INTERCONNECTION FACILITIES STUDY REPORT

GEN-2017-014

Published February 2023

By SPP Generator Interconnections Dept.

REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION
02/10/2022	SPP	Initial draft report issued.
03/04/2022	SPP	Final report issued.
02/02/2023	SPP	Updated for MISO's Affected Systems costs listed in the AFS report

CONTENTS

SUMMARY

INTRODUCTION

This Interconnection Facilities Study (IFS) for Interconnection Request GEN-2017-014 is for a 300 MW generating facility located in Haakon County, SD. The Interconnection Request was studied in the DISIS-2017-001 Impact Study and the DISIS-2017-001-1 Impact Restudy for Network Resource Interconnection Service (NRIS). However, a Modificaiton evaluation was performed and SPP determined that there were no Material impacts to reduce service type to Energy Resource Interconnection Service (ERIS). The Interconnection Customer's requested in-service date is December 31, 2024.

The interconnecting Transmission Owner, Western Area Power Administration (WAPA), performed a detailed IFS at the request of SPP. The full report is included in Appendix A. SPP has determined that full Interconnection Service will be available after the assigned Transmission Owner Interconnection Facilities (TOIF), Non-Shared Network Upgrades, Shared Network Upgrades, Contingent Network Upgrades, and Affected System Upgrades that are required for full interconnection service are completed.

The primary objective of the IFS is to identify necessary Transmission Owner Interconnection Facilities, Network Upgrades, other direct assigned upgrades, cost estimates, and associated upgrade lead times needed to grant the requested Interconnection Service.

PHASE(S) OF INTERCONNECTION SERVICE

It is not expected that Interconnection Service will occur in phases. However, full Interconnection Service will not be available until all Interconnection Facilities and Network Upgrade(s) can be placed in service.

COMPENSATION FOR AMOUNTS ADVANCED FOR NETWORK UPGRADE(S)

FERC Order ER20-1687-000 eliminated the use of Attachment Z2 revenue crediting as an option for compensation. The Incremental Long Term Congestion Right (ILTCR) process will be the sole process to compensate upgrade sponsors as of July 1st, 2020.

INTERCONNECTION CUSTOMER INTERCONNECTION FACILITIES

The Generating Facility is proposed to consist of one hundred nineteen (119) G.E. 2.52 MW - 127 wind turbines for a total generating nameplate capacity of 300 MW.

The Interconnection Customer's Interconnection Facilities to be designed, procured, constructed, installed, maintained, and owned by the Interconnection Customer at its sole expense include:

- 34.5 kV underground cable collection circuits;
- 34.5 kV to 230 kV transformation substation with associated 34.5 kV and 230 kV switchgear;
- One 230/34.5 kV 120.5/160.3/200 MVA (ONAN/ONAF/ONAF) step-up transformer to be owned and maintained by the Interconnection Customer at the Interconnection Customer's substation;
- An approximately 6 mile overhead mile overhead kV line to connect the Interconnection Customer's substation to the Point of Interconnection ("POI") at the 230 kV bus at existing Transmission Owner substation ("Philip Tap 230 kV") that is owned and maintained by Transmission Owner;
- All transmission facilities required to connect the Interconnection Customer's substation to the POI;
- Equipment at the Interconnection Customer's substation necessary to maintain a composite power delivery at continuous rated power output at the high-side of the generator substation at a power factor within the range of 95% lagging and 95% leading in accordance with Federal Energy Regulatory Commission (FERC) Order 827. The Interconnection Customer may use inverter manufacturing options for providing reactive power under no/reduced generation conditions. The Interconnection Customer will be required to provide documentation and design specifications demonstrating how the requirements are met; and,
- All necessary relay, protection, control and communication systems required to protect Interconnection Customer's Interconnection Facilities and Generating Facilities and coordinate with Transmission Owner's relay, protection, control and communication systems.

TRANSMISSION OWNER INTERCONNECTION FACILITIES AND NON-SHARED NETWORK UPGRADE(S)

To facilitate interconnection, the interconnecting Transmission Owner will perform work as shown below necessary for the acceptance of the Interconnection Customer's Interconnection Facilities.

Table 1 and **Table 2** lists the Interconnection Customer's estimated cost responsibility for Transmission Owner Interconnection Facilities (TOIF) and Non-Shared Network Upgrade(s) and provides an estimated lead time for completion of construction. The estimated lead time begins when the Generator Interconnection Agreement has been fully executed.

Table 1: Transmission Owner Interconnection Facilities (TOIF)

Transmission Owner Interconnection Facilities (TOIF)	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)	Estimated Lead Time
Philip Tap 230kV GEN-2017-014 Interconnection (TOIF) (WAPA) (132956): Construct one (1) 230kV line terminal, line switches, dead end structure, line relaying, communications, revenue metering, line arrestor, and all associated equipment and facilities necessary to accept transmission line from Interconnection Customer's Generating Facility.	$350,000	100%	$350,000	30 Months
Total	**$350,000**		**$350,000**	

Table 2: Non-Shared Network Upgrade(s)

Non-Shared Network Upgrades Description	ILTCR	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)	Estimated Lead Time
Philip Tap 230kV GEN-2017-014 Interconnection (Non-Shared NU) (WAPA) (132957): Construct one (1) new WAPA-UGP-owned 230kV switchyard consisting of a four (4) breaker ring bus that includes four (4) 230kV circuit breakers, twelve (12) 230kV disconnect switches, instrument transformers, associated control and protection equipment, high voltage bus, four (4) transmission line take-off-structures, conductor, overhead optical ground wire, communication equipment, and new transmission line structures to re-terminate the four (4) lines into the 230kV switchyard.	Not Eligible	$12,195,000	100%	$12,195,000	30 Months
GEN-2017-014 230kV Reactive Supoort (DISIS-2017-001): Stability identified need to install 30 Mvar SVC for Dynamic Reactive Support at GEN-2017-014 230kV side of main transformer. Cost and lead time are estimates as upgrade is responsibility of Interconneciton customer.	Not Eligible	$6,788,460	100%	$6,788,460	36 Monts
Total		**$18,983,460**		**$18,983,460**	

SHARED NETWORK UPGRADE(S)

The Interconnection Customer's share of costs for Shared Network Upgrades is estimated in **Table 3** below.

