



bcuc
British Columbia
Utilities Commission

Patrick Wruck
Commission Secretary

Commission.Secretary@bcuc.com
bcuc.com

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

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Sent via email/eFile

PNG CPCN WESTERN TRANSMISSION REACTIVATION AND DEFERRAL ACCOUNT INCREASE EXHIBIT A-6

Mr. Verlon G. Otto
Director, Regulatory Affairs
Pacific Northern Gas Ltd.
750 – 888 Dunsmuir Street
Vancouver, BC V6C 3K4
votto@png.ca

Re: Pacific Northern Gas Ltd. – Certificate of Public Convenience and Necessity for the Western Transmission Gas System Reactivation and Recommissioning Project Application and Deferral Account Increase Application – Project No. 1599200 – Information Request No. 1

Dear Mr. Otto:

Further to your March 5, 2021 filing of the Application for a Certificate of Public Convenience and Necessity for the Western Transmission Gas System Reactivation and Recommissioning Project, enclosed please find British Columbia Utilities Commission Information Request No. 1. In accordance with the regulatory timetable for this proceeding, please file your responses on or before Thursday, June 10, 2021.

Sincerely,

Original signed by:

Patrick Wruck
Commission Secretary

PS/dg
Enclosure



Pacific Northern Gas Ltd.
Application for a Certificate of Public Convenience and Necessity for the
Western Transmission Gas System Reactivation and Recommissioning Project

INFORMATION REQUEST NO. 1 TO PACIFIC NORTHERN GAS LTD.

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A. PROJECT NEED AND JUSTIFICATION

**1.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1 (Application), p. 22
Industrial Customers**

On page 22 of the Pacific Northern Gas Ltd. (PNG) Application for a Certificate of Public Convenience and Necessity (CPCN) for the Western Transmission Gas System Reactivation and Recommissioning Project (Project) (Application), PNG states:

With the loss of its largest industrial customers, PNG’s remaining customers have borne an increased economic burden through their rates to compensate for the loss of the industrial customer contribution to PNG’s system costs. Following the permanent closure of Methanex’s Kitimat facility, one of PNG’s highest priorities has been to find opportunities to generate additional revenues and margin through the marketing of PNG’s available system capacity and to return the system to full utilization. From 2008 to 2016, PNG had executed agreements with various potential shippers reserving this unutilized capacity, but due to adverse economic conditions the underlying projects failed to move forward and these agreements were terminated. Recent changes in market conditions, particularly in the liquified natural gas (LNG) sector, have revived interest in PNG’s transmission pipeline capacity.

- 1.1 Please discuss if PNG has a high level estimate of the additional costs borne by PNG’s remaining customers as a result of the loss of large industrial customers.
- 1.2 Please briefly describe the adverse economic conditions that contributed to the failure of projects in 2008 – 2016.
- 1.3 Please briefly describe the changes in market conditions in the LNG sector which has led to revived interest in PNG’s transmission pipeline capacity.

- 1.3.1 Please discuss any short, medium and long-term market risks in the LNG sector which may affect the viability of such projects.

**2.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, pp. 19, 20, 24, 26
PNG Application Regarding Process for Allocation of Reactivated Capacity and
Approval of Large Volume Industrial Transportation Rate, p. 9
Capacity Requirements**

On page 24 of the Application, PNG states:

Parties interested in submitting bids for capacity were required to submit their bid forms no 3 later than June 3, 2020. The bid forms required the following information:

...

Delivery volumes or contract demand in million standard cubic feet per day (MMSCFD), with a required minimum of 10 MMSCFD and a noted maximum of 45 MMSCF to Prince Rupert;

On page 26 of the Application, PNG states:

Following the bid evaluation process, PNG offered two parties TSAs totalling 65 MMSCFD (a total of 45 MMSCFD at Prince Rupert and 20 MMSCFD at Terrace) and offered the other party a TRA for 13 MMSCFD at Kitimat. The two parties offered TSAs have executed the agreements, while the party offered the TRA declined.

Table 3-2 shows the Process for the Allocation of Reactivated Capacity (RECAP) Auction Results, and indicates the requested and awarded capacity for each shipper.

On page 9 of the PNG Application Regarding Process for Allocation of Reactivated Capacity and Approval of Large Volume Industrial Transportation Rate (Original RECAP Application), PNG stated:

Depending on the RECAP demands, and the requested delivery points, PNG has modeled the full extent of the capital costs for the reactivation recommissioning, and system reinforcement to be up to approximately \$120 million. The activities include compressor rehabilitation, pipeline reactivation and system reinforcement. The estimated capital investment is expected to provide up to approximately 88 MMSCFD of contractible capacity, and roughly double the portion of contractible capacity deliverable to Prince Rupert to 50 MMSCFD.

- 2.1 Please explain the difference in deliverable volumes to Prince Rupert as noted in the Application and the Original RECAP Application.
 - 2.1.1 Please discuss whether deliverable contracted capacity of 50 MMSCFD to Prince Rupert could be achieved with further infrastructure upgrades. If yes, please describe including high level cost estimates.
- 2.2 Please confirm, or explain otherwise, that the maximum delivery of 45 MMSCFD resulted in a capacity award to Port Edward LNG which was lower than the capacity requested.
- 2.3 Please explain why the party offered the TRA declined. PNG may file its response confidentially if required.

On page 19 of the Application, PNG states:

The sustainable capacity of the transmission pipeline system, with all existing pipeline and compression assets operating, is approximately 3,260 10³m³ per day (115 MMSCFD).

On page 20 of the Application, PNG states:

With the loss of this customer demand, the system has operated at less than 20% of its capacity for longer than a decade, with average and peak flow rates of less than 15 MMSCFD and 25 MMSCFD, respectively.

- 2.4 Please provide a table that shows, for each delivery point on the Western Transmission Gas System, the total transmission capacity (i) at present, and (ii) following the completion of the Project. For each delivery point, please also show the capacity contracted following the RECAP Auction, the average and peak demand by other customers, and the resulting available capacity following the completion of the Project (if any) having accounted for customer demand.
- 2.4.1 For any available capacity identified in the table, please discuss (i) if and how PNG intends to use the available capacity over the course of the initial term of the TSAs; and (ii) whether PNG considers it is feasible to modify the scope of the Project to reduce the maximum available capacity, and if so whether cost savings could be achieved.
- 2.4.2 Based on the results of the RECAP Auction and PNG's understanding of future market opportunities, please discuss whether PNG considers there is potential for further transportation customers interested in taking service on the Western Transmission Gas System. Please discuss if further upgrades would be required in such a scenario.

**3.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, Appendix B, p. 1; Appendix E, Section 5.3
Interruptible Service**

On page 1 of each of the Executed Transmission Service Agreements (TSAs), PNG states: "The Shipper wishes to contract for firm, as well as interruptible, service on Transporter's gas transmission system on the terms and conditions set forth in this Agreement."

Section 5.3 of the Executed Interconnection Agreements states:

No Charge for Interruptible Service - Deliveries on the Interconnection Facilities in excess of Shipper's Contracted Capacity on any Day shall be deemed to be Interruptible Service under the General Terms and Conditions however no charge will be applicable to that service.

- 3.1 Please provide a table showing the maximum delivery capacity and contracted capacity for each of the interconnection facilities.
- 3.2 Please provide a forecast of the expected interruptible demand for each of the shippers. Please discuss any assumptions made in this regard.
- 3.2.1 Please discuss whether the forecasted interruptible demand has any bearing on the capacity of the interconnection facilities.
- 3.3 Please clarify why no charge will be applicable to deliveries on the interconnection facilities.

**4.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, pp. 12, 26, 27
BCUC Approval Dates**

On page 12 of the Application, PNG states:

PNG is hopeful that it will obtain BCUC approval for the Project no later than November 30, 2021, to accommodate the Project schedule presented in Section 5.6.1, as well as to enable PNG to meet anticipated new customer contractual obligations as noted in Section 3.5.5.

On page 27 of the Application, with respect to the executed Transportation Service Agreements (TSAs), PNG states:

Clause 4.4 (a) Transporter Conditions Precedent:

- (i) added BCUC approval, at PNGs sole discretion, required by September 1, 25 2021

Table 3-2 on page 26 of the Application shows the requested commencement date for each shipper.

- 4.1 Please reconcile the requested approval date of November 30, 2021 in the Application and the condition precedent BCUC approval date of September 1, 2021 required in the TSAs.
- 4.1.1 Please clarify whether the BCUC approval date specified in the TSAs refers to approval of the TSAs and other agreements only, and/or the CPCN for the Project.
- 4.1.2 With respect to PNG's obligations under the TSAs, please discuss the implications of a BCUC decision rendered after (i) September 1, 2021, and (ii) November 30, 2021.
- 4.2 Please discuss why the condition precedent related to BCUC approval needs to be the same for all customers, given the different requested commencement dates.

**5.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, p. 26; Appendix B, Section 4.4; Appendix E, Section 4.2
TSA Conditions Precedent**

Section 4.4 of the executed TSAs provided as Appendix B to the Application states:

4.4 Transporter Conditions Precedent –

(a) Transporter may advance, in its reasonable discretion, the Reactivation Project from the Effective Date, but shall have no obligation to complete the Reactivation Project, or perform the Service, until satisfaction, or waiver in Transporter's sole discretion, of the conditions precedent set out below:

...

(ii) review of any constructability issues pertaining to the Reactivation Project, including geophysical testing, satisfactory to Transporter, acting reasonably, on or before June 30, 2022;

(iii) receipt by Transporter of all Permits, on terms acceptable to Transporter, in its sole discretion, on or before June 30, 2022;

(iv) execution by Transporter, in its sole discretion, of all necessary agreements, including right-of-way and related land access agreements, required for construction and operation of the Reactivation Project, on terms acceptable to Transporter, acting

reasonably, on or before June 30, 2022; and

(v) satisfaction or waiver by Transporter of all conditions precedent set forth for its benefit in section 4.2(a) of the Interconnection Agreement, on or before the dates for completion of such conditions precedent set forth in the Interconnection Agreement.

Section 4.2 of the executed Interconnection Agreements provided as Appendix E to the Application states includes similar terms respecting the interconnection facilities.

Table 3-2 on page 26 of the Application shows the requested commencement date for each shipper.

- 5.1 Please explain why June 30, 2022 was selected as the completion/ acceptance date.
- 5.2 Please discuss the main risks with respect to satisfaction of the conditions precedent by June 30, 2022.
 - 5.2.1 Please discuss how PNG is planning to mitigate such risks.
- 5.3 Please confirm, or explain otherwise, that PNG ratepayers would bear any costs incurred to date with respect to the Project, except costs for constructing interconnection facilities, if the TSAs were to be terminated on or before June 30, 2022.
- 5.4 Please discuss why the date for conditions precedent (ii) through (v) needs to be the same for all customers, given the different requested commencement dates.
 - 5.4.1 Please discuss whether staggered conditions precedent dates in the TSAs, depending on a shipper's commencement date, would reduce risks for PNG ratepayers.
- 5.5 Please provide a summary of the Project construction activities that are anticipated to have occurred by June 30, 2022. Please also provide an estimate of the costs that are expected to have been incurred by this date.
- 5.6 Please provide other examples of possible "constructability issues" besides geophysical testing that would lead PNG to waive the condition precedent specified in section 4.4(a)(ii) of the TSAs or section 4.2(a)(ii) of the Interconnection Agreements.

**6.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, Appendix B, Section 9.2
Dispute Resolution**

Section 9.2 of the executed TSAs provided as Appendix B to the Application states:

Dispute Resolution - All disputes arising out of or in connection with this Agreement, or in respect of any defined legal relationship associated therewith or derived therefrom, shall be resolved by legal proceedings through the British Columbia courts system, and the Parties hereby submit to the exclusive jurisdiction of any British Columbia court of competent jurisdiction and agree that all documents commencing an action for legal proceedings arising out of or relating to this Agreement shall be issued or filed at the clerk's office in the judicial centre of Vancouver and agree further that such courts shall be the exclusive forum for resolving any dispute or controversy under or with respect to this Agreement.

