

Large Generator Interconnection
Facilities Study Report

Final

Completed for

**(“Interconnection Customer”)
C1-26**

Proposed Point of Interconnection
Columbia Junction 138 kV Substation

December 12, 2022

TABLE OF CONTENTS

1.0	DESCRIPTION OF THE PROJECT	1
2.0	STUDY SCOPE AND OBJECTIVES.....	1
3.0	STUDY ASSUMPTIONS	1
4.0	TYPE OF INTERCONNECTION SERVICE	2
5.0	PROPOSED POINT OF INTERCONNECTION	2
6.0	SCOPE OF WORK	3
6.1	Generating Facility Requirements.....	3
6.1.1	INTERCONNECTION CUSTOMER TO BE RESPONSIBLE FOR.....	3
6.1.2	TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR	7
6.2	Tie Line Requirements	8
6.2.1	INTERCONNECTION CUSTOMER TO BE RESPONSIBLE FOR.....	8
6.2.2	TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR	8
6.3	Point of Interconnection	9
6.3.1	INTERCONNECTION CUSTOMER TO BE RESPONSIBLE FOR.....	9
6.3.2	TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR	9
6.4	Other.....	10
6.4.1	TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR	10
7.0	COST ESTIMATE (+/- 20%)	13
8.0	Milestone Schedule.....	15
9.0	PARTICIPATION BY AFFECTED SYSTEMS	17
10.0	APPENDICES.....	17
10.1	APPENDIX 1: HIGHER PRIORITY REQUESTS	18
10.2	Appendix 2: Contingent Facilities.....	19
10.3	APPENDIX 2: PROPERTY REQUIREMENTS.....	20

1.0 DESCRIPTION OF THE PROJECT

The Interconnection Customer has proposed to interconnect 100 megawatts (“MW”) of new solar and battery storage generation to PacifiCorp’s (“Transmission Provider”) 138 kV Columbia Junction substation located in Carbon County, Utah. The Interconnection Request is proposed to consist of thirty-two (32) Sungrow SG3600UD, 3.6 MVA solar inverters for a total output of 100 MW at the POI. The Interconnection Request also consists of twenty-two (22) Sungrow SC2500U, 2.75 MVA battery storage inverters. The requested commercial operation date is December 31, 2024.

Interconnection Customer will NOT operate this generator as a Qualified Facility as defined by the Public Utility Regulatory Policies Act of 1978 (PURPA).

The Transmission Provider has assigned the Project “C1-26.”

2.0 STUDY SCOPE AND OBJECTIVES

The objective of the facilities study is to:

- complete a facilities analysis, which shall specify and estimate the cost of equipment, engineering, procurement, and construction required to address issues as outlined in the system impact study, and
- provide a scope of work and an estimated cost and schedule for completing the scope of work.

The information contained in this study report is based on preliminary information and not to be used for construction.

3.0 STUDY ASSUMPTIONS

- All active higher priority transmission service and/or generator interconnection requests will be considered in this study and are listed in Appendix 1. If any of these requests are withdrawn, the Transmission Provider reserves the right to restudy this request, as the results and conclusions contained within this study could significantly change.
- For study purposes there are two separate queues:
 - Transmission Service Queue: to the extent practical, all network upgrades that are required to accommodate active transmission service requests will be modeled in this study.
 - Generation Interconnection Queue: Interconnection Facilities associated with higher queue interconnection requests will be modeled in this study.
- The Interconnection Customer’s request for energy or network resource interconnection service in and of itself does not convey transmission service. Only a Network Customer may make a request to designate a generating resource as a Network Resource. Because the queue of higher priority transmission service requests may be different when a Network Customer requests network resource designation for this Generating Facility, the available capacity or transmission modifications, if any, necessary to provide network resource interconnection service may be

- significantly different. Therefore, the Interconnection Customer should regard the results of this study as informational rather than final.
- This study assumes the Project will be integrated into Transmission Provider's system at the agreed upon and/or proposed point of interconnection.
 - The Interconnection Customer will construct and own any facilities required between the Point of Interconnection and the Project.
 - Line reconductor or fiber underbuild required on existing poles will be assumed to follow the most direct path on the Transmission Provider's system. If during detailed design the path must be modified it may result in additional cost and timing delays for the Interconnection Customer's Project.
 - Generator tripping may be required for certain outages.
 - All facilities will meet or exceed the minimum Western Electricity Coordinating Council ("WECC"), North American Electric Reliability Corporation ("NERC"), and Transmission Provider performance and design standards.
 - The following Transmission Provider planned system improvements were assumed in service:
 - Gateway South Aeolus-Clover 500 kV transmission line (Q4 2024)
 - Lakeside I Remedial Action Scheme (RAS) modification (Q4 2022)
 - Magna Cap Bank (Q4 2023)
 - Camp Williams bus improvements (Q4 2024)
 - Mathington RAS in service (Q1 2025)
 - The following system improvements assigned to higher priority Interconnection and/or Transmission Service Requests were assumed in service:
 - RAS for Helper – Mathington #1 outage (Q0792 Q4 2024)
 - Rebuild Carbon – Helper – Mathington 138 kV line to 795 ACSR (Q0792 Q4 2024)
 - Mathington – Helper #2 138 kV line (Q0821 Q4 2025)
 - Rebuild 1.8 miles of Carbon - Helper #1 138 kV line to 795 ACSR (Q0821 Q4 2025)
 - Upgrade of the Emery 345-138 kV transformers (Q0823 Date Q4 2025)
 - Lakeside II RAS modifications – Planned (TSR Q2867 Q4 2022)
 - Replace jumpers on the Huntington end of the Emery-Huntington 345 kV transmission line. (Transition Cluster Q4 2027)
 - This report is based on information available at the time of the study. It is the Interconnection Customer's responsibility to check the Transmission Provider's web site regularly for Transmission system updates at (<https://www.oasis.oati.com/ppw>)

