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

July 30, 2024

[redacted]

RE: CEAP IR 119 - Shinish Creek South Wind (West POI) 1L251 Project - Interconnection Feasibility Study Report

Enclosed is the Interconnection Feasibility study report for the proposed Shinish Creek South Wind (West POI) 1L251 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 $94.8 M.

Major Scope of Work Identified:

- Acquire property and construct a new 138 kV, 3-circuit breaker ring bus switching substation close to the existing transmission line 1L251
- Supply and install microwave towers, waveguides and antennas
- Acquire property and construct passive repeater station
- Add and upgrade Protection, Control and Telecom

Exclusions:

- GST
- Right-of-way
- Permits

Key Assumptions:

- Construction by contractor
- 3 years of construction will be done by contractor
- Early Engineering and Procurement
- No expansion of existing stations or control buildings to accommodate new equipment.
- No structural or foundation upgrade will be required for tower modification at BC Hydro's Nicola Substation (NIC)
- No ground improvements will be required
- No piles will be required for construction
- No contaminated soil will be encountered during construction

Key Risks:

- Additional Right of Way or acquisition of more property may be required
- Transmission routing may be different than assumed, including number of disconnect switches and structure types may change
- No defined supply chain strategy, construction costs may increase depending on delivery method
- Cost of construction may increase based on geotechnical condition of the actual project site
- 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_119_Shinish Creek South Wind (West POI) 1L251_Fes_Report_final.pdf

[redacted]

Shinish Creek South Wind Project (West POI Option)

Interconnection Feasibility Study

BC Hydro EGBC Permit to Practice No: 1002449

2024 CEAP IR # 119

Prepared for: [redacted]

[redacted]

300-APR-00028
2024 Jul 30

Report Metadata

Header:	Shinish Creek South Wind Project (West POI Option)
Subheader:	Interconnection Feasibility Study
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Revision	Date	Description
0	2024 Jul	Initial release

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Executive Summary

[redacted] the Interconnection Customer (IC), requests to interconnect its Shinish Creek South Wind Project - West POI Option (2024 CEAP IR # 119) to the BC Hydro (BCH) system. This project includes 34 x 7.1 MVA (total 241.4 MVA) wind turbines. The maximum power injection into the BC Hydro (BCH) transmission system is 191.93 MW. The IC proposed Point of Interconnection (POI) is on the radially connected 138 kV transmission line 1L251, about 64.8 km from Nicola Substation (NIC). The IC owned station is connected to the system through an IC owned 34.4 km 138 kV tie line at the required switching station near the IC proposed POI. The proposed project's Commercial Operation Date (COD) is October 1, 2031.

To interconnect the Shinish Creek South Wind Project (West POI Option) and its facilities to the BCH Transmission System at the proposed POI, this Feasibility Study (FeS) has identified the following conclusions and requirements:

1. A new 138 kV switching station (referred to as "P119T") on 1L251 is required at the proposed POI for interconnecting the IC's generating project to the BCH system. With the new switching station P119T, 1L251 will be segregated into two segments, and three new lines to be terminated into the P119T are temporarily referred to as: 1L251_A (NIC-P119T), 1L251_B (P119T-CUM) and 1L251_C (P119T-P119P).

2. The connection of Shinish Creek South Wind Project (West POI Option) does not cause any performance violation (i.e. thermal overload, voltage performance violation or voltage stability concern) under system normal condition.

3. The contingency of 1L251_B between P119T and Copper Mountain Substation (CUM) could result in 1L251_A being overloaded up to 103% of the line rating in summer (30^{o}C ambient temperature) with full output of Shinish Creek South Wind Project (West POI Option). If an overload on 1L251_A is detected, a signal will be initiated to run back generation at the IC's facility. Other applicable single contingency (N-1) will not result in unacceptable system performance under the studied system load and generation conditions.

4. In addition to the project's entrance protection and 1L251_C line protection, the IC is required to install anti-islanding protection within its

facility to detect and disconnect itself from the BC Hydro transmission system if an inadvertent island with the local loads forms. In addition, a direct transfer trip (DTT) from NIC to the new switching station P119T is required to disconnect the project for protective and unintentional tripping of 1L251_A at NIC or P119T.

