

GI-2020-06

Interconnection Facilities Study

Phase 4 Report

3/31/2022



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1.0 Summary

This report only includes the Interconnection Customer's Interconnection Facilities and should be read in conjunction with the ***DISIS-2020-001 Cluster Interconnection Facilities Study Phase 4 Report*** located at: [Transmission Studies \(rmao.com\)](https://www.rmao.com).

GI-2020-6 is a 199 MWac net rated Solar Photovoltaic (PV) Generating Facility requesting Network Resource Interconnection Service (NRIS). The Point of Interconnection (POI) is a tap on the Pawnee–Missile 230 kV line, at approximately 9.93 miles from the Missile Site Substation.

The total estimated cost of the transmission system improvements for GI-2020-6: \$22.796 million.

Network Resource Interconnection Service of GI-2020-6 is: 199 MW (after required transmission system improvements identified in Table 3.4.1 for the Station Network Upgrades and Table 4.1 for the System Network Upgrades in the *DISIS-2020-001 Cluster Interconnection Facilities Study Phase 4 Report*, and Table 1 below for the Transmission Providers Interconnection Facilities).

The Generation Interconnection Service identified in this report in and of itself does not convey transmission service.

2.0 Introduction

GI-2020-6 is a 199 MWac net rated Solar PV Generating Facility that will be located in Adams County, Colorado. The Solar PV Generating Facility will consist of sixty-two (62) SMA SC-4000 UP-US 3.75 MVA, ± 0.80 PF inverters, each with its own 0.6/34.5 kV, 4.00 MVA, wye-delta, Z=6% and X/R=15 pad-mounted step-up transformer. The 34.5 kV collector system will connect to four (4) 48/64/80 MVA, 34.5/13.8/230 kV wye-gnd/delta/wye-gnd, Z=9% and X/R=35 main step-up transformers which will connect to the PSCo transmission system via a 0.5 mile 230 kV generation tie-line. The POI is a tap on the PSCo's Pawnee – Missile 230 kV line at approximately 9.93 miles from the Missile Substation. The interconnection at the tap point will require building a new 230 kV switching station which will be referred to as "GI-2020-6 230 kV

Switching Station” in this report. The output of GI-2020-6 NRIS request is assumed to be serving PSCo native load.

GI-2020-6 requested NRIS¹.

The proposed COD of GI-2020-6 is November 15, 2022. For the study purpose, the back-feed date is assumed to be May 15, 2022, approximately six (6) months before the COD. PSCo is unable to meet the requested COD.

3.0 Study Scope

The scope of the Interconnection Facilities Study which is Phase 4 of the Definitive Interconnection Study process includes non-binding cost estimates and construction schedule of the Interconnection Facilities and Network Upgrades identified for GI-2020-6 in the [DISIS-2020-001 Phase 2 Report](#) dated 8/19/2021 and [DISIS-2020-001 Phase 2 Study Report Addendum](#) dated 9/15/2021.

4.0 Cost Estimates

The cost responsibilities associated with these facilities shall be handled as per current FERC guidelines.

The total cost of the required transmission improvement required for GI-2020-6 to interconnect at the GI-2020-6 230 kV Switching Station is \$22.796 million.

- The cost of Transmission Provider’s Interconnection Facilities is \$1.418 million (Table 1)
- The cost of Station Network Upgrades is \$18.864 million (See Table 3.4.1 of ***DISIS-2020-001 Cluster Interconnection Facilities Study Phase 4 Report***).
- The cost of other System Network Upgrades is \$2.514 million (See Table 4.2 of ***DISIS-2020-001 Cluster Interconnection Facilities Study Phase 4 Report***).

¹ Network Resource Interconnection Service shall mean an Interconnection Service that allows the Interconnection Customer to integrate its Large Generating Facility with the Transmission Provider’s Transmission system (1) in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers; or (2) in an RTO or ISO with market-based congestion management, in the same manner as all other Network Resources. Network Resource Interconnection Service in and of itself does not convey transmission service.

Table 1 – GI-2020-6 Transmission Provider’s Interconnection Facilities

| Element | Description | Cost Est. (million) |
|---|---|--------------------------------|
| PSCo’s GI-2020-6 New 230 kV Switching Station | Interconnection Customer to tap at the Pawnee-Missile 230kV line. The new equipment includes: <ul style="list-style-type: none"> • (4) 230 kV deadend structures • (3) 230 kV surge arresters • (1) 230 kV 3,000 A disconnect switch • (1) set (of three) high side metering units • Fiber communication equipment • Station controls • Associated electrical equipment, bus, wiring and grounding • Associated foundations and structures • Associated transmission line communications, fiber, relaying and testing. | \$1.398 |
| PSCo’s GI-2020-6 New 230 kV Switching Station | Siting and Land Rights support for siting studies, land and ROW acquisition and construction | \$0.020 |
| Total Cost Estimate for Interconnection Customer-Funded, PSCo-Owned Interconnection Facilities | | \$1.418 |
| Time Frame | Site, design, procure and construct | 36 Months* |

*Construction of the Interconnection Customer’s Interconnection Facilities are reliant on the construction of the GI-2020-6 230 kV Switching Station, which will take 36 months. PSCo will complete the Interconnection Customer’s Interconnection Facilities in this same timeframe. Construction of the GI-2020-6 230 kV Switching Station requires a Certificate of Public Convenience and Necessity (CPCN) from the Colorado Public Utilities Commission. It is expected that the CPCN proceedings may take up to 18 months. The construction timeframe following the CPCN approval is estimated to take up to 18 months, so the total time required to site, design, procure and construct the GI-2020-6 230 kV Switching Station is expected to take up to 36 months.