4.0 TYPE OF INTERCONNECTION SERVICE

The Interconnection Customer has selected Network Resource Interconnection Service ("NRIS").

5.0 PROPOSED POINT OF INTERCONNECTION

The Interconnection Customer's proposed Generating Facility is to be interconnected to the Transmission Provider's Columbia Junction 138 kV substation via a new Point of

Interconnection substation. Figure 1 below, is a one-line diagram that illustrates the interconnection of the proposed Generating Facility to the Transmission Provider's system.

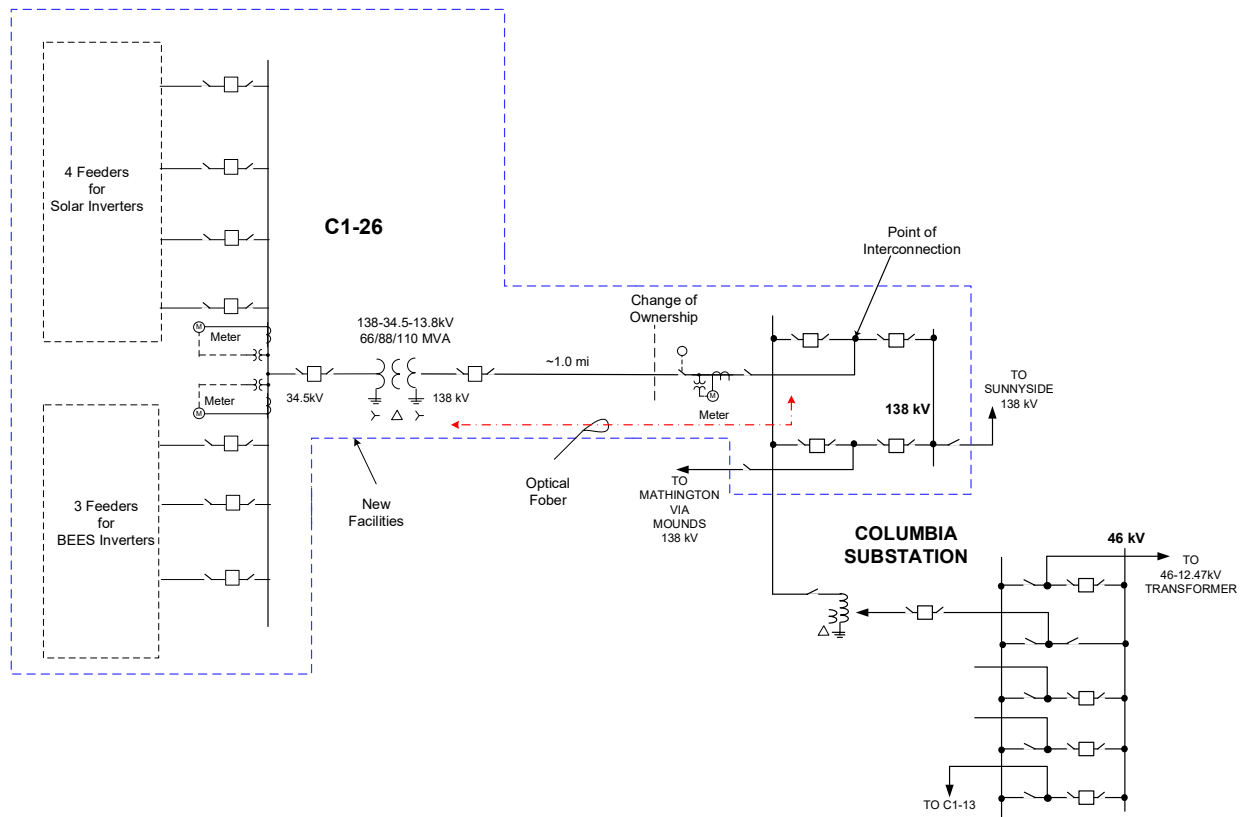


Figure 1: System One Line Diagram

6.0 SCOPE OF WORK

6.1 Generating Facility Requirements

The following outlines the design, procurement, construction, installation, and ownership of equipment at the Interconnection Customer's Generation Facility.