5. According to BC Hydro's TIR, the IC's project must have sufficient reactive power capability over full MW operating range including at the zero MW output level. The Shinish Creek South Wind Project (West POI Option) as submitted does not meet the reactive capability requirement at zero MW output level.

6. The new lines 1L251_A will become part of BC Hydro BES and need to be compliant with applicable NERC MRS requirements. The IC owned line 1L251_C may be a BES line as well. The new line 1L251_B (P119T-CUM) will remain as a non-BES line.

7. BC Hydro will provide line protections for 1L251_A, 1L251_B and 1L251_C (BCH end only) protections. 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.

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

Appendix

Figure A-1 shows Shinish Creek South Wind Project (West POI Option) single line diagram used for power flow study.

Appendix B One-Line Sketch for New Switching Station

Figure B-1 shows the Stations Planning One-Line Sketch for the New Switching Station P119T.

Acronyms

The following are acronyms used in this report.

BCH	BC Hydro
BES	Bulk Electric System
CEAP	Competitive Electricity Acquisition Process
COD	Commercial Operation Date
CUM	Copper Mountain Mine Substation
DTT	Direct Transfer Trip
EDM	Edmonds Office
ERIS	Energy Resource Interconnection Service
FeS	Feasibility Study
FVO	Fraser Valley Office
HAM	Hamilton Microwave Repeater
HLD	Highland Substation
IBR	Inverter-Based Resources
IC	Interconnection Customer
KCH	Kwoiek Creek Generating Station
LAPS	Local Area Protection Schemes
MIG	Merritt Green Energy Ltd
MPO	Maximum Power Output
NERC	North American Electric Reliability Corporation
NIC	Nicola Substation
NRIS	Network Resource Interconnection Service
OATT	Open Access Transmission Tariff
POI	Point of Interconnection
QYS	quA-ymn Solar Farm
RAS	Remedial Action Scheme
SCO	Similco Substation
SGIA	Standard Generation Interconnection Agreement
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

1 Introduction

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

Table 1-1 Summary of Project Information

Project Name	Shinish Creek South Wind Project (West POI Option)	
Interconnection Customer	[redacted]	
Point of Interconnection	On 1L251, about 64.8 km from Nicola Substation	
IC Proposed COD	October 01, 2031	
Type of Interconnection Service	NRIS ☒	ERIS ☐
Maximum Power Injection (MW)	191.93 (Summer)	191.93 (Winter)
Number of Turbines	34 x 7.1 MVA wind turbines, total 241.4 MVA capacity	
Plant Fuel	Wind	

[redacted] the Interconnection Customer (IC), requests to interconnect its Shinish Creek South Wind Project - West POI Option (2024 CEAP IR # 119) to the BC Hydro (BCH) system. This project includes 34 x 7.1 MVA (total 241.4 MVA / 200 MW) wind turbines. The maximum power injection into the BCH transmission system is 191.93 MW. The IC proposed Point of Interconnection (POI) is on the radially connected 138 kV transmission line 1L251, about 64.8 km from Nicola Substation (NIC). The IC owned station is connected to the system through an IC owned 34.4 km 138 kV tie line at the required switching station near the IC proposed POI. The proposed project's Commercial Operation Date (COD) is October 1, 2031.

In the Shinish Creek South Wind Project (West POI Option), there are 34 [redacted] type 4 wind turbines, each rated at 7.1 MVA and 0.828 power factor. Each wind turbine is connected to a 750 V/34.5 kV Y-gnd/delta transformer. The total power from all turbines is collected via four (4) 34.5 kV feeders, and then stepped up to the 138 kV system through one 250 MVA, 138/34.5/13.8 kV (high side Y-gnd) transformer. Refer to Appendix A for power flow study modeling of the project.

