

Large Generator Interconnection
Facilities Study Report

FINAL

Completed for

("Interconnection Customer")
C1-13

Proposed Point of Interconnection
Columbia Junction 46 kV Substation

November 4, 2022

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1.0 DESCRIPTION OF THE PROJECT

The Interconnection Customer has proposed to interconnect 35 megawatts (“MW”) of new solar and battery storage generation to PacifiCorp’s (“Transmission Provider”) Columbia Junction substation located in Carbon County, Utah. The Interconnection Request is proposed to consist of forty-eight (48) TMEIC PVU-L0840GR solar inverters for a total output of 35 MW at the POI. The Interconnection Request also consists of (48) DC-coupled TMEIC BSU-L0840GR battery storage inverters. The requested commercial operation date is November 30, 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 “C1-13.”

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 If any of these requests are withdrawn, the Transmission Provider reserves the right to restudy this request, as the results and conclusions contained within this study could significantly change.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 substation at 46 kV via a new line position. Figure 1 below, is a one-line diagram that illustrates the interconnection of the proposed Generating Facility to the Transmission Provider’s system.

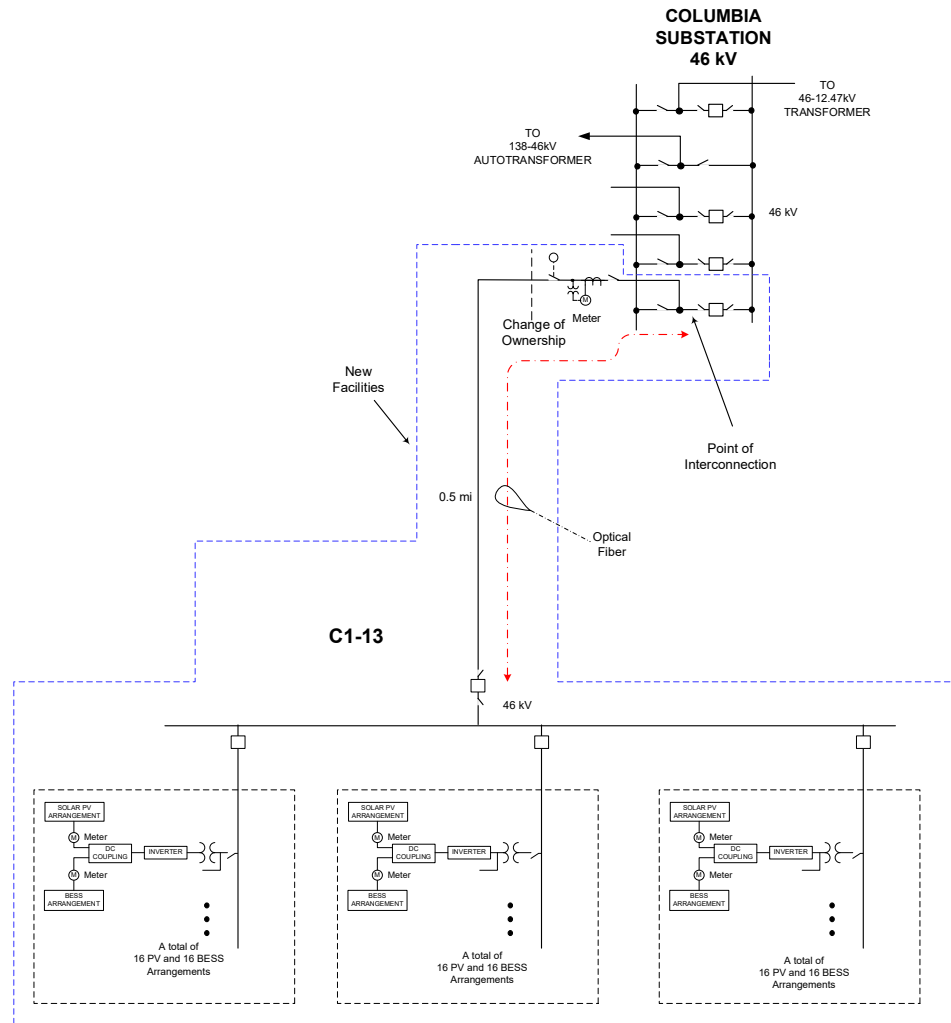


Figure 1: System One Line Diagram

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.
- 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 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:

- 46 kV Real power Breaker 1
- 46 kV Reactive power Breaker 1
- 46 kV Real power Breaker 2
- 46 kV Reactive power Breaker 2
- 46 kV Real power Breaker 3
- 46 kV Reactive power 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:

- 46 kV main breaker
- 46 kV breaker 1
- 46 kV breaker 2
- 46 kV breaker 3
- Relay Alarm
- Procure and install control cable from the Interconnection Customer's data concentrator to the Transmission Provider's collector substation control building. Leave a sufficient quantity of cable to allow the Transmission Provider to terminate the cable onto its communications equipment.
- 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.
- Procure and install Transmission Provider approved fiber optic cable from a splice to the Transmission Provider's fiber installed on the Interconnection Customer tie line to the Transmission Provider's collector substation control building. Leave a sufficient quantity of cable to allow the Transmission Provider to terminate the cable onto its communications equipment.
- 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 panels 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.
- Design, procure and install ninety-six (96) sets of revenue metering equipment including metering panels, primary and secondary revenue quality meters, test switches, junction boxes and secondary metering wire.
- Procure and provide to the Interconnection Customer instrument transformers to be on installed on the DC side of each of the Interconnection Customer’s inverters.
- Provide the control cable to be installed by the Interconnection Customer from the instrument transformers to the Transmission Provider’s control building and coordinate on the location of the cable.
- 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 between the Interconnection Customer’s Generating Facility and tie line substation locations.

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 tie line 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 69 kV transmission tie line between the Interconnection Customer's collector substation and tie line substation.
- If line crossings of existing Transmission Provider lines are required coordinate with the Transmission Provider to ensure all clearance requirements are met.
- Install Transmission Provider approved fiber optic cable from the collector substation to the POI substation to provide the required data to the Transmission Provider. Leave a sufficient quantity to allow the Transmission Provider to splice the fiber to the fiber running from the POI substation control building.

6.2.2 TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR

- As necessary, coordinate with the Interconnection Customer on any line crossings.
- Provide the Interconnection Customer the specifications for the fiber optic cable to be installed on the tie line.

6.3 Tie Line Substation

The following outlines the design, procurement, construction, installation, and ownership of equipment associated with the Interconnection Customer's tie line substation.

6.3.1 INTERCONNECTION CUSTOMER TO BE RESPONSIBLE FOR

- Procure all necessary permits, property rights and/or the rights of way to allow for the construction of the new tie line substation.
- Design, procure, construct, own and maintain the Interconnection Customer's tie line substation (consisting of a sole 46 kV circuit breaker and associated equipment) adjacent (less than 800') to the POI substation. This includes all radial transmission line relaying to the collector station, breaker failure protection and associated communications equipment. The short line segment between the tie line substation and the POI substation will be considered a bus section and will be protected with redundant bus differential relay systems. The bus differential relays will be located in the POI substation.
- Provide and install the output from a set of current transformers to be fed into the bus differential relays with a maximum current transformer ratio matching the maximum CT ratio of the breakers at the POI substation. Provide and install conduit and cabling to the POI substation marshalling cabinet with these outputs.
- Design the tie line substation such that the ground grid can be connected to the POI substation ground grid to support the installation of a Transmission Provider owned and maintained bus differential

scheme. The Interconnect Customer will be responsible to ensure the ground grid design supports safe step and touch potentials.

- The following data point is required from the Interconnection Customer's tie line substation:

Status:

- 46 kV breaker
- Provide and install conduit and control cabling (number and size TBD) and hard wire the Interconnection Customer's tie line substation source device to the Transmission Provider's marshalling cabinet located just outside the POI substation (replicated values are not allowed).
- Provide and install conduits (number and size TBD) and control cabling between the Interconnection Customer tie line substation and the marshalling cabinet just inside the fence of the POI substation to support copper circuits installed between the facilities.
- If a transmission structure is required between the POI substation and the tie line substation, design to Transmission Provider's current standard design and installation standards.
- Provide and install conductor, shield wire and line hardware in sufficient quantities to allow the Transmission Provider to terminate the line/bus connection from the tie line substation deadend structure in the POI substation dead end structure strain insulators.