- 6.1 Please discuss circumstances where the disputes arising out of or in connection with this Agreement may be resolved under the BCUC complaints process, pursuant to section 83 of the *Utilities Commission Act (UCA)*.

- 6.1.1 Please discuss whether section 9.2 of the executed TSAs precludes such disputes from being addressed under the BCUC complaints process.

**7.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, p. 27; Appendix B, Schedule D, p. 2
Application Regarding Process for Allocation of Reactivated Capacity and Approval of Large Volume Industrial Transportation Rate (Original RECAP Proceeding); Exhibit B-4, BCUC IR 19.2
Creditworthiness**

On page 27 of the Application, PNG states:

Clause 2.2 (d) Representations and Warranties of Shipper – clause deleted, as neither Shipper is currently claiming to be “Creditworthy.”

On page 2 of the General Terms and Conditions provided as Appendix B to the Application, “Credit Support” is defined as follows:

“Credit Support” means an Approved Letter of Credit for an amount equal to twelve (12), or if the Shipper or its Guarantor is Creditworthy three (3), times the Shipper’s anticipated monthly toll charges, as determined by Transporter in its reasonable discretion, or alternate forms of credit enhancement, determined by Transporter in its sole discretion, providing at least an equivalent level of security to Transporter hereunder

In response to British Columbia Utilities Commission (BCUC) Information Request (IR) 19.2 in the Original RECAP Proceeding, PNG stated:

While PNG prefers that parties are Creditworthy, PNG recognized that it needed to attract as much interest in the RECAP process as possible. It was determined that a 12-month Letter of Credit would materially cover capital costs associated with the RECAP process, so that customers would not be subject to material risk due to default of shippers prior to expiry of the 20-year agreement.

- 7.1 Please discuss the risks associated with the shippers not being Creditworthy.
- 7.2 Please provide the amounts that would be covered by a 12-month Letter of Credit for each of the shippers. Please compare this to the capital costs associated with the RECAP process. PNG may file its response confidentially if required.
- 7.3 Please discuss whether PNG examined the feasibility of Letters of Credit covering periods longer than 12 months. If not, why not.
 - 7.3.1 Please discuss the extent to which PNG considers Letters of Credit covering periods longer than 12 months would mitigate risks to PNG’s ratepayers.
 - 7.3.2 Please outline the period for the Letters of Credit that would cover all capital costs associated with the RECAP process.
 - 7.3.2.1 Please explain whether PNG considered such an approach, and if so why this was not pursued.
- 7.4 Please clarify whether either shipper has a Guarantor that is Creditworthy.

**8.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, Appendix B, Section 17.8; Appendix E, Section 5.4
Credit Support for Interconnection Facilities**

Section 17.8 of the executed TSAs states:

Notwithstanding the provisions of this Article 17, the credit requirements may be subject to more extensive conditions to support the development and construction, by Transporter, of required additional facilities for Transporter to meet its obligations to provide Service to Shipper under the Service Agreement. Such more extensive credit requirements, if any, will be specified by Transporter to Shipper following either agreement between Shipper and Transporter, or as directed by the BCUC. Such credit requirements may include the requirement for an Approved Letter of Credit not to exceed Shipper's pro rata share of the cost of the required additional facilities.

Section 5.4 of the Interconnection Agreements states:

(b) On or about January 1 of each Year of the Primary Term, Transporter shall provide Shipper notice of the amount of increased Additional Credit Support required for such Year, which amount shall be equal to Transporter's *bona fide* estimate, at the time, of the total costs it will incur or commit to in respect of the Interconnection Facilities (including in respect of engineering design, third party charges, field supervision, and construction) during such Year (plus for the first such Year, without duplication, the amount of any such costs incurred or committed to between the effective date of this Agreement and January 1st), which amount of increased Additional Credit Support Shipper shall provide within five (5) Business Days of such Transporter notice...

(d) From and after the first full Year following the Commencement Date, on January 1st of each Year during the Initial Delivery Term the total amount of Additional Credit Support Shipper is otherwise required to provide hereunder will be reduced as follows:

(i) the total amount of Additional Credit Support provided as at the Commencement Date will be reduced in annual amounts consistent with a straight line depreciation of such total amount from the January 1st immediately following the first full Year following the Commencement Date to the date of expiry of the Initial Delivery Term; and

(ii) any amount of Additional Credit Support provided following the Commencement Date will be reduced in annual amounts consistent with a straight line depreciation of such amount from January 1st immediately following the first full Year following the Year in which the amount was provided to the date of expiry of the Initial Delivery Term;

8.1 Please clarify whether the credit support provisions outlined in section 5.4(b) means the credit support required for a given year is incremental to the credit support required the previous year, or replaces the credit support required the previous year.

8.2 Please discuss whether PNG explored the option of requiring credit support for the full forecasted cost of the interconnection facilities.

8.2.1 Please discuss the pros and cons of such an approach.

**9.0 Reference: PROJECT NEED AND JUSTIFICATION
Exhibit B-1, p. 29
Security Side Letter Agreements**

On page 29 of the Application, PNG states:

Concurrent with entering into the TSAs, both Top Speed Energy and Port Edward LNG have entered into security side letter agreements (Side Agreements) with PNG to enable a temporary deviation from the security requirements under Article 17 Credit Requirements of the GTCs to the TSAs, generally, and specifically, under clause 5.4 of the Interconnection Agreements. The Side Agreements provide the customers with financial flexibility during the regulatory approval process and facilitate a layering in of the required credit support, starting in the fall of 2020 and requiring that the full credit support under the TSAs and Interconnection Agreements be posted on or before the date that is not later than the earlier of:

- a) the date that is ten business days following the date PNG notifies the customer that PNG has received approval by the BCUC of the agreements;
- b) September 1, 2021; or
- c) such other date as is ordered by the BCUC for the customer to provide the credit support required under the agreements.

9.1 Please confirm, or explain otherwise, that if PNG does not receive BCUC approval by the dates specified above, PNG could terminate the Side Agreements.

9.1.1 If confirmed, please clarify whether termination of the Side Agreements would also terminate shippers' credit support requirements and payment obligations.

9.2 Please explain why shippers require financial flexibility during the regulatory approval process.

9.3 Please explain any risks to PNG ratepayers of reduced shippers' credit support during the regulatory approval process.

B. DESCRIPTION AND EVALUATION OF ALTERNATIVES

**10.0 Reference: DESCRIPTION AND EVALUATION OF ALTERNATIVES
Exhibit B-1, Section 4.4, pp. 37-42; BCUC 2015 CPCN Guidelines dated February 12, 2015 (BCUC CPCN Guidelines)
Alternatives Evaluation Methodology**

On pages 37-38 of the Application, PNG describes its evaluation criteria. PNG states:

The following evaluation criteria were applied in evaluating the identified approaches to meeting the new industrial customer demand:

- 1) Operations and Asset Management:
 - a) Operational Reliability;
 - b) Operations Requirements;
 - c) Maintenance; and,
 - d) Environmental.
- 2) Project Delivery and Stakeholder Impact:
 - a) Project Delivery;
 - b) Environmental;
 - c) Lands and right of way considerations;
 - d) Consultation and engagement; and

- e) Socio-economic benefit.
- 3) Financial and Customer Impact:
 - a) Net present value (NPV) of incremental annual revenue requirement (over 25 years 12 post completion to account for a twenty-year operational period and a five-year 13 period thereafter to amortize the remaining plant balance); and
 - b) Capital cost.

On pages 38-40 of the Application, PNG provides descriptions of each of the above noted categories and subcategories.

- 10.1 Please discuss, with rationale, how PNG selected the above noted categories and subcategories for its evaluation criteria.
 - 10.1.1 Please identify whether PNG considered any other categories or subcategories for its evaluation criteria, and why they were rejected.

On page 39 of the Application, PNG provides the following description of the ‘Lands and Rights of Way’ subcategory:

Lands and Right of Way: Degree of difficulty associated with temporary and/or permanent land rights, as well as lifecycle impacts (i.e. landowners, new rights of way, project workspace, etc.);

- 10.2 Please elaborate on what PNG considered when evaluating lifecycle impacts.

On page 39 of the Application, PNG states that “[i]n evaluating alternatives, PNG also considered factors relating to the strength of Project Delivery and Stakeholder Impact.” PNG also provides the following description of the ‘Consultation and Engagement’ subcategory:

Consultation and Engagement: Degree of complexity with engaging Indigenous communities and other stakeholders (i.e. general public and customers, British Columbia provincial government agencies, federal agencies, municipal and regional governments);

- 10.3 Please discuss whether the ‘Consultation and Engagement’ subcategory includes potential impacts of each alternative to Indigenous communities and other stakeholders or whether this subcategory only considers the complexity of the engagement process.
 - 10.3.1 If the latter, please discuss whether any other evaluation criteria category considers potential impacts to Indigenous communities and other stakeholders. If not, why not.
- 10.4 Please provide a summary of any consultation with Indigenous communities and/or other stakeholders with respects to all feasible alternatives. Please include a summary of all feedback received.

On page 41 of the Application, PNG states:

PNG notes that the financial analysis presented in Section 4 to provide a comparison amongst alternatives relies on Association for the Advancement of Cost Engineering International (AACE International) Class 5 definition level estimates to ensure a fair comparison amongst the identified alternatives.

10.5 Please provide the accuracy of each of the Class 5 cost estimates provided in section 4 of the Application.

BCUC's CPCN Guidelines¹ describe what an application submitted under sections 45 and 46 of the UCA should contain. Section 2 (ii) of BCUC's CPCN Guidelines state:

A comparison of the costs, benefits and associated risks of the project and feasible alternatives, including estimates of the value of all of the costs and benefits of each alternative or, where these costs and benefits are not quantifiable, identification of the cost area or benefit that cannot be quantified. Cost estimates used in the economic comparison should have, at a minimum, a Class 4³ degree of accuracy as defined in the most recent revision of the applicable AACE International Cost Estimate Classification System Recommended Practices.

³ Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval.

10.6 Please explain, with rationale, why Class 5 estimates are presented in Section 4 of the Application, as opposed to Class 4 estimates, as specified by BCUC's CPCN Guidelines.

On page 42 of the Application, Tables 4-3, 4-4, 4-5 and 4-6 describe the weightings selected for each category and subcategory of the evaluation criteria.

10.7 Please further explain how PNG determined the specific percentage weightings for each category and subcategory in its evaluation criteria and the rationale for each of the weightings.

10.7.1 Please discuss whether PNG considered other weightings and why they were rejected.

10.8 Please discuss whether PNG completed sensitivity analysis of the weightings used in the evaluation criteria.

10.8.1 If yes, please provide a summary of the sensitivity analysis performed.

10.8.2 If not, please explain why not.

On page 42 of the Application, Table 4-3 provides the overall weighting of the evaluation criteria as follows:

Table 4-3: Overall Weighting of Evaluation Criteria

Evaluation Criteria	Weight
Operations and Asset Management	40%
Project Delivery and Stakeholder Impact	20%
Financial and Capital Cost	40%

In Tables 4-8, 4-10, 4-12 and 4-14 on pages 46, 52, 56 and 63 of the Application, respectively, PNG provides the evaluation scores for the various project scope items. Table 4-8 is reproduced below as a sample:

¹ BCUC's CPCN Guidelines are available here: https://www.bcuc.com/Documents/Guidelines/2015/DOC_25326_G-20-15_BCUC-2015-CPCN-Guidelines.pdf

Table 4-8: Evaluation of Compressor Reactivation Scenarios

Alternative	Total Score	Operations and Asset Management					Project Delivery and Stakeholder Impact					Financial and Customer Impact			
		Sub-Total	Operational Reliability	Operational Requirements	Maintenance	Environmental	Sub-Total	Project Delivery	Environmental	Lands Acquisition	Consultation and Engagement	Socio-economic benefit	Sub-Total	Present Value (PV)	Capital Cost
		30%	50%	10%	15%	25%	40%	25%	25%	20%	25%	5%	30%	80%	20%
Reactivation - Scenario 1 (Base scope)	3.80	2.85	3	4	3	2	3.60	5	3	5	2	2	5.00	5	5
Reactivation - Scenario 2	4.27	4.50	4	5	5	5	4.45	4	5	5	4	4	3.80	4	3
Reactivation - Scenario 3	4.35	4.10	4	5	4	4	4.20	4	4	5	4	4	4.80	5	4

10.9 Please confirm whether the three evaluation criteria categories (operations and asset management; project delivery and stakeholder impact; and financial and capital cost) are weighted 40%/20%/40%, as shown in Table 4-3, or as 30%/40%/30% as it appears is shown in Tables 4-8, 4-10, 4-12 and 4-14.

