BC Hydro
Power smart

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

July 30, 2024

[redacted]

RE: CEAP IR 39 - Chapman Creek Wind Project- Interconnection Feasibility Study Report

Enclosed is the Interconnection Feasibility study report for the proposed Chapman Creek Wind 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 $87.0 M.

Major Scope of Work Identified:

- Acquire adequate property for a new switching station close to the existing transmission line 2L123
- Construct a new outdoor 230kV, 3-circuit breaker ring bus switching station
- Construct a new control building and other required substation facilities
- Supply and install microwave tower, waveguides, antennas, and other required telecommunications equipment
- Supply and install protection relays and other required protection equipment

Exclusions:

- GST
- Right-of-Way
- Permits

Key Assumptions:

- Property is considered only for the 3-CB switching station required for the customer interconnection
- Construction will be done by contractor
- 3 years of construction is considered
- No expansion of existing stations or control buildings to accommodate any new equipment
- Early Engineering and Procurement
- No piles or ground improvements will be required
- 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 increase costs
- Cost of materials and major equipment 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_39_Chapman Creek Wind_FeS_Report_final.pdf

[redacted]

Chapman Creek Wind Project

Interconnection Feasibility Study

BC Hydro EGBC Permit to Practice No: 1002449

2024 CEAP IR # 39

Prepared for: [redacted]

[redacted]

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[redacted]

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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 Chapman Creek Wind Project (2024 CEAP IR # 39) to the BC Hydro (BCH) system. Chapman Creek Wind Project has twenty-nine (29) [redacted]6.8 MW type-3 wind turbine generators with total installed capacity of 197.2 MW. The proposed Point of Interconnection (POI) is a new switching station on BC Hydro's 230kV line 2L123, approx. 29.4 km from Sahtlam substation (SAT). The IC's project will connect to the POI via a 0.39 km customer-built 230 kV interconnection line. The IC's proposed commercial operation date (COD) is Sep 30, 2028.

To interconnect the Chapman Creek Wind Project and its facilities to the BCH Transmission System at the proposed POI, this Feasibility Study has identified the following conclusions and requirements:

1. A new 230 kV switching station (referred to as "P39T") on 2L123 is required as the proposed POI for interconnecting the IC's generating project to the BCH system. With the new switching station P39T, 2L123 will be segregated into two new lines, temporarily referred to as: 2L123_A (DMR-P39T) and 2L123_B (P39T-SAT). The proposed customer-built line (P39T-P39) will be designated as 2L123_C. The temporary line designations will be replaced by permanent designations at a later stage of the interconnection study.
2. 2L123 is constructed to the 500 kV standard and designed with the potential for future conversion to 500 kV operation, ensuring scalability to accommodate anticipated load growth and maintain supply reliability. BC Hydro does not foresee the need for conversion within the current planning horizon. Nevertheless, P39T must not compromise the feasibility of future voltage conversion. P39T planning and design are required to allow future upgrades to a 500/230 kV substation.
3. The connection of Chapman Creek Wind Project does not cause any performance violation (i.e. thermal overload, voltage performance violation or voltage stability concern) under system normal conditions and single contingency operation condition.
4. The IC is required to install anti-islanding protection within their facility to disconnect the IC's wind farm from the grid when an inadvertent island with the local loads forms.

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 Chapman Creek wind farm as submitted meets the reactive capability requirement at full MW output range.

6. The new lines 2L123_A, 2L123_B will become part of BC Hydro Bulk Electric System (BES) and need to be compliant with applicable NERC Mandatory Reliability Standards (MRS) requirements. The new line 2L123_C (P39T-P39) will become an IC's BES line and the IC will be responsible for the complance with applicable MRS requirements.

