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

November 24, 2025

[redacted]

via email: [redacted]

RE: CEAP IR #64 – [redacted] **– Interconnection Feasibility Study**

Dear [redacted]

Enclosed is the Interconnection Feasibility Study for the proposed Interconnection Request (IR), [redacted], 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.

Interconnection Study Costs

The Interconnection Customer is responsible for paying the full cost of all Interconnection Studies in cash. Interconnection Study costs vary depending on the scope, complexity, and other factors such as whether any scope is shared with another Interconnection Customer (not applicable to this Interconnection Feasibility Study). The deposit amounts specified in the OATT are not proxy Interconnection Study costs. If actual Interconnection Study costs exceed the deposit amount, the Interconnection Customer must pay the remaining balance in cash. Please refer to the answer for question no. 53 in the posted Questions & Answers for 2025 Call for Power for typical study cost ranges.

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 $164.2 M.

Major Scope of Work Identified:

- Add one 230 kV line position with associated equipment at BC Hydro Shell Groundbirch switching station (SGB)
- Upgrade required substation facilities, infrastructures, and bus work to support new station equipment

- Install one new outdoor dead-tank type, 230 kV circuit breaker along with associated disconnect switches, and disconnect switch 2D2CB10
- Install a new 230kV line terminal with associated motorized disconnect switch (2D26), Surge Arrester (2SA10) and one 230kV Capacitor Voltage Transformer (2CVT10) to terminate [redacted] line
- Remove the temporary connection on the 230kV bus, between 2B5 & 2B9
- Expand the existing 230 kV switchyard within the limits of the current property boundaries to accommodate the above-mentioned facilities and bus work
- Install associated P&C equipment, station service and other equipment in the existing control building
- Install a 600 MVA, 230 kV phase-shifting transformer on 2L312 at the Sundance Lakes substation (SLS), along with bypass facilities
- Complete other associated station work as required

Exclusions:

- GST
- Permits
- Right-of-Way & property costs

Key Assumptions:

- Construction by contractor
- 24 months of construction is considered
- No construction during winter season
- Execution of early Engineering and Procurement Agreement
- A site expansion of 45 m × 100 m at SGB is assumed to accommodate the new line position
- A minimum site expansion of 50 m × 60 m at SLS is assumed to accommodate the new equipment
- Additional property is required for SLS expansion
- No expansion of existing control buildings to accommodate new equipment
- Impact Benefit Agreements with First Nations are not considered

Key Risks:

- Expansion of the existing control building may be required leading to increased costs and/or a longer project schedule
- Major equipment delivery presents potential project cost and schedule risks, based on variance in equipment lead times
- No defined supply chain strategy; construction costs may increase depending on delivery method
- Project schedule may be longer than expected, leading to increased overhead costs
- Ground improvements may be required leading to increased construction costs
- Contaminated soil may be encountered leading to increased construction costs
- Cost of materials and major equipment may be affected by market conditions and escalation

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Study Limitations and Exclusions

Protection, Control, and Telecommunications

The Interconnection Feasibility Study does not include a detailed review of the protection, control, and telecommunications system requirements specific to your Interconnection Request. Based on a high-level review, we have identified proxy costs for protection, control, and telecom Network Upgrades drawn from comparable interconnection projects with similar scope and complexity; these proxy costs have been included solely for indicative budgeting purposes. The relative interconnection cost determined by the Interconnection Feasibility Study includes a telecommunications component based on an assumed solution to deliver teleprotection and telecontrol circuit requirements necessary for the Interconnection Request. Protection, control, and telecommunications system requirements will be reviewed in detail in the System Impact Study if you are a successful participant of the CEAP and meet applicable requirements.

For Interconnection Feasibility Study purposes, it is assumed that any applicant-proposed works that could obstruct or impair the performance of existing BC Hydro microwave systems or new links from the proposed Interconnection Customer Interconnection Facilities (ICIF) to the BC Hydro microwave system would be identified and either relocated or repositioned as determined in a System Impact Study if you are a successful participant of the CEAP and meet applicable requirements. Such works may include, but are not limited to, towers, turbines, dams, support structures, panels, surface materials deposited or redistributed, water surface changes, or vegetation.

Generation Shedding/Curtailment Scheme and Electromagnetic Transient (EMT) Studies

The generation shedding/curtailment scheme reviews (e.g., Remedial Action Scheme (RAS), and a direct transfer trip for anti-islanding scheme) and EMT studies are completed in a System Impact Study. The outcomes of these studies may result in additional requirements, which could include Network Upgrades or ICIF. Any costs associated with completion of these studies, and resulting requirements, are not included in the Interconnection Feasibility Study cost estimate.