10.9.1 If 40%/20%/40%, please provide an update to Tables 4-8, 4-10, 4-12 and 4-14 with the corrected weightings. Please identify whether the change results in any impacts to PNG’s selection of its preferred alternative.

10.9.2 If 30%/40%/30%, please provide rationale for the selection of these weightings.

BCUC’s CPCN Guidelines describe what an application submitted under sections 45 and 46 of the UCA should contain. Section 2 (ii) of BCUC’s CPCN Guidelines state:”

A schedule calculating the revenue requirements of the project and feasible alternatives, and the resulting impacts on customer rates;

10.10 Please explain whether PNG has prepared a schedule calculating the revenue requirements of each feasible alternative, and the resulting impacts on customer rates.

10.10.1 If yes, please provide.

10.10.2 If not, please explain, with rationale, why not.

**11.0 Reference: DESCRIPTION AND EVALUATION OF ALTERNATIVES
Exhibit B-1, Section 4.5, pp. 44-46, 51, 55; Exhibit B-3, Attachment
Scope Element 1 - Existing Compressor Station Reactivation**

On pages 44-45 of the Application, PNG states:

Compressor seal technology: Existing compressor equipment utilizes the traditional “wet gas” seal technology. The British Columbia Drilling and Production Regulation, Section 52.04, has requirements on allowable vented seals emissions based on equipment installed prior to January 1, 2021. PNG replaced the original seals in R1 Unit 2 with Solar Turbines’ (Solar) “enhanced” wet gas seal in 2020. Based on measured results, the vented emissions were found to be within acceptable limits. All turbine units at R1 through R4 are the same make/model of Solar Centaur 40 compressor and would have similar emissions if upgraded to the enhanced wet gas seals. As an alternative, PNG considered replacing all of the wet gas seals with dry gas seals. Dry gas seals are typically installed in new equipment and are considered to have relatively higher

reliability and maintainability. Dry gas seals are non-contacting mechanical seals, which eliminates the issue of seal wear.

- 11.1 Please discuss the advantages/disadvantages associated with wet gas seals versus enhanced wet gas seals.

In Table 4-8 on page 46 of the Application, PNG provides an evaluation of compressor reactivation scenarios as follows:

Table 4-8: Evaluation of Compressor Reactivation Scenarios

Alternative	Total Score	Operations and Asset Management					Project Delivery and Stakeholder Impact					Financial and Customer Impact			
		Sub-Total	Operational Reliability	Operational Requirements	Maintenance	Environmental	Sub-Total	Project Delivery	Environmental	Lands Acquisition	Consultation and Engagement	Socio-economic benefit	Sub-Total	Present Value (PV)	Capital Cost
		30%	50%	10%	15%	25%	40%	25%	25%	20%	25%	5%	30%	80%	20%
Reactivation - Scenario 1 (Base scope)	3.80	2.85	3	4	3	2	3.60	5	3	5	2	2	5.00	5	5
Reactivation - Scenario 2	4.27	4.50	4	5	5	5	4.45	4	5	5	4	4	3.80	4	3
Reactivation - Scenario 3	4.35	4.10	4	5	4	4	4.20	4	4	5	4	4	4.80	5	4

- 11.2 Please provide a high-level overview of how scores were assigned for each reactivation scenario for each subcategory within ‘operations and asset management’ and ‘project delivery and stakeholder impact.’

- 11.2.1 If quantifiable data is available, such as for emissions and/or noise reductions, please provide as applicable.

In Exhibit B-3, PNG provided its net present value (NPV) analysis used in Tables 4-8, 4-10 and 4-12. In the attached spreadsheet in the tab ‘Table 4-8 Fin Summary’, the difference from the minimum NPV for Scenarios 2 and 3 is shown as 4.3% and 3.0%, respectively.

In Table 4-2 on page 40 of the Application, PNG provides the criteria for financial scoring as follows:

Table 4-2: Criteria for Overall Financial Scoring

Score	Description
0	No detailed cost estimate was prepared for the alternative if it is technically not feasible or it is screened out on a technical and cost basis.
1	The alternative is over 100% higher than the alternative with the lowest net present value (NPV) of incremental revenue requirement and the lowest capital cost.
2	The alternative is 50% to 100% higher than the alternative with the lowest NPV of incremental revenue requirement and the lowest capital cost.
3	The alternative is 20% to 50% higher than the alternative with the lowest NPV of incremental revenue requirement and the lowest capital cost.
4	The alternative is 5% to 20% higher than the alternative with the lowest NPV of incremental revenue requirement and the lowest capital cost.
5	The alternative with the lowest NPV of incremental revenue requirement (average over the entire analysis period) and those alternatives that are within 5% of the alternative with the lowest NPV of incremental revenue requirement and the lowest capital cost.

11.3 Please explain, with rationale, how PNG determined Reactivation Scenario 2 should be scored '4' in the 'Present Value' category.

11.3.1 If the scoring should be different than what is provided in Table 4-8, please provide an updated Table 4-8 with updated scoring. Please identify whether the updated scoring impacts the Reactivation Scenario that results in the highest overall score and PNG's selection of its preferred alternative.

Tables 4-9 and 4-11 on pages 51 and 55 of the Application, respectively, provide a summary of advantages and disadvantages with respect to R5 and R6 alternatives.

11.4 Please provide a summary table of advantages and disadvantages for Scope item 1 - Existing Compressor Station Reactivation alternatives (Reactivation Scenario 1, 2 and 3), if available.

11.4.1 If not available, please explain why not.

**12.0 Reference: DESCRIPTION AND EVALUATION OF ALTERNATIVES
Exhibit B-1, Section 4.5, pp. 40, 47, 51-54, 56; Exhibit B-3, Attachment
Scope Element 3 – New Compressor Stations**

On page 47 of the Application, PNG states:

This section provides an analysis on options considered for each station, with the new R5 compressor station to be sited approximately 9 kilometres south of Terrace and the new R6 compressor station to be sited 58 kilometres west of Terrace.

12.1 Please discuss whether PNG evaluated alternative locations for R5 and R6.

12.1.1 If yes, please provide an overview of alternatives considered and why they were rejected.

12.1.2 If not, please discuss why not.

In Table 4-10 on page 52 of the Application, PNG provides the evaluation of compressor station R5 alternatives as follows:

Table 4-10: Evaluation of Compressor Station R5 Alternatives

Alternative	Total Score	Operations and Asset Management					Project Delivery and Stakeholder Impact					Financial and Customer Impacts			
		Sub-Total	Operational Reliability	Operational Requirements	Maintenance	Environmental	Sub-Total	Project Delivery	Environmental	Lands Acquisition	Consultation and Engagement	Socio-economic benefit	Sub-Total	Present Value (PV)	Capital Cost
		30%	50%	10%	15%	25%	40%	25%	25%	20%	25%	5%	30%	80%	20%
R5A Centrifugal / Electric Drive	4.91	4.90	5	4	5	5	5.00	5	5	5	5	5	4.80	5	4
R5B Centrifugal / Gas Turbine	3.47	4.35	5	5	4	3	3.45	2	4	5	3	4	2.60	3	1
R5C Reciprocating / Electric Drive	4.63	3.75	4	3	3	4	5.00	5	5	5	5	5	5.00	5	5
R5D Reciprocating / Gas Turbine	2.61	3.10	4	3	2	2	4.20	4	5	5	3	4	-	0	0

12.2 Please provide a high-level overview of how scores were assigned for each alternative for each subcategory within ‘operations and asset management’ and ‘project delivery and stakeholder impact’.

12.2.1 If quantifiable data is available, such as for emissions and/or noise reductions, please provide as applicable.

In Table 4-9 on page 51 of the Application, PNG provides a summary of advantages and disadvantages of R5 alternatives. Two disadvantages noted for alternative R5A are “No PNG experience with electric drive compressors” in the category Operations and Asset Management and “Possible BC Hydro delays” in the Project Execution and Stakeholder Impact category.

12.3 Please explain how the above noted disadvantage, “No PNG experience with electric drive compressors”, is reflected in the scoring of alternative R5A in Table 4-10.

12.4 Please explain how the above noted disadvantage, “Possible BC Hydro delays,” is reflected in the scoring of alternative R5A in Table 4-10.

In Exhibit B-3, PNG provides its NPV analysis used in Tables 4-8, 4-10 and 4-12. In the attached spreadsheet in the tab ‘Table 4-10 Summary’, the difference from the minimum NPV for Option #1 and #2 is shown as 4.7% and 79.7%, respectively.

In Table 4-9 on page 51 of the Application, PNG provides the capital costs for R5 alternatives R5A, R5B and R5C as \$6.29 million, \$10.27 million and \$5.68 million.

In Table 4-2 on page 40 of the Application, PNG provides the criteria for financial scoring.

12.5 Please explain, with rationale, how PNG determined Option R5B should be scored ‘3’ in the ‘Present Value’ category.

12.6 Please explain, with rationale, how PNG determined Option R5B should be scored ‘1’ in the ‘Capital Cost’ category.

12.7 Based on the above two IR responses, if the scoring should be different than what is provided in Table 4-10, please provide an updated Table 4-10 with updated scoring. Please identify whether the updated scoring impacts the alternative that results in the highest overall score and PNG’s selection of its preferred alternative.

On page 53 of the Application, regarding R6 compressor alternatives, PNG states:

BC Hydro advised that it was not economically feasible to bring the required electric power to the site as the nearest high voltage transmission line is 56 kilometres away.

12.8 Please expand on how it was determined that connecting to BC Hydro at the proposed R6 compressor location would not be economically feasible.

12.8.1 Please confirm whether BC Hydro provided PNG a high-level cost estimate for connection at the proposed R6 location.

In Table 4-12 on page 56 of the Application, PNG provides the evaluation of compressor station R6 alternatives as follows:

Table 4-12: Evaluation of Compressor Station R6 Alternatives

Alternative	Total Score	Operations and Asset Management					Project Delivery and Stakeholder Impact					Financial and Customer Impacts			
		Sub-Total	Operational Reliability	Operational Requirements	Maintenance	Environmental	Sub-Total	Project Delivery	Environmental	Lands Acquisition	Consultation and Engagement	Socio-economic benefit	Sub-Total	Present Value (PV)	Capital Cost
		30%	50%	10%	15%	25%	40%	25%	25%	20%	25%	5%	30%	80%	20%
R6A Centrifugal / Gas Turbine	3.50	4.00	5	4	4	2	3.05	2	4	3	3	4	3.60	4	2
R6B Reciprocating / Gas Turbine	4.03	3.35	4	4	3	2	3.80	4	5	3	3	4	5.00	5	5

12.9 Please provide a high-level overview of how scores were assigned for each alternative for each subcategory within ‘operations and asset management’ and ‘project delivery and stakeholder impact’.

12.9.1 If quantifiable data is available, such as for emissions and/or noise reductions, please provide as applicable.

On page 54 of the Application, with regards to alternative R6A, PNG states:

This combination would be the most familiar to the PNG Operations group as this compressor technology is presently in use at the existing compressor stations (R1, R2, R3 and R4).

12.10 Please discuss how familiarity of the compressor technology by PNG operations staff is reflected in the scoring for both alternatives R6A and R6B.

In Exhibit B-3, PNG provides its NPV analysis used in Tables 4-8, 4-10 and 4-12. In the attached spreadsheet in the tab ‘Table 4-12 Summary’, the difference from the minimum NPV for Option #1 is shown as 28.4%.

In Table 4-2 on page 40 of the Application, PNG provides the criteria for financial scoring.