7. BC Hydro will provide line protections for BC Hydro owned terminals of lines 2L123_A,2L123_B and 2L123_C. 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

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
ERIS	Energy Resource Interconnection Service
FeS	Feasibility Study
IBR	Inverter-Based Resources
IC	Interconnection Customer
LAPS	Local Area Protection Schemes
MPO	Maximum Power Output
BES	Bulk Electric System
NERC	North American Electric Reliability Corporation
MRS	Mandatory Reliability Standards
NRIS	Network Resource Interconnection Service
OATT	Open Access Transmission Tariff
POI	Point of Interconnection
RAS	Remedial Action Scheme
TIR	BC Hydro “60 KV to 500 kV Technical Interconnection Requirements for Power Generators”
WECC	Western Electricity Coordinating Council
WTG	Wind Turbine Generator
FVO	Fraser Valley Office
HAM	Hamilton Microwave Repeater
SIC	South Interior Control
SIO	South Interior Office

1 Introduction

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

Table 1-1 Summary of Project Information

Project Name	Chapman Creek Wind Project	
Name of Interconnection Customer (IC)	[redacted]	
Point of Interconnection (POI)	Switching station on 2L123, at 29.4 km from Sahtlam substation	
IC's Proposed COD	30 September 2028	
Type of Interconnection Service	NRIS ☒	ERIS ☐
Maximum Power Injection [1] (MW)	190 MW (Summer)	190 MW (Winter)
Number of Generator Units	29 x 6.8 MW	
Plant Fuel	Wind	
Note 1: The maximum achievable power injection at the POI is approx. 190 MW after accounting for MW losses and service load which is lower than the IC proposed 197.2 MW.		

[redacted] the interconnection customer (IC), requests to interconnect its Chapman Creek Wind Project (2024 CEAP IR # 39) to the BC Hydro system. Chapman Creek Wind Project has twenty-nine (29) [redacted] 6.8 MW type-3 wind turbine generators with total installed capacity of 197.2 MW. The proposed Point of Interconnection (POI) is at the new switching station on the BC Hydro's 230 kV line 2L123, approx. 29.4 km from Sahtlam substation (SAT). The IC's project will connect to the POI via a 0.39 km 230 kV interconnection line. The proposed commercial operation date (COD) is Sep 30, 2028.

Figure 1-1 shows the Vancouver Island 138 kV/230 kV region transmission system diagram. Sahtlam substation (SAT) is a major 230 kV line switching station in this area with total six 230 kV lines: 2L123 and 2L128 connecting to Dunsmuir Substation (DMR), 2L125 and 2L130 linking to Vancouver Island Terminal Substation (VIT), 2L126 and 2L170 supplying Pike Lake Substation (PIK). The four 230 kV transmission lines from DMR to PIK are built to 500 kV standards but energized at 230 kV. Should the conversion of 2L123 to 500 kV operation become necessary, the proposed new 230 kV switching station is required to be upgraded

to a 500/230 kV substation with the location of the current POI (Chapman Creek Wind Project) unchanged.