Revenue Metering

Please note that revenue metering requirements have not been determined with the Interconnection Feasibility Study. As such, any costs associated with revenue metering and other interconnection components are not included in the cost estimate provided above. Once these requirements are defined, 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 Interconnection Request's Network Upgrades is Quarter 3 2032 (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 or delays in data submission or financial commitments may also impact the target in-service date.

If you have any questions, please contact the BC Hydro CEAP team at ceap2025@bchydro.com.

Sincerely,

[redacted]

[redacted]

Manager, Customer Interconnections

BC Hydro

Encl.: CEAP_2025_IR64_[redacted]_Feasibility_Study.pdf

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[redacted]

Interconnection Feasibility Study

BC Hydro EGBC Permit to Practice No: 1002449

2025 CEAP IR #64

Prepared for: [redacted]

Prepared by: [redacted]

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Specialist Engineer, Transmission

Reviewed by: [redacted]

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Technical Strategic Principle, Transmission Planning

Accepted by: [redacted]

Division Manager, Transmission Planning

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[redacted]

[redacted]

Specialist Engineer, Transmission Planning

[redacted]

Section: **5.2, 5.3**

Discipline: Stations Planning

Contributed by:

[redacted]

[redacted]

Specialist Engineer, Station Planning

[redacted]

Executive Summary

[redacted] the Interconnection Customer (IC), requests to interconnect its [redacted] (2025 CEAP IR #64) to the BC Hydro (BCH) system. The Project has fifty-eight (58) [redacted] type-3 wind turbine generators (WTG), adding a total installed capacity of 394.4 MW with a maximum power injection of 379.6 MW into the BCH system at the Point of Interconnection (POI). The proposed POI is at 230 kV bus of BCH's Shell Groundbirch Switching Station (SGB). The IC's project will be connected to the POI via a new 26.5 km customer-built 230 kV line.

This Feasibility Study has identified the following conclusions and requirements to connect [redacted] and its facilities to BCH Transmission System at the proposed POI:

1. The proposed POI at the 230 kV SGB station is acceptable to interconnect the customer's generating project to the BCH system.

2. One new 230 kV line position at SGB is required to interconnect the IC's wind project.

3. The connection of the [redacted] causes thermal overload on the 230 kV line 2L308 between Gordon M. Shrum Generating Station (GMS) and Dokie Terminal Station (DKT) during the light load period under system normal condition. To mitigate this constraint, a 600 MVA 230 kV phase shifting transformer with bypass facilities on the line 2L312 at 230 kV Sundance Lake Substation (SLS) is required.

4. The connection of [redacted] will exacerbate the existing thermal overloads on the 500 kV lines 5L1, 5L2 and 5L3 under single contingencies. These overloads can be mitigated by the existing G.M. Shrum Area Gen Shedding remedial action scheme (RAS). Therefore, the [redacted] is required to participate in the G.M. Shrum Area Gen Shedding RAS. Further RAS details will be studied under System Impact Study (SIS) stage.

5. Thermal overloads are observed on the line 2L308, 2L392A, 1L361, 1L349 and transformers GMS T13 or T14, SLS T1 under various single contingencies. The [redacted] is required to participate in and modify the existing Peace Area Wind Farm Gen Shedding RAS or install a

new generation shedding RAS is required to trip IC's wind generators at the IC's entrance circuit breaker and mitigate the potential thermal overloads.

6. Anti-islanding protection is required for the [redacted] and shall be configured in the manner that does not compromise the required ride-through performance.
7. The IC's wind project may become islanded together with the TVC loads in the event of a potential SGB breaker fault. A Direct Transfer Trip (DTT) protection scheme is required to isolate the [redacted] at the IC's entrance circuit breaker to avoid potential islanding operations with the existing and future loads.
8. The BC 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, per BCH's TIR Section 6.4.2.
9. The "STATCOM option" for the proposed type-3 WTGs is required so that each turbine can provide reactive power capability at zero MW output. It is understood that, due to inherent limitation, type-3 WTGs with "STATCOM option" enabled can provide only partial reactive capability when the turbine is at standstill.
10. Fast Frequency Response, also known as Virtual Inertia Control (VIC) in the proposed wind turbines, is required at the [redacted]. The proposed wind turbine generators, when equipped with the VIC option, are expected to temporarily boost the MW output to limit the system frequency drop during a major frequency event. The VIC settings should be determined in coordination with BC in the later stage of interconnection studies.

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 October 14, 2025.

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

Please note that, this Feasibility Study report does not include the descriptions of Protection, Control, and Telecommunications requirements and the associated upgrade scopes; however, as discussed in Section 2 “Purpose and Scopes of Study”, the associated cost implications are captured and delivered in the cover letter to the IC.