6.1.1 INTERCONNECTION CUSTOMER TO BE RESPONSIBLE FOR

- Procure all necessary permits, lands, rights of way and easements required for the construction and continued maintenance of the Interconnection Customer's Generating Facility and collector substation.
- Design, procure, construct, own and maintain the Interconnection Customer's Generating Facility and associated collector substation.
- Design the Generating Facility with reactive power capabilities necessary to operate within the full power factor range of 0.95 leading to 0.95 lagging as measured at the high side of the Interconnection Customer's GSU transformer. This power factor range shall be dynamic and can be met using a combination of the inherent dynamic

reactive power capability of the generator or inverter, dynamic reactive power devices and static reactive power devices to make up for losses.

- Design the generating facility such that it can provide positive reactive support (i.e., supply reactive power to the system) immediately following the removal of a fault or other transient low voltage perturbations or install dynamic voltage support equipment. These additional dynamic reactive devices shall have correct protection settings such that the devices will remain on line and active during and immediately following a fault event.
- Operate the Generating Facility to the voltage set point to be provided by the Transmission Provider.
- Equip the Generating Facility with automatic voltage-control equipment and operate with the voltage regulation control mode enabled unless explicitly authorized to operate another control mode by the Transmission Provider.
- Install, maintain and operate a functioning governor or equivalent controls to ensure primary frequency capability as required under FERC Order 842.
- Install a Phasor Measurement Unit to collect data from the Project. The data must be collected, held for a minimum of 90 days and be able to stream to the Planning Coordinator for each of the Generator Facility's step-up transformers measured on the low side of the GSU at a sample rate of at least 60 samples per second and synchronized within +/- 2 milliseconds of the Coordinated Universal Time (UTC). Initially, the following data must be collected:
 - Three phase voltage and voltage angle (analog)
 - Three phase current (analog)

Data requirements are subject to change as deemed necessary to comply with local and federal regulations.

- Operate the Generating Facility so as to maintain the voltage at the Point of Interconnection, or other designated point as deemed appropriate by Transmission Provider, at a voltage schedule to be provided by the Transmission Provider following testing. Voltage will typically be required to operate between 1.00 and 1.04 per unit.
- Operate the Generating Facility with a voltage droop.
- Have any Transmission Provider required studies, such as a voltage coordination study, performed and provide results to Transmission Provider. Any additional requirements identified in these studies will be the responsibility of the Interconnection Customer.
- Meet the Federal Energy Regulatory Commission (FERC) and WECC low voltage ride-through requirements as specified in the interconnection agreement.
- Provide test results to the Transmission Provider verifying that the inverters for this Project have been programmed to meet all PRC-024 requirements rather than manufacturer IEEE distribution standards.

- Provide the Transmission Provider the manufacturer Electromagnetic Transient Modeling (“EMT”) model a minimum of 180 days prior to Commercial Operation.
- Provide the Transmission Provider a standard model from the WECC Approved Dynamic Model Library.
- Design the Generating Facility control system such that it can receive an analog output from the Transmission Provider for setpoint control and provide an analog input back to the Transmission Provider on the status of the setpoint.
- Provide the Transmission Provider documentation demonstrating registration with NERC as the Generator Owner (“GO”) and Generator Operator (“GOP”) for the Large Generating Facility. Confirmation that registration documentation has been submitted to NERC must be provided prior to initial synchronization. Confirmation of registration with NERC must be provided within 30 days of Commercial Operation and be maintained throughout the lifetime of the Interconnection Agreement of the Large Generating Facility will be disconnected.
- Procure and install line current differential relays for the protection of the Interconnection Customer’s tie line. The relays must be compatible with those to be installed by the Transmission Provider in the POI substation. Settings for the relays shall be coordinated with the Transmission Provider.
- Provide a separate graded, grounded and fenced area along the perimeter of the Interconnection Customer’s collector substation for the Transmission Provider to install a control building. The site will share a fence and ground grid with the Interconnection Customer collector substation and have separate, unencumbered access for the Transmission Provider. Fencing, gates and road access shall meet Transmission Provider standards. The Interconnection Customer shall provide a Transmission Provider approved easement for its control building.
- Perform a CDEGS grounding analysis for both the collector substation site and the Transmission Provider control building and provide the results to the Transmission Provider.
- Provide permanent AC power to the Transmission Provider’s control building.
- Design, procure, and install a Transmission Provider approved data concentrator to transfer data from the collector substation to the Transmission Provider’s RTU located at the collector substation control building via an optical fiber communications circuit in DNP3 protocol. The Transmission Provider will input and hold the second level passwords for the data concentrator. Password control ensures the Transmission Provider is aware of and is accepting of the changes being requested by the Interconnection Customer.