Table 3: Interconnection Customer Shared Network Upgrade(s)

Shared Network Upgrades Description	ILTCR	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)	Estimated Lead Time
None	N/A	$0	N/A	$0	N/A
Total		**$0**		**$0**	

*NRIS Network Upgrades were not included in the IFS Summary for GEN-2017-014 as reflected in the Modfiication evaluation appended to the end of this IFS Summary.

All studies have been conducted assuming that higher-queued Interconnection Request(s) and the associated Network Upgrade(s) will be placed into service. If higher-queued Interconnection Request(s) withdraw from the queue, suspend or terminate service, the Interconnection Customer's share of costs may be revised. Restudies, conducted at the customer's expense, will determine the Interconnection Customer's revised allocation of Shared Network Upgrades.

CONTINGENT NETWORK UPGRADE(S)

Certain Contingent Network Upgrades are **currently not the cost responsibility** of the Interconnection Customer but will be required for full Interconnection Service.

Table 4: Interconnection Customer Contingent Network Upgrade(s)

Contingent Network Upgrade(s) Description	Current Cost Assignment	Estimated In-Service Date
NTC 200220 (R-Plan): Build new 222 mile, 345 kV line from Gentleman - Cherry Co - Holt Co. Build new 345 kV substations at Cherry Co and Holt Co. Terminal upgrades at Gentleman.	$0	1/1/2026

Depending upon the status of higher- or equally-queued customers, the Interconnection Request's in-service date is at risk of being delayed or Interconnection Service is at risk of being reduced until the in-service date of these Contingent Network Upgrades.

AFFECTED SYSTEM UPGRADE(S)

To facilitate interconnection, the Affected System Transmission Owner will be required to perform the facilities study work as shown below necessary for the acceptance of the Interconnection Customer's Interconnection Facilities. **Table 5** displays the current impact study costs provided by either MISO or AECI as part of the Affected System Impact review. The Affected System facilities study could provide revised costs and will provide each Interconnection Customer's allocation responsibilities for the upgrades.

Table 5: Interconnection Customer Affected System Upgrade(s)

Affected System Upgrades Description	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)
DISIS-2017-001 MISO AFS: 100 MVAR Capacitor Bank at Montezuma 345 kV	$6,000,000	20.9%	$1,256,917
DISIS-2017-001 MISO AFS: 100 MVAR SVC/Statcom at Blackhawk 345 kV	$50,000,000	22%	$11,000,000
DISIS-2017-001 AECI AFS: Rebuild 2.6 milelong Vanduser-Morley 69kV line to 336 ASCR at 100C	$1,650,000	27.4%	$451,388
Total	$57,650,000		$12,708,305

CONCLUSION

After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 300 MW can be granted. Full Interconnection Service will be delayed until the TOIF, Non-Shared NU, Shared NU, Contingent NU, Affected System Upgrades that are required for full interconnection service are completed. The Interconnection Customer's estimated cost responsibility for full interconnection service is summarized in the table below.

Table 6: Cost Summary

Description	Allocated Cost Estimate
Transmission Owner Interconnection Facilitie Upgrade(s)	$350,000
Non-Shared Network Upgrade(s)	$18,983,460
Shared Network Upgrade(s)	$0
Affected System Upgrade(s)	$12,708,305
Total	**$32,041,765**

Use the following link for Quarterly Updates on upgrades from this report: https://spp.org/spp-documents-filings/?id=18641

A draft Generator Interconnection Agreement will be provided to the Interconnection Customer consistent with the final results of this IFS report. The Transmission Owner and Interconnection Customer will have 60 days to negotiate the terms of the GIA consistent with the SPP Open Access Transmission Tariff (OATT).

APPENDICES

A: TRANSMISSION OWNER'S INTERCONNECTION FACILITIES STUDY REPORT AND NETWORK UPGRADES REPORT(S)

See next page for the Transmission Owner's Interconnection Facilities Study Report and Network Upgrades Report(s).

MEMORANDUM

To:

From:

CC:

Date: January 5th, 2022

Re: Evaluation of GEN-2017-014 ModificationRequest

On December 28th, 2021, GEN-2017-014 requested a modification evaluation on their Interconnection Request (IR) GEN-2017-014. GEN-2017-014 is a 300 MW wind generating facility with a Point of Interconnection (POI) of Philip Tap 230 kV Substation. The modification request included only a reduction of service type from Network Resource Interconnection Service (NRIS) to Energy Resource Interconnection Service (ERIS).

SPP evaluates each requested modification to determine if it is specifically permitted or prohibited under the applicable tariff. If a requested modification is not specifically permitted or prohibited, an evaluation as to whether the requested modification is a Material Modification is performed.

For the reduction of service type, this requested modification is not specifically permitted or prohibited under the applicable tariff. As a result, SPP evaluated the requested modification to determine if it is a MaterialModification.

In the DISIS-2017-001-1 study, GEN-2017-014 was assigned NRIS Shared Network Upgrades along with varying cost splits with three other requests: GEN-2017-014, GEN-2017-064, and GEN-2017-094. GEN-2017-013 and GEN-2017-064 have withdrawn from the queue, which in an anlaysis would result in either those upgrades not being needed or the upgrade cost being 100% allocated to GEN-2017-014 (no longer shared). The remaining NRIS Shared Network Upgrades were shared with GEN-2017-094. GEN-2017-094 also requested to drop NRIS, and this request only had Shared Network Upgrades with GEN-2017-014. Because both requests have elected to drop NRIS, there is no material impact to other requests in the study. Individually, the NRIS drop of GEN-2017-014 would have been classified as a Material Modification, however, the combination of the NRIS drop from both GEN-2017-014 and GEN-2017-094 is permitted under the tariff.