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Appendices

Appendix A Schematic Diagram of the IC's Project

Appendix B Power Flow Study Results

Appendix C One-Line Sketch for Switching Station

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
GMS	Gordan M. Shrum
IBR	Inverter-Based Resources
IC	Interconnection Customer
IR	Interconnection Request
LAPS	Local Area Protection Schemes
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
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

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

Table 1-1 Summary of Project Information

Project Name	[redacted]	
Name of Interconnection Customer (IC)	[redacted]	
Point of Interconnection (POI)	SGB Switching Station	
IC's Proposed COD	1st October 2029	
Type of Interconnection Service	NRIS ☒	ERIS ☐
Maximum Power Injection (MW)	379.6 MW (Summer)	379.6 MW (Winter)
Number of Generator Units	58 x 6.8 MW WTGs	
Plant Fuel	Wind	

[redacted] the Interconnection Customer (IC), requests to interconnect its [redacted] (2025 CEAP IR #64) to the BC Hydro (BCH) system. The Project has fifty-eight (58) [redacted] type-3 wind turbine generators, adding a total installed capacity of 394.4 MW with a maximum power injection of 379.6 MW into the BCH system at the Point of Interconnection (POI). The proposed POI is at 230 kV bus of BCH's Shell Groundbirch Switching Station (SGB). The IC's project will be connected to the POI via a new 26.5 km customer-built 230 kV line.

Figure 1-1 shows the Peace region 138/230/500 kV transmission system diagram including IC's wind project (P64) interconnection. The Peace Region transmission system consists of 230 kV and 138 kV transmission infrastructures supplied from Gordan M. Shrum Generating Station (GMS) and South Bank Substation (SBK), which are the major sources of supply to the Peace Region transmission system. Wind power projects such as Bear Mountain Wind, Dokie Wind, Quality Wind, Meikle Wind, Moose Lake Wind, Quality Wind, and Zonnebeke Wind, have been successfully integrated into the Peace Region transmission system.

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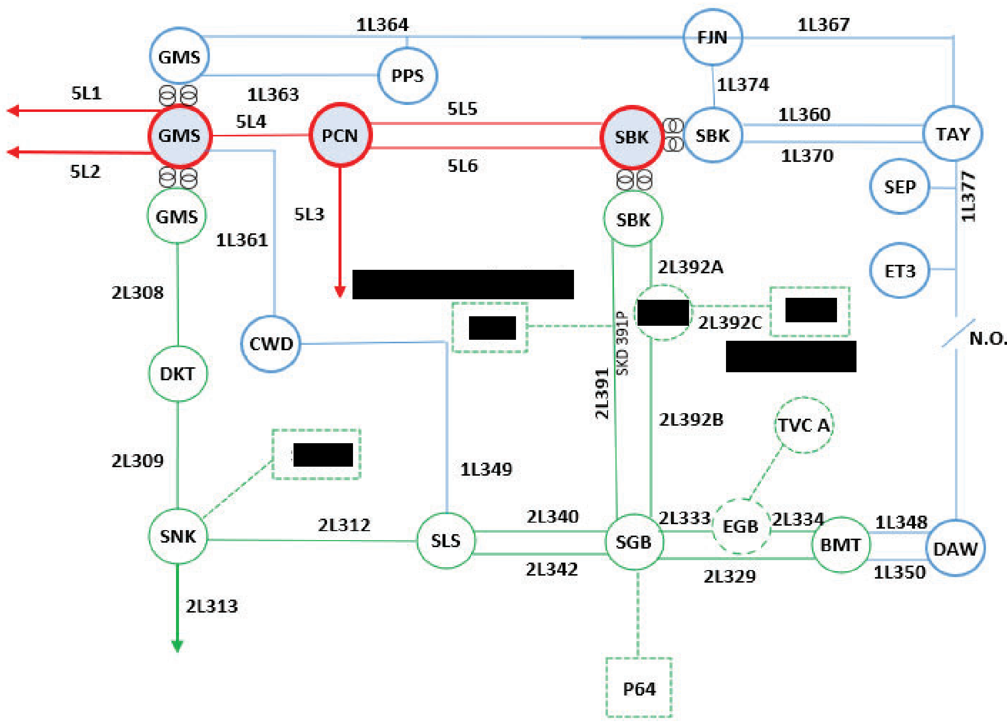

Figure 1-1: Peace Region 138/230/500 kV Transmission System Single Line Diagram.

In addition to the existing generators, there are three future generating projects with higher queue priority in the Peace region. Two of them – [redacted] wind and [redacted] with installed capacity of 200 MW each are [redacted] from the 2024 CEAP. Moreover, one high-queued wind farm with 56 MW installed capacity will also be added in the Peace region. The three wind farms and the connections are shown in Figure 1-1.