Figure 1-1 shows the local system where the Shinish Creek South Wind Project (West POI Option) is connected. There are three industrial load facilities currently fed by circuit 1L251. The industrial facilities are Copper Mountain Mine Substation (CUM), Similco Substation (SCO), and Kingsvale Substation (KPS). The two load substations CUM and SCO are owned by the same customer, [redacted].

NIC is one of BCH's major transmission substations, and presently has two 500/230 kV transformers, and two 230/138/12 kV transformers.

There are several high-queued load interconnections and their associated network upgrades in the study area. The relevant network upgrades being planned in the study region are included in the Assumptions and Conditions Section.

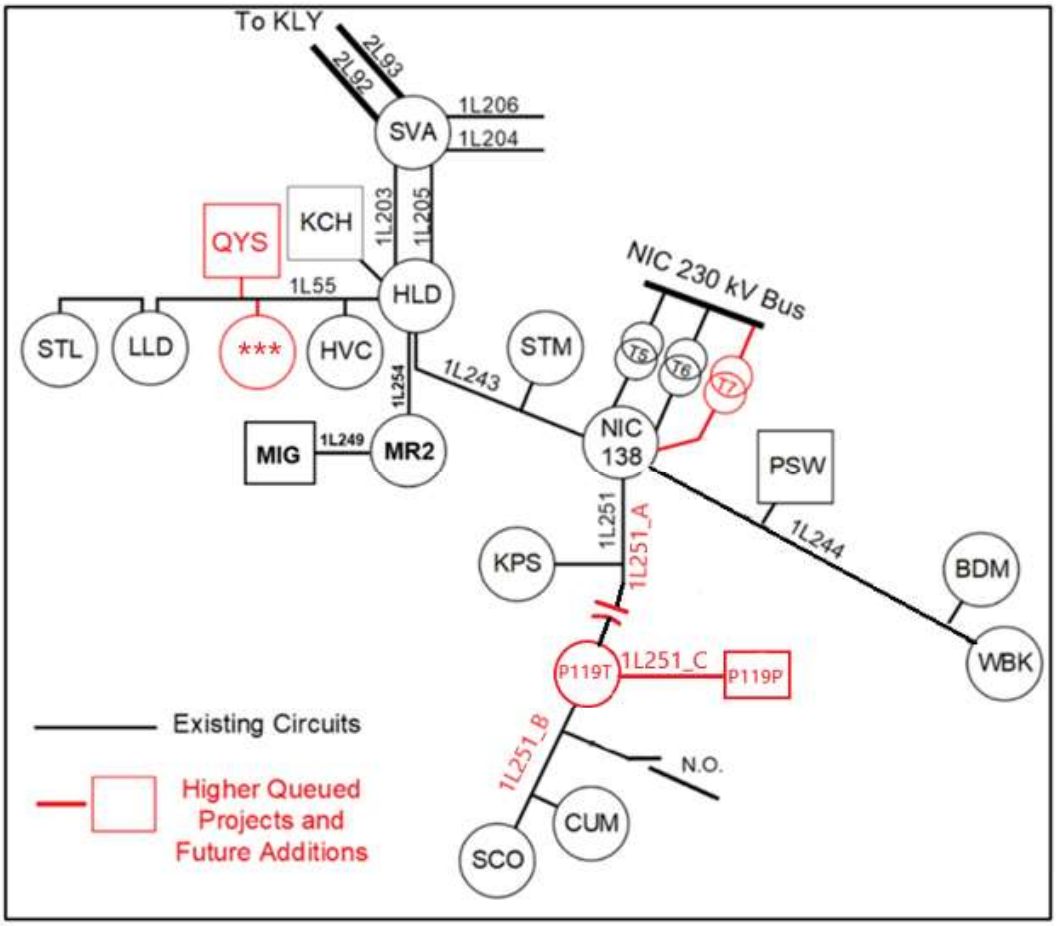

Figure 1-1: Nicola-Highland region 138/230 kV Transmission System Diagram

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 FeS 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 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

This FeS is performed in compliance with the North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) reliability standards, and the BCH interconnection requirements in the 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

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) For the purpose of performing this study, Nicola Substation Transformation Capacity Reinforcement project (i.e. addition of NIC T7) is assumed completed by the time the IC's generating project enters service.

