop agreement are included within the \$1.77 million cost estimate for the project or are they considered additional costs.

Response:

PNG confirms that the costs covered by the backstop agreement are included within the LDS#2 project's estimated cost of \$1.77 million.

- 6.2 With respect to any costs incurred by PNG beyond the scope of the Backstop Agreement, please discuss the risks to PNG and its customers should JFJV decide not to proceed with the request for service.

Response:

With the execution of the GSA, the Backstop Agreement has been terminated (see Section 2 of the Backstop Agreement), and JFJV is now contractually obligated to pay PNG for the requested gas service for the duration of the contract term. The GSA takes into consideration the full cost of this project, and therefore includes costs beyond the backstop agreement.

As noted in response to Question 5.1.1, there is also an early termination payment that would be payable to PNG in the event JFJV decides to terminate the GSA prior to the completion of the contract term. Further, PNG submits that the likelihood of JFJV not proceeding with this request for service is extremely remote.

- 6.3 Please discuss if there are any anticipated risks to JFJV's ability to backstop the preliminary costs for LDS#2.

Response:

Please see response to Question 6.2.

On page 18 of the Application PNG states:

...the project does require British Columbia Oil and Gas Commission (OGC) approval for facility and pipeline works. These approvals are considered normal course in nature and are not expected to be contentious.

- 6.4 Should PNG not receive regulatory approval from the OGC and/or the British Columbia Utilities Commission (BCUC) for this project, please discuss whether the backstop agreement will be triggered and JFJV will be required to reimburse PNG for costs incurred under the terms of the backstop agreement.

Response:

As an update, PNG wishes to advise the BCUC that it received OGC approval for the LDS#2 project on September 10, 2019. PNG does not foresee a situation whereby it would not receive regulatory approval from the BCUC. As noted in the Application, this project is in the best interest of PNG ratepayers, the Province of British Columbia, and Canada. In the unlikely event that PNG were not to receive regulatory approval from the BCUC, PNG would need to consider other options to proceed with this project given its contractual obligation to do so. As noted in response to Question 6.2, with the execution of the GSA, the Backstop Agreement has been terminated.

- 6.4.1 If not, please explain how these costs will be recovered.

Response:

Please see response to Question 6.4.

- 6.4.2 If not, please explain whether ratepayers will potentially be impacted and quantify the maximum possible impact.

Response:

Please see response to Question 6.4.

B. PROJECT DESCRIPTION

**7.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 3.1, p. 19; Appendix C
Layout and Location**

On page 19 of the Application, PNG states:

The existing station sits on a 12 metre by 12 metre plot of land leased by PNG from its owner, Rio Tinto. Based on the existing lands agreement with Rio Tinto, no new land will be required to construct LDS#2. Further, PNG notes that the site can be easily accessed using existing roads.

Within Appendix C, PNG provides an image of the regional overview for Kitimat and an image of the LNGC Overall Site Plan.

7.1 Please provide the term length for PNG's lease agreement for the land.

Response:

As per PNG's license of occupation with Rio Tinto, the license agreement term for "the right, liberty and license to operate, maintain, inspect, patrol, alter, repair, remove or replace the pipeline in, over and under such portion of the said lands may be required" is for "as long as the pipeline exists".

7.2 Please confirm, or otherwise explain, whether PNG has a right-of-way to access LDS#2.

Response:

A registered Statutory Right of Way does not exist. PNG's license of occupation is non-spatial and references "ingress to or egress from the pipeline" in relation to the above statement.

7.2.1 If not confirmed, please provide details of PNG access arrangements for LDS#2.

Response:

Please see the response to Question 7.2.

- 7.3 Please explain whether PNG's lease with Rio Tinto includes any requirements for the relocation of LDS#2.

Response:

PNG's existing license of occupation with Rio Tinto does not specifically address LDS#2.

The license is primarily associated with the 4" Alcan Lateral pipeline and the provision of natural gas to the Rio Tinto smelter and includes allowance for surface leases that have direct association with Rio Tinto's business interests. In this case, given Rio Tinto has leased their land to LNGC, PNG believes that Rio Tinto considers PNG's LDS#2 project to also be to their benefit.

PNG does note that based on recent discussions with Rio Tinto, it is expected that LDS#2 will be removed when LNGC construction is complete and the station is no longer required by JFJV. PNG has not considered LDS#2 to be strategic to future development in proximity to the LNGC site but, as noted in Section 2.4 of the Application, PNG considers this asset to be of considerable value as it can be redeployed elsewhere in PNG's operations. Please also see the responses to the Question 3 series.

- 7.3.1 If confirmed, please provide details of any such requirements.

Response:

Please see the response to Question 7.3.

- 7.4 Please provide the annual cost of the leased land and explain whether the cost of the leased land is included in the rate base items or O&M costs of the NPV analysis.

Response:

There is no cost to PNG for the lands agreement with Rio Tinto.

- 7.5 Please provide the date that the lands agreement expires and/or can be terminated. If the date is prior to the end of the primary term please explain how this will impact the project, and, as applicable, describe the mitigation plan(s) in place.

Response:

The lands agreement with Rio Tinto was established to facilitate service to Rio Tinto. PNG's pipeline is considered critical infrastructure to Rio Tinto's activities as natural gas delivered via this pipeline is required for the operation of Rio Tinto's smelter facility. As such, there is no foreseeable reason to expect termination of this agreement in the next 4.5 years.

**8.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 3.4, p. 20
Construction and Operation Schedule**

On page 20 of the Application, PNG states

Construction of LDS#2 is to commence during the third quarter of 2019 in anticipation of providing service to JFJV late November 2019 and no later than November 22, 2019. Exhibit 3-1 provides a schedule of key project milestones.