12.11 Please explain, with rationale, how PNG determined Option R6A should be scored ‘4’ in the ‘Present Value’ category.

12.11.1 If the scoring should be different than what is provided in Table 4-12, please provide an updated Table 4-12 with updated scoring. Please identify whether the updated scoring impacts the alternative that results in the highest overall score and PNG’s selection of its preferred alternative.

**13.0 Reference: DESCRIPTION AND EVALUATION OF ALTERNATIVES
Exhibit B-1, Section 4.5, pp. 62-63
Scope Element 4 – New Customer Interconnect Facilities**

In Table 4-14 on page 63 of the Application, PNG provides the evaluation of Top Speed Energy Prince Rupert route alternatives as follows:

Table 4-14: Evaluation of Top Speed Energy Prince Rupert Route Alternatives

Alternative	Total Score	Operations and Asset Management					Project Delivery and Stakeholder Impact					Financial and Customer Impacts		
		Sub-Total	Operational Reliability	Operational Requirements	Maintenance	Environmental	Sub-Total	Project Delivery	Environmental	Lands Acquisition	Consultation and Engagement	Socio-economic benefit	Sub-Total	Capital Cost
		30%	50%	10%	15%	25%	40%	25%	25%	20%	25%	5%	30%	100%
Route 2A (Green - South)	3.03	3.70	4	4	2	4	1.05	1	1	1	1	2	5.00	5
Route 2B (Purple - North)	4.18	3.60	4	4	3	3	4.00	4	4	5	3	5	5.00	5

13.1 Please provide a high-level overview of how scores were assigned for each alternative for each subcategory within ‘operations and asset management’ and ‘project delivery and stakeholder impact’.

13.1.1 If quantifiable data is available, such as for emissions and/or noise reductions, please provide as applicable.

In Table 4-13 on pages 62-63 of the Application, PNG provides a summary of advantages and disadvantages of Top Speed Energy Prince Rupert Route Alternatives. A disadvantage listed under route 2A is listed as “possible DFO and Indigenous Nations concerns.”

13.2 Please expand on the possible Fisheries and Oceans Canada (DFO) and Indigenous Nations concerns with respect to route 2A and how these were determined.

13.3 Please discuss the differences between route 2A and route 2B with respect to potential impacts to Indigenous communities and other stakeholders. Please include in the response how these potential impacts were determined.

**14.0 Reference: DESCRIPTION AND EVALUATION OF ALTERNATIVES
Exhibit B-1, Section 4.5, pp. 64, 66-67
Scope Element 5 – R5 to Terrace By-Pass Pipeline**

On page 64 of the Application, PNG states:

PNG has reviewed the replacement of the existing PNG mainline through this area of increased population density at a screening level and has determined this alternative to not be practical or economic relative to the alternative of constructing a by-pass of this area.

- 14.1 Please discuss to what extent the feasibility of pipeline replacement for this section was considered, including whether a conceptual level cost estimate was prepared.
 - 14.1.1 If a feasibility report or cost estimate was prepared, please provide.
 - 14.1.2 Please clarify why PNG considered the pipeline replacement alternative to be not practical.

On pages 66-67 of the Application, PNG states:

Based on PNG's evaluation of the two by-pass routing options, PNG has determined that the Purple Route (R5 to Terrace Junction Connector) is the preferred alternative. Based on a review of the advantages and disadvantages of each route, the R5 to Terrace Junction Connector is viewed most favourably due to the considerably shorter length and lower capital cost, and on the basis that it can be situated in an existing PNG pipeline corridor. The Yellow Route was screened out during feasibility review as a result of its longer length, high-voltage power line and airport proximity challenges, and the requirement for a new pipeline corridor. PNG notes that this alternative is consistent with recommendations of Lauren Services.

- 14.2 Please discuss whether PNG evaluated and scored the alternatives for Scope Element 5 – R5 to Terrace By-Pass Pipeline (i.e.: the purple route and yellow route) using PNG's multi-criteria analysis, as was done for other scope items.
 - 14.2.1 If yes, please provide this analysis in a similar format to Tables 4-8, 4-10, 4-12 and 4-14.
 - 14.2.2 If not, please explain why the multi-criteria analysis could not be completed for this scope item.
- 14.3 Please explain whether PNG completed an NPV analysis for Scope Element 5 – R5 to Terrace By-Pass Pipeline, similar to that prepared for scope items 1 and 3.
 - 14.3.1 If yes, please provide in a similar format to the spreadsheet provided in Exhibit B-3.
 - 14.3.2 If not, please explain why an NPV analysis was not completed for this scope item.
- 14.4 Please discuss the differences between the purple route and yellow route with respect to potential impacts to Indigenous communities and other stakeholders. Please include in the response how these potential impacts were determined.

In Table 4-15 on page 66 of the Application, PNG states the following under 'Yellow Route': "

Screened out on a \$/km basis during feasibility estimating workshops

- 14.5 Please provide the cost in \$/km for both the purple and yellow route, if available.
- 14.6 Please explain why the Yellow Route results in a higher cost in \$/km.

In Table 4-15 on page 66 of the Application, PNG states the following under 'Purple Route':

Lowest cost of \$6.32 million

- 14.7 Please discuss how this estimate was prepared and provide supporting documentation similar to that provided for other scope items.

C. PROJECT DESCRIPTION

**15.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 3.2, pp. 19-20, Section 5.3, p. 69, Section 5.3.2.1, p. 74
Historic operation of Western Transmission System**

On page 19 of the Application, PNG states that “The sustainable capacity of the transmission pipeline system, with all existing pipeline and compression assets operating, is approximately 3,260 10³m³ per day (115 MMSCFD).”

Further on page 20 of the Application, PNG states:

Following an expansion of the Western Transmission Gas System in 1982 to accommodate service to a new methanol plant in Kitimat, the system was operated at and had a consistently sustained and stable operating flow rate in excess of 105 MMSCFD. However, during the period 2001 to 2010, PNG’s three largest customers being served by the system permanently ceased operations. This involved the 2001 closure of the Skeena Cellulose pulp mill located in Prince Rupert, the closure of the Methanex methanol/ammonia facility in Kitimat in late 2005, and the closure of the West Fraser Eurocan pulp and paper mill located in Kitimat in 2010.

On page 69 of the Application, PNG states:

To accommodate the addition of 65 MMSCFD in new industrial customer demand, PNG’s intention is to undertake activities to return operation of the Western Transmission Gas System substantively to the level of operation in place prior to 2005.

15.1 Please provide details regarding the operation of the Western Transmission Gas System prior to the loss of PNG’s three largest customers (e.g. 2001) by completing the tables below.

Table 1: Western Transmission system historic operating characteristics, Compressor Stations

	Compressor Stations			
	R1	R2	R3	R4
Average Flow (mmscfd)				
Suction Pressure (kPag)				
Discharge Pressure (kPag)				
Peak Flow (mmscfd)				
Suction Pressure (kPag)				
Discharge Pressure (kPag)				

Table 2: Western Transmission system historic operating characteristics, Pipeline segments

	Pipeline Segments					
	R1 to R2	R2 to R3	R3 to R4	R4 - Terrace	Terrace - Kitimat	Terrace – Prince Rupert
Average Flow (mmscfd)						
Peak Flow (mmscfd)						

On page 74 of the Application, PNG states:

Due to population density increase in the Terrace area, there was an identified need for a MOP reduction on the MP 268.88 to MP 273.45 portions of the NPS 10 transmission mainline to 6756 kPag (980 psig)...Given the system configuration, with the NPS 8 mainline (from MP 273.5 to 364.5) being downflow to the derated portion of the NPS 10 mainline, the NPS 8 has been subject to the same operating pressure limitation of 6756 kPag (980 psig). With the increased new customer demand, the segment of the system must be restored to its originally licenced MOP of 9335 kPag (1354 psig) to meet necessary system hydraulic capacity requirements introduced by new customer load.

- 15.2 Please clarify the current maximum operating pressure (MOP) and the originally licenced MOP for each pipeline segment, as well as the current hydraulic capacity (in mmscfd) of each pipeline segment if operated at its MOP by completing the table below.

Table 3: Western Transmission system current operating characteristics

	Pipeline Segments					
	R1 to R2	R2 to R3	R3 to R4	R4 - Terrace	Terrace - Kitimat	Terrace – Prince Rupert
Current MOP (kPag)						
Originally Licenced MOP						
Capacity (mmscfd)						

- 15.3 Please provide the proposed design capacity (in mmscfd) and the proposed MOP for each pipeline segment that are required to accommodate the increased demand from RECAP customers by completing the table below.

Table 4: Western Transmission system proposed operating characteristics

	Pipeline Segments					
	R1 to R2	R2 to R3	R3 to R4	R4 - Terrace	Terrace - Kitimat	Terrace – Prince Rupert
Design capacity (mmscfd)						
Proposed MOP (kPag)						

- 15.4 Please explain whether any components of the proposed Project scope in this Application will increase the capacity of the Western Transmission system beyond the capacity held prior to the loss of PNG’s large industrial customers.
- 15.5 Please confirm, or explain otherwise, that the MOP reduction of the NPS 10 transmission line between MP 268.88 and MP 273.45 was required due to population density increase in proximity to the pipeline, and not for any other reason, such as pipeline integrity.
- 15.5.1 Please clarify whether the licenced MOP of the NPS 8 mainline (from MP 273.5 to 354.5) is currently derated to 6756 kPag, or whether it has effectively been derated as it is downflow to the NPS 10 derated mainline.

**16.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.3.1.2, pp. 71-72
Regulation of Compressor Operations**

On pages 71-72 of the Application, PNG states:

To inform planning of recommissioning activities, PNG held a teleconference with representatives at the BC OGC in late November 2020 to discuss regulatory and

permitting requirements related to the existing compressor stations; responses on certain outstanding matters were provided in early December 2020. PNG will be filing a Notice of Intent (NOI) with the BC OGC of the planned recommission activities.

- 16.1 Please explain which outstanding matters required further responses be provided to the BC Oil and Gas Commission (BC OGC) in December 2020.

Table 5-1 on page 72 of the Application notes that planned compressor station scope items are required to ensure compliance with BC Drilling and Production Regulation or BC OGC Noise Reduction Guideline.

- 16.2 Please list all the compressor station scope items which are required in order to ensure reactivated compressor stations are compliant with regulations administered by the BC OGC.
- 16.3 Please discuss the risk that the BC OGC may mandate any work not currently included in the Application prior to permitting reactivation of PNG's compressor stations.
- 16.3.1 Please explain when PNG intends to submit its permit applications to the BC OGC and when permits are expected to be received.

**17.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.3.1.3, pp. 72-73, Section 4.5.1.2, pp. 44-45
Compressor Reactivation – Scope of Work**

In Table 5-1 on page 72 and 73 of the Application, PNG lists the following planned compressor station upgrades:

Replace existing compressor wet gas seals with “enhanced” wet gas seals (performed at R1 in 2020)

Replace gas-powered actuators with electric or instrument-air based pneumatic actuators and install new instrument air systems for emissions reductions due to power gas operated valves

On pages 44 and 45 of the Application, PNG states:

PNG replaced the original seals in R1 Unit 2 with Solar Turbines’ (Solar) “enhanced” wet gas seal in 2020. Based on measured results, the vented emissions were found to be within acceptable limits. All turbine units at R1 through R4 are the same make/model of Solar Centaur 40 compressor and would have similar emissions if upgraded to the enhanced wet gas seals. As an alternative, PNG considered replacing all of the wet gas seals with dry gas seals. Dry gas seals are typically installed in new equipment and are considered to have relatively higher reliability and maintainability. Dry gas seals are non-contacting mechanical seals, which eliminates the issue of seal wear.

- 17.1 Please discuss the pros/cons of replacing existing compressor wet gas seals with “enhanced” wet gas seals, in comparison to replacing with dry gas seals.
- 17.1.1 Please provide a comparison of the amount of vented emissions as a result of replacing existing compressor seals with enhanced wet gas seals versus dry gas seals.
- 17.1.2 Please provide any operating cost analysis PNG has completed with regard to the higher reliability and maintainability of dry gas seals.

