BC Hydro
Power smart

6911 Southpoint Drive (B03)
Burnaby, BC
V3N 4X8

July 30, 2024

[redacted]

RE: CEAP IR 56 - Pennask Summit Wind Farm Project - Interconnection Feasibility Study Report

Enclosed is the Interconnection Feasibility study report for the proposed Pennask Summit Wind Farm Project submitted under Attachment M-2: Transmission Service and Interconnection Service Procedures for Competitive Electricity Acquisition Process (CEAP) of the Open Access Transmission Tariff (OATT). This letter provides a non-binding good faith estimate of the cost and time to construct the facilities required to interconnect your project to BC Hydro's Transmission System, being the Network Upgrades, based on the findings of the Interconnection Feasibility study.

Open Access Transmission Tariff

The OATT defines Network Upgrades as additions, modifications, and upgrades to BC Hydro's Transmission System required at or beyond the Point of Interconnection to accommodate the interconnection of the Generating Facility to the BC Hydro's Transmission System. Pursuant to the OATT, BC Hydro will design, procure, construct, install, and own the Network Upgrades. While BC Hydro will pay the costs for the Network Upgrades, the Interconnection Customer provides security for such costs.

Cost Estimate

Based on the Interconnection Feasibility study, the non-binding good faith estimated cost (typical accuracy range of +150%/-50%) for Network Upgrades required to interconnect your project is $77.8 M.

Major Scope of Work Identified:

- Acquire adequate property and construct a new 138 kV, 3-circuit ring bus switching station with new control building and required substation facilities and infrastructure near transmission line 1L244
- Install microwave towers and associated infrastructures
- Add and upgrade Protection, Control and Telecom

Exclusions:

- GST
- Permits
- Right-of-Way

Key Assumptions:

- Construction by contractor.
- 3 years of construction is considered
- Early Engineering and Procurement
- No ground improvements will be required
- No contaminated soil will be encountered

Key Risks:

- Additional right-of-way or property acquisition may be required
- Cost of property acquisition may be higher than estimated
- No defined supply chain strategy, construction costs may increase depending on delivery method
- Project schedule may be longer than expected, leading to increased costs
- Costs may be affected by market conditions and escalation

Please note that the Revenue Metering requirements and associated costs required to interconnect your project have not been determined at this stage and, therefore, not included in the above estimate. Revenue Metering costs that are attributable to the Interconnection Customer are to be paid in cash. For more details on Revenue Metering requirements and responsibilities, please refer to:

https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/distribution/standards/ds-rmr-complex-revenue-metering.pdf.

Schedule

Based on the Interconnection Feasibility study, the non-binding good faith estimated in-service date for your project's Network Upgrades is Quarter 3 2031 (calendar year). To achieve this timeline, we may need to expedite certain activities, including engineering design and procurement of long-lead equipment.

Timely actions required from you to minimize risks to the schedule:

- Submission of additional technical data required for the System Impact Study and Facilities Study
- Submission of any required information or document such as demonstration of Site Control
- Execution of Combined Study Agreement and Standard Generator Interconnection Agreement
- Financial commitments and securities

Please note that changes to your interconnection request, delays in data submission, or financial commitments may also impact the target in-service date.

Next Steps

In September 2024, we will issue a final invoice for the Feasibility Study costs. This invoice will reflect the total amount due, taking into account the $15,000 Feasibility Study deposit you have already paid and any remaining amount on the non-refundable $15,000 Interconnection request deposit that we did not spend in reviewing and validating your interconnection request.

If you have any questions, please contact the BC Hydro CEAP Team at ceap2024@bchydro.com.

Sincerely,

Senior Manager, Transmission Interconnections

BC Hydro

Encl.: CEAP2024_IR_56_Pennask Summit Wind Farm_FeS_Report_final.pdf

[redacted]

Pennask Summit Wind Farm

Interconnection Feasibility Study

BC Hydro EGBC Permit to Practice No: 1002449

2024 CEAP IR # 56

Prepared for: [redacted]

[redacted]

Report Metadata

Header:	Pennask Summit Wind Farm
Subheader:	Interconnection Feasibility Study
Title:	Pennask Summit Wind Farm
Subtitle:	2024 CEAP IR # 56
Report Number:	300-APR-00013
Revision:	0
Confidentiality:	Public
Date:	2024 Jul 30
Volume:	1 of 1
Prepared for:	[redacted]
Related Facilities:	1L244
Additional Metadata:	Transmission Planning 2024-068 Filing Subcode 1350