- Design, procure and install conduit and control cabling and hard wire the Interconnection Customer's source devices to the data concentrator. Replicated values are not acceptable.
- Provide the following points which are based on the Interconnection Customer's most recent design information. Please note that this list of points could change if the Interconnection Customer's final design changes:

Analogs:

- Real power flowing through the 138 – 34.5 kV transformer
- Reactive power flowing through the 138 – 34.5 kV transformer
- 34.5 kV Real power PV Breaker 1
- 34.5 kV Reactive power PV Breaker 1
- 34.5 kV Real power PV Breaker 2
- 34.5 kV Reactive power PV Breaker 2
- 34.5 kV Real power PV Breaker 3
- 34.5 kV Reactive power PV Breaker 3
- 34.5 kV Real power PV Breaker 4
- 34.5 kV Reactive power PV Breaker 4
- 34.5 kV Real power BSS Breaker 1
- 34.5 kV Reactive power BSS Breaker 1
- 34.5 kV Real power BSS Breaker 2
- 34.5 kV Reactive power BSS Breaker 2
- 34.5 kV Real power BSS Breaker 3
- 34.5 kV Reactive power BSS Breaker 3
- Global Horizontal Irradiance (GHI)
- Average Plant Atmospheric Pressure (Bar)
- Average Plant Temperature (Celsius)
- BESS current energy capacity (MWh)
- BESS current energy capacity (%)
- BESS cycles or health (cycle count or % health)
- Max Gen Limit MW Set Point Feed Back
- Potential Power MW

Analog Written to the RTU:

- Max Gen Limit MW Set Point

Status:

- 138 kV transformer 1 high side breaker
- 138 kV transformer 1 low side breaker
- 34.5 kV PV breaker 1
- 34.5 kV PV breaker 2
- 34.5 kV PV breaker 3
- 34.5 kV PV breaker 4
- 34.5 kV BSS breaker 1
- 34.5 kV BSS breaker 2
- 34.5 kV BSS breaker 3
- Relay Alarm

- Procure and install Transmission Provider approved H-Frame structures for the Transmission Provider's instrument transformers. The installation locations shall be coordinated with the Transmission Provider.
- Install complete conduit and control cable provided by the Transmission Provider from each of the Transmission Provider's instrument transformers to the Transmission Provider's collector substation control building. Leave sufficient quantities of control cable to allow the Transmission Provider to terminate the cable inside its control building.
- Install the Transmission Provider provided instrument transformers.
- Procure and install disconnect switches on each side of each of the instrument transformers.
- Provide Transmission Provider unfettered and maintained access to the Transmission Provider's instrument transformers.
- Provide Transmission Provider approved easements for all Transmission Provider Interconnection Facilities to be installed in the Interconnection Customer's collector substation.
- Arrange for and provide permanent retail service for power that will flow from the Transmission Provider's system when the Project is not generating with the retail service provider in this area. If the retail provides is not Rocky Mountain Power this will require the retail service provider to obtain transmission service from the Transmission Provider. These arrangements must be in place prior to approval for backfeed.
- Provide any construction or backup retail service necessary for the Project.
- Provide a professional engineer ("PE") stamped maintenance plan package for all Interconnection Customer protective equipment prior to energization.

6.1.2 TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR

- Provide the Interconnection Customer the designated point at which the voltage is to be maintained and the associated voltage schedule.
- Identify any necessary studies that the Interconnection Customer must have performed.
- Install a control building on the property prepared by the Interconnection Customer.
- Procure and install a backup DC battery system for the Transmission Provider control building.
- Procure and install a communications racks and associated communications equipment in the Transmission Provider's control building.
- Coordinate with the Interconnection Customer on the location of the Transmission Provider's instrument transformers.

- Provide the Interconnection Customer the specifications for the instrument transmission installation structures.
- Procure and provide to the Interconnection Customer two sets of 34.5 kV instrument transformers to be on installed on each of the two solar/battery strings.
- Design, procure and install two sets of 34.5 kV revenue metering equipment including metering panels, primary and secondary revenue quality meters, test switches, junction boxes and secondary metering wire.
- Provide the control cable to be installed by the Interconnection Customer from the instrument transformers to POI substation fence line.
- Terminate the fiber optic cable provided by the Interconnection Customer in the control building communications panel.
- Establish an Ethernet connection for retail sales and generation accounting via the MV-90 translation system.

6.2 Tie Line Requirements

The following outlines the design, procurement, construction, installation, and ownership of equipment associated with the radial line connecting the Interconnection Customer's Generating Facility to the Transmission Provider's Point of Interconnection substation.