3) 1L243 reconductoring 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) 1L251 series capacitor project: Line 1L251 will be series compensated to accommodate an industrial load increase on 1L251.

5) In this study, it is considered that 1L251 will be supplied from NIC only, with the FortisBC side open. This means that whenever the NIC end of 1L251 is open, the project will need to be off-line.

5 System Studies and Results

Based upon the IC's submitted information and the area system conditions, a three-circuit-breaker-ring switching station near the Shinish Creek South Wind Project (West POI Option) POI is required for interconnecting the project. The tentative code for the switching station is P119T in this study. The wind farm collector station is tentatively designated as P119P in this study. Due to the addition of the three-circuit-breaker-ring station, line 1L251 (NIC-SCO/CUM) will be sectionalized into two segments, and three new lines to be terminated into the P119T are temporarily referred to as: 1L251_A (NIC-P119T), 1L251_B (P119T-CUM) and 1L251_C (P119T-P119P).

The existing line 1L251 does not meet BES criteria and is excluded from the Bulk Electric System (BES) list. The new lines 1L251_A will become part of BC Hydro BES and need to be compliant with applicable NERC MRS requirements. The IC owned line 1L251_C may be a BES element as well. The new line 1L251_B (P119T-CUM) will remain as a non-BES line.

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 2032 light summer (32LS) 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 2032 heavy summer (32HS) and 2031 heavy winter (31HW) cases are also checked at a high level to capture any possibility of performance violations under high load conditions.

5.1.1 Branch Loading Analysis

Power flow analyses under system normal (N-0 or P0) and contingency conditions (N-1 or P1 & P2.1) were performed to evaluate whether Shinish Creek South Wind Project (West POI Option) would cause any adverse impact on the transmission system.

In Table 5-1, the cases 1, 8, and 10 demonstrate the local system performance prior to the project interconnected. There is no overloading concern under the studied light summer, heavy summer and heavy winter load conditions.

With the project in service, the impacts of different outputs of the project on the loadings of NIC 230/138 kV transformers and 1L251_A, as well as 1L251_B under the system normal condition are shown in case 2 to case 4 of Table 5-1. No concerns have been identified.

With the project in service, applicable N-1 contingence (P1 or P2.1) have been studied, see case 5 - 7 of Table 5-1. For the contingency of 1L251_B between P119T and Copper Mountain Substation (CUM), 1L251_A could be overloaded up to 103% in summer (30°C ambient temperature) with the proposed power injection of 191.9 MW at the POI, see case 5 of Table 5-1. To mitigate the identified line overloading concern, a signal will be initiated to run back generation at the IC's facility. The overload detection mechanism and exact mitigation actions will be determined in discussion with BCH at the next study stage.

Table 5-1: Summary of Branch Loading Analysis Results

Case	Power Injection at POI (MW)	Contingency		Line/Equipment Loading (Percentage of The Line/Equipment Rating)				
		Cat.	Cases & Description	1L251_A	1L251_B	NIC T5	NIC T6	NIC T7
32LS	Summer Rating (MVA)			193.4	120	286.8	286.8	300.0
	N/A (Before the project is connected)	P0	1. System normal	49	47	13	13	15
	191.9		2. System normal	73	47	7	7	8
	96		3. System normal	21	47	4	4	5
	0		4. System normal	36	48	13	13	15
	191.9	P1	5. 1L251_B tripped	103	N/A	12	12	14
			6. 1L251 Series Capacitor bypassed	70	48	7	7	8
			7. CUM one shunt cap tripped	73	47	7	7	8
32HS	N/A (Before the project is connected)	P0	8. System normal	52	50	20	20	23
	191.9		9. System normal	71	50	7	7	8

31HW	Winter Rating (MVA)			260.8	142.7	286.8	286.8	300.0
	N/A (Before the project is connected)	P0	10. System normal	43	41	18	18	21
	191.9		11. System normal	56	41	1	1	1

Note: N/A means not applicable.