2 Purpose and Scopes of Study

This Feasibility Study is a preliminary evaluation of the system impact of interconnecting the proposed project to the BCH system based on power flow and short circuit analysis in accordance with BCH's Open Access Transmission Tariff (OATT) and produces the estimated cost of required Network Upgrades and the implementation schedule.

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 connected and affects.

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 will be addressed in subsequent System Impact Study if the project proceeds further. In addition, any potential impacts to the adjacent external systems to BCH would be addressed in subsequent detailed and coordinated studies with the relevant adjacent entities if the proposed generator project proceeds further.

Please note that, due to the compressed study timeline for CEAP 2025 Feasibility Study, this report does not include the descriptions of the Protection, Control, and Telecommunication requirements and the associated upgrade scopes. Instead, the network upgrades associated with Protections, Controls and Telecommunications are incorporated with cost estimates in a separate cover letter to the IC.

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, Rev 2.1.1, Effective: Sept 22, 2025.
- BC Hydro Operating Order 5T-10, Ratings for All Transmission Circuits 60 kV or Higher, Sept 17, 2025.
- BC Hydro Operating Order 5T-14, Ratings for All Transmission and Distribution Transformer, Sept 22, 2025.
- BC Hydro System Operating Order 7T-22 System Voltage Control, Sept 19, 2023.

4 Assumptions and Conditions

This Feasibility Study is performed based on the IC's submitted data and information available to BCH on Oct 14, 2025, for the study purpose. Assumptions are made wherever the IC's input is unavailable. Appendix A shows the schematic diagram of the IC's project used in the study model.

The power flow study cases used in this Feasibility Study are established based upon BCH'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 2024 Distribution Substation Load Forecast, 2025 Transmission Voltage Customer (TVC) Load Forecast and 2025 System Peak Forecast are used.
2) September 2024 Base Resource Plan.
3) Two [redacted] with installed capacity of 200 MW each, are considered in this study. [redacted] will be in service on September 30, 2031, and [redacted] will be in service on October 1, 2030.
4) A future 56 MW wind generation interconnection in the Peace region will be in service on October 31, 2028.
5) Fort St. John Transmission Reinforcement will be in-service in October 2029. This project builds a new 138 kV transmission line from SBK to Taylor Substation (TAY).
6) All new TVC load interconnections and their associated system reinforcements are modeled in this study.
7) 1L377 normally open between ARC Resources Ltd.-Parkland Substation (PLD) and Cutbank Ridge Partnership Substation (ET3).

5 System Studies and Results

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 system reinforcement requirement based on steady state performance analysis.

The study focuses on the base scenarios – 30LS/32HW/32LS/32HS system conditions. These base cases were prepared based on factors such as load conditions, seasonal variation in ambient temperatures, and generation patterns that stress the transmission system.

The studies are performed for system normal conditions and under critical system contingencies specified in the P1 and P2 events by NERC TPL-001-4. Study results are summarized below.

5.1.1 Thermal Overload Analysis

Table 5-1 summarizes the thermal overloads identified in the study and the proposed solutions. Appendix B contains the details of thermal overload analysis results.

Table 5-1: Thermal Overload Concerns and Proposed Solutions

Equipment subject to overloads	Conditions observed	Contingencies that result in overloads	Solution Proposed
Under system normal conditions			
2L308 (DKT-GMS)	LS	System Normal	Install a 600 MVA, 230 kV phase shifting transformer on the line 2L312 at SLS.
Under contingencies			
2L308	LS, HS, HW	P1.2: 1L349, 1L361, 2L391[1], 2L392A, 2L392B, 5L4, 5L5/5L6 P1.3: SBK T21/T22, SL T1 P2.3: GMS_1CB7, SGB_2CB5, SGB_2CB2, SBK_2CB21, SBK_2CB22, SBK_2CB12, SBK_2CB13	Modify the existing Peace Area Wind Farm Gen Shedding RAS or install a new generation shedding RAS to trip [redacted] Project at IC's site station.
GMS T13 or T14		P1.3: GMS T14 or T13 P2.3: GMS_1CB7, GMS_1CB5 or GMS_1CB4	
1L361, 1L349, SLS T1		P1.2: 2L308	

[1] In contingency 2L391, both 2L391A and 2L391B will go out of service.

In addition, the interconnection of [redacted] exacerbates the existing thermal overloads on the 500 kV lines 5L1, 5L2 and 5L3 under single contingencies of loss of one of the 500 kV lines 5L3, 5L4, or 5L7. These existing overloads are currently mitigated by the G.M. Shrum Area Gen Shedding remedial action scheme (RAS). The [redacted] is required to participate in the existing GMS Area Gen Shedding RAS and details of RAS will be studied under System Impact Study (SIS) stage.