[redacted]

Revisions

Revision	Date	Description
0	2024 Jul	Initial release

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Executive Summary

[redacted] the Interconnection Customer (IC), requests to interconnect its Pennask Summit Wind Farm (2024 CEAP IR # 56) to the BC Hydro system. Pennask Summit Wind Farm has fourteen (14) [redacted] type-3 wind turbine generators with a total capacity of 82.6 MW. The proposed Point of Interconnection (POI) is on BC Hydro's 138 kV line 1L244, approximately 45 km from Nicola substation (NIC). The IC's project will be connected to the POI via a 4.4 km 138 kV interconnection line. The proposed maximum power injection at the POI is 80.6 MW. The proposed commercial operation date (COD) is Oct 1, 2028.

To interconnect the Pennask Summit Wind Farm and its facilities to the BC Hydro (BCH) Transmission System at the proposed POI, this Feasibility Study has identified the following conclusions and requirements:

1. A new 138 kV switching station (referred to as "P56T") on 1L244 is required at the proposed POI for interconnecting the IC's generating project to the BCH system. With the new switching station P56T, the existing line 1L244 will be segregated into two segments, and three new lines are temporarily referred to as: 1L244A (NIC-P56T), 1L244B (P56T-WBK) and 1L244C (P56T-P56).

2. The connection of Pennask Summit Wind Farm does not cause any performance violation (i.e. thermal overload, voltage performance violation or voltage stability concern) under system normal and single contingency conditions.

3. A direct transfer trip (DTT) from NIC to P56T is required to isolate the wind farm for protective and unintentional tripping of 1L244A. In addition to entrance protection and 1L244C protection, the IC is required to install anti-islanding protection within its facility to disconnect the IC's wind farm from the grid when an inadvertent island with the local load forms.

4. BC Hydro will provide line protections for 1L244A, 1L244B and 1L244C (BC Hydro end only). As part of the line protection replacements for each of the three lines, telecommunication facilities will be required to accommodate the new protection schemes. The IC shall provide required relays, telecom facility and associated equipment at its facilities to accommodate the new protection schemes.

5. The line 1L244A will become part of BC Hydro BES and need to be compliant with applicable NERC MRS requirements. The line 1L244B will remain as a non-BES line.

The above conclusions are made based on the IC's input data and study assumptions listed in Section 4, which represent the best available information on May 22, 2024.

A non-binding good faith estimated cost and time to construct the Network Upgrades required to interconnect the proposed project will be provided in a separate letter to the IC.

Contents

Appendices

Acronyms

The following are acronyms used in this report.

BCH	BC Hydro
CEAP	Competitive Electricity Acquisition Process
COD	Commercial Operation Date
DTT	Direct Transfer Trip
EDM	Edmonds Office
ERIS	Energy Resource Interconnection Service
FeS	Feasibility Study
FVO	Fraser Valley Office
HAM	Hamilton Microwave Repeater
IBR	Inverter-Based Resources
IC	Interconnection Customer
MPO	Maximum Power Output
NERC	North American Electric Reliability Corporation
NRIS	Network Resource Interconnection Service
OATT	Open Access Transmission Tariff
POI	Point of Interconnection
RAS	Remedial Action Scheme
SIC	South Interior Control
SIO	South Interior Office
TIR	BC Hydro “60 KV to 500 kV Technical Interconnection Requirements for Power Generators”
WECC	Western Electricity Coordinating Council
WTG	Wind Turbine Generator

1 Introduction

*Note: The power flow study results and conclusions included in this report is based on the **BC Hydro Report – Pennask Summit Wind Interconnection Feasibility Study Power Flow Analysis Results,** which is included in the Appendix C. The content of Section 1 is reproduced here from the Appendix C for reader's convenience.*

Table 1-1 below summarizes the project reviewed in this Feasibility Study.

