

transformer

- Upgrade required substation facilities, infrastructures, and bus work to support new station equipment
- Supply and install required Protection, Control and Telecommunications equipment

Exclusions:

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

Key Assumptions:

- Construction by contractor
- 12 months of construction is considered
- No construction during winter season
- Execution of early Engineering and Procurement Agreement
- No expansion of existing other stations or control buildings to accommodate new equipment
- Impact Benefit Agreements with First Nations are not considered

Key Risks:

- Expansion of the existing other substation and/or 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

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 2033 (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

Since your proposed POI is located within the North Coast Transmission Line Region, the interconnection of your IR has been determined, at this time, to be dependent upon the completion of the North Coast Transmission Line (NCTL) project.

Accordingly, please note the 2025 Call for Power Addendum 5 and revised Specimen EPA specify that the Guaranteed Commercial Operation Date for a project which is dependent upon the completion of NCTL will be October 1, 2033, notwithstanding that the Interconnection Feasibility Study report may indicate an earlier date.

Please note that changes to your IR or delays in data submission or financial commitments may also impact the target in-service date. 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 signature]

[Redacted name]

Manager, Customer Interconnections

BC Hydro

Encl.: CEAP_2025_IR115_[Redacted]_Feasibility_Study.pdf



Interconnection Feasibility Study

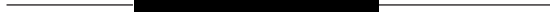
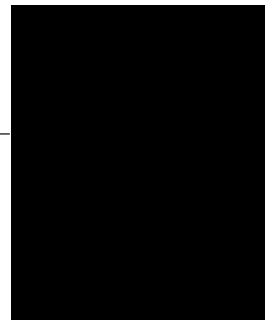
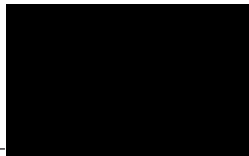
BC Hydro EGBC Permit to Practice No: 1002449

2025 CEAP IR # 115

Prepared for:

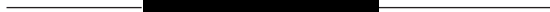
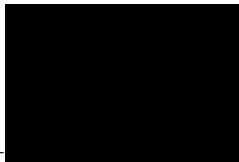


Prepared by:



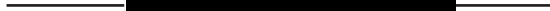
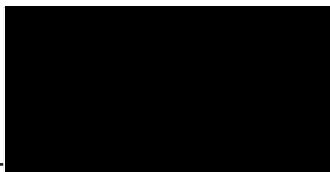
Sr. Engineer, Transmission Planning

Reviewed by:



Engineering Team Lead, Transmission
Planning

Accepted by:



Manager, Transmission Planning

Report Metadata

Header: [REDACTED]
Subheader: Interconnection Feasibility Study
Title: [REDACTED]
Subtitle: 2025 CEAP IR # 115
Report Number: 900-APR-00036
Revision: 0
Confidentiality: Public
Date: 2025 Nov 21
Volume: 1 of 1

Prepared for: [REDACTED]
Prepared by: [REDACTED]
Title: Sr. Engineer, Transmission Planning
Checked by: [REDACTED]
Title: Specialist Engineer, Transmission Planning
Reviewed by: [REDACTED]
Title: Engineering Team Lead, Transmission Planning
Accepted by: [REDACTED]
Title: Manager, Transmission Planning

Related Facilities: BQN Substation
Additional Metadata: Transmission Planning 2025-124
Filing Subcode 1350

Revisions

| Revision | Date | Description |
|----------|----------|-----------------|
| 0 | 2025 Nov | Initial release |

Disclaimer of Warranty, Limitation of Liability

This report was prepared solely for internal purposes. All parties other than BC Hydro are third parties.

BC Hydro does not represent, guarantee or warrant to any third party, either expressly or by implication:

any information, product or process disclosed, described or recommended in this report.

BC Hydro does not accept any liability of any kind arising in any way out of the use by a third party of any information, product or process disclosed, described or recommended in this report, nor does BC Hydro accept any liability arising out of reliance by a third party upon any information, statements or recommendations contained in this report. Should third parties use or rely on any information, product or process disclosed, described or recommended in this report, they do so entirely at their own risk.

This report was prepared by the British Columbia Hydro And Power Authority ("BCH") or, as the case may be, on behalf of BCH by persons or entities including, without limitation, persons or entities who are or were employees, agents, consultants, contractors, subcontractors, professional advisers or representatives of, or to, BCH (individually and collectively, "BCH Personnel").