6.2.1 INTERCONNECTION CUSTOMER TO BE RESPONSIBLE FOR

- Procure all necessary permits, property rights and/or rights of way for the new transmission line between the Interconnection Customer's collector substation and the POI substation. Interconnection Customer will be responsible for all required regulatory or compliance reporting associated with its transmission tie line facilities
- Design, construct, own and maintain the approximately one-mile 138 kV transmission tie line between the Interconnection Customer's collector substation and the POI substation.
- Design, procure, and install Transmission Provider standard fiber optic cable on the transmission tie line. Splice the fiber to the fiber running from the Transmission Provider collector substation control building.
- Design around and coordinate with the Transmission Provider regarding any crossings the Interconnection Customer's tie line will have with existing Transmission Provider facilities.
- Provide and install conductor, shield wire, fiber optic cable and line hardware in sufficient quantities to allow the Transmission Provider to terminate the tie line into POI substation dead-end structure.

6.2.2 TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR

- Provide the Interconnection Customer the Transmission Provider's standard for the fiber optic cable to be installed on the tie line.

- Provide the Interconnection Customer the Transmission Provider's standard for the last structure to be installed outside the POI substation.
- Coordinate with the Interconnection Customer if any crossings of existing transmission facilities are required.

6.3 Point of Interconnection

The following outlines the design, procurement, construction, installation, and ownership of equipment at the Point of Interconnection.

6.3.1 INTERCONNECTION CUSTOMER TO BE RESPONSIBLE FOR

- Coordinate the testing and commissioning of the communication path from the collector substation to the POI substation.

6.3.2 TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR

- Procure the necessary permits and/or property rights to allow for the construction of a new POI substation.
- Design, procure and construct, own and maintain the equipment to construct a new 138 kV substation to serve as the Point of Interconnection which will include the following major pieces of equipment:
 - (4) - 145kV, 2000A Circuit Breakers
 - (10) – 138kV, 2000A, Group Operated Air-Break Switches, Horizontally Mounted
 - (4) - 138kV, 2000A, Group Operated Air-Break Switches with Motor Operators, Vertically Mounted
 - (9) – 138kV CCVT's
 - (3) – 138kV CT/VT Combined Metering Units
 - 138kV, 100kVA SSVT
 - (9) - 138kV Arrestors
 - Control Building
- Terminate the last line segment running from the Interconnection Customer's collector substation into the POI substation deadend structure using Interconnection Customer provided and installed conductor, shield wire and line hardware.
- Design, procure and install line current differential relays for the protection of the Interconnection Customer tie line. Coordinate the settings of the Interconnection Customer's relays installed in the collector substation.
- Procure and install a relay for under/over voltage and over/under frequency protection of the system.
- Procure and install a bus differential relay system for the new 138 kV substation bus.
- Update the settings of the 138-46 kV autotransformer relays.

- Replace the line relays currently installed for the protection of the line to Sunnyside substation.
- Include the following data points into the substation RTU:
Analogs:
 - Net Generation MW
 - Net Generator MVar
 - Energy Register kWh
- Construct a microwave system in the substation to establish a link to the Transmission Provider's existing communications network to support the remedial action scheme.
- Procure and install the necessary communications equipment for protection and data provision to the Transmission Provider's existing communications network.
- Design, procure and install 138 kV revenue metering equipment for the Project including two (2) revenue quality meters, test switch, instrument transformers, metering panels, junction box and secondary metering wire.
- Provide and install an Ethernet connection for retail sales and generation accounting via the MV-90 translation system.

6.4 Other

The following outlines the design, procurement, construction, installation, and ownership of equipment past the Point of Interconnection.

6.4.1 TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR

- Columbia-Mounds Transmission Line
 - Reterminate the line into a new line position.
- Columbia-Sunnyside Transmission Line
 - Reterminate the line into a new line position.
- Remedial Action Scheme
 - Include the Interconnection Customer's Generating Facility in the existing Mathington remedial action scheme.
- Carbon-Spanish Fork #1 Transmission Line
 - Procure any permits, property rights and/or rights-of-way necessary to rebuild the 138 kV transmission line.
 - Construct a new, approximately 50-mile 138 kV transmission line parallel to the existing line and remove the old line once the new line is energized. Install fiber optic cable on the new line.
- Carbon-Spanish Fork #2 Transmission Line