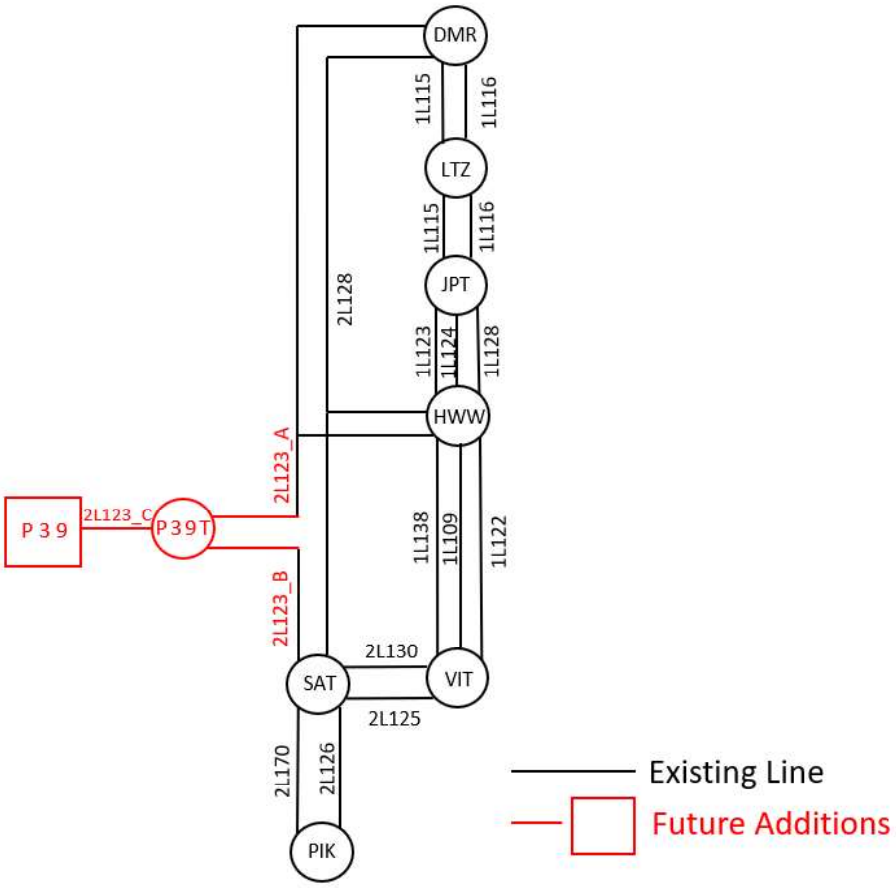

Figure 1-1: Central Vancovuer island 230/138 kV Transmission System Diagram in 2024 wth the proposed Chapman Creek Wind Project

The existing transmission line, 2L123, serves as a critical transfer cut-plane of BC Hydro's Integrated Resource Plan (IRP), facilitating power transfers to the Vancouver Island (VI) load center of Greater Victoria. Constructed to meet the 500 kV standard, it was designed with the potential for future conversion to 500 kV operation, ensuring scalability to accommodate anticipated load growth and maintain supply reliability. The decision to undertake such conversion hinges upon load forecasts and resource planning, with BC Hydro presently not foreseeing the need for conversion within the current planning horizon.

Nevertheless, any planned interconnection and the establishment of a new switching station must not compromise the feasibility of future voltage conversion,

vital for ensuring continued reliable power supply to the VI load center. Should the conversion of 2L123 to 500 kV operation become necessary, the proposed new 230 kV switching station is required to be upgraded to a 500/230 kV substation with the location of the current POI (Chapman Creek Wind Project) unchanged. However, the future switching station upgrade falls outside the scope of this feasibility study.

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 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

The Feasibility Study 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) Current feasibility study is based on assumption that a new 230 kV switching station to construct at 29.4 km from SAT as proposed POI to interconnect customer's IPP to BC Hydro transmission system.

5 System Studies and Results

Based upon the IC's submitted information and the area system conditions, a new switching station (referred to as "P39T") as the proposed POI on BC Hydro 230 kV transmission line 2L123 is required to interconnect the IC's generating project to the BCH system. 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 P39T, the existing line 2L123 will be segregated into two new lines, temporarily referred to as: 2L123_A (DMR-P39T) and 2L123_B (P39T-SAT). The proposed customer-built line (P39T-P39) is designated as 2L123_C. The temporary line designations will be replaced by permanent designations at a later stage of interconnection study.

The existing transmission line, 2L123 (DMR-SAT), operating at 230 kV, is serving as part of a critical transfer cut-plane facilitating power to the Vancouver Island major load center. Constructed to meet the 500 kV standard, it was designed with the potential for future operation at 500 kV, ensuring scalability to accommodate anticipated load growth and maintain supply reliability.

The decision to undertake such conversion hinges upon load forecasts and resource planning, with BC Hydro presently not foreseeing the need for conversion within the current planning horizon. Nevertheless, any planned interconnection and the establishment of a new switching station must not compromise the feasibility of future voltage conversion, which is vital for ensuring continued reliable power supply to the VI load center. Should the conversion of 2L123 to 500 kV operation become necessary, the proposed new 230 kV switching station will be required to be upgraded to a 500/230 kV substation.

The new lines 2L123_A, 2L123_B will become part of BC Hydro BES and need to be compliant with applicable MRS requirements. The new interconnection line 2L123_C will become an IC's BES and the IC will be responsible for the compliance with applicable MRS requirements.

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 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 (P1, P2) for various load conditions.

The study finds no transformer or line overload under system normal conditions (P0) and single contingencies operation condition (P1 and P2) for all three load conditions studied.

In addition to the base generation pattern, a sensitivity check with zero generation from IC is done to stress the 230 kV line 2L123 and 2L128 from DMR to SAT.