- 17.1.3 Please confirm whether regulations administered by the BC OGC require the installation of dry gas seals on the reactivated compressors.
- 17.2 Please clarify whether PNG has yet to select which actuator technology (e.g. electric or instrument-air) shall replace gas powered actuators at the existing compressor sites.
 - 17.2.1 If the proposed scope of work is to replace gas-powered actuators with electric actuators in some cases and instrument-air actuators in other cases, please discuss generally how PNG made its actuator technology selections.

**18.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.3.2.1, p. 74
Pipeline restoration**

On page 74 of the Application, PNG states:

Due to population density increase in the Terrace area, there was an identified need for a MOP reduction on the MP 268.88 to MP 273.45 portions of the NPS 10 transmission mainline to 6756 kPag (980 psig) to meet the requirements of CSA Z662 for pipeline design and class location considerations...Restoration of the MOP is proposed to be achieved through a combination of NPS 10 derated area by-pass piping (by way of the proposed R5 to Terrace Junction Connector re-route as per Section 5.3.5) and pipeline integrity repairs from Terrace Junction to Salvus (MP 273.5 to MP 311) proposed in this Application.

- 18.1 Please clarify whether the pipeline was derated due to the presence of pipeline integrity features, class location changes due to population density increase, and/or for other reasons.
- 18.2 Please discuss whether the pipeline integrity repairs from Terrace Junction to Salvus are required regardless of the increase to MOP proposed to accommodate demand from RECAP customers.
- 18.3 Please discuss why the Terrace Junction to Salvus pipeline integrity repair scope was not included as part of the Salvus to Galloway CPCN.
- 18.4 Please clarify which CSA Z662 Class location designation PNG is assuming when determining the scope of repair work for the Terrace Junction to Salvus pipeline segment.
 - 18.4.1 Please discuss the likelihood of future development in the Class location assessment area for the Salvus to Galloway pipeline.

**19.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.3.2.3, p. 76, Section 5.3.2.3.1, p. 76; BCUC CPCN Guidelines,
Section 5 (iii), p. 8.
Pipeline restoration – Scope of work**

On page 76 of the Application, PNG states:

Upgrades will include modifications to specific sections of the pipeline to address matters that would otherwise result in reduced system safety and non-conformance to current codes and standards at the increased operating pressure. Such activities may include line lowering, section replacements, re-routes, and/or installation of mechanical protection to increase soil cover, maintain code compliance at road crossings and areas of increased population density, mitigate slope instability and watercourse or geohazard encroachment, and access improvements... Based on preliminary engineering assessments completed at this time, indicated work will consist primarily of sleeve

repairs (59 identified locations) and an occasional cut-out repair in place of sleeves when multiple defects are in close proximity. No notable upgrades have been identified as necessary at this time.

- 19.1 Please discuss the likelihood that the results of the engineering assessment may require an increase in the pipeline restoration scope to include mitigations for slope instability, watercourse or geohazard encroachment and/or access improvements.

Further on page 76 of the Application, PNG states:

As the new operating pressure of the pipeline will not exceed the MOP of the originally constructed pipeline and all defects will be repaired, a re-pressure test of the pipeline section is not expected to be required at this time. This item will be determined in the final engineering assessment.

- 19.2 Please explain the impacts to the Project cost estimate and schedule should a re-pressure test of the pipeline section be required.
- 19.3 Please clarify whether the BC OGC will determine the need for a re-pressure test of this pipeline section as part of its permitting process for this scope of work.

On page 76 of the Application, PNG states:

PNG has engaged Skystone International (Skystone) to complete the required engineering assessments to define works necessary to restore the integrity of the section of the existing NPS 8 mainline pipeline between Terrace and Salvus. This assessment work is ongoing and is supported by 2020 in-line inspection reports, with completion of the assessment planned for the second quarter of 2021.

- 19.4 Please explain whether PNG intends to submit the completed engineering assessment to the BCUC as part of the evidentiary record in this CPCN proceeding.
- 19.5 Please explain whether the engineering assessment to be completed by the second quarter of 2021 will form the Basis of Design for the Terrace Junction to Salvus pipeline restoration component of this Application.
- 19.5.1 Please discuss the risk that the to-be-completed engineering assessment will increase the estimated cost of this Project component above the cost estimate in the Application.
- 19.6 Please discuss the likelihood that the engineering assessment may increase the pipeline restoration scope to include mitigations for slope instability, watercourse or geohazard encroachment and/or access improvements.

On page 76 of the Application, PNG states:

Lauren Services was engaged to develop a preliminary Basis of Estimate for this scope element and has produced a AACE International Class 4 level cost estimate (Appendix H2) that will be refined as informed by the Skystone assessment.

Section 5 (iii) of the BCUC CPCN Guidelines² states:

The cost estimate should be stated in nominal as well as real dollars, identify an expected accuracy range with stated confidence level and have, at a minimum, a Class 3 degree of accuracy as defined in the latest revision of the AACE International Recommended Practices.

- 19.7 Please explain whether PNG intends to produce and submit to the BCUC an AACE Class 3 level cost estimate for the pipeline restoration scope of work.
- 19.7.1 If PNG intends to submit an AACE Class 3 level cost estimate for this scope of work, please provide the timing of this submission.
- 19.8 Please explain how the current AACE Class 4 cost estimate for the pipeline restoration and the overall Project Cost Estimate aligns with the BCUC CPCN Guideline cost estimate requirements.

**20.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.3.3.3.1, pp. 77-78
R5 Compressor Station**

On page 77 of the Application, PNG states:

The R5 compressor is proposed to be an electrically driven centrifugal compressor. PNG has confirmed with BC Hydro that sufficient capacity can be made available to PNG and that reliability of the system is appropriate for the new compressor station.

- 20.1 Please elaborate on how PNG determined that the supply of power from BC Hydro is reliable for the new compressor station (e.g. reliability criteria, expected downtime, etc.).

On page 78 of the Application, PNG states:

Pre-FEED studies have been completed for the R5 compressor station. The major station components proposed by the preliminary design include the following: ... Vent Stack

- 20.2 Please explain the volume and composition of emissions expected to be vented from the R5 Compressor Station vent stack during normal operation and during upset conditions.
- 20.2.1 Please discuss whether PNG anticipates that an alternative venting method other than a vent stack, such as a flare stack, may be required by the BC OGC based on the volume of emissions.
- 20.2.2 Please explain the impact on the cost estimate should a flare stack be required.

**21.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.3.3.3.2, p. 79
R6 Compressor Station**

On page 79 of the Application, PNG states:

Pre-FEED studies have also been completed for the R6 compressor station. The major station components proposed by the preliminary design include the following: ...Vent Stack

² https://www.bcuc.com/Documents/Guidelines/2015/DOC_25326_G-20-15_BCUC-2015-CPCN-Guidelines.pdf

- 21.1 Please explain the volume and composition of emissions expected to be vented from the R6 Compressor Station vent stack during normal operation and during upset conditions.
 - 21.1.1 Please discuss whether PNG anticipates that an alternative venting method than vent stack, such as a flare stack, may be required by the BC OGC based on the volume of emissions.
 - 21.1.2 Please explain the impact on the cost estimate should a flare stack be required.

**22.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.3.5.1, p. 84
R5 to Terrace Junction connector**

On page 84 of the Application, PNG states:

To address NPS 8 operating pressure limitations resulting from an upstream MOP downrate of the PNG NPS 10 mainline in the Terrace/Thornhill area due to population growth, PNG is proposing to construct a by-pass, the R5 to Terrace Junction Connector, to reroute the pipeline segment outside of the population centre.

- 22.1 Please clarify whether the derated NPS 10 mainline upstream of the Terrace Junction will continue to flow gas following completion of the R5 to Terrace Junction connector.
 - 22.1.1 If the NPS 10 mainline upstream of the Terrace Junction, or a portion of this pipeline segment, will not continue to flow gas please confirm, or otherwise explain, whether PNG plans to decommission or abandon the pipeline.

**23.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.5.1, pp. 92-93
Project Management Office – cost estimate and contingency**

Table 5-10 on pages 92 and 93 of the Application provide the confidence level and cost risk contingency for each Project scope element. Part of Table 5-10 which includes information relating to the Project Management Office scope element is reproduced below:

Project Scope Element	P-Value	Cost Risk (Contingency)
R5 to Terrace Junction Connector	P50	6%
Port Edward LNG Interconnect (Prince Rupert)	P70	15%
Top Speed Energy Interconnect (Prince Rupert)	P85	10%
Top Speed Energy Interconnect (Terrace)	P50	5%
Project Management Office	P50	-3%
Overall Contingency (as Weighted Average)		9%

- 23.1 Please discuss the reasonableness of PNG’s inputs to both the Basis of Estimate and the Risk Analysis to explain why a negative contingency (-3%) has been proposed for the Project Management Office scope element.

24.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.5.2.2, p. 95; Application for a CPCN for the Salvus to Galloway Gas Line Upgrade Project (Salvus to Galloway CPCN Application), Exhibit B-1, Section 6.3.2.2, p. 85
Management Reserve

On page 95 of the Application, PNG states: “PNG’s contingency is exclusive of necessary management reserve which has been set at 3% for the Project.”

In the Salvus to Galloway CPCN Application, PNG states:³

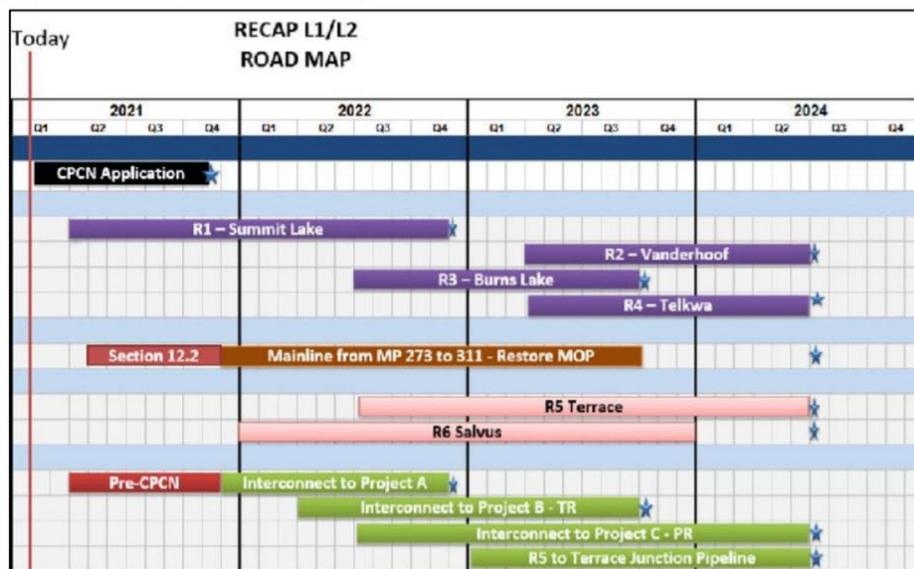
PNG’s contingency is exclusive of necessary management reserve which 12 has been set at 5%... Due to the remoteness, uncertainty, and uncommon nature of the Project, PNG believes that the discretion provided by a management reserve is necessary to address unconsidered scope items whilst already in this challenging region of British Columbia.

24.1 Please explain why PNG proposes a 3% management reserve for the RECAP Application in comparison to the 5% management reserve proposed in the Salvus to Galloway Application.

25.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.6.1, p. 98
Project Schedule

Figure 5-9 on page 98 of the Application provides a Project Roadmap. This figure is reproduced below:

Figure 5-9: Project Roadmap



25.1 Please discuss whether PNG has assessed the optimal scheduling of each Project component in order to mitigate against the risk of any RECAP customer demand not materializing (i.e. to ensure all reactivated capacity is ultimately required). If so, please explain how this assessment has been incorporated into the Project schedule.

25.2 Please provide the expected operating pressure profile of PNG’s Western Transmission System

³ https://www.bcuc.com/Documents/Proceedings/2020/DOC_59597_B-1-PNG-CPCN-Application-for-Salvus-to-Galloway-Gas-Line-Upgrade-Project-Public.pdf

following the commencement of service delivery to Project A (e.g. 20 MMSCFD to Port Edward LNG commencing Q4 2022).