Table 1-1 Summary of Project Information

Project Name	Pennask Summit Wind Farm	
Name of Interconnection Customer (IC)	[redacted]	
Point of Interconnection (POI)	on 1L244 at 45 km from NIC	
IC's Proposed COD	1st October 2028	
Type of Interconnection Service	NRIS ☒	ERIS ☐
Maximum Power Injection (MW)	80.6 (Summer)	80.6 (Summer)
Number of Generator Units	14 x 5.9 MW	
Plant Fuel	Wind	

[redacted] the Interconnection Customer (IC), requests to interconnect its Pennask Summit Wind Farm (2024 CEAP IR # 56) to the BC Hydro system. Pennask Summit Wind Farm has fourteen (14) [redacted] type-3 wind turbine generators with a total capacity of 82.6 MW. The proposed Point of Interconnection (POI) is on BC Hydro's 138 kV line 1L244, approximately 45 km from Nicola substation (NIC). The IC's project will be connected to the POI via a 4.4 km 138 kV interconnection line. The proposed maximum power injection at the POI is 80.6 MW. The proposed commercial operation date (COD) is Oct 1, 2028.

Figure 1-1 shows the Nicola-Highland region transmission system diagram. Nicola substation (NIC) is a major substation in this area with two existing 500/230 kV transformers (NIC T2 & T3) and two 230/138 kV transformers (NIC T5 & T6). NIC presently supplies three 138 kV transmission lines — 1L251 to the [redacted] Copper Mountain substation (CUM) and Similco substation (SCO), 1L243 to BC Hydro's Highland substation (HLD) and 1L244 to BC Hydro's Westbank substation (WBK).

The existing 138 kV line 1L244 is a radial circuit that mainly supplies WBK. There are two existing customers' facilities tap-connected on the line – Pennask-Shinish Wind Farm (PSW) and Brenda Mines Substation (BDM). PSW is an IPP wind farm with a total capacity of 30 MW.