Table 5-1: Summary of Branch Loading Analysis Results

Case	IC's Plant Output	Contingency		Branch Loading		
				2L123_A	2L123_B	2L128
		Cat.	Description	DMR- P39T	P39T-SAT	DMR-HWW
Winter Rating				2233 A	2233 A	2265 A
28HW	MAX	P0	System Normal	23%	29%	26%
	0 MW	P0	System Normal	27%	15%	25%
	Max	P1	2L128	42%	43%	N/A
Summer Rating				1637 A	1637 A	1949 A
29HS	Max	P0	System Normal	21%	35%	21%
	0 MW	P0	System Normal	25%	16%	20%
	Max	P1	2L128	37%	50%	N/A
29LS	Max	P0	System Normal	12%	33%	15%
	0 MW	P0	System Normal	17%	14%	14%
	Max	P1	2L128	24%	44%	N/A

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.

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

Case	IC's Plant Output	Contingency		Bus Voltage (P.U.)		
		Cat.	Description	SAT 230	DMR 230	VIT 230
28HW	Max	P0	System normal	1.014	1.0449	1.0124
	0 MW	P0	System normal	1.0127	1.0403	1.0112
	Max	P1	2L128	1.009	1.047	1.008
	Max	P2	SAT 2CB1	1.01	1.048	1.008
29HS	Max	P0	System normal	1.0205	1.0495	1.0202
	0 MW	P0	System normal	1.021	1.0484	1.0206
	Max	P1	2L128	1.01	1.05	1.01
	Max	P2	SAT 2CB1	1.009	1.051	1.01
29LS	Max	P0	System normal	1.0179	1.0262	1.0172
	0 MW	P0	System normal	1.0173	1.0253	1.0166
	Max	P1	2L128	1.025	1.025	1.017
	Max	P2	SAT 2CB1	1.014	1.029	1.012

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 at the plant's maximum MW output, 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 +/- 3.5 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

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 next stage of interconnection study if needed.

5.3 Stations Requirements

A new outdoor 230kV, 3-circuit breaker ring bus switching station will be built at POI, close to the existing 230 kV transmission line 2L123. The existing transmission line 2L123 will be cut and looped in to, and 230kV line of Chapman Creek Wind Project will be terminated at the new substation.

The station upgrade scope at the new switching station P39T is as follows:

- Acquire adequate property for a new substation close to the existing transmission line 2L123. The property size should also consider the future 500kV conversion at this location.
- Construct a new outdoor 230 kV, 3-circuit breaker ring bus switching substation, refer Appendix B-1 below for details. The designation of the new station and the new line connecting to the customer and two new lines derived from 2L123 will be assigned in next stage.
- Construct a new control building and other required substation facilities and infrastructures.
- Cut the existing 2L123 and loop into the substation.
- Terminate 230 kV line of Chapman Creek Wind Project at the station.

500 kV future conversion

- The conceptual ultimate planning one-line for this substation is required to include a future 500 kV section. The conceptual ultimate planning oneline drawing has been provided to illustrate the 500 kV section's functional requirements. Refer to Appendix B -2 for the Conceptual One-Line Sketch for

the New Switching Station After Potential Conversion to 500/230 kV substation for details. This conceptual drawing is provided for information only. The actual ultimate planning one-line will be studied and provided at a later stage, as needed.

5.4 Protection & Control Requirements

BC Hydro will provide line protections for BC Hydro owned terminals of lines 2L123_A,2L123_B and 2L123_C. Existing 2L123 is a single, three terminal transmission line but will be segregated into three as a part of this project: DMR to P39T is 2L123_A, P39T to SAT is 2L123_B and P39T to CHAPMAN CREEK WIND PROJECT is 2L123_C. BCH to build a new 138 kV three-breaker-ring terminal switching station (tentatively designated as P39T) for interconnecting to the new proponent Chapman Creek Wind Project.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, [redacted] to provide the following for the interconnection of Chapman Creek Wind Project:

- 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 Chapman Creek Wind Project to provide protection coverage for 2L123_C. BC Hydro P&C Planning will provide core protection settings for these relays to protect transmission line 2L123_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 Regional System Planning requirements.