5.1.2 Steady State Voltage Analysis

With the connection of the IC's project, the voltage performance under system normal condition and single contingencies is acceptable for all the three load conditions (29LS, 29HS, 28HW). Table 5-2 shows a summery of steady-state voltage performance under various system conditions and contingencies.

No voltage violation is observed for these contingencies.

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

Case	Power Injection at POI (MW)	Contingency		Bus Voltage (pu)			
		Cat.	Cases & Description	NIC 138	P119T 138	SCO 138	CUM 138
32LS	N/A (Before the project is connected)	P0	1. System normal	1.03	1.02	1.02	1.02
	191.9		2. System normal	1.02	1.04	1.02	1.02
	96		3. System normal	1.02	1.03	1.02	1.02
	0		4. System normal	1.03	1.03	1.02	1.02
	191.9	P1	5. 1L251_B tripped	1.02	1.03	N/A	N/A
			6. 1L251 Series Capacitor bypassed	1.02	1.02	1.02	1.02
			7. CUM one shunt cap tripped	102	1.04	1.02	1.02
32HS	N/A (Before the project is connected)	P0	8. System normal	1.03	1.02	1.02	1.02
	191.9		9. System normal	1.02	1.04	1.02	1.02

31H W	N/A (Before the project is connected)	P0	10. System normal	1.03	1.02	1.02	1.02
	191.9		11. System normal	1.02	1.04	1.02	1.02

Note: N/A means not applicable

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 meeting the BC Hydro's reactive capability requirement at the plant's maximum MW output.

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 wind turbines can not meet reactive power capability requirement at zero MW output.

5.1.4 Anti-Islanding Requirements

If 1L251_A between NIC and P119T 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 P119T is required to isolate the Shinish Creek South Wind Project (West POI Option) for protective and unintentional tripping of 1L251_A.

In addition, the IC is required to install anti-islanding protection within its facility to disconnect the IC's project 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 station (refer to as "P119T") will be built at the POI, close to the existing 138 kV transmission line 1L251. The existing transmission line 1L251 will be cut and looped in to P119T, and 138 kV line from Shinish Creek South Wind Project (West POI Option) will be terminated at the P119T.

The scope of work at the new switching station P119T is as follows.

- Acquire adequate property for a new substation close to the existing transmission line 1L251.
- Construct a new outdoor 138 kV, 3- circuit breaker ring bus switching substation. Refer to the one-line sketch in Appendix B for details.

5.4 Protection & Control Requirements

BC Hydro will provide line protections for 138 kV line 1L251_A, 1L251_B and 1L251_C (BCH 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 is required to provide the following for the interconnection of Shinish Creek South Wind Project (West POI Option):

- 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 P119P to provide protection coverage for 1L251_C. BC Hydro P&C Planning will provide core protection settings for these relays to protect transmission line 1L251_C 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.

- Provide anti-islanding protection as per Section 5.1.
- Automatic generation run-back initiation signal will be received at P119P station via 1L251_C line protection telecom channel.

The runback schemes or RAS requirements stated in Section 5.1 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.

Tele-protection Requirements for Telecom

- Provide WECC Level three (3) 64 kbps synchronous circuits between NIC and P119T for 1L251_A PY DIGITAL TELEPROT" and NIC-P119T 1L251_A SY DIGITAL TELEPROT". Physical interface shall be C37.94 optical over multimode fibre using ST connectors.
- Provide WECC Level three (3) 64 kbps synchronous circuits between P119T and P119P for 1L251_C PY DIGITAL TELEPROT and 1L251_C SY DIGITAL TELEPROT. Physical interface shall be C37.94 optical over multimode fibre using ST connectors.

Tele-control Requirements for Telecom

- Provide P119T SCADA circuit, minimum speed 9.6 kbps.
- Provide P119T REMACC circuit.
- Provide P119P SCADA circuit.