- Procure any permits, property rights and/or rights-of-way necessary to rebuild the 138 kV transmission line.
 - Construct a new, approximately 52-mile 138 kV transmission line parallel to the existing line and remove the old line once the new line is energized.
- Carbon-Mathington Transmission Line
 - Procure any permits, property rights and/or rights-of-way necessary to rebuild the 138 kV transmission line.
 - Construct a new, approximately 13.5-mile 138 kV transmission line parallel to the existing line and remove the old line once the new line is energized.
- Columbia-Mounds Transmission Line
 - Procure any permits, property rights and/or rights-of-way necessary to rebuild the 138 kV transmission line.
 - Construct a new, approximately 7-mile 138 kV transmission line parallel to the existing line and remove the old line once the new line is energized.
- Mathington-Mounds Transmission Line
 - Procure any permits, property rights and/or rights-of-way necessary to rebuild the 138 kV transmission line.
 - Construct a new, approximately 17-mile 138 kV transmission line parallel to the existing line and remove the old line once the new line is energized.
- Emery-Spanish Fork Transmission Line
 - Improve the clearance of approximately five (5) spans of the 345 kV transmission line.
- Emery-Sigurd Transmission Line
 - Procure and install approximately 75 miles of fiber optic cable from the C1-14 POI substation to the Emery and Q0787 POI substations.
- Huntington-Spanish Fork Transmission Line
 - Procure and install approximately 70 miles of fiber optic cable between the substations.
- Columbia Junction-Mounds Transmission Line
 - Procure and install approximately 8 miles of fiber optic cable between the substations.
- Helper-National Transmission Line

- Procure and install fiber optic cable from the C1-12 POI substation to the Helper substation.
- Carbon Substation
 - Terminate the new transmission lines running from Spanish Fork and Mathington substations.
 - Upgrade/update relays to support protection of the new lines from Spanish Fork and Mathington substations.
- Spanish Fork Substation
 - Terminate the new transmission lines running from Carbon substation.
 - Upgrade/update relays to support protection of the new line from Carbon substation.
 - Upgrade/update relays to ensure compatibility with the relays to be installed in the C1-11 POI substation.
- Mathington Substation
 - Terminate the new transmission lines running from Carbon and Mounds substations.
 - Upgrade/update relays to support protection of the new lines from Carbon and Mounds substations.
- Mounds Substation
 - Terminate the new transmission line running from Mathington substation.
 - Upgrade/update relays to support protection of the new line from Mathington substation.
- Emery Substation
 - Revise relays settings as necessary to support the clearance modifications of the transmission line to Sigurd substation.
- Sigurd Substation
 - Revise relays settings as necessary to support the clearance modifications of the transmission line to Emery substation.
 - Install the required communications equipment and terminate the fiber to be installed from the C1-14 POI substation.
- Huntington Substation
 - Upgrade/update relays to ensure compatibility with the relays to be installed in the C1-11 POI substation.
- Helper Substation
 - Upgrade/update relays to ensure compatibility with the relays to be installed in the C1-12 POI substation.

- Install a new 46 kV VT.
- System Operations Centers
 - Update databases to include the Interconnection Customer's Generating Facility along with Interconnection Facilities and Network Upgrades.

7.0 COST ESTIMATE (+/- 20%)

The following estimate represents only scopes of work that will be performed by the Transmission Provider. Costs for any work being performed by the Interconnection Customer are not included.

Direct Assigned Interconnection Facilities Costs

C1-26 Collector substation <i>Control building, metering & communications equipment</i>	\$1,180,000
C1-26 POI substation <i>Line termination and metering</i>	\$570,000
Total:	\$1,750,000

Station Equipment Network Upgrades

Columbia substation <i>Build new four breaker substation</i>	\$5,860,000
Columbia-Mounds 138 kV transmission line <i>Reterminate line</i>	\$250,000
Columbia-Sunnyside 138 kV transmission line <i>Reterminate line</i>	\$240,000
Total:	\$6,350,000

Shared Network Upgrades

The following estimated costs are the Interconnection Customer's proportional share of the overall estimated costs for the entire cluster area in which this Interconnection Request resides.

Carbon substation <i>Terminate rebuilt lines, relay settings</i>	\$40,000
Mounds substation <i>Terminate rebuilt line, relay settings</i>	\$3,000
Mathington substation <i>Terminate rebuilt lines, relay settings</i>	\$30,000

Huntington substation <i>Upgrade relays</i>	\$31,000
Spanish Fork substation <i>Terminate rebuilt lines, relay settings</i>	\$62,000
Helper substation <i>Upgrade relays</i>	\$46,000
Emery substation <i>Upgrade relays</i>	\$36,000
Sigurd substation <i>Upgrade relays, terminate fiber</i>	\$62,000
Carbon – Mathington 138kV transmission line <i>Rebuild approximately 13.5 miles</i>	\$2,261,000
Carbon – Spanish Fork #1 138kV transmission line <i>Rebuild approximately 50 miles</i>	\$9,914,000
Carbon – Spanish Fork #2 138kV transmission line <i>Rebuild approximately 52 miles</i>	\$8,920,000
Columbia – Mounds 138kV transmission line <i>Rebuild approximately 7.1 miles</i>	\$607,000
Mathington – Mounds 138kV transmission line <i>Rebuild approximately 16.6 miles</i>	\$1,383,000
Spanish Fork-Emery transmission line <i>Rebuild section to improve clearance</i>	\$258,000
Emery-Sigurd transmission line <i>Install fiber</i>	\$559,000
Huntington-Spanish Fork transmission line <i>Install fiber</i>	\$297,000
Mounds-Columbia Junction transmission line <i>Install fiber</i>	\$52,000
Helper-National Transmission Line <i>Install fiber</i>	\$39,000