The runback schemes or RAS requirements are mainly to address the overloading concerns under contingencies, which are preliminary. The 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 the 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

- Provide WECC Level 3 64 kbps synchronous circuits between DMR and P39T for “DMR-P39T 2L123_A PY DIGITAL TELEPROT” and “DMR-P39T 2L123_A SY DIGITAL TELEPROT” with C37.94 interfaces.
- Provide WECC Level 3 64 kbps synchronous circuits between HWW and P39T for “HWW-P39T 2L123_A PY DIGITAL TELEPROT” and “HWW-P39T 2L123_A SY DIGITAL TELEPROT” with C37.94 interfaces.
- Provide WECC Level 3 64 kbps synchronous circuits between DMR and HWW for “DMR-HWW 2L123_A PY DIGITAL TELEPROT” and “DMR-HWW 2L123_A SY DIGITAL TELEPROT” with C37.94 interfaces.
- Provide WECC Level 3 64 kbps synchronous circuits between SAT and P39T for “SAT-P39T 2L123_B PY DIGITAL TELEPROT” and “SAT-P39T 2L123_B SY DIGITAL TELEPROT” with C37.94 interfaces.
- Provide WECC Level 3 64 kbps synchronous circuits between P39T and P39 for “P39T-P39 2L123_C PY DIGITAL TELEPROT” and “P39T-P39 2L123_C SY DIGITAL TELEPROT” with C37.94 interfaces.

Telecontrol Requirements for Telecom

- Provide P39T SCADA circuit off FVO & SIO.
- Provide P39 SCADA circuit off FVO & SIO.
- Provide P39T REMACC circuit off EDM.

Other Requirements for Telecom

- Provide PY & SY T1s over separate OC3s between P39T-P39.

- Provide TMS circuit for P39T (end point TBD)
- Provide MPLS links and LSPs for new DMR, HWW, P39T, and SAT MPLS nodes.

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 Chapman Creek Wind Project and its facilities to the BCH Transmission System at the POI, this Feasibility Study has identified the following conclusions and requirements:

1. A new 230 kV switching station (referred to as "P39T") on 2L123 is required as the proposed POI for interconnecting the IC's generating project to the BCH system. With the new switching station P39T, 2L123 will be segregated into two new lines, temporarily referred to as: 2L123_A (DMR-P39T) and 2L123_B (P39T-SAT). The proposed customer-built line (P39T-P39) will be designated as 2L123_C. The temporary line designations will be replaced by permanent designations at a later stage of the interconnection study.
2. 2L123 is constructed to the 500 kV standard and designed with the potential for future conversion to 500 kV operation, ensuring scalability to accommodate anticipated load growth and maintain supply reliability. BC Hydro does not foresee the need for conversion within the current planning horizon. Nevertheless, P39T must not compromise the feasibility of future voltage conversion. P39T planning and design are required to allow future upgrades to a 500/230 kV substation.
3. The connection of Chapman Creek Wind Project does not cause any performance violation (i.e. thermal overload, voltage performance violation or voltage stability concern) under system normal conditions and single contingency operation condition.
4. The IC is required to install anti-islanding protection within their facility to disconnect the IC's wind farm from the grid when an inadvertent island with the local loads forms.
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 Chapman Creek wind farm as submitted does meet the reactive capability requirement at full MW output range.
6. The new lines 2L123_A and 2L123_B will remain part of BC Hydro BES and need to be compliant with applicable NERC MRS requirements. The new line 2L123_C (P39T-Chapman Creek Wind project) will become an IC's BES and the IC will be responsible for the compliance with applicable MRS requirements.

7. BC Hydro will provide line protections for BC Hydro owned terminals of lines 2L123_A,2L123_B and 2L123_C. As part of the line protection replacements for each of the three lines, telecommunication facilities will be required to accommodate the new protection schemes.

Appendix A
Plant Single Line Diagram Used for Power Flow Study

Figure A-1 shows Chapman Creek Wind Project single line diagram used for power flow study.