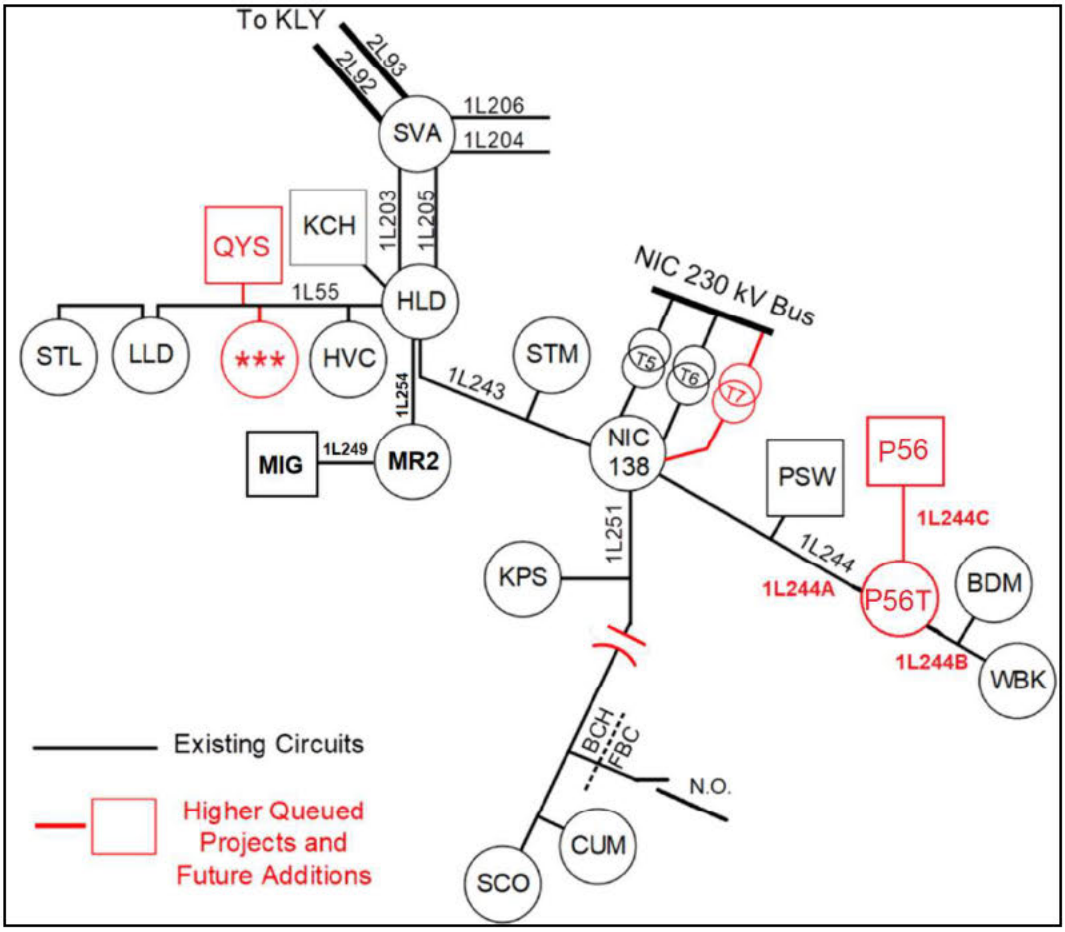

Figure 1-1: Nicola-Highland region 138/230 kV Transmission System Diagram

The existing line 1L244 is a radial circuit that mainly supplies WBK. There are two existing customers' facilities tap-connected on the line – Pennask-Shinish Wind Farm (PSW) and Brenda Mines Substation (BDM). PSW is an IPP wind farm with total capacity of 30 MW.

In addition to PSW, there are three other customers' owned power plants in the study region.

- Kwoiek Creek Generating Station (KCH) has a total capacity of 60 MW and is connected to HLD via the line 1L57.
- Merritt Green Energy Project Generating Station (MIG) has a total capacity of 40 MW and is connected to Merritt 2 Substation (MR2) via 1L249.
- quA-ymn Solar farm (QYS) is a 15 MW IPP generating project currently under construction. It will connect to BC Hydro system via at tap on 1L55.

There are several high-queued load interconnections and their associated network upgrades in the study region. The relevant network upgrades being planned in the study region are as follows.

- Nicola Substation Transformation Capacity Reinforcement: this project will add a new 230 kV/138 kV transformer at NIC (i.e. NIC T7) to mitigate the possible transformer overload associated with the industrial load increase in Highland region.
- 1L243 reconductoring: this line rating upgrade is required to accommodate an industrial load increase in Highland region.
- 1L251 series capacitor project: Line 1L251 will be series compensated to accommodate an industrial load increase on 1L251.

2 Purpose and Scopes of Study

This Feasibility Study is a preliminary evaluation of the system impact of interconnecting the proposed project to the BC Hydro system based on power flow and short circuit analysis in accordance with BCH's Open Access Transmission Tariff (OATT). A non-binding good faith estimated cost of required Network Upgrades and estimated time to construct will be provided.

Per OATT, the feasibility study is performed individually for each of the participating projects in the CEAP process and focuses specifically on the BC Hydro regional transmission system where the proposed generating project is proposed to be constructed. An assessment of the incremental effect on the 500kV bulk transmission system is beyond this study scope.

This is a "limited scope" study which is restricted to power flow studies of P0, P1 and P2 planning events as defined in TPL-001-4, Table 1 and short circuit analysis. The study does not address other technical aspects such as transient stability and switching transients and impact of multiple contingencies. These subjects would be addressed in subsequent System Impact Study if the project is a Successful Participant of the CEAP.

In case impact to the adjacent external systems to BC Hydro is observed, such impact would be addressed in subsequent detailed and coordinated studies with the relevant adjacent entities if the proposed interconnection proceeds further.

3 Standard and Criteria

The Feasibility Study is performed in compliance with the North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) reliability standards and criterions, and the BCH interconnection requirements in the Technical Interconnection Requirements (TIR), and upon the ratings of the existing BCH transmission facilities described in Operating Orders, specifically:

- NERC standards: TPL-001-4 and FAC-002-3 relevant to the scope of this Feasibility Study.
- WECC criteria TPL-001-WECC-CRT-4 Transmission System Planning Performance, July 1, 2023.
- BC Hydro's 60 kV to 500 kV Technical Interconnection Requirements for Power Generators.
- BC Hydro Operating Order 5T-10, Ratings for All Transmission Circuits 60 kV or Higher, April 16, 2024.
- BC Hydro Operating Order 5T-14, Ratings for All Transmission and Distribution Transformer, November 8, 2022.
- BC Hydro System Operating Order 7T-22 System Voltage Control, September 19, 2023.

4 Assumptions and Conditions

*Note: The power flow study results and conclusions included in this report is based on the **BC Hydro Report – Pennask Summit Wind Interconnection Feasibility Study Power Flow Analysis Results,** which is included in the Appendix C. The study assumptions of the power flow studies are included in the Section 4 of the report in Appendix C and reproduced here for reader's convenience.*

This Feasibility Study is performed based on the IC's submitted data and information available to BC Hydro on May 22, 2024 for the study purpose. Appendix A shows the plant single line diagram for the IC's project used in the study model. Certain assumptions were, as set out below, made to the extent required.