25.2.1 Please clarify which scope components of the RECAP project, other than the relevant interconnect pipe, must be complete in order to commence service delivery to Project A (e.g. reactivation of compressor station R1, restoration of originally licenced MOP of existing pipeline segments, etc.).

Table 5-12 on page 98 of the Application summarizes the Project Schedule. Table 5-12 is reproduced below:

Table 5-12: Project Schedule

Activity	Timeline
Project Planning	
Pre-FEED	Completed
Indigenous and Stakeholder Consultation	Ongoing
CPCN Regulatory Review	March 2021 – November 2021
Project Execution	
Detailed Design	Q3 2021 to Q3 2022
BC OGC Applications	Q1 2022 to Q3 2022
Procurement	Q4 2021 to Q2 2023
Construction	Q1 2022 to Q2 2024
In-service	Q4 2022 to Q3 2024
Restoration	Q4 2022 to Q3 2024
Close-out	Q3 2024

25.3 Please provide the timing (i.e. month, year) of each BC OGC Application to be submitted as part of this Project.

25.3.1 Please explain the Project scope elements covered by each BC OGC Application to be submitted.

**26.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.6.2, p. 99
Contractor Selection and Award**

On page 99 of the Application, PNG states:

Given the diversity of defined scope elements of the Project, comprising a combination of existing facility reactivation, existing pipeline integrity repair and remediation and new facility and pipeline construction, it is expected that a number of separate construction contracts will be awarded.

26.1 Please clarify when PNG expects to award construction contracts for the various proposed Project scope elements.

26.2 Please discuss whether PNG anticipates any overlap of contractor selection between the RECAP Project scope and the Salvus to Galloway Remediation Project scope. If so, please discuss any opportunities or challenges regarding contractor selection for these concurrently occurring Projects (e.g. contractor availability, mobilization, multiple contractors working in proximity, etc.)

**27.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.6.6, p. 100
Fabrication**

On page 100 of the Application, PNG states: “A number of pieces of major equipment and packages will

be prefabricated at shops or lay down areas including, but not limited to: ...Generators, diesel tanks and flare stacks.”

27.1 Please clarify which Project scope component(s) includes a flare stack.

28.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.6.8, p. 101
Exhibit B-4
New Right of Way Agreements

On page 101 of the Application, PNG states:

The Project will require new land in the form of new right of way agreements for each new pipeline and a lease agreement for the R6 compressor station. No new land is anticipated to be required for the R5 compressor station or the pipeline restoration and compressor station reactivations. Temporary workspaces are expected to be required adjacent to new and existing pipeline rights of way and the R6 compressor station site lease for the duration of construction. No temporary workspace is expected to be required for compressor station reactivations or the currently owned R5 compressor site.

In Exhibit B-4, PNG provides a summary of right of way agreements that are applicable to each of the Project elements. An extract of the table is provided below:

Re-Cap - SRW Agreements & Landownership				
Project Element / PNG Asset	Landownership Type	PID	SRW Agreement	OGC Permit
Customer Interconnections	Locations not confirmed	n/a	n/a	n/a

28.1 Please provide a detailed list of each Project scope component which requires a new right of way agreement. Please include, at a minimum, the following information in the detailed list: type of right of way (e.g. permanent, temporary), landownership type, status of right of way agreement negotiations.

28.2 Please explain why locations are not confirmed with respect to customer interconnections.

29.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.8.1, p. 103
Project Impacts – Environmental

On page 103 of the Application, PNG states: “Project work will be performed in the identified least-risk timing windows as much as possible or with additional prescriptive mitigative measures should work outside of least-risk windows be necessitated.”

29.1 Please identify any critical least-risk timing windows which have the potential to have a significant impact on Project schedule.

29.1.1 Please discuss how PNG is mitigating against the risk of Project delays due to least-risk timing window restrictions.

29.1.2 Please discuss any risks of Project cost escalation due to least-risk timing window restrictions.

30.0 Reference: PROJECT DESCRIPTION
Exhibit B-1, Section 5.10.1, pp. 109-110
Project Risks

Table 5-13 on pages 109–112 of the Application provides a summary of major identified project risks. Table 5-13 is reproduced in part below:

Table 5-13: Project Risk Summary

Item	Scope Element	Risk Title	Risk Description	Mitigation Strategy
1	All	Unable to identify and engage Indigenous communities	Due to the number of Indigenous communities involved, unable to engage all Indigenous communities, leading to delays in permit approvals.	<ul style="list-style-type: none"> Engage Indigenous communities early in FEED to identify stakeholder concerns. Utilize experienced land and community agents to identify and engage all stakeholders prior to permit submission.
10	New Pipelines and Compressors	Archeological permit delays	Archeological permit not received in time for planned construction.	<ul style="list-style-type: none"> Early engagement with affected Indigenous communities. Apply for archaeological permit as early as possible. Include enough buffer area to avoid amendments or changes to applications. Schedule construction around the most likely permit receipt time. Avoid potential new areas if possible, utilize existing right of way as much as possible. Chance Find and Cultural Resource Protection Plan.
11	Pipelines	DFO permit delays	DFO permit not received in time for planned construction.	<ul style="list-style-type: none"> Apply for DFO permit early in the process. Position permitting plan to optimize request for review (30 days) related solutions vs. authorization process (60 and 90 days) related plans.

30.1 Please elaborate on any concerns with the Project that have been raised by Indigenous communities during PNG’s engagement efforts to date.

30.1.1 Please discuss any modifications to the Project scope or execution that have been included to address any concerns raised.

30.2 Please provide a status update regarding the Archeological permitting for this Project.

30.3 Please provide a status update regarding the DFO permitting for this Project.

D. PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACTS

**31.0 Reference: PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACTS
Exhibit B-1, Section 6, p. 123
Incremental Operating Expenditures**

On page 123 of the Application, PNG states that “[o]nce all project assets have been placed into service, full-year operating costs are estimated to be approximately \$3.6 million annually (as-spent dollars)” and further states:

Incremental expenses can primarily be attributed to increased staffing requirements, with PNG estimating that it will require an additional four compressor technicians and an additional four pipeline operators once project assets are fully in place and operational. PNG anticipates that the hiring of each of the additional compressor technicians and pipeline operators will precede the start-up of the associated assets by approximately six months to allow for appropriate training.

- 31.1 Please discuss what PNG considers to be “incremental” and how costs were determined to be incremental.
- 31.2 Please explain why an additional four compressor technicians and four pipeline operators are necessary, as a result of the Project.
- 31.3 Please explain if the new compressor technicians and / or pipeline operators are required in part to serve the interconnection pipelines. If yes, please provide an estimate of the percentage of time that will be spent by these new positions on each of the interconnection pipelines over the course of a year.
- 31.4 Please explain whether a portion of the new employee time is included in the calculation of the demand charge for the interconnection pipelines. If not, please explain why not.
- 31.5 Please provide an estimate of the required demand charge for each of the interconnection pipelines under the following scenarios:
 - Allocating a portion of the new employee costs based on percentage of interconnection pipeline capital costs as compared to total project costs; and
 - Allocating a portion of the new employee costs based on a percentage of time estimate provided above.
- 31.6 Please explain why PNG considers it reasonable to allow six months for training new staff for the proposed roles.
- 31.7 Please discuss whether the forecast incremental operating expenses include an estimate for existing staff time expected to be spent on the Project. If not, why not.

**32.0 Reference: PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACTS
Exhibit B-1, Section 6, p. 125
Maintenance Capital Expenditure Estimates**

On page 125 of the Application, PNG states: “PNG has also developed estimates for incremental maintenance capital expenditures in consideration of the term of the new industrial customer TSAs and the estimated life of the new project assets.”

Further, on page 125 of the Application, PNG provides the following table showing a summary of the anticipated maintenance capital expenditure items:

Table 6-8: Maintenance Capital Expenditure Items

Maintenance Capital Item	Maintenance Schedule Frequency	Amount (2020\$)
Compressor Maintenance		
Overhauls	Every 3 years / Compressor	650,000
Replacement Seals	Every 10 years / Compressor	250,000
Breakdown Capital	Annual	50,000
Re-paint (R1)	Every 15 years	400,000
Re-paint (R2 - R6)	Every 15 years / Compressor	300,000
Pipeline Maintenance		
Increased EMAT Frequency	Variable	750,000
New ILI	Every 7 years	150,000
Mainline Brushing	Every 5 years	150,000
Right of Way Access Improvements	Every 10 years	100,000
Valve Coating Assess & Repair	Every 10 years	100,000
Valve Coating Assess & Repair - R5 to Terrace Junction Connector	One time	25,000
Valve Re:Re Program	One time	225,000
Unspecified - Lowerings / Relocations	Every 10 years	1,500,000
Repairs Resulting from Inspection (ILI/OTLI - Extensive Bypass Systems)	Every 5 years	1,500,000
Cleaning Pig Train Purchase	Every 10 years	5,000
Cleaning Pig Train Purchase - R5 to Terrace Junction Connector	One time	3,500

- 32.1 Please discuss the nature of the planned maintenance activities and why the anticipated maintenance capital expenditures are required to uphold the Project assets.
- 32.2 Please explain why increased EMAT frequency is required as a result of this Project.
- 32.3 Please clarify whether any of the “New ILI” are required for the interconnection pipelines. If so, what is the estimate cost per facility per year and how does this impact the demand charge for interconnection pipelines?
- 32.4 Please provide a table in the same format as Table 6-8 for each of the interconnection pipelines.
 - 32.4.1 Please confirm, or otherwise explain, that the above-noted maintenance costs are factored into the demand charge. If not, please explain why not.
- 32.5 Please provide the basis for the estimates of the items outlined in red in the preamble.
- 32.6 Please confirm, or explain otherwise, that all maintenance associated with the project assets are included as either capital maintenance or under operating expenses under the category “small repairs and consumables”.
- 32.7 Please discuss how PNG determines whether maintenance activities will be categorized as either maintenance capital or operating maintenance.
- 32.8 Please explain on what basis PNG has determined the maintenance (both capital and operating) budget for these assets and how it compares to actual maintenance costs for similar assets.

**33.0 Reference: PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACTS
Exhibit B-1, Section 6.5.4, p. 133
Interconnection Pipelines**

On page 133 of the Application, PNG states the following in relation to the Interconnection Agreement tolls:

- 1) Rates for service on the interconnecting pipelines will be paid only by those parties being served via the new facilities;

- 2) Rates for service on the interconnecting pipeline will be set to recover the full increase in the cost of service resulting from the construction and operating of the interconnecting pipelines such that there will be negligible rate impacts on PNG's other customers; and
- 3) Rates for service on the interconnecting pipeline will be set to recover the capital cost of the facilities over the term of the underlying TSAs so that there is no stranded asset risk for PNG or its customers when the TSAs expire.

Tolls will be in the form of a fixed monthly demand charge determined on the basis that the NPV of the revenue stream from the tolls is identical to the NPV of the underlying costs.

Additionally, on page 133 of the Application, PNG states:

Further, to avoid inefficiencies associated with administration of the interconnection facilities, PNG proposes to "roll-in" the interconnection facilities when determining PNG's revenue requirements. Using this approach it will not be necessary to set up systems and procedures to separately track the de minimis incremental operating, maintenance and administration costs associated with these facilities. Revenues and the related margin received under the Interconnection Agreements will offset the revenue requirements that PNG will seek to recover in its other rates.