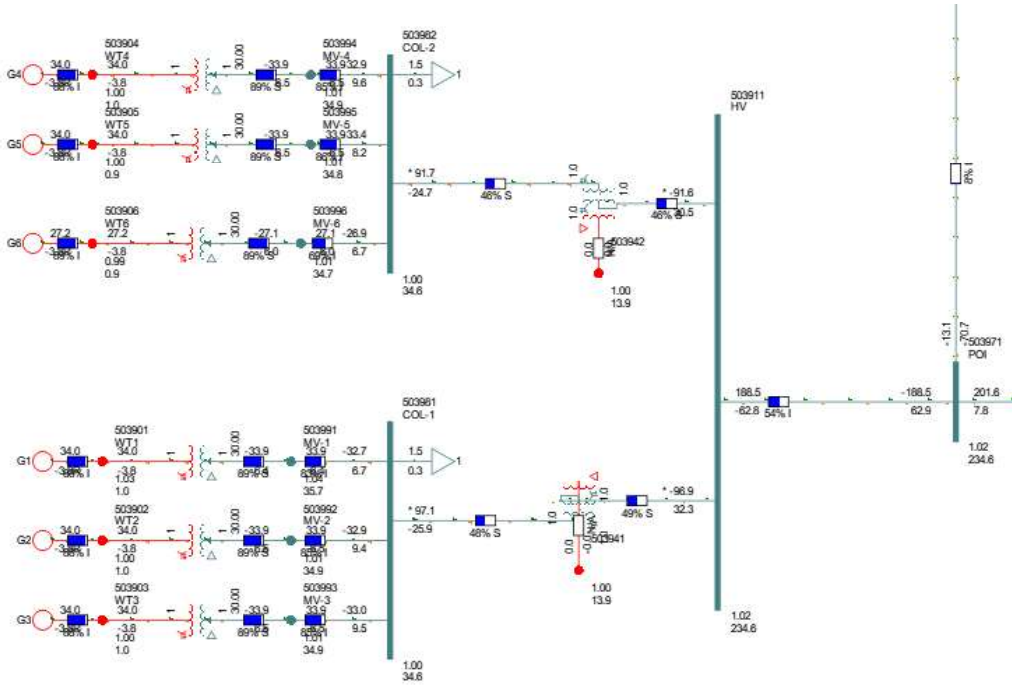

Figure A-1: Chapman Creek Wind Project Single Line Diagram for Power Flow Study.

As seen in the diagram, Chapman CreekWind Project has two main power transformers dividing the plant into two parts.

- Part 1 has three (3) feeders connecting 15 wind turbines to the collector station.
- Part 2 has three (3) feeders connecting 14 wind turbines to the collector station.

Appendix B
One-Line Sketch for New Switching Station

Figure B-1 shows the Stations Planning One-Line Sketch for the New Switching Station P39T.

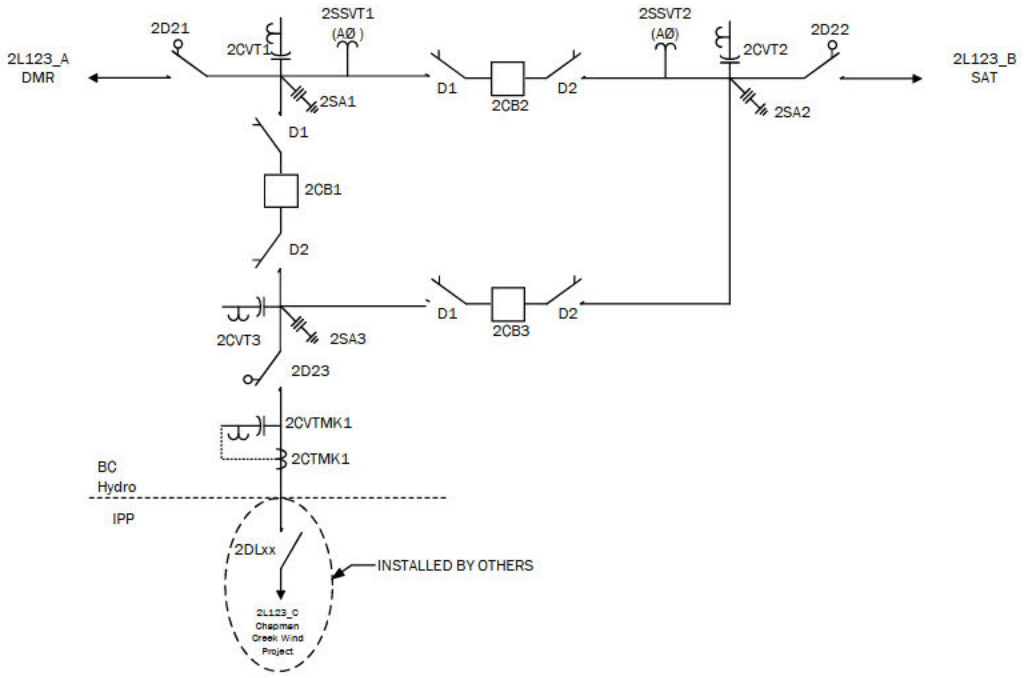

Figure B-1: Stations Planning One-Line Sketch for the New Switching Station P39T.