5.1.2 Steady-State Voltage Analysis

With the connection of the IC's project, the stead-state voltage performance under system normal (P0) and single contingencies (P1 & P2) are acceptable for all the four scenarios (30LS,32LS, 32HS, 32HW).

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 [redacted] would not be capable of meeting BC Hydro's reactive capability requirement at the plant's maximum MW output, which is subjected to further verification in the next stage of the interconnection process.

In addition, according to the IC-provided reactive capability data, the proposed WTG would provide +1.7 MVAr to -1.7 MVAr reactive capability at the zero MW output if the turbine's "STATCOM" function is enabled. This function needs to be re-confirmed if the IC's project proceeds to next stage of the interconnection process.

5.1.4 Anti-Islanding Requirements

[redacted] is not arranged for islanded operation. 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.

[redacted] would be islanded with the Transmission Voltage Customer (TVC) loads in the event of a potential SGB breaker fault. A Direct Transfer Trip (DTT) protection scheme is required to isolate the [redacted] at the IC's entrance circuit breaker to avoid potential islanding operations with the existing and future loads.

5.1.5 Other Performance Requirements

Fast Frequency Response, also known as Virtual Inertia Control (VIC) in the proposed wind turbines is required at the IC's Wind Project. The proposed wind turbine generators, when equipped with the VIC option, are expected to temporarily boost the MW output to limit the system frequency drop during a major frequency event. The VIC settings should be determined in coordination with BC Hydro in the later stage of the interconnection process.

5.2 Fault Analysis

The short circuit analysis in the Feasibility Study 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 SIS stage if needed.

5.3 Stations Requirements

To interconnect this IC to BC Hydro's transmission system at the 230 kV bus of the SGB, the following station works are required at the SGB:

- Install one new outdoor dead-tank type, 230 kV circuit breaker rated at 3000 A continuous current, 40 kA interrupting rating, 950 kV BIL along with associated disconnect switches, and disconnect switch 2D2CB10.
- Install a new 230kV line terminal (2LXXX-[redacted]) with associated motorized disconnect switch (2D26), Surge Arrester (2SA10) and one 230kV Capacitor Voltage Transformer (2CVT10).
- Remove the temporary connection on the 230kV bus, between 2B5 & 2B9 as shown in the attached planning one-line sketch.

- Expand the existing 230 kV switchyard within the limits of the current property boundaries to accommodate the above-mentioned facilities and bus work.
- Install associated P&C equipment, station service and other equipment in the existing control building. It is assumed that the control building at SGB can be expanded to accommodate the new upgrade if necessary.
- Other associated station works.
- Refer to the attached planning one-line sketch in Appendix -C.

The following station works are required to install a 600 MVA, 230 kV phase-shifting transformer on 2L312 at the Sundance Lakes Substation (SLS), along with bypass facilities:

- Expand the existing station fence to the west. Additional property is required to accommodate the facilities mentioned below.
- Install a 600 MVA, 230 kV phase-shifting transformer with its bypass and associated equipment on 2L312.
- Relocate and re-terminate 230 kV line 2L312 and associated equipment to the existing line terminal.
- Expand the control building, if required, to accommodate new P&C panels and other equipment.
- Refer to the attached planning one-line sketch in Appendix -C.

Major assumptions of SLS station planning:

- It is feasible to obtain additional property and expand the SLS station to the west side to accommodate a 600MVA, 230kV phase-shifting transformer and its bypass on 230kV line 2L312. Or the existing property could alternatively be used by rearranging the layout, without impacting the station’s future expansion.
- The configuration of the phase shifting transformer, along with its associated equipment and bypass may change and will be confirmed in the next stage when more information becomes available.

- The control building at SLS can be expanded to accommodate the new upgrade if necessary.

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 [redacted] and its facilities to the BCH Transmission System at the POI, this Feasibility Study has identified the following conclusions and requirements:

1. The proposed POI at the 230 kV bus of the SGB switching station is acceptable to interconnect the customer's generating project to the BCH system.
2. One new 230 kV line position at SGB is required to interconnect the IC's wind project.
3. The connection of the [redacted] causes thermal overload on the 230 kV line 2L308 (DKT – GMS) during the light load period under system normal condition. To mitigate this constraint, a 600 MVA, 230 kV phase shifting transformer on 2L312 at 230 kV SLS with bypass facilities is required.
4. The connection of [redacted] will exacerbate the existing thermal overloads on the 500 kV lines 5L1, 5L2 and 5L3 under single contingencies. These overloads can be mitigated by the existing G.M. Shrum Area Gen Shedding remedial action scheme. Therefore, the [redacted] is required to participate in the G.M. Shrum Area Gen Shedding RAS. Further RAS details will be studied under System Impact Study stage.
5. Thermal overloads are observed on the line 2L308, 2L392A, 1L361, 1L349 and transformers GMS T13 or T14 and SLS T1 under various single contingencies. The [redacted] is required to participate in and modify the existing Peace Area Wind Farm Gen Shedding RAS or install a new generation shedding RAS to trip IC's wind generators at the IC's entrance circuit breaker.
6. Anti-islanding protection is required for the [redacted] and shall be configured in the manner that does not compromise the required ride-through performance.