6.3.2 TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR

- Provide the Interconnection Customer the necessary specifications to allow the ground grids of the Interconnection Customer's tie line substation and the POI substation to be tied together.
- Provide the Interconnection Customer the necessary specifications for the bus segments of the Interconnection Customer's tie line substation and the new POI substation to be connected.
- If a transmission structure is required between the POI substation and the tie line substation provide current standard design and installation standards to Interconnection Customer.

6.4 Point of Interconnection

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

6.4.1 INTERCONNECTION CUSTOMER TO BE RESPONSIBLE FOR

- Coordinate the testing and commissioning of the communication path from the collector substation to the fiber patch panel in the Transmission Provider POI substation control building communication rack.

6.4.2 TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR

- Procure the necessary permits and/or property rights to allow for the expansion of the substation.
- Design, procure and construct, own and maintain the equipment to create new line positions for the Interconnection Customer's tie line will include the following major pieces of equipment:
 - 72kV, 2000A Circuit Breaker
 - 69kV, 2000A Group Operated switches
 - 46kV CT/VT Combined Metering Units
 - 46kV Arrestors
- Upgrade the 46 kV bus conductor.
- Terminate the last line segment running from the Interconnection Customer's tie line substation into the POI substation deadend structure using Interconnection Customer provided and installed conductor, shield wire and line hardware.
- Design, procure and install a bus differential relay system for the connection to the Interconnection Customer's tie line substation.
- Procure and install a relay for under/over voltage and over/under frequency protection of the system.
- Include the following data points into the substation RTU:
Analog:
 - Net Generation MW
 - Net Generator MVar
 - Energy Register kWh
- Construct a microwave system capable of developing a path with the Transmission Provider's existing communications system.
- Terminate the fiber running from Mounds substation.
- Procure and install the necessary communications equipment for protection and data provision to the Transmission Provider's existing communications network.
- Design, procure and install 46 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.

6.5 Other

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

6.5.1 TRANSMISSION PROVIDER TO BE RESPONSIBLE FOR

- 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

C1-13 Collector substation	\$2,100,000
<i>Control building, relaying, communications, and metering equipment</i>	
Columbia substation	\$540,000
<i>Line termination and metering</i>	
Total:	\$2,640,000

Station Equipment Network Upgrades

Columbia substation	\$1,090,000
<i>New line position</i>	

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	\$14,000
<i>Terminate rebuilt lines, relay settings</i>	
Mounds substation	\$1,000
<i>Terminate rebuilt line, relay settings</i>	
Mathington substation	\$10,000
<i>Terminate rebuilt lines, relay settings</i>	

Huntington substation <i>Upgrade relays</i>	\$11,000
Spanish Fork substation <i>Terminate rebuilt lines, relay settings</i>	\$22,000
Helper substation <i>Upgrade relays</i>	\$16,000
Emery substation <i>Upgrade relays</i>	\$13,000
Sigurd substation <i>Upgrade relays, terminate fiber</i>	\$22,000
Carbon – Mathington 138kV transmission line <i>Rebuild approximately 13.5 miles</i>	\$791,000
Carbon – Spanish Fork #1 138kV transmission line <i>Rebuild approximately 50 miles</i>	\$3,470,000
Carbon – Spanish Fork #2 138kV transmission line <i>Rebuild approximately 52 miles</i>	\$3,122,000
Columbia – Mounds 138kV transmission line <i>Rebuild approximately 7.1 miles</i>	\$212,000
Mathington – Mounds 138kV transmission line <i>Rebuild approximately 16.6 miles</i>	\$484,000
Spanish Fork-Emery transmission line <i>Rebuild section to improve clearance</i>	\$90,000
Emery-Sigurd transmission line <i>Install fiber</i>	\$196,000
Huntington-Spanish Fork transmission line <i>Install fiber</i>	\$104,000
Mounds-Columbia Junction transmission line <i>Install fiber</i>	\$18,000
Helper-National Transmission Line <i>Install fiber</i>	\$14,000

Total Shared Network Upgrades: \$8,595,000**Total Network Upgrades: \$9,685,000****Grand Total: \$12,325,000**

*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
Initial Synchronization/Generation Testing	June 28, 2028
Commercial Operation	July 14, 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.

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 November 30, 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 Q0815:

- Construction of a new four-breaker substation.
- Construction of a new microwave system in Moore substation.

These upgrades are currently assumed to be completed Q3 2024 and are estimated to cost \$5.4M. 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.