Gen Request	Other NR Requests in Group?	NR Shared NU Assigned?
GEN-2017-014	No	Yes
GEN-2017-014 and GEN-2017-094	No	No

As a result of the evaluation, SPP determined that this requested modification is not a Material Modification. The requested modification does not have a material impact on the cost or timing of any IR with a later Queue prioritydate.

Interconnection Facilities Study Report

Southwest Power Pool, Inc. (SPP) Generator Interconnection Request GEN-2017-014

(DISIS-2017-001)

Western Area Power Administration

Upper Great Plains Region (WAPA-UGP)

February 2022

1.0 Background:

The Western Area Power Administration Upper Great Plains Region (WAPA-UGP[1]) received a request for an Interconnection Facilities Study in accordance with the Southwest Power Pool Inc. (SPP) Open Access Transmission Tariff (Tariff) for interconnection of a Generating Facility in Haakon County, South Dakota to WAPA-UGP's Oahe-New Underwood 230-kV Transmission Line. SPP generator interconnection request GEN-2017-014 represents a 300 MW nameplate wind generation facility with Point of Interconnection (POI) at the 230kV bus of a new WAPA-UGP owned switchyard on the Oahe-New Underwood 230-kV Transmission Line approximately 15 miles north of the Philip Substation.

The wind generation facility's proposed collector substation would be located northwest of the POI to WAPA-UGP's Oahe-New Underwood 230-kV Transmission Line. The collector substation will consist of one (1) 230/34.5-kV transformer and multiple 34.5-kV deliveries to interconnect the individual wind turbines. The Interconnection Customer will construct, own, and maintain the radial 230-kV transmission line between the collector substation and the WAPA-UGP owned switchyard on the Oahe-New Underwood 230-kV Transmission Line. The Point of Interconnection will be at the 230-kV bus at the new WAPA-UGP owned switchyard on the Oahe-New Underwood 230-kV Transmission Line. The Point of Change of Ownership between Interconnection Customer and WAPA-UGP will be at the points where Interconnection Customer's conductors, jumpers, and insulators connect to WAPA-UGP's 230-kV take-off structure and the rigid bus underhung from the 230-kV take-off structure, as illustrated in Attachment B.

This Interconnection Facilities Study does not address transmission service or any delivery component of transmission service; only the interconnection requirements and operating impacts of the interconnection service component of the Generating Facility.

2.0 Study Requirements:

This Interconnection Facilities Study includes an evaluation of the following:

2.1 Prepare/develop a substation layout, perform a preliminary bus design, and determine all electrical equipment requirements to accommodate the Request. Develop/compile cost estimates for all WAPA-UGP labor, overheads, equipment additions, modifications, etc. to accommodate the generator interconnection.

2.2 Review and document any other interconnection/control area requirements. Document these additional requirements (such as indication/metering, monitoring, control, relaying) and include these in the cost estimate.

[1] WAPA-UGP is also referred to as "Western-UGP" in the SPP Tariff.

2.3 Determination of need to develop an Operating Guide for WAPA-UGP's Dispatch to document the conditions under which the new Generating Facility must be operated to protect against unacceptable pre- or post-contingent transient voltage and loading conditions.

2.4 Develop an overall time schedule for completion of the necessary addition/modifications.

3.0 Study Results:

The following results document the analysis of the addition of the Generating Facility to WAPA-UGP's transmission system and fulfill the tasks outlined in Section 2.0 above:

3.1 Required Facility Additions by WAPA-UGP:

WAPA-UGP has determined that following addition is required to maintain a safe and reliable interconnection to WAPA-UGP's transmission system:

- A new 230-kV switchyard on the Oahe-New Underwood 230-kV Transmission Line, in place of the existing Philip Tap. WAPA-UGP's minimum requirement for a new 230-kV interconnection to an existing transmission line is a four (4) breaker ring bus. Construction of the new WAPA-UGPR owned 230-kV switchyard will require four (4) 230-kV power circuit breakers, twelve (12) 230-kV disconnect switches, instrument transformers, associated control and protection equipment, high voltage bus, four (4) transmission line take-off-structures, conductor, overhead optical ground wire, communication equipment and a control building. New transmission line structures to re-terminate the Oahe, New Underwood, and Philip 230-kV transmission lines into the new 230-kV switchyard.

WAPA-UGP's estimated cost for labor, overhead, equipment, construction, and other miscellaneous costs for the new WAPA-UGPR owned 230-kV switchyard are outlined in Attachment A. The total cost is estimated at $12,545,000.

3.1.1 Transmission Owner's Interconnection Facilities: Equipment installed by WAPA-UGP for the sole purpose of this interconnection, such as the Transmission Owner's Interconnection Facilities, which includes equipment between of the Point of Interconnection and Point of Change of Ownership, interrogation, and communication equipment, are considered direct assignment facilities and not subject to inclusion as Network Upgrades. The direct assigned costs for such equipment are estimated at $350,000 based upon WAPA-UGP's understanding of the SPP Tariff provisions and are included in the total cost estimate provided in Attachment A.

3.1.2 Network Upgrades constructed by Transmission Owner: Network Upgrades to be designed, procured, constructed, installed and owned by WAPA-UGP that are the cost responsibility of the Interconnection Customer. This includes the new WAPA-UGPR owned 230-kV switchyard on the Oahe-New Underwood 230-kV Transmission Line. The cost estimate for

the Network Upgrades constructed by Transmission Owner is $12,195,000. Based on WAPA-UGP's understanding of the SPP Tariff, these Network Upgrades are considered Non-Capacity Network Upgrades and would be evaluated under Attachment Z2 of the SPP Tariff as Non-Capacity Network Upgrades. These upgrades would not be subject to the transmission service credits described in Article 11.5 of the SPP Generator Interconnection Agreement (GIA).