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 Shinish Creek South Wind Project (West POI Option) and its facilities to the BCH Transmission System at the proposed POI, this Feasibility Study (FeS) has identified the following conclusions and requirements:

1. A new 138 kV switching station (referred to as "P119T") on 1L251 is required at the proposed POI for interconnecting the IC's generating project to the BCH system.

2. The connection of Shinish Creek South Wind Project (West POI Option) does not cause any performance violation (i.e. thermal overload, voltage performance violation or voltage stability concern) under system normal condition.

3. The contingency of 1L251_B between P119T and Copper Mountain Substation (CUM) could result in 1L251_A being overloaded up to 103% of the line rating in summer (30°C ambient temperature) with full output of Shinish Creek South Wind Project (West POI Option). If an overload on 1L251_A is detected, a signal will be initiated to run back generation at the IC's facility. Other applicable single contingency (N-1) will not result in unacceptable system performance under the studied system load and generation conditions.

4. In addition to the project's entrance protection and 1L251_C line protection, the IC is required to install anti-islanding protection within its facility to detect and disconnect itself from the BC Hydro transmission system if an inadvertent island with the local loads forms. In addition, a direct transfer trip (DTT) from NIC to the new switching station P119T is required to disconnect the project for protective and unintentional tripping of 1L251_A at NIC or P119T.

5. According to BC Hydro's TIR, the IC's project must have sufficient reactive power capability over full MW operating range including at the zero MW output level. The Shinish Creek South Wind Project (West POI Option) as submitted does not meet the reactive capability requirement at zero MW output level.

6. The new lines 1L251_A will become part of BC Hydro BES and need to be compliant with applicable NERC MRS requirements. The IC owned line 1L251_C may be a BES element as well. The new line 1L251_B (P119T-CUM) will remain as a non-BES line.

7. BC Hydro will provide line protections for 1L251_A, 1L251_B and 1L251_C (BCH end only) protections. 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.

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 21, 2024.

A non-binding good faith cost for required network upgrades and estimated schedule for construction are included in a separate letter to the IC.

Appendix A
Plant Single Line Diagram Used for Power Flow Study

Figure A-1 shows Shinish Creek South Wind Project (West POI Option) single line diagram used for power flow study.

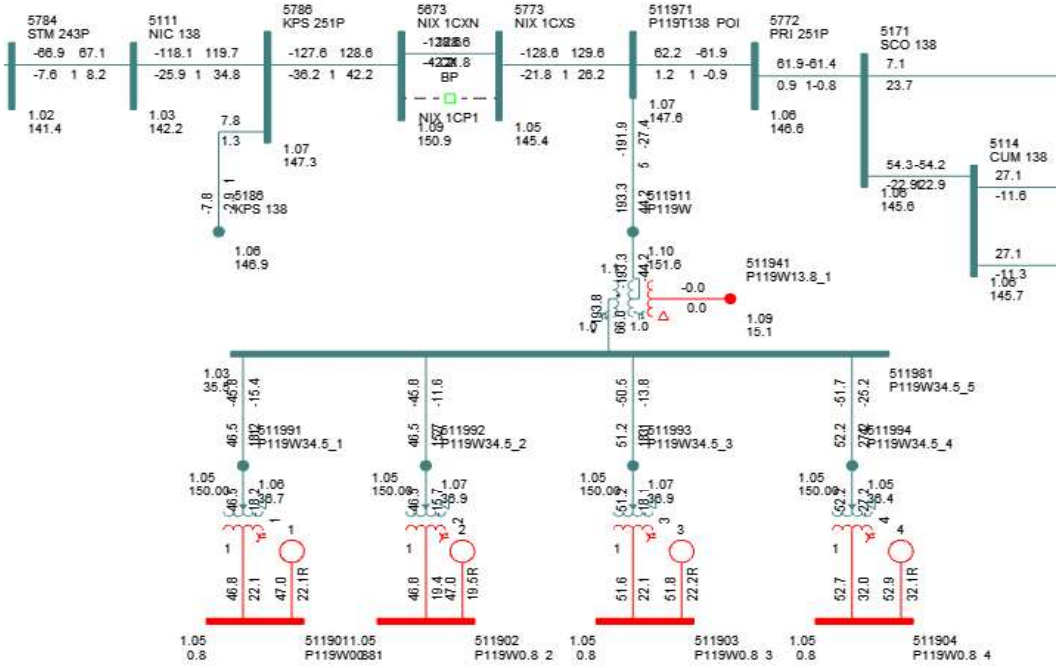

Figure A-1: Shinish Creek South Wind Project (West POI Option) Single Line Diagram for Power Flow Study.