The power flow study cases used in this Feasibility Study are established based upon the BC Hydro's base resource plan and load forecasts available at the time of performing the study, which includes existing and future generations, transmission facilities, and loads in addition to the subject interconnection project in this study. Applicable seasonal conditions and the appropriate study years for the study planning horizon are also incorporated.

Additional assumptions are listed as follows.

1) The regional generation are dispatched to the patterns that stress the transmission system in the study area. In these patterns, the regional generations are typically set to their Maximum Power Outputs (MPO) unless otherwise specified.

2) West Kelowna Transmission Project (WKTP) is not included in the Feasibility Study model, as the project scope is undetermined at the time of performing this study.

3) Nicola Substation Transformation Capacity Reinforcement project (i.e. addition of NIC T7) and 1L243 reconductoring work is assumed completed by the time the IC's generating project enters service. 1L243 after reconductoring is assumed to have a conductor rating of 1145 A (summer) and 1388 A (winter).

4) For the purpose of performing the study, the IC's generating project is assumed to have the same voltage set point as the existing wind farm nearby (PSW), i.e. 139.4 kV (1.01 PU) at the high side of main station

transformer. The exact voltage control requirement for the IC's project will be explored in greater details if the IC's project proceeds further.

5 System Studies and Results

*Note: The power flow study results and conclusions included in this report is based on the **BC Hydro Report – Pennask Summit Wind Interconnection Feasibility Study Power Flow Analysis Results,** which is included in the Appendix C. The content of Section 5.1 is reproduced here from the Appendix C for reader's convenience.*

Based upon the IC's submitted information and the area system conditions, a new switching station (referred to as "P56T") at the proposed POI on 1L244 is required to interconnect the IC's generating project to the BCH system. There are multiple terminals and multiple sources on the existing line 1L244. The addition of the new switching station would help to maintain reliability and adequate protection performance to serve the existing customers and the new addition.

With the new switching station P56T, the existing line 1L244 will be segregated into three new lines, temporarily referred to as: 1L244A (NIC-P56T), 1L244B (P56T-WBK) and 1L244C (P56T-P56). The temporary line designations will be replaced by permanent designations at a later stage of interconnection study.

The existing line 1L244 does not meet BES criteria and is excluded from the Bulk Electric System (BES) list. The line 1L244A will become part of BC Hydro BES and need to be compliant with applicable MRS requirements. The line 1L244B will remain as a non-BES line.[1]

5.1 Power Flow Study Results

Power flow studies were performed to evaluate whether the IC's generating project would cause any unacceptable system performance (e.g. equipment overloads, steady-state voltage violation and voltage instability) and to determine the reinforcement requirement based on steady state performance analysis.

The study focuses on the 2029 light summer (29LS) system load condition which is typically a stressed condition for a generation interconnection project, taking into considerations of factors such as load conditions, seasons and generation patterns. The 2029 heavy summer (29HS) and 2028 heavy winter (28HW) cases

[1] Changes were made to BES criteria of 1L244_C line section after the Pennask Summit Wind Farm Interconnection Feasibility Study Power Flow Analysis Results (The Power Flow Report) which was prepared by [redacted] on June 28, 2024.

are also checked at a high level to capture any possibility of performance violations under high load conditions.

5.1.1 Branch Loading Analysis

Table 5-1 shows a summary of branch loading analysis under system normal and single contingencies (Category P1 and P2) for the studied load conditions (29LS, 29HS, 28HW).

The study finds no line or transformer overload under system normal condition and single contingencies for all the studied load conditions. The most limiting contingency is 1L244B (P56T-WBK) forced out-of-service (OOS) in the summer load conditions. The 1L244's existing line rating is adequate to handle the branch loading observed in this contingency.

In addition to the base generation pattern, a sensitivity case with low generation in the Highland region (MIG, KCH, QYS) is checked to stress the 138 kV line 1L243 from NIC to HLD. Tripping of 5L87 is the most severe contingency for this scenario, resulting in a higher flow on 1L243 from NIC to HLD. 1L243 line rating is found adequate to accommodate higher flows under the sensitivity case.