3.2 Contractual Agreements:

Pursuant to the SPP Tariff, SPP and WAPA-UGP will need to execute a GIA (or initially an Interim GIA, if applicable, with a subsequent execution of a GIA) with Interconnection Customer for the interconnection of the Generating Facility. The GIA will address specific funding requirements and provide an advanced payment schedule for facility additions and upgrades to address WAPA-UGP's requirements. The GIA, which discusses the construction and interconnection aspects of this project, will need to be developed and offered by SPP, pursuant to their obligations and procedures under the SPP Tariff, and forwarded to the Interconnection Customer for review and signature. A schedule for payment(s) based on design, procurement, and construction activities will be included in the GIA consistent with the SPP Tariff provisions.

3.3 Other Interconnection, Metering Requirements:

Basic indication, monitoring, control, and relaying requirements due to a generator interconnection are included in the cost estimate. A list of specific needs will be provided by WAPA-UGP's Operations Office and WAPA-UGP's South Dakota Maintenance Office once design has progressed.

Interconnection Customer shall install metering at their 230/34.5-kV collector substation in accordance with SPP and WAPA-UGP metering requirements. WAPA-UGP's generation metering requirements, as an SPP Transmission Owner, must be also met, unless specific SPP's metering requirements are more restrictive, in accordance with the most current ***Western Area Power Administration Meter Policy*** posted at the "WAPA Meter Policy" link at the following page:
http://www.oasis.oati.com/WAPA/WAPAdocs/Western-Common-Business-Practices.html

Any WAPA-UGP specific implementation of more restrictive SPP metering requirements are also posted on WAPA-UGP's OASIS home page under the "Effective Business Practices" folder at the "UGP Meter Policy Modifications" link at the following URL:
http://www.oasis.oati.com/wapa/index.html

Western's ***General Requirements for Interconnection*** must also be met in accordance with the *General Requirements for Interconnection* document posted at the "General Requirements for Interconnection (GRI)" link at the following page:
http://www.oasis.oati.com/WAPA/WAPAdocs/Western-Common-Business-Practices.html

3.4 Operating Guide/Operating Agreement:

Prior to energization, an Operating Guide will need to be developed by WAPA-UGP in coordination with SPP, if necessary, to outline any required operating restrictions under which the generation interconnection must be energized (or de-energized) to protect against unacceptable system stability limits and/or pre-contingent and post-contingent voltage and loading conditions. The Operating Guide will be developed by WAPA-UGP's Transmission System Planning Division in coordination with SPP Staff. In addition, an Operating Agreement will be developed by WAPA-UGP's Operations Office, jointly with the Interconnection Customer and SPP, if necessary, as will be set forth in the GIA to outline the necessary operations coordination and requirements not otherwise set forth in the GIA.

3.5 Schedule:

Attachment A outlines WAPA-UGP's estimated schedule for planning, design and construction of the facilities required to accommodate the Interconnection Customer's Request. WAPA-UGP anticipates the new 230-kV switchyard on the Oahe-New Underwood 230-kV Transmission Line would be completed by September 1, 2024. This schedule is based on the GIA (or Interim GIA) being executed prior to May 1, 2022, and issuance of the NEPA Finding of No Significant Impact or Record of Decision by June 1, 2023.

3.6 Environmental Review:

The Environmental Review for this project, as described in Attachment V, Sections 3.3.5, and 8.6.1, and any other applicable sections of the SPP Tariff, is being coordinated between WAPA-UGP and Interconnection Customer under Contract No. 18-UGPR-25. The Environmental Review is performed at the Interconnection Customer's expense, and those costs are considered direct assigned costs and are ineligible for credits under the SPP Tariff.

4.0 Facilities Study Cost:

WAPA-UGP will audit the Interconnection Facilities Study costs and provide a summary of costs once the study is completed or the interconnection request is withdrawn.