This report is to be read in the context of the methodology, procedures and techniques used, BCH's or BCH's Personnel's assumptions, and the circumstances and constraints under which BCH's mandate to prepare this report was performed. This report is written solely for the purpose expressly stated in this report, and for the sole and exclusive benefit of the person or entity who directly engaged BCH to prepare this report. Accordingly, this report is suitable only for such purpose, and is subject to any changes arising after the date of this report. This report is meant to be read as a whole, and accordingly no section or part of it should be read or relied upon out of context.

Unless otherwise expressly agreed by BCH:

- (a) any assumption, data or information (whether embodied in tangible or electronic form) supplied by, or gathered from, any source (including, without limitation, any consultant, contractor or subcontractor, testing laboratory and equipment suppliers, etc.) upon which BCH's opinion or conclusion as set out in this report is based (individually and collectively, "Information") has not been verified by BCH or BCH's Personnel; BCH makes no representation as to its accuracy or completeness and disclaims all liability with respect to the Information;
- (b) except as expressly set out in this report, all terms, conditions, warranties, representations and statements (whether express, implied, written, oral, collateral, statutory or otherwise) are excluded to the maximum extent permitted by law and, to the extent they cannot be excluded, BCH disclaims all liability in relation to them to the maximum extent permitted by law;
- (c) BCH does not represent or warrant the accuracy, completeness, merchantability, fitness for purpose or usefulness of this report, or any information contained in this report, for use or consideration by any person or entity. In addition, BCH does not accept any liability arising out of reliance by a person or entity on this report, or any information contained in this report, or for any errors or omissions in this report. Any use, reliance or publication by any person or entity of this report or any part of it is at their own risk; and
- (d) In no event will BCH or BCH's Personnel be liable to any recipient of this report for any damage, loss, cost, expense, injury or other liability that arises out of or in connection with this report including, without limitation, any indirect, special, incidental, punitive or consequential loss, liability or damage of any kind.

Copyright Notice

Copyright and all other intellectual property rights in, and to, this report are the property of, and are expressly reserved to, BCH. Without the prior written approval of BCH, no part of this report may be reproduced, used or distributed in any manner or form whatsoever.

Contributors

The following accept responsibility for the content in the specified sections. Professionals apply their signature and/or seal as appropriate.

Section:

Entire report
except listed
below

Discipline:

Transmission Planning

Contributed by:



Sr. Engineer, Transmission Planning

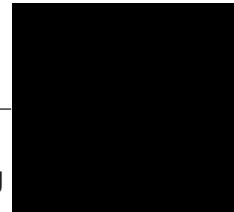
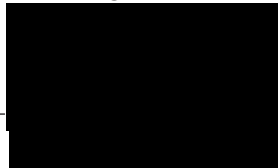
Section:

5.2, 5.3

Discipline:

Stations Planning

Contributed by:



Specialist Engineer, Stations Planning

Based on the IC-submitted PSS/E model, the proposed [REDACTED] [REDACTED] project meets the reactive capability requirement above.

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.


Note that this is a “limited scope” study which is restricted to only power flow and short circuit analysis in accordance with the BC Hydro Open Access Transmission Tariff (OATT). This Feasibility Study report does not include stability analysis, 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”.

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

Contents

| | |
|--|-----------|
| Executive Summary | vi |
| 1 Introduction | 1 |
| 2 Purpose and Scopes of Study | 3 |
| 3 Standard and Criteria | 4 |
| 4 Assumptions and Conditions | 5 |
| 5 System Studies and Results | 6 |
| 5.1 Power Flow Study Results | 6 |
| 5.1.1 Thermal Overload Analysis | 6 |
| 5.1.2 Steady-State Voltage Analysis | 7 |
| 5.1.3 Reactive Power Capability Evaluation | 7 |
| 5.1.4 Anti-Islanding Requirements | 7 |
| 5.2 Fault Analysis | 7 |
| 5.3 Stations Requirements | 8 |
| 5.4 Transmission Line Engineering Requirements | 8 |
| 6 Cost Estimate and Schedule | 9 |
| 7 Conclusions | 10 |

Appendices

| | |
|------------|--|
| Appendix A | One-Line Sketch for the  |
| Appendix B | Power Flow Study Results |
| Appendix C | One-Line Sketch for Bob Quinn Substation |

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 |
| IR | Interconnection Request |
| IPP | Independent Power Producer |
| MPO | Maximum Power Output |
| MPT | Main Power Transformer |
| 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 |

2 Purpose and Scopes of Study

This Feasibility Study (FeS) 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) and produces the estimated cost of required Network Upgrades and the implementation schedule.