Exhibit 3-1 LDS#2 Project Milestone Schedule

Milestone	Date (2019)
Project Initiation	March 1
Order Long Leads	May 5
Submission of OGC Amendment	June 5
Contractor Bidder Conference	July 8
OGC Permit Approval	September 13
Construction Start	September 16
Construction Complete	November 18
In-service Date	November 22

8.1 Please explain the consequences if the In-Service Date is delayed beyond November 22, 2019.

Response:

PNG has done significant planning on this project and does not anticipate any delay with the In-Service Date. However, in the unforeseen circumstance that PNG triggers a delay, PNG notes that there are no contractual penalties but there would be a delay in the receipt of revenues under the GSA.

8.1.1 Please explain whether there will be any impact to PNG existing ratepayers as a result of the above identified consequences.

Response:

Assuming an in-service delay on the part of PNG delays the Commencement Start, PNG expects that it would receive less revenues than originally anticipated. As noted in response to Question 8.1, PNG does not expect a delay in the In-Service Date and does not expect any impacts to PNG existing ratepayers.

8.1.2 Please discuss any plans and efforts in place to mitigate any consequences if the In-Service Date is delayed.

Response:

As noted in response to Question 8.1, PNG has done a significant amount of planning for this project and the construction schedule presented is considered to be conservative. PNG fully expects to adhere to its expected completion dates.

C. PROJECT COST ESTIMATE

**9.0 Reference: PROJECT COST ESTIMATE
Exhibit B-1, Section 3.1, p. 19; Section 4.1, p. 21; Section 4.1.1, p. 21
PNG Capital Cost Estimate**

Further on page 21 of the Application, PNG provides a summary of key capital components in Exhibit 4-1.

9.1 Please discuss whether any funds attributable to the project have been spent. If so, please describe and quantify the expenditure(s).

Response:

To date, appreciable funds have been spent in order to maintain the schedule associated with the contractual in service date within the GSA. Incurred costs and/or committed expenditures are associated with engineering design, permitting, project management, procurement of long lead materials and services, and shop fabrication of the station skid. Details are provided in the table below.

	Actual Costs Incurred	Open Commitments
Labour	\$ 1,500	\$ -
Materials	\$ 215,000	\$ 4,000
Contractors and Consultants	\$ 361,000	\$ 42,000
Sub-Total	\$ 577,500	\$ 46,000
Total Costs and Commitments		\$ 623,500

On page 19 of the Application, PNG states:

[...] LDS#2 will be constructed as a replacement for an existing deactivated regulating station. The existing station building structure, concrete pad foundations and yard piping will be demolished and discarded.

- 9.2 Please discuss whether the costs for the removal of the existing regulating station are included in Exhibit 4-1. If so, please provide the costs and explain how they were determined. If not, please explain why not and provide the estimated cost for these activities.

Response:

The cost to demolish and dispose of the remaining existing station equipment, foundation, and supports is included in the Class II TIC estimate provided. Costs were provided by prospective LDS#2 station construction contractors as part of the PNG competitive bid process. This process included a site visit to the existing station and the provision of associated demolition scope drawings. Cost details provided by the successful contractor are as provided in the table below.

	Bid Pricing
Install Blind Flange for Station Isolation	\$ 2,200
Remove Building, Slab, Fencing, Yard Piping	\$ 15,000
Cut and Cap Existing HP Line	\$ 6,800
Cut and Cap Existing DP Line	\$ 3,000
Total Demolition Cost	\$ 27,000

- 9.3 Please explain whether there are any gains or losses as a result of the demolishing, removing and discarding of the existing deactivated regulating station. If so, please provide the gain or loss and explain how it will be recorded and reflected in the next revenue requirements application.

Response:

With the deactivation of the existing regulation station, PNG expects to record an accounting loss (original capital cost less accumulated depreciation) of approximately \$195,000 to the Plant Gain/Loss deferral account to be amortized over 5 years.

As per the response to Question 9.2, PNG also estimates that the costs to demolish, remove and discard this asset will be approximately \$27,000. These costs will be recorded against the Net Salvage deferral account that was established effective January 1, 2019. Any proceeds received for salvage (which are not expected to be material) would also be recorded in the Net Salvage accounting deferral account.

**10.0 Reference: PROJECT COST ESTIMATE
Exhibit B-1, Section 4.2, pp. 21–22
Cost of Service Forecast**

On page 21 and 22 of the Application, PNG provides the rate base items included in the cost of service and annual operating costs.

- 10.1 Please provide the estimated annual maintenance costs associated with LDS#2 asset and explain whether these costs are included in the annual operating costs or cost of service forecast. If not included, please explain why not.

Response:

PNG has included provision for annual operating costs and periodic capital maintenance costs in the cost of service forecast supporting the NPV analysis. Both operating costs and capital maintenance (in 2024E and 2025E) costs are represented on Line 23 and Line 32 of the Excel spreadsheet of the NPV analysis, respectively, and both are expected to be nominal.

- 10.2 Please explain whether contingency costs or capital cost plans have been considered for potential major maintenance costs. If not, please explain how PNG will cover such costs.

Response:

As noted in Section 4.1.1 of the Application, the capital cost estimate for LDS#2 includes a 20% provision equal to \$295,000 for contingency costs. As LDS#2 is a new asset, PNG does not anticipate any major maintenance costs, particularly in the 4.5 year initial contract term, and therefore has not made a provision for major maintenance items in the NPV analysis. Please also see the response to Question 10.1.