Table 5-1: Summary of Branch Loading Analysis Results

Case	IC's Plant Output	Contingency		Branch Loading		
				1L243	1L244A	NIC T5
		Cat.	Description	NIC-HLD	NIC-P56T	
Winter Rating				331.8 MVA	220 MVA	287 MVA
28HW	Max	P0	System Normal	16%	14%	10%
	Max	P1	NIC T6	14%	13%	14%
Summer Rating				273.7 MVA	169.7 MVA	287 MVA
29HS	Max	P0	System Normal	20%	13%	12%
	Max	P1	NIC T6	18%	12%	16%
	Max	P1	1L244B	23%	**66%**	4%
29LS	Max	P0	System Normal	18 %	45 %	6%
	Max	P1	1L244B	19%	**67%**	5%
	Max	P1	1L251	20%	44%	4%

5.1.2 Steady-State Voltage Analysis

Table 5-2 shows a summery of steady-state voltage performance under various system conditions and contingencies. With the connection of the IC's project, the steady-state voltage performance under system normal and single contingency condition is acceptable for all the studied load conditions.

Table 5-2: Summary of Steady-State Voltage Study Results

Case	IC's Plant Output	Contingency		Bus Voltage (PU)		
		Cat.	Description	NIC 138	WBK 138	P56T
28HW	Max	P0	System normal	1.02	0.99	1.01
29HS	Max	P0	System normal	1.02	0.96	1.01
	0 MW	P0	System normal	1.02	0.96	1.01
	0 MW	P2.3	NIC 5CB11	1.02	0.96	1.01
29LS	Max	P0	System normal	1.02	1.00	1.01
	0 MW	P0	System normal	1.02	1.00	1.01

West Bank substation (WBK) is a summer peaking substation and the line flow on line 1L244 is highest in the heavy summer condition. In 29HS case, the single contingency that leads to the worse voltage performance is NIC 500 kV Circuit Breaker fault (e.g. NIC 5CB11). No voltage violation is observed for these contingencies. The study also finds that Pennask Summit Wind Farm could improve the load bus voltage at WBK under heavy load conditions.

5.1.3 Reactive Power Capability Evaluation

The BC Hydro TIR requires IBR power plant to have the dynamic reactive power capability at a minimum of +/- 33% of its MPO at the high voltage side of the IC's switchyard over the full MW operating range.

Based on the PSS/E power flow data submitted by the IC, the proposed generating project would be capable of to meet the BC Hydro's reactive capability requirement, which is subjected to further verification in the next stage of interconnection study.

Furthermore, the BCH TIR requires the IC's project to provide sufficient reactive power capability over full MW operating range including at zero MW output level. According to the IC-provided reactive capability curve, the proposed WTG has +/- 3.0 MVAr reactive capability at zero MW output, which needs to be re-confirmed if the IC's project proceeds further.

5.1.4 Anti-Islanding Requirements

If 1L244A between NIC and P56T is open at either end, the IC's project may be inadvertently islanded with the existing generators and BC Hydro loads, which is not allowed. A direct transfer trip (DTT) from NIC to P56T is required to isolate the wind farm for protective and unintentional tripping of 1L244A.

In addition, the IC is required to install anti-islanding protection within its facility to disconnect the IC's wind farm from the grid when an inadvertent island with the local load forms.

5.2 Fault Analysis

The short circuit analysis in the FeS is based upon the latest BC Hydro system model, which includes the generating facility information and associated impedance data provided by the IC. A more detailed study will be performed at the system impact study stage if needed.

5.3 Stations Requirements

A new outdoor 138 kV, 3-circuit breaker ring bus switching substation (referred to as "P56T") will be built at POI, close to the existing line 1L244. The existing line 1L244 will be cut and looped in to, and the IC's 138 kV line from Pennask Summit Wind Farm will be terminated at the new substation.

The scope of work at the new switching station P56T is as follows:

- Acquire adequate property for a new substation close to the existing transmission line 1L244.
- Construct a new outdoor 138 kV, 3-circuit breaker ring bus switching substation. Refer to the one-line diagram in Appendix B for details. The designation of the new substation and the new line connecting to the customer will be assigned in next stage.

  Notes:
  - The designations of the new station, the new line connecting to the customer and the two new lines derived from 1L244 will be assigned in later stage.
  - The Installation location of the metering kits will be decided in later stage.

5.4 Protection & Control Requirements

BC Hydro will provide line protections for 1L244A, 1L244B and 1L244C (BC Hydro end only). As part of the line protection replacements for each of these three lines, telecommunication facilities will be required to accommodate the new protection schemes.