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 connected. 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 Categories P0, P1, and P2 planning events as defined in TPL-001-4 Table 1 and short circuit analysis. The study does not address other technical aspects such as transient stability and switching transients and impact of multiple contingencies. These subjects would be addressed in subsequent System Impact Study if the project proceeds further.

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.

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, October 7, 2025.

4 Assumptions and Conditions

This Feasibility Study is performed based on the IC's submitted data and information available to BC Hydro on October 14, 2025, for the study purpose. Assumptions are made wherever the IC's input is unavailable. Appendix A shows the plant single line diagram for the IC's project used in the study model.

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:

- Use of the latest August 2025 distribution load forecast, reference system coincident forecast and reference TVC.
- The generation in the study area are dispatched to the patterns that stress the transmission system in the study area. In these patterns, the associated generators are typically set to their Maximum Power Outputs (MPO) unless otherwise specified.
- Planned transmission reinforcement projects in the study area.
 - Prince George to Terrace series Capacitor project to be installed in existing lines 5L61, 5L62 and 5L63.
 - New 500kV lines: 5L64 in PGGT and 5L65& 5L66 (WSN to SKA) in GTTT.
 - Other system reinforcements in the regional system triggered by future load customer interconnections are also included in the study model.

5 System Studies and 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.

5.1 Power Flow Study Results

Steady-state power flow studies have been conducted with the focus on the light summer system condition, taking into considerations the COD of this Hydro Project (August 1, 2033) and factors such as load conditions, seasonal variation in ambient temperatures, and generation patterns that stress the transmission system. Since the 34LS basecase is not available, the 33LS basecase is used which should closely represent the 2034 LS basecase. 33HW and 33HS cases were also checked to capture any performance violations over other seasons following the ISD.

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

5.1.1 Thermal Overload Analysis

For all the studied load conditions (33LS, 33HS, 33HW), no thermal overload is identified under system normal condition (P0) in the region.

However, the series capacitors at Bob Quinn substation are observed to get overloaded when the line 2L374 goes out of service (OOS) – in all the three scenarios (33LS, 33HS, 33HW). This marginal overload – as shown in the Table 5-1 below – can be overcome by utilizing the series capacitor overload capacity of 8hr out of 12hr period and implementing an RAS to run-back one unit from among the three new hydro units in the [REDACTED] project for extended period of outages.

Additional results for the branch loading study are included in Appendix B, Table B-1.

Table 5-1: Summary of Branch Loading Study Results

| Case | Contingency Identified | | Branch Loading | | |
|------|------------------------|-------------|----------------|----------|----------|
| | Category | Description | Branch | Load MVA | Loading% |
| 33LS | P1 | 2L374 OOS | BQN SC | 331.8 | 102.7 |
| 33HS | P1 | 2L374 OOS | BQN SC | 330.2 | 102.2 |
| 33HW | P1 | 2L374 OOS | BQN SC | 329.3 | 101.9 |

5.1.2 Steady-State Voltage Analysis

For all the studied load conditions (33HW, 33LS, 33HS), the voltage performance under both system normal (P0) and N-1 contingency conditions (P1 and P2) is within acceptable limits. A summary of the results is provided in Appendix B, Table B-2, for reference.

5.1.3 Reactive Power Capability Evaluation

The BCH TIR requires IBR generators have the dynamic reactive power capability at a minimum of +/- 33% of its Maximum Power Output (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 for this project, the study finds that the proposed generating project can meet the BC Hydro's reactive capability requirement.

5.1.4 Anti-Islanding Requirements

Project 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 project from the grid when an inadvertent island forms with the local loads.

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 System Impact Study stage if needed.

5.3 Stations Requirements

To accommodate the new 287 kV transmission line proposed by the IC to inject hydro power produced by the [REDACTED] project into the BCH POI, Bob Quinn substation (BQN) will need to incorporate changes listed below. The station one-line sketch with the marked additions and changes is provided in the Appendix C, Figure C-1.

Scope of substation work:

- Add one new 287 kV circuit breaker with POW controller and associated disconnect, current transformer.
- Add one-line terminal 2LXXX for [REDACTED] including a motor-operated disconnect switch, surge arrester and capacitor voltage transformer.
- Expand the existing 287kV switchyard within the current property boundaries to accommodate the above-mentioned facilities.
- Install associated P&C, station service and other equipment in the existing control building.
- Other associated station work.

5.4 Transmission Line Engineering Requirements

No requirements from transmission line engineering have been identified for this project.