ATTACHMENT A

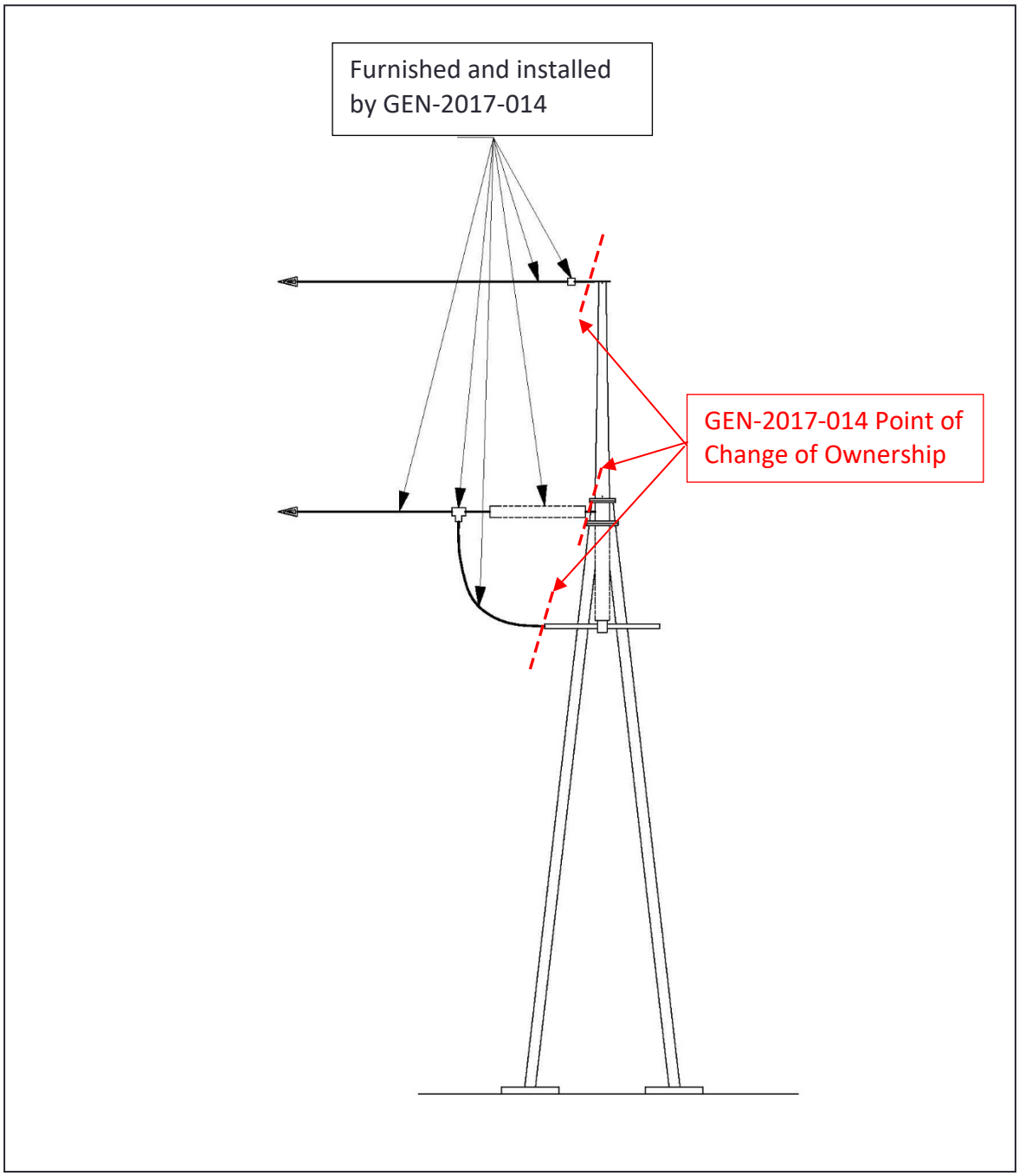
NEW 230-kV SWITCHYARD
ON THE OAHE-NEW UNDERWOOD 230-KV TRANSMISSION LINE

PROJECT ACTIVITY	ESTIMATED START DATE	ESTIMATED COST, MILESTONE PAYMENT DUE
Preconstruction activities – planning, project management, etc.	30 Calendar Days Following GIA Execution*	$400,000
Provide staff and other resources to engineer, design, and plan construction	30 Calendar Days Following GIA Execution*	$725,000
Procure equipment, parts, and control equipment necessary to construct	February 1, 2023	$2,700,000
Development & Solicitation of Construction Contract(s)	March 1, 2023	$100,000
WAPA-UGP Construction Activities	July 1, 2023	$7,900,000
Commissioning, Energization, and construction supervision	July 1, 2024	$720,000
In-Service (Estimated Completion Date)	September 1, 2024	
TOTAL ESTIMATED COSTS		$12,545,000**

*Assumes Execution of GIA NLT May 1, 2022.

**Includes Transmission Owner Interconnection Facilities costs estimated at $350,000 and Network Upgrades constructed by Transmission Owner costs estimated at $12,195,000. Based on WAPA-UGP's understanding of the SPP Tariff, these Network Upgrades are considered Non-Capacity Network Upgrades and would be evaluated under Attachment Z2 of the SPP Tariff as Non-Capacity Network Upgrades.

ATTACHMENT B



CRITICAL ENERGY INFRASTRUCTURE INFORMATION NOTICE

The materials contained in this document and attachments include Critical Energy Infrastructure Information ("CEII"). All materials designated as CEII must be handled and protected per the requirements in FERC CEII Policy. There may be additional requirements for CEII materials in the future.

Facilities Study
for
Black Hawk Substation
Add One 345 kV, 100 MVAR STATCOM

Related to ERIS Results
for
MISO Affected System Study for SPP DISIS 2017-001

Submitted by
MidAmerican Energy Company

January 2023

1.1 Project Summary

MidAmerican Energy Company ("MidAmerican" or "Transmission Owner") was retained by MISO ("Transmission Provider") to perform a facilities study for the upgrades necessary to add one 345 kV, 100 MVAR static synchronous compensator ("STATCOM") at Black Hawk Substation for the Energy Resource Interconnection Service ("ERIS") impacts by the Interconnection Customers in MISO's Affected System Study for SPP DISIS 2017-001. MidAmerican owns the Black Hawk Substation affected by this work.

Updates to this facilities study may be necessary to reflect 1) effects of the required upgrades identified in restudies of the MISO Affected System Study for SPP DISIS 2017-001 steady state and stability studies, 2) changes in information from the Interconnection Customers, 3) updates or restudies made to previously completed DPP studies and/or 4) results of any Optional Studies being performed for the Interconnection Customers. The following table summarizes the estimated costs of the Network Upgrades.

Table 1-1. Cost Estimate of Network Upgrades

Upgrade Classification	Description of Upgrade	Cost Estimate ($)*
Non-Stand Alone Network Upgrade	Black Hawk Substation Add One 345 kV, 100 MVAR STATCOM and associated transmission line additions/relocations	$50,000,000
	Total	$50,000,000

* Estimated cost includes AFUDC and is in 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years. Tax gross-up does not apply based on present IRS rules. Transmission Owner plans to elect self-funding.

1.2 Election to Transmission Owner self-fund of Network Upgrades

Transmission Owner plans to self-fund these Network Upgrades in this facilities study. As a result, the Interconnection Customers would provide suitable financial security such as a parent guaranty, letter of credit or surety bond as part of the Multi-Party Facilities Construction Agreement ("MPFCA"). Later, the Interconnection Customers and Transmission Owner would enter into a Facilities Service Agreement ("FSA") or Multi-Party FSA ("MPFSA") covering the payments for the Network Upgrades.