Total Shared Network Upgrades: \$24,558,000

Total Network Upgrades: \$30,908,000**Grand Total: \$32,658,000**

*Any distribution line modifications identified in this report will require a field visit analysis in order to obtain a more thorough understanding of the specific requirements. The estimate provided above for this work could change substantially based on the results of this analysis. Until this field analysis is performed the Transmission Provider must develop the Project schedule using conservative assumptions. The Interconnection Customer may request that the Transmission Provider perform this field analysis, at the Interconnection Customer's expense, prior to the execution of an Interconnection Agreement in order to obtain more cost and schedule certainty.

This estimate is as accurate as possibly given the level of detailed study that has been completed to date and approximates the costs incurred by Transmission Provider to interconnect this Generator Facility to Transmission Provider's electrical distribution or transmission system. The Interconnection Customer will be responsible for all actual costs, regardless of the estimated costs communicated to or approved by the Interconnection Customer.

8.0 Milestone Schedule

Execute Interconnection Agreement	December 2, 2022
Provision of Financial Security	December 2, 2022
Interconnection Customer Approval for Transmission Provider to Commence Engineering and Procurement Activities	December 16, 2022
Transmission Provider Engineering & Procurement Commences	February 3, 2023
*Interconnection Customer Initial Design Package Provided	April 4, 2025
Interconnection Customer Energy Imbalance Market Submittal	April 4, 2025
Interconnection Customer Property/Permits/ROW Procured	January 2, 2026
Interconnection Customer Approval for Transmission Provider to Commence Construction Activities	July 7, 2025
Transmission Provider Construction Commences	August 11, 2025
Transmission Provider Property/Permits/ROW Procured	May 1, 2026
*Interconnection Customer Final Design Package Provided	September 18, 2026
Transmission Provider Engineering Design Complete	November 20, 2026

Interconnection Customer Commences Voltage Coordination Study	November 23, 2026
Interconnection Customer Submits Request for Voltage Schedule	July 2, 2027
Interconnection Customer Maintenance and Commissioning Plans Provided	February 15, 2028
Interconnection Customer and Transmission Provider Construction Complete	May 5, 2028
Transmission Provider Commissioning Activities Complete	June 16, 2028
Transmission Provider Commissioning Document Review Complete	June 23, 2028
Contingent Facilities Complete	November 5, 2027
Interconnection Customer's Facilities Receive Backfeed Power	June 26, 2028
Interconnection Customer Submits NERC Registration Evidence	June 27, 2028
Initial Synchronization/Generation Testing	June 28, 2028
Commercial Operation	July 14, 2028
NERC Registration Provided	August 10, 2028

*Interconnection Customer initial design package shall include final generating facility location, inverter/turbine selection, basic protection package, tie line route and collector system locations and data as applicable. Interconnection Customer final design package shall include PE stamped issued for construction ("IFC") drawings for generating facility, collector substation, tie line as well as an updated PSS/e model and updated WECC approved model, electromagnetic transient ("EMT") model and a detailed short circuit model of its generation system using the ASPEN OneLine short circuit simulation program as applicable. The WECC model parameters must be adjusted to reflect the plant's actual anticipated performance. The plant controller must be included in the model. If there is to be coordination between facilities or a master VAR controller, this must be included in the detailed WECC dynamic model, as well as in the PSS/e user-written model.

Major Upgrade Estimated Timelines

Carbon-Spanish Fork #1 and #2 Rebuilds – 60 months

Columbia-Mounds, Carbon-Mathington Rebuilds – 48 months

Columbia Junction Four-Breaker Ring Bus Substation – 30 months

Please note, the time required to perform the scope of work identified in this report does not support the Interconnection Customer's requested Commercial Operation date of December 31, 2024.

9.0 PARTICIPATION BY AFFECTED SYSTEMS

Transmission Provider has identified the following affected systems: Deseret Power, Tri State and WAPA LM

A copy of this report will be shared with each Affected System.

10.0 APPENDICES

Appendix 1: Higher Priority Requests

Appendix 2: Contingent Facilities

Appendix 3: Property Requirements

10.1 APPENDIX 1: HIGHER PRIORITY REQUESTS

All active higher priority Transmission Provider projects, and transmission service and/or generator interconnection requests will be considered in this study and are identified below. If any of these requests are withdrawn, the Transmission Provider reserves the right to restudy this request, as the results and conclusions contained within this study could significantly change.