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.

Appendix B

Power Flow Study Results

Table B-1: Summary of Branch Loading Study Results

| Case | Contingency Identified | | Branch Loading | | |
|------|------------------------|--|------------------|--------------|--------------|
| | Category | Description | Branch | Load MVA | Loading% |
| 33LS | P0 | System Normal | SKA T1 | 138 | 21 |
| | | | SKA T3 | 204 | 30 |
| 33HS | P0 | System Normal | SKA T1 | 110 | 16 |
| | | | SKA T3 | 186 | 28 |
| 33HW | P0 | System Normal | SKA T1 | 85 | 11 |
| | | | SKA T3 | 172 | 21 |
| 33LS | P1 | 2L374 OOS | BQN SC | 331.8 | 102.7 |
| | P1 | 2L99 OOS | SKA T1 SKA T3 | 116 177 | 17 26 |
| | P1 | 5L61 OOS | SKA T1 SKA T3 | 140 205 | 21 31 |
| | P2/P4 | Fault at SKA 5CB3 or (fault at SKA T1 or T2 with stuck 5CB3), tripping SKA T1, T2 & 5CX1 | SKA T3 | 420 | 63 |
| | P2/P4 | Fault at SKA 5CB23 or (Fault at SKA T2 or T3 with stuck 5CB23), tripping SKA T2, T3 & 5CX2 | SKA T1 | 406 | 60 |
| 33HS | P1 | 2L374 OOS | BQN SC | 330.2 | 102.2 |
| | P1 | 2L99 OOS | SKA T1 SKA T3 | 92 161 | 14 24 |
| | P1 | 5L61 OOS | SKA T1 SKA T3 | 111 189 | 17 28 |
| | P2/P4 | Fault at SKA 5CB3 or (fault at SKA T1 or T2 with stuck 5CB3), tripping SKA T1, T2 & 5CX1 | SKA T3 | 336 | 50 |
| | P2/P4 | Fault at SKA 5CB23 or (Fault at SKA T2 or T3 with stuck 5CB23), tripping SKA T2, T3 & 5CX2 | SKA T1 | 318 | 47 |
| 33HW | P1 | 2L374 OOS | BQN SC | 329.3 | 101.9 |
| | P1 | 2L99 OOS | SKA T1 SKA T3 | 116 177 | 17 21 |
| | P1 | 5L61 OOS | SKA T1 SKA T3 | 87 173 | 11 21 |
| | P2/P4 | Fault at SKA 5CB3 or (fault at SKA T1 or T2 with stuck 5CB3), tripping SKA T1, T2 & 5CX1 | SKA T3 | 262 | 33 |
| | P2/P4 | Fault at SKA 5CB23 or (Fault at SKA T2 or T3 with stuck 5CB23), tripping SKA T2, T3 & 5CX2 | SKA T1 | 228 | 30 |

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

| Case | IPP's Gen Output (MW) | Contingency | | Bus Voltage (PU) | | | |
|------|-----------------------|-------------|--|------------------|---------|---------|---------|
| | | Cat. | Description | TAT 287 | BQN 287 | TCT 287 | MIN 287 |
| 33LS | 74.7 | P0 | System Normal | 1.023 | 1.021 | 1.006 | 0.993 |
| | | P1 | Bypass on BQN Series Capacitor | 1.004 | 1.003 | 1.006 | 0.994 |
| | | | 2L374 OOS | - | 1.024 | 1.006 | 0.993 |
| | | | 2L99 OOS | 1.023 | 1.021 | 1.006 | - |
| | | P2/P4 | Fault at SKA 5CB3 or (fault at SKA T1 or T2 w stuck breaker), tripping SKA T1, T2 & 5CX1 | 1.023 | 1.021 | 1.006 | 0.994 |
| 33HS | 74.7 | P0 | System Normal | 1.003 | 1.016 | 0.996 | 0.993 |
| | | P1 | Bypass on BQN Series Capacitor | 0.994 | 1.007 | 1.006 | 0.994 |
| | | | 2L374 OOS | - | 1.004 | 0.998 | 0.993 |
| | | | 2L99 OOS | 1.003 | 1.016 | 0.996 | - |
| | | P2/P4 | Fault at SKA 5CB3 or (fault at SKA T1 or T2 w stuck breaker), tripping SKA T1, T2 & 5CX1 | 1.003 | 1.016 | 0.996 | 0.994 |
| 33HW | 74.7 | P0 | System Normal | 0.99 | 1.011 | 0.99 | 0.993 |
| | | P1 | Bypass on BQN Series Capacitor | 0.983 | 1.004 | 1.033 | 0.993 |
| | | | 2L374 OOS | - | 1.004 | 0.998 | 0.993 |
| | | | 2L99 OOS | 0.99 | 1.011 | 0.99 | - |
| | | P2/P4 | Fault at SKA 5CB3 or (fault at SKA T1 or T2 w stuck breaker), tripping SKA T1, T2 & 5CX1 | 0.99 | 1.011 | 0.99 | 0.994 |