2 Transmission Owner Interconnection Facilities

Not Applicable

3 Stand Alone Network Upgrades

None

4 Non-Stand Alone Network Upgrades

Network Upgrades to be installed by Transmission Owner

4.1 Black Hawk Substation Add One 345 kV, 100 MVAR STATCOM

4.1.1 Overview

The MISO Affected System Study for SPP DISIS 2017-001 study showed the need for additional capacitive VAR support at Black Hawk Substation to increase voltages in the area to mitigate the impacts of the Interconnection Customers on the system. The Black Hawk Substation is a 345 kV ring bus with only three networked transmission elements (line or transformer). The substation will already have a large 345 kV, 150 MVAR switched capacitor bank installed as a network upgrade for DPP 2016 February West. A NERC TPL-001 Category P2 or P4 breaker failure contingency within the 345 kV ring bus or Category P6 N-1-1 contingency can result in the loss of two of the three networked transmission elements leaving the substation on a radial from the remaining transmission element. As a result, adding additional shunt reactive power devices can result in high post-contingent voltages unless the incremental devices are dynamic such as a STATCOM so the device can automatically reduce output following contingencies.

The Black Hawk Substation was reviewed to determine the potential placement of one 345 kV, 100 MVAR STATCOM including the additional bus expansion needed to accommodate the STATCOM. If a MISO Affected System restudy for SPP DISIS 2017-001 required a different amount of STATCOM at Black Hawk Substation, then a revised or new facilities study would be required. The review did not include a STATCOM switching analysis or a harmonic frequency scan analysis. Such analyses will be completed as part of the design process should this project proceed.

The scope of the substation and transmission line work assumed in the estimated cost and schedule for the 345 kV STATCOM installation at Black Hawk Substation includes one 345 kV, 100 MVAR STATCOM, 345 kV line terminal with breaker and disconnects in a standalone fenced in area, a short new line to Black Hawk Substation and expansion of Black Hawk Substation including moving an existing line to accommodate a new 345 kV line to the STATCOM facility. The expansion work at Black Hawk Substation includes bus and breaker additions to expand the ring bus to provide terminals for the new 345 kV line to the STATCOM and the relocated Black Hawk-Hazleton 345 kV line, 345 kV breaker for the line to the STATCOM, breaker disconnect switches, control and relaying, steel support structures, yard expansion and high security fence expansion. No land costs are included in the estimate because the STATCOM site and line is assumed to be on land that Transmission Owner already owns.

The substation and transmission line upgrades are estimated to cost $50,000,000 in year 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years. The upgrades are described below and shown in preliminary drawing in Exhibits A2 and A3.

4.1.2 Assumptions

- It is assumed outages to complete the Network Upgrades will be granted when requested to meet project schedule
- It is assumed based on the present tax laws in effect at the time of this study that tax gross-up would not apply and is not included in the cost estimates
- It is assumed labor resources and equipment will be available at reasonable costs. For example, low unemployment rates and significant amounts of transmission and substation project work related to new wind and solar farm interconnections requesting to be eligible for the Federal Production Tax Credit ("PTC"), the Infrastructure Investment and Jobs Act ("IIJA") and other initiatives may drive costs significantly higher and affect schedule
- It is assumed that timely receipt of financial security will be provided by all Interconnection Customers
- It is assumed the STATCOM switching analysis and harmonic frequency scan analysis that will be completed as part of the design process will not result in significant changes to the project scope and cost
- The results of recent DPP studies or affected system studies have required numerous capacitor banks and/or STATCOMs in eastern Iowa to improve system voltage; it is assumed these installations will not have negative interactions with each other
- The STATCOM addition requires construction of a separate substation yard for the STATCOM. For the purposes of the cost estimate, it is assumed the Transmission Owner owns the land the new substation yard will be constructed. If additional land is also needed to meet governmental setback or other requirements, it is assumed additional land can be purchased. No land costs are included in the estimate, but it is assumed land can be obtained at a reasonable cost, if necessary. This is a preliminary design that is subject to change during detailed design stage should the Interconnection Customers proceed further

4.1.3 Structure and Foundation

<u>Yard Development</u>

<u>For existing Black Hawk Substation</u>

- Grading and expansion of existing yard
- Installation of additional station ground grid system
- Installation of additional substation yard rock surfacing
- Installation of additional below grade control conduit and manhole system
- Modification, removal and installation of high security fence

<u>For STATCOM yard</u>

- Grading of yard
- Installation of a station ground grid system
- Installation of the substation yard rock surfacing
- Installation of the below grade control conduit and manhole system
- Installation of a 12 feet high security mesh fence with 1 foot of barbed and razor wire

- Installation of substation yard lighting
- Installation of a lightning shielding system

Steel Structures
- Support structures for two (2) 345 kV dead-end structures
- Support structures for three (3) 345 kV breakers
- Support structures for five (5) three phase 345 kV switches; four (4) manual breaker disconnects and one (1) motor operated line disconnect
- Support structures for three (3) single phase 209 kV MCOV surge arresters
- Bus support structures, ten (10) 345 kV supports
- Drilled pier foundations will be used for all equipment support structures as design permits

4.1.4 Major Items

345 kV STATCOM
- One (1) 345 kV, nominal 100 MVAR STATCOM and associated equipment from manufacturer
- Includes installing foundations, support structures, arresters

345 kV Gas Circuit Breakers
- One (1) 345 kV, SF6 gas circuit breaker rated 3000 A, 50 kA interrupting capability in ring bus
- Two (2) 345 kV, SF6 gas circuit breakers rated 3000 A, 50 kA interrupting capability for transmission line to STATCOM
- Includes installing foundations, control conduit to the circuit breakers, jumpers to the associated disconnect switches and control cable to the control building

345 kV Disconnect Switches
- Five (5) disconnect switches rated 345 kV, 3000 A continuous, 100 kA momentary, 1300 kV BIL are required to allow isolation of the added circuit breakers and bus
- Includes installing foundations and support structures

345 kV Rigid Aluminum Bus
- The main bus additions will be aluminum rigid tubular bus

4.1.5 SCADA and Communications
- Updates to RTU and SCADA for STATCOM and breaker additions

4.1.6 Protection and Control
345 kV Relay/Control/Metering Panels
- One (1) protection panel for line to STATCOM, SEL-411L or equivalent
- One (1) protection panel for the relocated line, SEL-411L or equivalent
- One (1) breaker control panel

- Includes installing the panels in the control building, connection of control cable wiring, checkout and commissioning of the associated systems
- Includes modification to other protection panels

4.1.7 Transmission Line Work

- One (1) new 345 kV line to be constructed from existing Black Hawk 345 kV bus to the separate STATCOM yard
- Existing Hazleton 345 kV line to be relocated to a new 345 kV line terminal on Black Hawk 345 kV bus
- Includes conductor, structures and foundations for the new and relocated lines

4.1.8 Price

The cost estimate for Network Upgrades is $50,000,000 in year 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years.