Figure B-2 shows the Stations Planning Conceptual One-Line Sketch for the New Switching Station P39T After Potential Conversion to 500/230 kV Substation.

This conceptual drawing is provided for information only. The actual ultimate planning one line will be studied and provided at a later stage as needed.

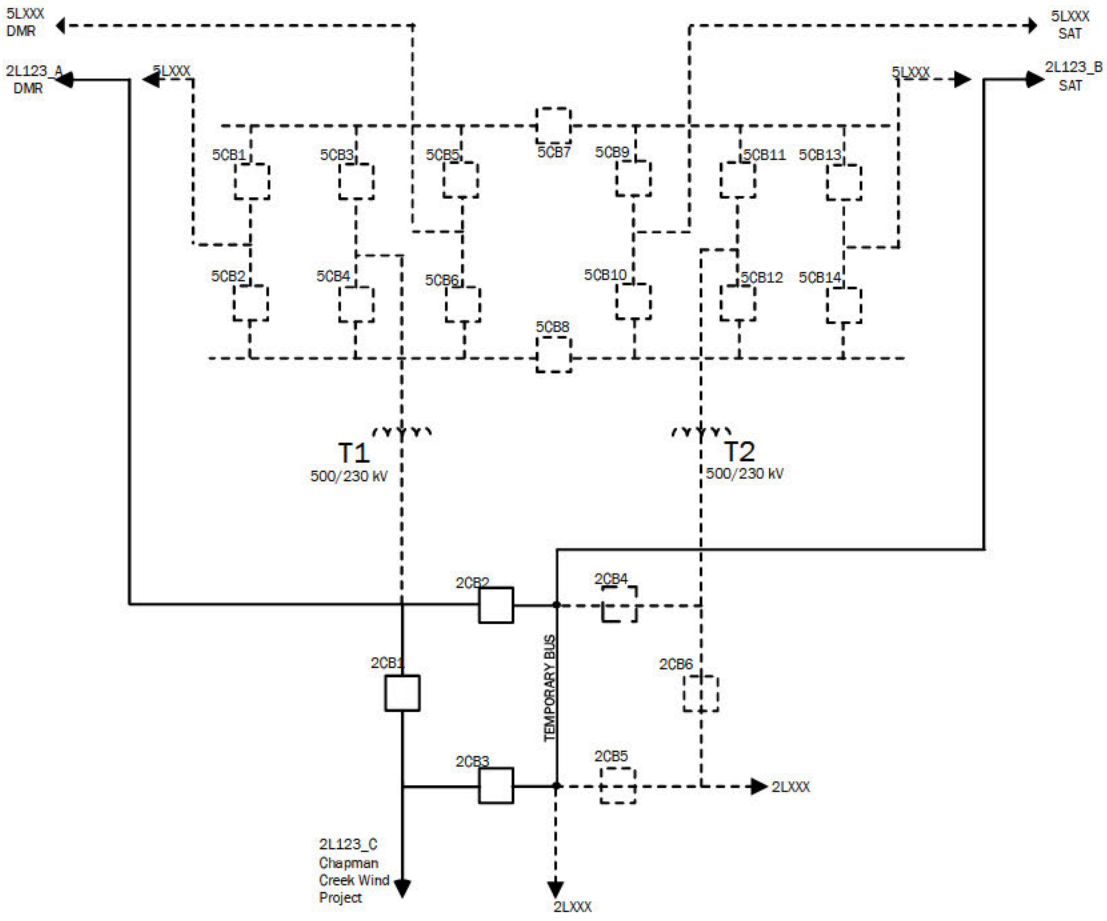

Figure B-2: Ultimate Stations Planning Conceptual One-Line Sketch for the New Switching Station P39T After Potential Conversion to 500kV/230kV Substation