Appendix C

One-Line Sketch for Bob Quinn Substation

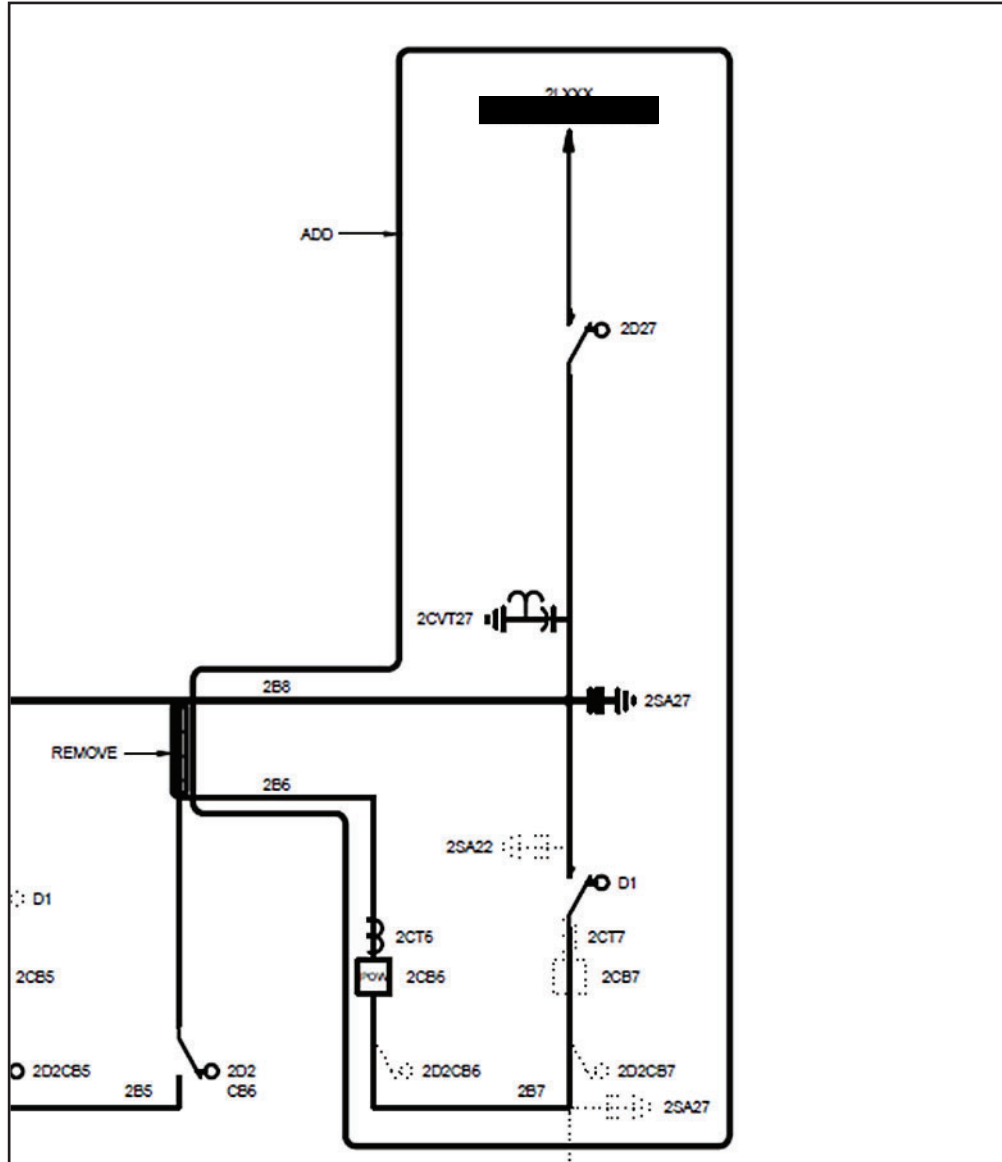


Figure C 1: Stations Planning One-Line Sketch for Bob Quinn substation