- 33.1 Please explain the basis for PNG's expectation that there will be minimal maintenance and administration costs associated with the interconnection pipelines.
- 33.2 Please explain whether the demand charge will be adjusted to reflect any changes to the capital maintenance costs over the life of the assets or unforeseen operating costs. If not, why not?
- 33.3 Please clarify whether the demand charge is subject to PNG's delivery rate increases or any other form of escalation over the term of the related TSA.
 - 33.3.1 Please explain PNG's rationale for discounting the cost of service for the interconnection pipeline costs in arriving at the demand charge, and how this factors into the method of escalating the demand charge over the life of the TSA.
- 33.4 Please discuss the pros and cons of rolling in the demand charge to PNG's revenue requirements versus not rolling in the demand charge.
- 33.5 Please explain what alternatives PNG has considered to a fixed monthly demand charge to recover the costs associated with the interconnection pipelines, including the advantages and disadvantages of each and why each alternative was rejected.
 - 33.5.1 If no alternatives were considered, please explain why not.
- 33.6 In a scenario where a specific demand charge was not outlined in the interconnection agreements, please discuss what existing PNG rate would be applicable to customers taking service on the interconnection pipelines and why.
 - 33.6.1 Assuming the above noted existing PNG rate is applicable to customers taking service on the interconnection pipelines, please provide the amount of contribution in aid of construction (CIAC) that would be required for each interconnection pipelines, including supporting calculations.

- 33.6.2 Please explain whether PNG considered a CIAC for each of the interconnection pipelines and the pros and cons of CIAC for these facilities as compared to recovering the costs of these facilities through a demand charge over the life of the TSAs.
- 33.7 Please discuss PNG's applicable mains extension test for the customers to be served by the interconnection pipelines and clarify whether PNG's applicable mains extension test is included in any terms and conditions pertinent to these customers.
- 33.7.1 Please confirm whether PNG has carried out any mains extension test for the interconnection pipelines and if yes, please provide the results.

**34.0 Reference: PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACTS
Exhibit B-1, Section 3.2, p. 21; PNG Application (PNG-West and Granisle) for Approval of 2006 Rates, Order G-99-06 and Reasons for Decision dated August 16, 2006, p. 30
Previously Deactivated Assets**

On page 21 of the Application, PNG provides the following table summarizing the discontinued use and deactivation of many of the Western Transmission Gas System's compression assets due to the loss of customer demand during the period 2001 to 2010:

Table 3-1: Western Transmission Gas System - Asset Status and Operation Summary

Infrastructure	Milepost (MP)	Location	Current Operating Status
10" Mainline	0 - 273.5	Summit Lake to Terrace	In service
8" Mainline	273.5 - 364.5	Terrace to Prince Rupert	In service, operating pressure reduced
12" Loop	0 - 24	Summit Lake to 24 miles west	In service
12" Loop	67 - 91	Vanderhoof to 24 miles west	In service
12" Loop	137 - 141	Burns Lake to 4 miles west	In service
R1 Compressor Station	0	Summit Lake	Unit 2 in service; Unit 3 not in service
R2 Compressor Station	67	Vanderhoof	Not in service
R3 Compressor Station	137	Burns Lake	Not in service
R4 Compressor Station	202	Telkwa	Not in service

On page 30 of the Reasons for Decision accompanying Order G-99-06, the BCUC approved "the deactivation of compressor stations R2 and R4, a 10 inch loop (52.8 miles in length), a 6 inch lateral to Kitimat (32.97 miles in length) and a Methanex meter and regulating station." *[Emphasis Added]* Further, the BCUC approved:

... PNG's request to transfer the net book value of \$5.05 million of the facilities which it will deactivate from plant in service to a non-rate base interest bearing deferral account and to amortize that account on a monthly basis over 10 years commencing January, 2006.

- 34.1 Please confirm, or otherwise explain, whether PNG transferred the net book value of the deactivated facilities to a non-rate base interest-bearing deferral account and amortized the deferral account in line with Order G-99-06.
- 34.2 Please explain whether the deactivation of R3 compressor station and unit 3 of R1 compressor station were accounted for consistent with the deactivation of compressor stations R2 and R4.

**35.0 Reference: PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACTS
Exhibit B-1, Section 2.5, p. 18, Section 5, pp. 93, 97, Section 6, p. 119, Section 7, p. 137,
Section 8, p. 154
Project Cost**

In Table 6-1 on page 119 of the Application, PNG provides a summary of the Project cost of \$88.5 million in as-spent dollars. The Project cost includes an estimate for “Project Management Office” costs of \$8.4 million.

On page 93 of the Application, PNG states: “The individual total installed cost estimates have been compiled by PNG into an overall work breakdown structure for the Project, with owner indirect costs associated with a project-specific Project Management Office (PMO) and Contingency added by PNG.”

- 35.1 Please describe what PNG considers to be “owner indirect costs”.
- 35.2 Please provide a breakdown of the \$8.4 million Project Management Office (PMO) cost estimate by year and cost category.
- 35.3 Please discuss the basis for the PMO cost estimate prepared by PNG.
- 35.4 Please confirm whether the total project cost estimate of \$88.5 million includes those amounts that PNG will be recorded in the Reactivation Project Development Costs Deferral Account.
 - 35.4.1 If not, please explain why not.
 - 35.4.2 If not, please provide the rate impact once the amounts are included.

**36.0 Reference: PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACTS
Exhibit B-1, Section 4.4.1.3, p. 40, Section 6, p. 119, 120, 127, 129, 133; Application
Regarding Process for Allocation of Reactivated Capacity and Approval of Large
Volume Industrial Transportation Rate (Original RECAP Proceeding), Exhibit B-4, BCUC
IR 27.11; Exhibit B-6, BCUC IR 34.1, 34.3, 34.3.1; CPCN for Watson Island Customer Tie-
in Establishment of Depreciation Rate (Application for WICT), Exhibit B-5, BCUC IR
1.1.2
Depreciation**

On page 119 of the Application, PNG states:

PNG has undertaken a comprehensive financial analysis of the Project over a 29-year period. The 29-year period consists of the 4-year expected construction phase, the period up to the expiry of the last of the 20-year to 21.5-year TSAs (the terms of which commence within the initial 4-year phase) and a 5-year period over which the remaining undepreciated plant balances are amortized after the expected expiry of the last of the TSAs.

On page 40 of the Application, PNG states that it “has made use of the currently approved depreciation rates for additions to all asset classes and has also incorporated into the evaluation an additional 5-year period to amortize the remaining undepreciated plant assets from both the initial and maintenance capital spend following the original term of the TSAs”, in its financial analysis of alternative project scope elements.

On page 133 of the Application, PNG states:

Tolls will be in the form of a fixed monthly demand charge determined on the basis that the NPV of the revenue stream from the tolls is identical to the NPV of the underlying

costs. As noted, this includes the depreciation of the dedicated assets over the life of the respective TSA. Again, this ensures that costs for the interconnecting pipelines are paid by the respective new industrial customer. *[Emphasis Added]*

The Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Master Glossary defines Useful Life as “The period over which an asset is expected to contribute directly or indirectly to future cash flows.”

- 36.1 Please confirm, or otherwise explain, that PNG is proposing to use the BCUC approved depreciation rates from its most recent Depreciation Study for all Project assets other than the interconnecting pipelines.
- 36.2 Please clarify whether PNG is seeking approval of the depreciation rates used for the interconnecting pipeline assets as part of the Application.
- 36.3 Please provide the applicable useful life and depreciation rate and method for each project asset class, including each interconnecting pipeline, and confirm which asset classes will be depreciated in accordance with the BCUC approved rates from PNG’s most recent depreciation study.
- 36.4 Please explain whether PNG has considered any alternative depreciation rates or methods for the interconnecting pipeline assets. If not, please explain why not.
 - 36.4.1 If yes, please discuss the alternative depreciation rates or methods considered by PNG, including the advantages and disadvantages of each and please explain why each alternative was rejected.
- 36.5 Please explain whether PNG has considered any alternative depreciation approaches for the Project assets other than the interconnecting pipelines, such as to depreciate over the life of the TSAs, consistent with the interconnecting pipelines. If not, please explain why not.
 - 36.5.1 If yes, please discuss the alternative approaches considered by PNG, including the advantages and disadvantages of each and please explain why each alternative was rejected.
- 36.6 Please provide the financial analysis and resulting rate impact each year (with and without the Salvus to Galloway project), if (a) all Project assets are depreciated over the term of the TSAs and (b) the interconnecting pipelines are depreciated using the BCUC approved depreciation rates.
- 36.7 If PNG were directed to use a depreciation rate based on the TSA contract term for the Project assets, please discuss:
 - a) the mechanics of how the accounting for this would be implemented and if there would be any associated administrative considerations or costs; and
 - b) if this would result in a different accounting treatment for regulatory accounting purposes as compared to financial reporting. If so, are there any administrative considerations or costs associated with this?
- 36.8 Please identify the relevant factors from PNG’s perspective that should be considered in determining the useful life of an asset for the purpose of setting depreciation rates in accordance with US Generally Accepted Accounting Principles (GAAP).
 - 36.8.1 Based on the information available at present, please provide the estimated timeframe over which each of the interconnecting pipelines and all other Project assets other than the interconnecting pipelines are expected to contribute directly or indirectly to future cash flows.

- 36.9 Please explain, with supporting rationale and reference to the applicable sections of US GAAP, why PNG is proposing to depreciate the interconnecting pipelines over the TSA term while the remaining Project assets will be depreciated using rates from the most recent Depreciation Study.
- 36.10 Does PNG consider that setting depreciation rates using contract term as the basis for useful life is permitted under US GAAP? Please explain why or why not, with reference to the relevant factors that should be considered and the applicable US GAAP section.

In response to BCUC IR 1.1.2 in the Application for WICT, PNG stated:

In the unforeseen event that the WICT assets are no longer used and useful at the end of the 20-year GSA term, PNG would propose to retire the asset and defer the undepreciated plant balance of the WICT assets in the Ordinary Plant Gain and Loss deferral account to be amortized over five years. This would be consistent with PNG's current BCUC-approved treatment for asset retirements.

- 36.11 Please confirm, or explain otherwise, that the write-off of assets that are no longer used and useful over a period of 5 years is PNG's standard approach for regulatory accounting purposes.
- 36.11.1 Please identify any alternative methods for writing off assets that are no longer used and useful, that have been considered or used by PNG in the past and the pros and cons to these alternative approaches.
- 36.12 In the event that any of the Project assets are no longer used and useful in the future, please explain, with rationale, whether PNG considers that any write off associated with these assets should be to the account of PNG's shareholder or ratepayer.
- 36.13 Please discuss any intergenerational equity issues that may result from the proposed 5-year write-off period for the remaining undepreciated plant balances after the expiry of the last TSA.

On page 127 of the Application, PNG states:

... under a conservative scenario whereby the analysis is conducted ... making the assumption that all of the proposed capital assets for the Project are no longer useful following expiry of the TSAs and the remaining undepreciated plant balances are amortized over the following 5-year period, the incremental revenue sufficiency over this 28-year analysis period would average 19.3% of the total cost of service (i.e. the 2021 cost of service plus the cost of service associated with the Project).

However, should the proposed capital assets continue to be useful to PNG's operation beyond 2044, as some are expected to be, and the remaining undepreciated plant balances are not amortized after the initial term of the TSAs, the analysis indicates that the incremental revenue sufficiency would average 30% of the total cost of service. PNG further notes that there is a possibility that the TSAs may be renewed and extended beyond their initial term, further contributing to the future revenue sufficiency.
[Emphasis Added]

Further on page 129 of the Application, PNG states that under the above scenario, incorporating the Salvus to Galloway project costs, "the analysis indicates that the revenue sufficiency would average 27% of the total cost of service."

- 36.14 Please discuss the likelihood of the TSAs being renewed and extended beyond their initial term.

- 36.15 Please discuss whether PNG has any indication of what customer demand will be following the expiry of the initial TSA terms.
- 36.16 Please provide the financial analysis and resulting rate impacts per year (with and without the Salvus to Galloway project) under the following scenarios:
- a) all TSAs are extended beyond their initial term by 5 years; and
 - b) all TSAs are extended beyond their initial term by 10 years.

Please assume all other inputs remain constant for each scenario.

- 36.17 Please provide the financial analysis in a working excel model to support the 30% and 27% average revenue sufficiency over the total cost of service (i.e. average rate impacts) referenced on pages 127 and 129 of the Application, respectively.