Transmission/Generation Interconnection Queue Requests considered:

LGI Q#	MW	TSR Q#
634	99	
636	99	
752	40	2867/2939
763	200	2872/2873
777	100	
778	200	2879
787	200	
788	200	
792	80	
799	67	
805	95	
815	20	
821	87	
822	30	
823	178	
838	525	
TCS-09	300	
TCS-41	31.1	

10.2 Appendix 2: Contingent Facilities

The following Interconnection Facilities and/or upgrades to the Transmission Provider's system are Contingent Facilities for the Interconnection Customer's Interconnection Request and must be in service prior to the commencement of generation activities:

The following Transmission Provider planned projects:

- Lakeside I Remedial Action Scheme modification (Q4 2022)
- Construction of a new Mercer-Spanish Fork 345 kV transmission line (Q4 2027)

The following upgrades assigned to the higher priority Interconnection Request Q0792:

- Development and implementation of a new remedial action scheme.
- Rebuild of the Helper-Mathington 138 kV transmission line

These upgrades are currently assumed to be completed Q1 2025 and are estimated to cost \$3.5M. Additional details regarding these upgrades can be found on the Transmission Provider's OASIS page.

The following upgrades assigned to the higher priority Interconnection Request Q0821:

- Rebuild the Carbon-Helper #1 transmission line.
- Construction of a new Helper-Mathington #2 transmission line.

These upgrades are currently assumed to be completed Q4 2025 and are estimated to cost \$6.5M. Additional details regarding these upgrades can be found on the Transmission Provider's OASIS page.

The following upgrades assigned to the higher priority Interconnection Request Q0823:

- Replacement of the two Emery substation 345/138 kV transformers.

These upgrades are currently assumed to be completed Q4 2026 and are estimated to cost \$28M. Additional details regarding these upgrades can be found on the Transmission Provider's OASIS page.

10.3 APPENDIX 2: PROPERTY REQUIREMENTS**Property Requirements for Point of Interconnection Substation****Requirements for rights of way easements**

Rights of way easements will be acquired by the Interconnection Customer in the Transmission Provider's name for the construction, reconstruction, operation, maintenance, repair, replacement and removal of Transmission Provider's Interconnection Facilities that will be owned and operated by PacifiCorp. Interconnection Customer will acquire all necessary permits for the Project and will obtain rights of way easements for the Project on Transmission Provider's easement form.

Real Property Requirements for Point of Interconnection Substation

Real property for a point of interconnection substation will be acquired by an Interconnection Customer to accommodate the Interconnection Customer's Project. The real property must be acceptable to Transmission Provider. Interconnection Customer will acquire fee ownership for interconnection substation unless Transmission Provider determines that other than fee ownership is acceptable; however, the form and instrument of such rights will be at Transmission Provider's sole discretion. Any land rights that Interconnection Customer is planning to retain as part of a fee property conveyance will be identified in advance to Transmission Provider and are subject to the Transmission Provider's approval.

The Interconnection Customer must obtain all permits required by all relevant jurisdictions for the planned use including but not limited to conditional use permits, Certificates of Public Convenience and Necessity, California Environmental Quality Act, as well as all construction permits for the Project.

Interconnection Customer will not be reimbursed through network upgrades for more than the market value of the property.

As a minimum, real property must be environmentally, physically, and operationally acceptable to Transmission Provider. The real property shall be a permitted or able to be permitted use in all zoning districts. The Interconnection Customer shall provide Transmission Provider with a title report and shall transfer property without any material defects of title or other encumbrances that are not acceptable to Transmission Provider. Property lines shall be surveyed and show all encumbrances, encroachments, and roads.

Examples of potentially unacceptable environmental, physical, or operational conditions could include but are not limited to:

1. Environmental: known contamination of site; evidence of environmental contamination by any dangerous, hazardous or toxic materials as defined by any governmental agency; violation of building, health, safety, environmental, fire, land use, zoning or other such regulation; violation of ordinances or statutes of any governmental entities having jurisdiction over the property; underground or above ground storage tanks in area; known remediation sites on property; ongoing mitigation activities or monitoring activities; asbestos; lead-based paint, etc. A

phase I environmental study is required for land being acquired in fee by the Transmission Provider unless waived by Transmission Provider.

2. Physical: inadequate site drainage; proximity to flood zone; erosion issues; wetland overlays; threatened and endangered species; archeological or culturally sensitive areas; inadequate sub-surface elements, etc. Transmission Provider may require Interconnection Customer to procure various studies and surveys as determined necessary by Transmission Provider.

Operational: inadequate access for Transmission Provider's equipment and vehicles; existing structures on land that require removal prior to building of substation; ongoing maintenance for landscaping or extensive landscape requirements; ongoing homeowner's or other requirements or restrictions (e.g., Covenants, Codes and Restrictions, deed restrictions, etc.) on property which are not acceptable to the Transmission Provider.