

**INFO-2021-7**

**Informational Interconnection  
Facilities Study Report**

**3/1/2022**



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## 1.0 Executive Summary

INFO-2021-7 is an Informational Interconnection Facilities Study to identify the cost of Transmission Provider's Interconnection Facilities (TPIF) and Network Upgrades required to interconnect a 100MWac Battery Energy Storage System (BESS). The Point of Interconnection (POI) is PSCo's Waterton 115kV Substation.

**The total estimated TPIF and Station Network Upgrade Interconnection Costs for INFO-2021-7: \$11.355 Million**

This report did not identify any Generation Interconnection Service.

## 2.0 Introduction

INFO-2021-7 considers a 100MWac BESS located in Jefferson County, Colorado, which will connect to the PSCo transmission system via the Interconnection Customer's 115kV generation tie-line. The POI is PSCo's Waterton 115kV Substation.

The proposed Commercial Operation Date (COD) of INFO-2021-7 is December 30, 2024. For the study purpose, the back-feed date is assumed to be June 30, 2024, approximately six (6) months before the COD.

## 3.0 Study Scope

The study scope and assumptions are prescribed by the Customer.

The scope of the Informational Interconnection Facilities Study includes non-binding cost estimates and construction schedule of the TPIF and Network Upgrades identified for INFO-2021-7.

The scope does not include any study analysis.

The study considered all queued requests up-to, and including, 2021 Fall DISIS. However, there are no higher-queued requests connecting at the Waterton 115kV Substation, so the queue requests have no impact on the costs identified in this report.



## 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 INFO-2021-7 to interconnect at the Waterton 115kV Station is \$11.355 Million.

- The cost of Transmission Provider’s Interconnection Facilities is \$1.275 Million (Table 1)
- The cost of Station Network Upgrades is \$10.080 Million (Table 2)

Since the request does not include any study analysis, Network Upgrade costs are not applicable.

**Table 1 – INFO-2021-7 Transmission Provider’s Interconnection Facilities (TPIF)**

<b>Element</b>	<b>Description</b>	<b>Cost Est. (Millions)</b>
PSCo’s Waterton 115kV Substation	Interconnect INFO-2021-7 at the Waterton Sub 115kV Substation. The new equipment includes: <ul style="list-style-type: none"> <li>• (1) 115kV deadend/girder</li> <li>• (9) 115kV Surge Arresters</li> <li>• (1) 115kV Disconnect switch</li> <li>• (1) set (of three) high side metering units</li> <li>• Fiber communication equipment</li> <li>• Station controls</li> <li>• Associated electrical equipment, bus, wiring and grounding</li> <li>• Associated foundations and structures</li> <li>• Associated transmission line communications, fiber, relaying and testing.</li> </ul>	\$1.020
PSCo’s Waterton 115kV Substation	Customer Gen-Tie line tap into substation; insulators, hardware and labor.	\$0.055
PSCo’s Waterton 115kV Substation	Siting and Land Rights support for non-ROW permitting activities.	\$0.200
	<b>Total Cost Estimate for Interconnection Customer-Funded, PSCo-Owned Interconnection Facilities</b>	<b>\$1.275</b>
<b>Time Frame</b>	<b>Site, design, procure and construct</b>	<b>36 Months</b>

**Table 2– INFO-2021-7 Station Network Upgrades**

<b>Element</b>	<b>Description</b>	<b>Cost Est. (Millions)</b>
PSCo's Waterton 115kV Substation	Interconnect INFO-2021-7 at the Waterton 115kV Substation. The new equipment includes: <ul style="list-style-type: none"> <li>• (1) 115kV Deadend/girder</li> <li>• (6) 115kV Circuit Breaker</li> <li>• (9) 115kV Surge Arresters</li> <li>• (13) 115kV Disconnect switch</li> <li>• Fiber communication equipment</li> <li>• Station controls</li> <li>• Associated electrical equipment, bus, wiring and grounding</li> <li>• Associated foundations and structures</li> <li>• Associated transmission line communications, fiber, relaying and testing.</li> </ul>	\$7.220
PSCo's Waterton 115kV Substation	Install required communication equipment in the EEE's at the switching station.	\$0.402
PSCo's 115kV Transmission Line 9336	Reroute lines 9336 into the Waterton sub due to the sub expanding to accommodate Interconnection.	\$1.958
PSCo's Waterton 115kV Substation	Siting and Land Rights support for ROW acquisition and construction.	\$0.500
	<b>Total Cost Estimate for Interconnection Customer-Funded, PSCo-Owned Interconnection Facilities</b>	<b>\$10.080</b>
<b>Time Frame</b>	<b>Site, design, procure and construct</b>	<b>36 Months</b>

**Cost Estimate Assumptions**

- Estimates are based on 2022 dollars (appropriate contingency and escalation applied).
- “Allowance for Funds Used During Construction” (AFUDC) has been excluded.
- Labor is estimated for straight time only – no overtime included.
- Lead times for materials were considered for the schedule.
- The BESS is not in PSCo’s retail service territory. Therefore, no costs for retail load metering are included in these estimates.
- PSCo (or it’s Contractor) crews will perform all construction, wiring, testing, and commissioning for PSCo owned and maintained facilities.
- PSCo anticipates that a CPCN will be required for the interconnection facilities construction.
- The estimated time frame for regulatory activities (CPCN) and to site, design, procure and construct the interconnection facilities (entire Project) is approximately 36 months after authorization to proceed has been obtained.



- Customer will install two (2) redundant fiber optics circuits into the Transmission provider's substation
- Power Quality Metering (PQM) will be required on the Customer's 115kV line terminating into the PSCo / Xcel Substation.
- The Customer will be required to design, procure, install, own, operate and maintain a Load Frequency/Automated Generation Control (LF/AGC) RTU at their Customer Substation. PSCo / Xcel will need indications, readings, and data from the LFAGC RTU.

## **5.0 Conclusion**

The total estimated cost of TPIF and Station Network Upgrade Interconnection costs for INFO-2021-7: \$11.355 Million

This report did not identify any Generation Interconnection Service.

## INFO-2021-7 Project Oneline Diagram