7. The IC's wind project may become islanded together with the TVC loads in the event of a potential SGB breaker fault. A DTT protection scheme is required to isolate the [redacted] at the IC's entrance circuit breaker to avoid potential islanding operations with the existing and future loads.

8. The BCH 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, per BC Hydro's TIR Section 6.4.2.

9. The "STATCOM option" for the proposed type-3 WTGs is required so that each turbine can provide reactive power capability at zero MW output. It is understood that, due to inherent limitation, type-3 WTGs with "STATCOM option" enabled can provide only partial reactive capability when the turbine is at standstill.

10. Fast Frequency Response, also known as Virtual Inertia Control (VIC) in the proposed wind turbines, is required at the [redacted]. The proposed wind turbine generators, when equipped with the VIC option, are expected to temporarily boost the MW output to limit the system frequency drop during a major frequency event. The VIC settings should be determined in coordination with BC Hydro in the later stage of interconnection studies.

Appendix A
Schematic Diagram of the IC's Project

Figure A-1 shows the schematic diagram for the [redacted].

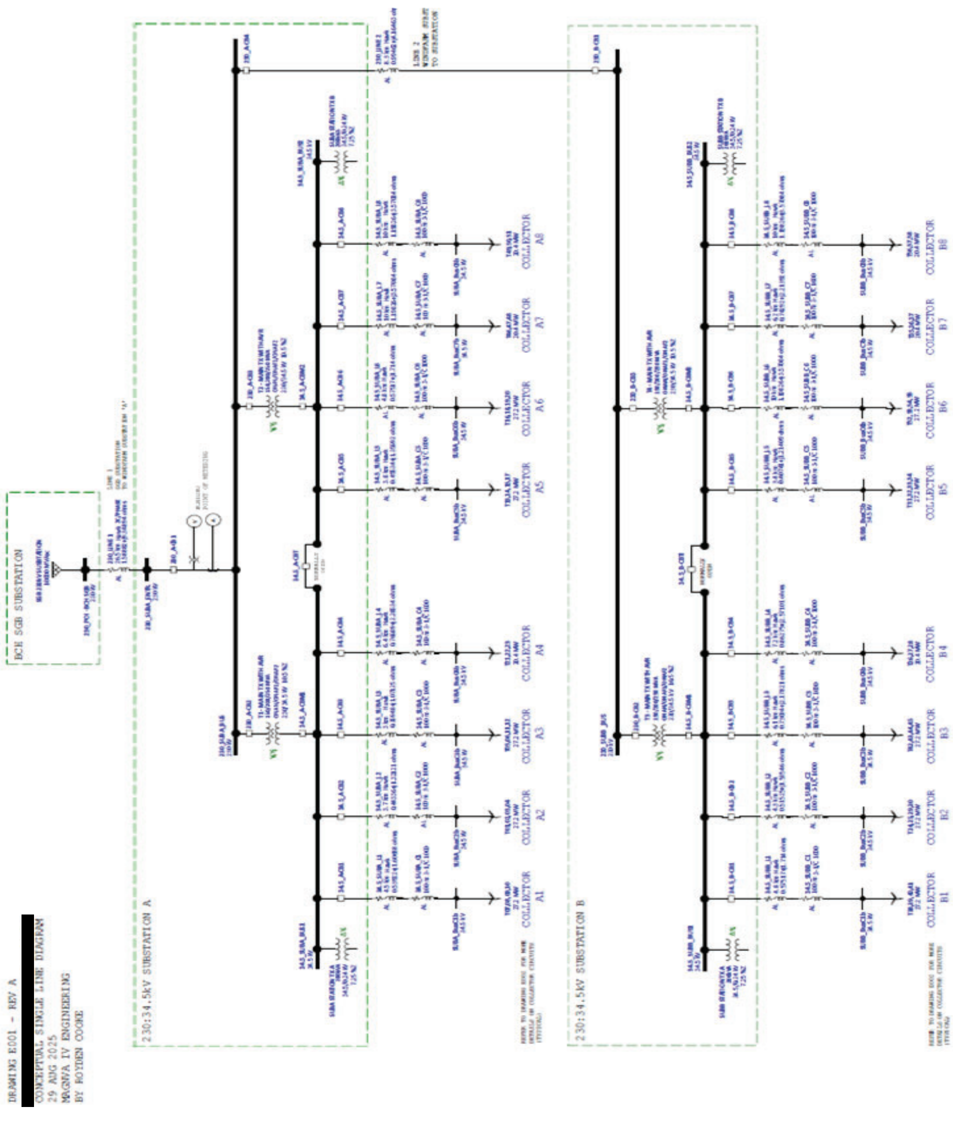

Figure A-1: [redacted] Plant Schematic Diagram.