5 System Protection Facilities constructed by Transmission Owner

None

6 Distribution Upgrades

None

7 Exhibits

7.1 A1 - Interconnection Customer One Line and Site Map

A1-1 One-line Diagram for IC Project

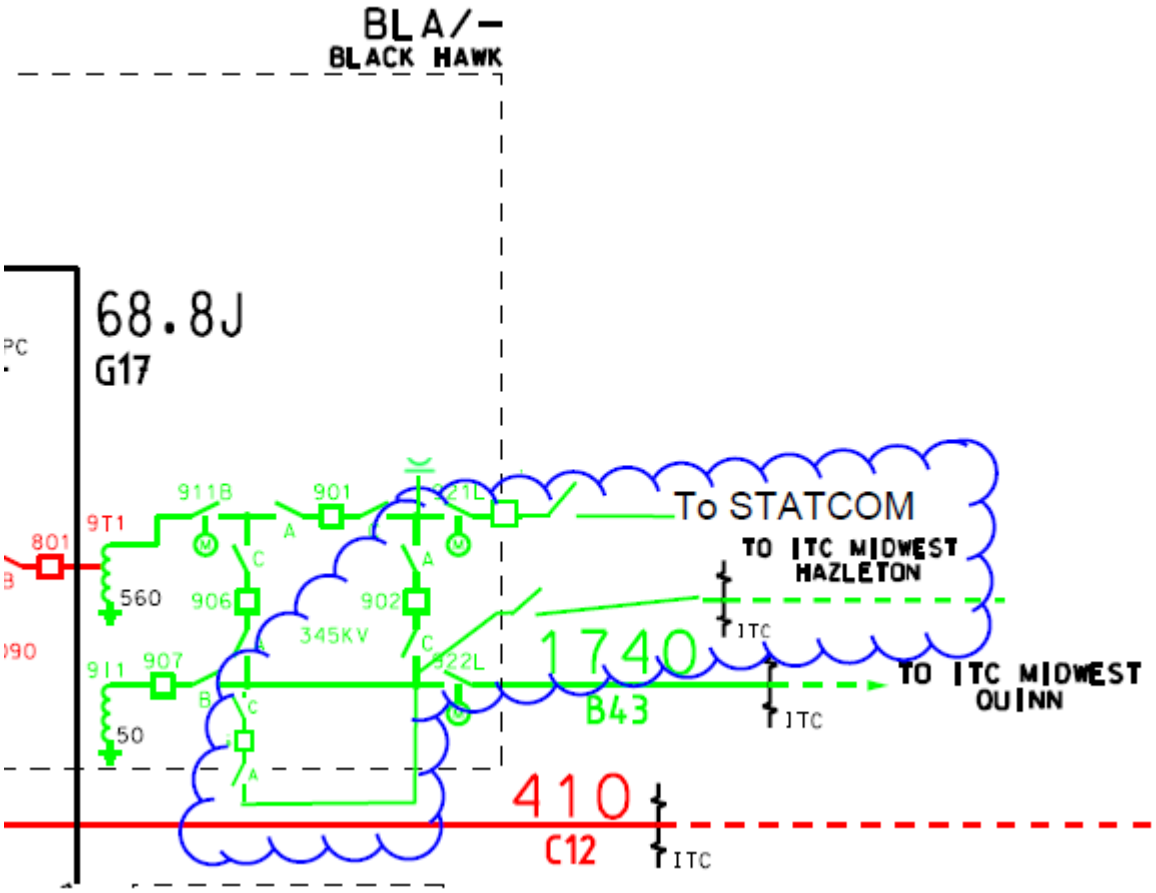
Not Applicable

A1-2 Site Map for IC Project

Not Applicable

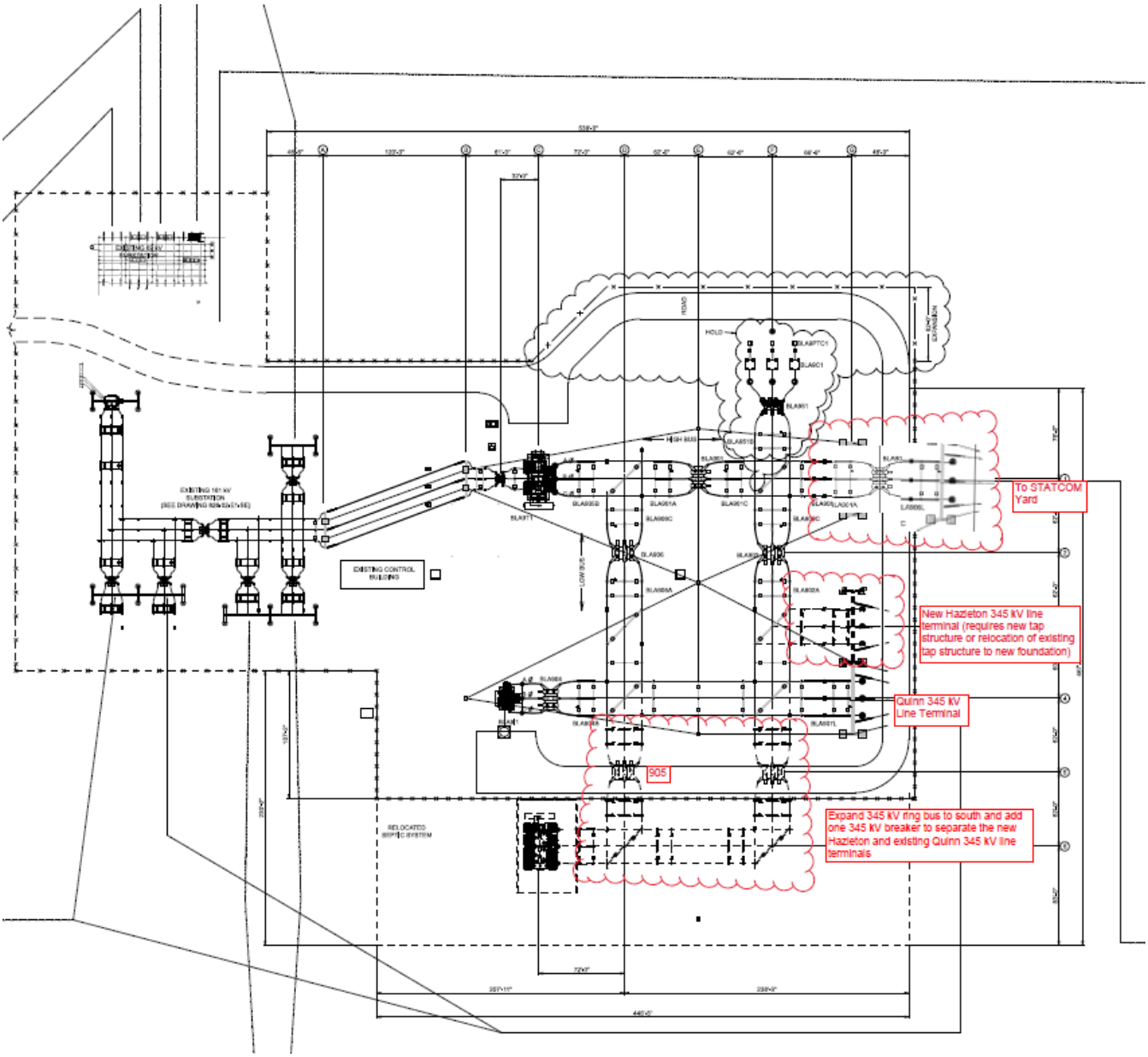
7.2 A2 - Transmission Owner One Line

Black Hawk Substation: Expansion to Add One 345 kV, 100 MVAR STATCOM



7.3 A3 - Site Plans or General Arrangement Drawing

Black Hawk Substation: Expansion to Add One 345 kV, 100 MVAR STATCOM



7.4 A4 – Network Upgrade Plan and Profile

7.5 A5 - Facilities to be Constructed by Transmission Owner

Upgrade Classification	Description of Upgrade	Cost Estimate ($)*
Non-Stand Alone Network Upgrade	Black Hawk Substation Add One 345 kV, 100 MVAR STATCOM and associated transmission line additions/relocations	$50,000,000
	Total	$50,000,000

7.6 A6 - Detailed Cost of Facilities to be Constructed by Transmission Owner

Table A6-1 Construct Transmission Owner Interconnection Facilities
Not Applicable

Table A6-2 Construct Stand Alone Network Upgrade
Not Applicable

Table A6-3 Construct Non-Stand Alone Network Upgrade

Black Hawk Substation Add One 345 kV, 100 MVAR STATCOM
Network Upgrade Estimate

Description	Cost Estimate ($)*
Stores (arresters, insulators, conductor, etc.)	$250,000
Substation Steel, Bus, Connectors	$500,000
STATCOM	$27,000,000
Disconnect Switches	$120,000
Circuit Breakers	$1,100,000
Instrument Transformers	$200,000
Control, Metering and Communications	$500,000
Civil (foundations, raceways, grounding, yard)	$4,000,000
Consultant Design Labor & Project Management	$1,000,000
Contractor Labor & Commissioning	$5,650,000
Company Labor	$250,000
Transportation	$5,000
Transmission Line Costs	$2,500,000
Miscellaneous	$500,000
General & Administrative	$3,925,000
AFUDC	$2,500,000
Total Substation Network Upgrades w/ AFUDC	**$50,000,000**

* Estimated cost includes AFUDC and is in 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years. Tax gross-up does not apply based on present IRS rules. Transmission Owner plans to elect self-funding.