The IC is responsible to provide the following for the interconnection of Pennask Summit Wind Farm.

- Entrance protection that complies with the latest version of the "60 kV to 500 kV BC Hydro Technical Interconnection Requirements for Power Generators."
- Provide two SEL-411L-1 relays (firmware and options specified by BC Hydro) at the entrance of P56 to provide protection coverage for 1L244C. BC Hydro P&C Planning will provide core protection settings for these relays to protect transmission line 1L244C during a transmission line fault. Non-core protection such as local breaker failure, auto-reclosing, backup protection for station elements will not be provided by BC Hydro P&C Planning.
- The IC is responsible for NERC PRC-related tasks, settings to compliance standards within their facilities.
- The IC is responsible for providing a communications link for remote interrogation of the PPIS equipment by BCH servers.
- The IC is responsible to provide anti-islanding protection as stated in Appendix C.

The runback schemes or RAS requirements stated in Appendix C are mainly to address the overloading concerns under contingencies, which are preliminary. These RAS requirements may utilize the communication channels required for protection purposes included in the cost estimate. If the proposed project proceeds through the CEAP process, subsequent System Impact Studies may identify additional RAS requirements for this interconnection. These RAS functional requirements will include initiating events, control actions, and latency times.

Depending on these supplementary requirements, additional telecommunication facilities may be needed to facilitate signal transmission between the BC Hydro substations and customer facilities.

5.5 Telecommunications Requirements

BC Hydro performed a high-level feasibility assessment of a telecom solution to meet the following requirements.

Teleprotection Requirements for Telecom

- WECC Level 3 PY & SY, NIC - P56T, with C37.94 interfaces.
- WECC Level 3 PY & SY, P56T - P56, with C37.94 interfaces.
- WECC Level 3 PY & SY, P56T - PSW, with C37.94 interfaces.

Telecontrol Requirements for Telecom

- One P56 SCADA circuit off SIC.
- Two P56T SCADA circuits off FVO & SIO.
- One P56T REMACC circuit off EDM.

Other Requirements for Telecom

- None identified.

Certain assumptions were made for determining a potential telecom solution. Details of the telecom solution (e.g. assumptions made, alternatives investigated and work required for BCH and the IC) would be provided at the next study stage.

6 Cost Estimate and Schedule

The non-binding good faith estimated cost and time to construct the Network Upgrades required to interconnect the proposed project will be provided in a separate letter to the IC.

7 Conclusions

To interconnect the Pennask Summit Wind Farm and its facilities to the BC Hydro (BCH) Transmission System at the proposed POI, this Feasibility Study has identified the following conclusions and requirements:

1. A new 138 kV switching station (referred to as "P56T") on 1L244 is required at the proposed POI for interconnecting the IC's generating project to the BCH system.

2. The connection of Pennask Summit Wind Farm does not cause any performance violation (i.e. thermal overload, voltage performance violation or voltage stability concern) under system normal and single contingency conditions.

3. A direct transfer trip (DTT) from NIC to P56T is required to isolate the wind farm for protective and unintentional tripping of 1L244A. In addition to entrance protection and 1L244C protection, the IC is required to install anti-islanding protection within its facility to disconnect the IC's wind farm from the grid when an inadvertent island with the local load forms.

4. BC Hydro will provide line protections for 1L244A, 1L244B and 1L244C (BC Hydro end only). As part of the line protection replacements for each of the three lines, telecommunication facilities will be required to accommodate the new protection schemes. The IC shall provide required relays, telecom facility and associated equipment at its facilities to accommodate the new protection schemes.

5. The line 1L244A will become part of BC Hydro BES and need to be compliant with applicable NERC MRS requirements. The line 1L244B will remain as a non-BES line.

Appendix A
Plant Single Line Diagram Used for Power Flow Study

Note: Figure A-1 is reproduced here for reader's convenience from "BC Hydro Report – Pennask Summit Wind Interconnection Feasibility Study Power Flow Analysis Results" which is included in the Appendix C.

Figure A-1 shows Pennask Summit Wind Farm single line diagram used for power flow study.