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Appendix B
Power Flow Study Results

Base Scenario (32HW/32HS/32LS)

Table B-1: Thermal Overload Study Results

Case	IC's Generator Output	Contingency		Branch Loading (% of its seasonal normal rating)				
				2L308	1L361	2L391	GMS T14	SBK T22
		Cate.	Description	GMS-DKT (Amps)	GMS-CWD (Amps)	SBK-SKD 391P (Amps)	MVA	MVA
Winter ratings				1359	600	1667	356	714
32hw	Max	P0	System Normal	893.8 65.8%	281 46.8%	639.6 38.4%	156.3 43.9%	237.7 33.2%
		P1	2L308	N/A	492.4 82.1%	1088.8 65.3%	23.0 6.4%	386.8 54.2%
		P1	1L349	946.3 69.6%	48.6 8.1%	708.3 42.5%	166.6 46.8%	260.6 36.5%
		P1	GMS_T13	817.8 60.2%	309.0 51.5%	676.5 40.6%	283.0 79.5%	249.7 35.0%
		P1	SBK_T21	957.4 70.4%	318.6 53.1%	587.1 35.2%	168.7 47.4%	438.5 61.4%
		P1	2L391	911.1 67.0%	297.3 49.6%	N/A	160.1 45.0%	134.8 18.9%
		P1	2L392A	1051.5 77.4%	381.6 63.6%	1082.6 64.9%	186.7 52.4%	193.7 27.1%
		P2	SBK_2CB21	1098.6 80.8%	409.5 68.3%	1023.3 61.4%	195.7 55.0%	360.5 50.5%
		P2	SGB_2CB2	937.6 69.0%	308.5 51.4%	762.6 45.7%	164.8 46.3%	225.1 31.5%
Summer ratings				1073	588	1343	300	600
32hs	Max	P0	System Normal	943.0 87.9%	322.7 54.9%	694.2 51.7%	167.8 55.9%	257.7 43.0%
		P1	2L308	N/A	541.5 92.1%	1172.5 87.3%	21.5 7.2%	416.2 69.4%
		P1	1L349	994.3 92.7%	26.9 4.6%	761.1 56.7%	177.8 59.3%	280.6 46.8%
		P1	GMS_T13	863.0 80.4%	332.1 56.5%	735.8 54.8%	304.2 101.4%	271.9 45.3%
		P1	SBK_T21	1012.7 94.4%	363.8 61.9%	637.6 47.5%	181.3 60.4%	476.6 79.4%
		P1	2L391	979.5 91.3%	348.0 59.2%	N/A	174.9 58.3%	150.7 25.1%
		P1	2L392A	1110.5 103.5%	421.9 71.8%	1162.9 86.6%	200.0 66.7%	212.1 35.4%
		P2	SBK_2CB21	1162.3 108.3%	452.9 77.0%	1098.2 81.8%	209.9 70.0%	394.5 65.8%
		P2	SGB_2CB2	996.5 92.9%	355.1 60.4%	842.7 62.7%	178.1 59.4%	243.4 40.6%
32ls	Max	P0	System Normal	1049.4 97.8%	366.5 62.3%	774.7 57.7%	190.1 63.4%	311.1 51.9%

		P0	System Normal[2](Low load)	1177.4 109.7%	447.8 76.1%	933.1 69.5%	215.6 71.9%	384.6 64.1%
		P1	2L308	N/A	622.8 105.9%	1305.6 97.2%	17.5 5.8%	484.2 80.7%
		P1	1L349	1106.3 103.1%	25.2 4.3%	854.7 63.6%	202.2 67.4%	337.9 56.3%
		P1	GMS_T13	954.9 89.0%	382.2 65.0%	823.9 61.3%	345.8 115.3%	327.9 54.7%
		P1	SBK_T21	1129.8 105.3%	424.1 72.1%	705.4 52.5%	206.6 68.9%	576.1 96.0%
		P1	2L391	1104.9 103.0%	413.6 70.3%	N/A	202.2 67.4%	197.0 32.8%
		P1	2L392A	1227.5 114.4%	482.8 82.1%	1285.1 95.7%	224.7 74.9%	260.7 43.4%
		P2	SBK_2CB21	1292.7 120.5%	527.5 89.7%	1204.4 89.7%	236.8 78.9%	485.6 80.9%
		P2	SGB_2CB2	1111.2 103.6%	413.8 70.4%	961.1 71.6%	203.0 67.7%	293.0 48.8%