In response to BCUC IR 34.1 in the Original RECAP Proceeding, PNG stated:

... There will be no loops or reinforcement projects under RECAP that will be committed solely to one or more RS 80 customers.

In response to BCUC IR 34.3 in the Original RECAP Proceeding, regarding any RECAP assets that will no longer be used and useful, if no RECAP shippers extend contracts beyond the initial term, PNG stated:

PNG would review which facilities could be decommissioned or deactivated to reduce its cost of service without jeopardizing its ability to provide safe and reliable service to its remaining customers.

- 36.18 Please confirm, or explain otherwise, whether the above statements are still applicable for the Project.

In response to BCUC IR 27.11 in the Original RECAP Proceeding, PNG stated:

Based on historical practice and for administrative reasons, PNG proposes to continue to use the estimated physical life of its assets for determination of the depreciation rate. The majority of assets that will be used to provide service under RS 80 will be common assets; therefore the assets that are used to provide service to RS 80 customers are also used, on a common basis, to provide service to all other ratepayers in PNG's service territory. For this reason, PNG does not believe it is possible to segregate assets into different pools for the purpose of setting depreciation rates that match the economic life (contract term) of its RS 80 TSAs.

- 36.19 Based on the scope of the Project outlined in the Application, please discuss whether the Project assets can be segregated between those that are used exclusively to provide service to RS 80 customers under executed TSAs and common assets that are used to provide service to all PNG customers. If yes, please provide a breakdown of the Project assets. If not, please explain why not.
- 36.20 Please provide the estimated undepreciated balance of the Project assets at the end of the TSA terms and the incremental annual rate impact per year under a scenario whereby these assets are written off at the end of the TSA terms.

**37.0 Reference: PROJECT COSTS, ACCOUNTING TREATMENT AND RATE IMPACTS
Exhibit B-1, Section 1.1.5.2, p. 8, Section 6.5.3, p. 131
Future Rate Impact Mitigation**

On page 8 of the Application, PNG states:

PNG expects that the revenues and margin associated with the Project will more than offset the combined cost of service impact of both the proposed Project and the Salvus to Galloway project over the average initial 20-year term of the TSAs executed following RECAP. As a result, all PNG customers will have lower rates than they otherwise would in the absence of the new revenues and margin.

On page 131 of the Application, PNG provides the following table showing an example of how various deferral accounts, including the LVIDA, can be used to mitigate rate volatility (including the Salvus to Galloway project) in the initial years of the TSAs, resulting in a constant annual rate increase of 1.8%:

Table 6-12: Illustrative Example of Rate Impact Mitigation - Project plus New Customer Volume of 65 MMSCFD

	2022E	2023E	2024E	2025E	2026E	2027E
Revenue Deficiency/(sufficiency)						
Proposed Project	(934,282)	(11,112,675)	(20,056,636)	(21,466,666)	(20,963,249)	(19,745,754)
S2G	1,643,914	5,287,684	6,623,483	6,661,147	6,685,911	6,698,807
Rate Smoothing	50,000	(333,266)	284,133	1,605,000	2,748,441	4,754,267
S2G Deferral	(1,077,764)	(3,453,915)	(4,305,022)	(4,326,071)	(4,339,005)	5,123,261
Less Additions to LVIDA	934,282	11,112,675	20,056,636	21,466,666	20,963,249	10,612,914
Total	616,150	1,500,504	2,602,594	3,940,076	5,095,347	7,443,495
Rate Increase relative to 2021 Rates	1.4%	3.2%	5.1%	7.0%	8.9%	10.9%
CAGR Relative to 2021 Rates	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Year over Year Rate Increase	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
LVIDA Balance (including WACD interest)	934,282	12,079,363	32,393,195	54,738,801	77,424,096	90,649,030

Further on page 131 of the Application, PNG states:

The example also illustrates that new industrial customer revenues in excess of the proposed Project's cost of service will be captured in the LVIDA for future amortization and to provide flexibility in avoiding rate shock if and when the new industrial customer TSA contracts expire, as well as to mitigate rate impacts of unforeseen circumstances in the future.

- 37.1 Please discuss whether the illustrative example provided in Table 6-12 suggests that PNG customers may not experience any rate decreases as a result of the Project combined with the Salvus to Galloway project, due to rate impact mitigation strategies.
 - 37.1.1 Are there any scenarios where PNG customers may not experience any rate decrease as a result of the Project, due to rate impact mitigation strategies? If yes, please describe and provide an illustrative example.
- 37.2 Please discuss any intergenerational equity issues that may result from the use of deferral accounts, from 2022 and after the TSAs expire, to mitigate rate volatility due to this Project.
- 37.3 Given the expected overall excess margins from the Project, please explain whether PNG has considered the possibility of reducing or maintaining existing rates for all PNG customers from 2022 onwards.

- 37.3.1 In the above scenario, please explain whether it would be still possible to avoid rate shock if the TSAs expire without renewal. If yes, please provide a brief description of how this may be achieved (e.g. through the use of deferral accounts, such as those illustrated in Table 6-12).
- 37.4 Please provide illustrative examples considered by PNG that show how the LVIDA may be used to mitigate rate volatility over the full 29 year financial analysis period, including the volatility due to the potential write-off of stranded assets and reduced revenues as the TSAs expire, with the Salvus to Galloway project. Please include the annual rate change compared to 2021 rates and the year over year rate change under each scenario.
- 37.5 Considering the incremental volume information available in the executed TSAs, please discuss whether PNG has developed a comprehensive plan for how much revenue will be recorded in the LVIDA in the short term and/or the long term. If a plan has not been developed, please discuss why not. If a plan has been developed, please provide details including the estimated amount of revenue that PNG plans to record in the LVIDA per year in the short and/or long term and the resulting annual rate change compared to 2021 rates and year over year rate change.
- 37.6 Please explain why PNG considers the RRA the appropriate place to address the use of the LVIDA to mitigate rate impacts, rather than the current proceeding or a separate application.
- 37.7 Other than the use of deferral accounts (as illustrated in Table 6-12), please explain whether PNG has considered any alternatives to mitigate rate impacts and rate volatility. If not, please explain why not.
- 37.7.1 If yes, please discuss the alternatives considered by PNG, including the advantages and disadvantages of each and please explain why each alternative was rejected.

E. ENVIRONMENT AND ARCHAEOLOGY

38.0 Reference: Environment and Archaeology Exhibit B-1, Section 7.2.1.1. Table 7-1, pp. 140-141 Environmental Effects Overview

On page 140 of the Application, PNG states that “Table 7-1 provides a high-level scoping of potential environmental effects associated with pipeline and compressor station construction, pipeline integrity repair, field-based pressure testing, related infrastructure construction and subsequent asset operation which was considered during the scoping exercise.”

- 38.1 Please elaborate on the environmental effects summarized in Table 7-1 by providing an analysis of the expected cost impacts for each environmental effect documented in the table.
- 38.2 Please explain any analysis that was conducted to determine the probability and materiality of such environmental effects occurring, as documented in Table 7.1.
- 38.3 Please explain any environmental risk mitigation strategies that have been considered, with respect to the environmental effects documented in Table 7-1.
- 38.3.1 Please describe the estimated costs relating to the environmental risk mitigation strategies.

39.0 Reference: Environment and Archaeology Exhibit B-1, Table 7-2, Section 7.2.1.2., pp. 142-143 Regulatory Requirements/Environmental Permit Scoping

On page 142 of the Application, PNG states that “Referencing the information from environmental constraint and effects scoping, PNG has identified a number of key regulatory permitting requirements

and processes at both the federal and provincial level that are likely to be triggered based on the overall project scope. These are summarized in Table 7-2.”

- 39.1 For each regulatory permitting requirement identified in Table 7-2, please provide PNG’s projected timelines for applying for such permits and securing the necessary approvals.
- 39.2 Please discuss the risks and impacts on the Project, project timelines and associated costs if PNG is not able to secure the necessary permits and regulatory approvals or if PNG experiences delays in receiving the permits.
- 39.3 Please discuss whether the shippers require any permits or further regulatory approvals to commence their projects. If so, please discuss the risks and the impact on the Project, project timelines and associated costs if any shippers are not able to secure their permits or experience delays.

**40.0 Reference: Environment and Archaeology
Exhibit B-1, Section 7.3.1, Table 7-3, pp. 150-151
Archaeological Overview Assessment**

On page 150 of the Application, PNG states that:

The results of the desktop AOA’s indicate a number of AOP may be disturbed by the proposed development. As a result of associated recommendations, the following activities will be considered for the Project, where applicable:

- Obtain a Section 14 Heritage Conservation Act Heritage Inspection Permit for AOP investigation and values disturbance risk mitigation.
- Completion of Preliminary Field Reconnaissance (PFR) by a professional archaeologist, focusing on identified AOP within the project area in order to refine archaeological interaction information, and to revisit previously recorded archaeological sites within and adjacent to the proposed project development to further understand potential interactions and impacts.
- A 10% sample of low potential terrain will also be subject to PFR on the way to and from the identified AOP to supplement the PNG and provincial datasets.
- Completion of a permitted subsurface testing program by a professional archaeologist in the AOP that remain following the PFR to further assess for subsurface values.
- Direct involvement by relevant First Nations in PFR and subsequent subsurface testing activities.

40.1 Please provide PNG’s anticipated timelines for securing the following permits and completion of archaeological studies:

- Section 14 Heritage Conservation Act Heritage Inspection Permit;
- Preliminary Field Reconnaissance (PFR); and
- Permitted subsurface testing program.

F. CONSULTATION AND ENGAGEMENT

**41.0 Reference: Consultation and Engagement
Exhibit B-1, Section 8.4.3., p. 167;
Consultation and Engagement with Indigenous Communities**

On page 167, Engagement with affected Indigenous communities began in November 2020. PNG sent out an introductory letter and Project Fact Sheet to individual First Nation Groups. The First Nations were encouraged to review the material and to respond with any questions or concerns they may have, and they were also offered a virtual meeting in which a project overview would be presented. Reminder

emails were sent in late November 2020 and mid January 2021 to those Nations that did not respond. PNG appended a communications log that includes all correspondence with all 18 First Nations since engagement commenced in November 2020 (confidential Appendix O5); and a log outlining questions, concerns and comments made by First Nations in regard to the overview presentations and PNG responses (Appendix O6).

- 41.1 Please describe any further engagement with the First Nations since mid January 2021
- 41.1.1 If applicable, please provide an update to confidential Appendix O5 that summarizes all additional correspondence with the First Nations.
- 41.1.2 If applicable, please provide an update to confidential Appendix O6 including any additional concerns and issues raised by the First Nations. .
- 41.2 Please outline all of PNG’s future planned consultation activities with each of the following interest groups outlined in the Application:
- Indigenous Communities;
 - General Public;
 - British Columbia provincial government agencies;
 - Federal agencies;
 - Municipal and Regional governments;
 - Federal MPs and Provincial MLAs.
- 41.3 Please provide any additional analysis or detailed environmental studies (if such studies have been completed) that have been conducted since the February 2021 Consultation.
- 41.3.1 If the detailed environmental studies are not completed yet, please provide a projected timeline for completion of such additional analyses and detailed environmental studies.

**42.0 Reference: Consultation and Engagement
Exhibit B-1, Page 169
BC OGC Consultation**

On page 169, section 8.4.5 PNG states

As the Project develops and moves throughout the various project stages, PNG will continue to work with Indigenous communities to ensure they are kept informed of project developments. Indigenous communities will also have opportunities to comment on impacts during Consultation and Notification aspects of the BC OGC permitting process, including commenting on updated environmental and archaeological management plans.

- 42.1 Please provide a summary of any consultation related to the BC OGC permitting process for the Project that has been undertaken to date.
- 42.1.1 Please provide any documentation regarding consultation related to the BC OGC permitting process (filed confidentially, if required)
- 42.2 Please discuss the anticipated timeline for future consultation related to the BC OGC permitting process for the Project.
- 42.3 Please provide a summary of future consultation plans related to the BC OGC permitting process for the Project.

42.4 Please discuss whether PNG has been delegated or anticipates being delegated responsibility for any aspects of the BC OGC's duty to consult for this Project.