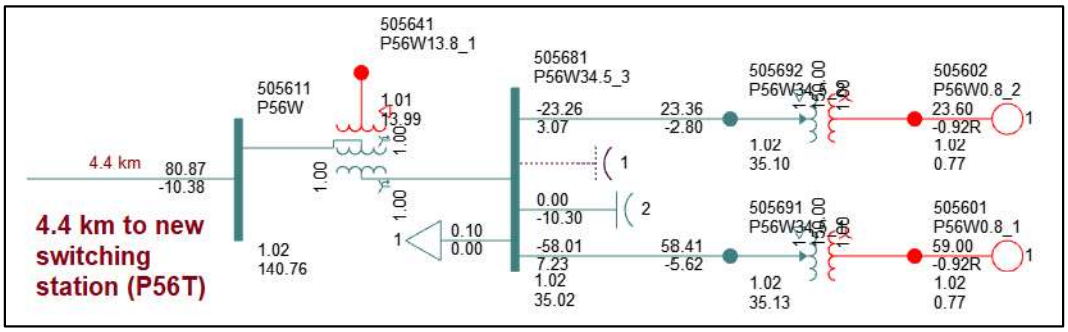

Figure A-1: Pennask Summit Wind Farm Single Line Diagram for Power Flow Study.

As seen in the diagram, Pennask Summit Wind Farm has one 138 kV/34.5kV main power transformer, two (2) feeders connecting 14 wind turbines to the collector station, and two 10 MVAr switchable shunt capacitors.

Appendix B
One-Line Sketch for New Switching Station

Figure B-1 shows the Stations Planning One-Line Sketch for the New Switching Station P56T.

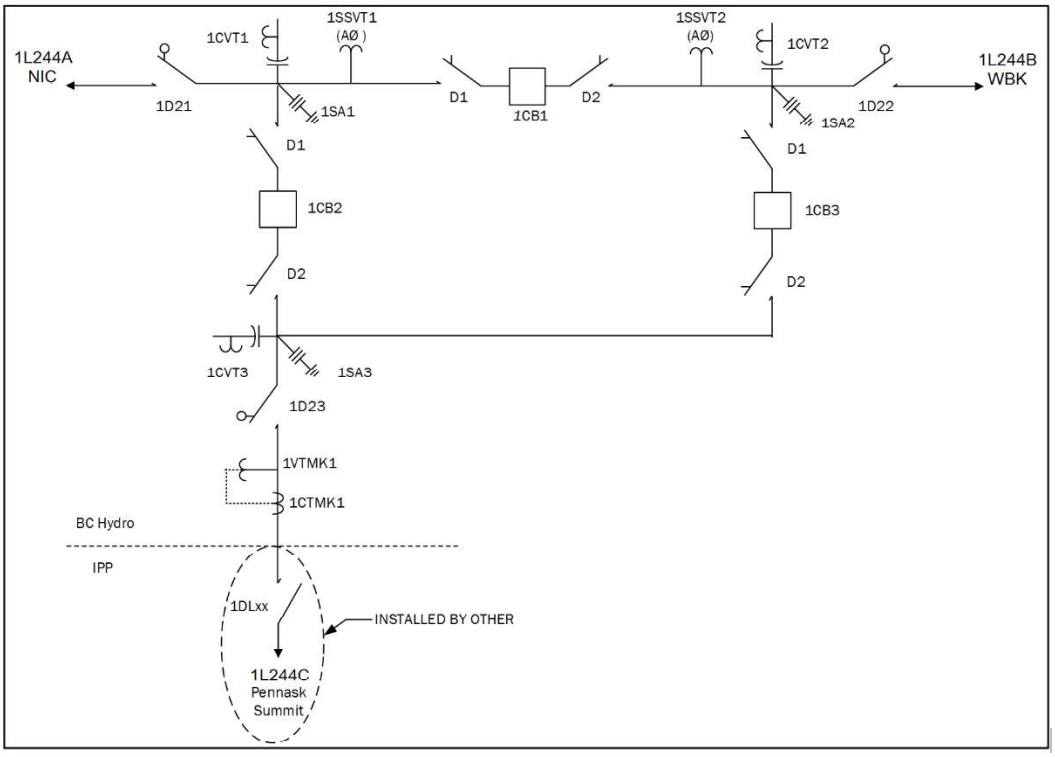

Figure B-1: Stations Planning One-Line Sketch for the New Switching Station P56T.

Appendix C
BC Hydro Report - Pennask Summit Wind Interconnection Feasibility Study Power Flow Analysis Results

CEAP2024_IR_56_Pennask Summit Wind