Table B-2: Steady-State Voltage Study Results

Case	IC's Generator Output (MW)	Contingency		Bus Voltage (PU)		
		Cate.	Description	SGB 230	SLS 230	SBK 230
32hw	Max	P0	System Normal	1.020	1.021	1.032
		P1	GMS_T13	1.013	1.012	1.021
		P1	2L308	1.020	1.021	1.032
		P2	SBK_2CB21	1.017	1.019	1.020
32hs	Max	P0	System Normal	1.020	1.022	1.033
		P1	GMS_T13	1.011	1.010	1.019
		P1	2L308	1.020	1.021	1.032
		P2	SBK_2CB21	1.017	1.018	1.020
32ls	Max	P0	System Normal	1.020	1.021	1.026
		P1	GMS_T13	1.012	1.012	1.011
		P1	2L308	1.020	1.021	1.028
		P2	SBK_2CB21	1.015	1.017	1.013

[2] System normal condition under low load scenario.

Appendix C
One-Line Sketch for Switching Station

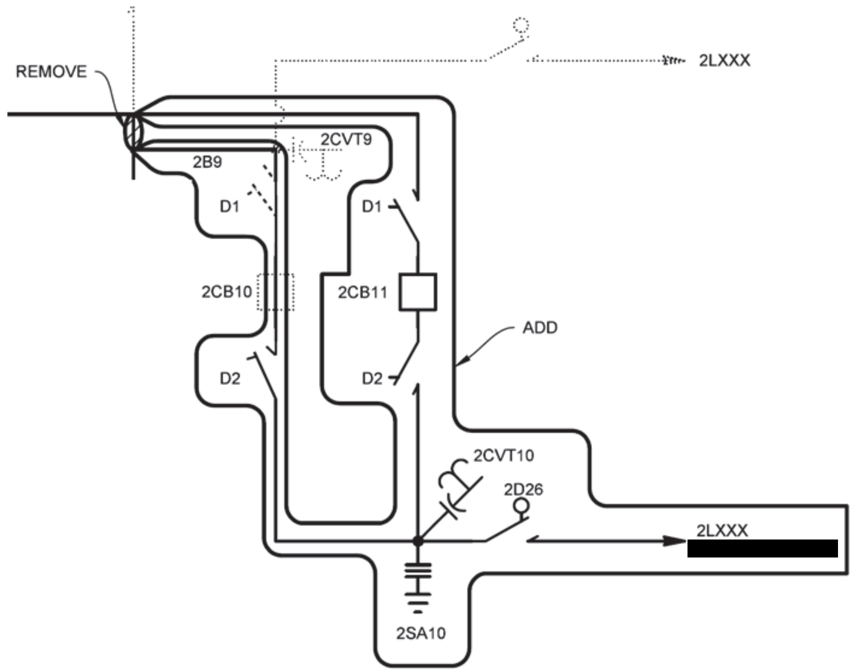

Figure C-1: Stations Planning One-Line Sketch for the Switching Station SGB.

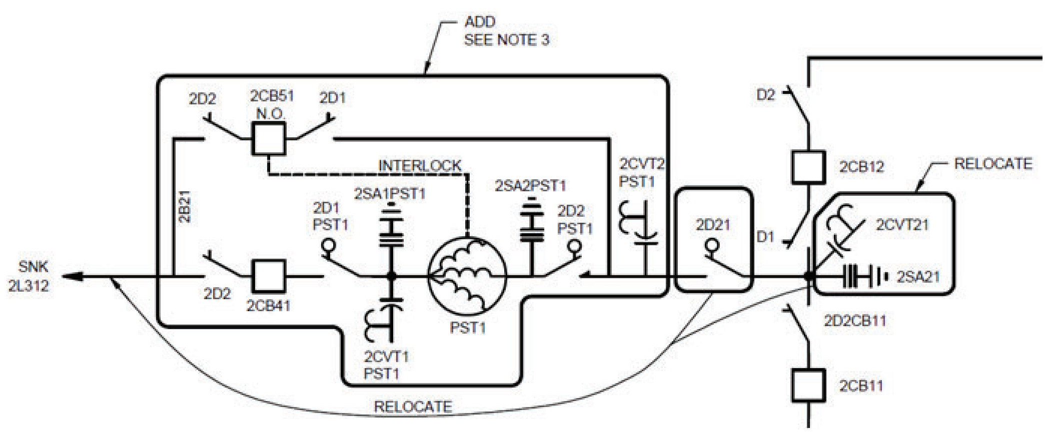

Figure C-2: Stations Planning One-Line Sketch for SLS station.