As seen in the diagram, Shinish Creek South Wind Project (West POI Option) has one main power transformer that connects four (4) equivalent feeders, four (4) equivalent step-up transformers and four (4) equivalent generators/inverters.

Appendix B
One-Line Sketch for New Switching Station

Figure B-1 shows the Stations Planning One-Line Sketch for the New Switching Station P119T.

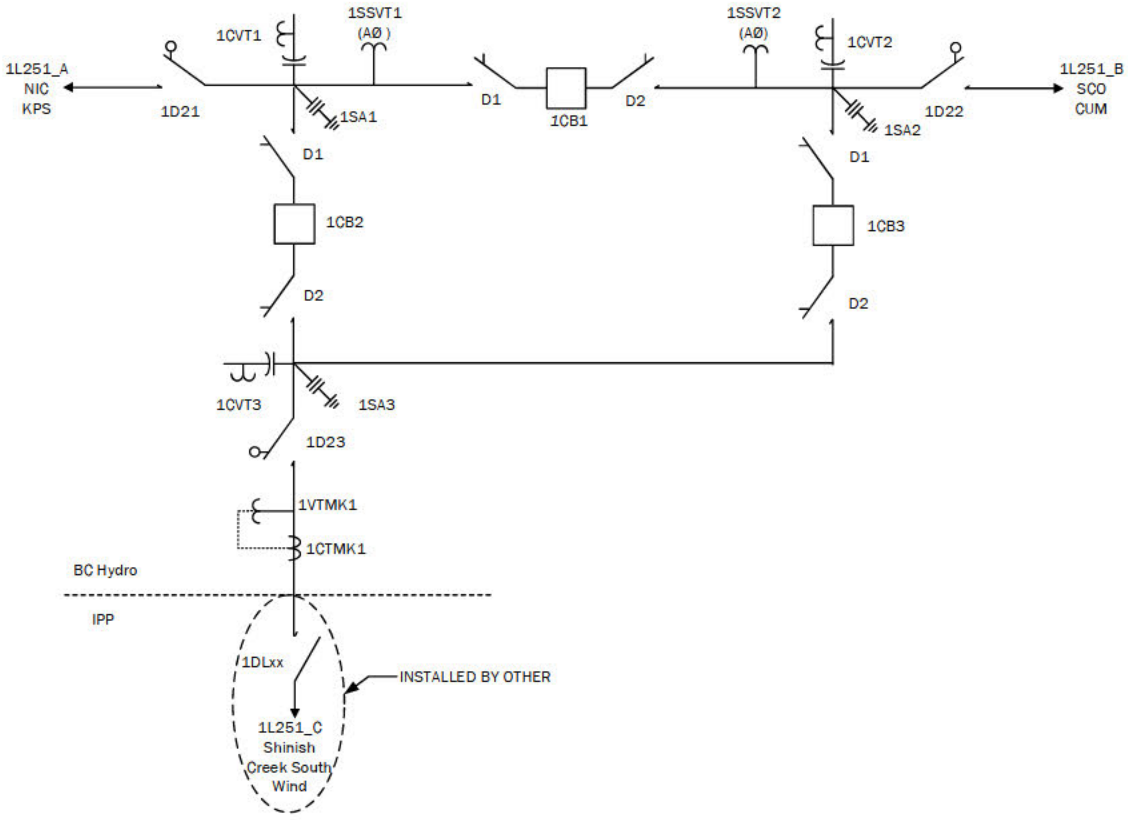

Figure B-1: Stations Planning One-Line Sketch for the New Switching Station P119T.