Schedule is dependent on outage availability, labor availability, equipment lead times and milestones in the Multi-Party Facilities Construction Agreement ("MPFCA") including receipt of acceptable financial security and what time of year the MPFCA is signed because of the effect on the available construction seasons.

See Section 4.1.2 Assumptions for more information.

7.7 A7 - Facilities to be Constructed by Interconnection Customer

None

7.8 A8 - Detailed Cost of Transmission Owner Facilities to be Constructed by Interconnection Customer

Not applicable

7.9 A9 - Facilities Subject to MISO Attachment FF

Upgrade Classification	Description of Upgrade	Cost Estimate ($)*
Non-Stand Alone Network Upgrade	Black Hawk Substation Add One 345 kV, 100 MVAR STATCOM and associated transmission line additions/relocations	$50,000,000
	Total	$50,000,000

* Estimated cost includes AFUDC and is in 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years. Tax gross-up does not apply based on present IRS rules. Transmission Owner plans to elect self-funding.

For Network Upgrades at 345 kV, ten percent (10%) of the total costs identified as Network Upgrades are eligible for reimbursement according to the existing provisions in Attachment FF of the MISO Open Access Transmission, Energy and Operating Reserve Markets Tariff. The cost estimate is the 100% cost estimate.

Since the Transmission Owner plans to elect self-funding, the Network Upgrade costs included in the FSA or MPFSA would reflect the ten percent (10%) reimbursement being effectively paid to the Interconnection Customer, subject to the terms of the FSA or MPFSA.

7.10 A10 - Contingent Facilities

MISO will provide this exhibit.

7.11 A11 - Interconnection Customer Milestones

Not Applicable

7.12 A12 - Construction and Coordination Schedules

Transmission Owner estimates that construction of the Network Upgrades described in this report can be completed approximately 36-42 months after the Interconnection Customers meet financial security requirements in the executed MPFCA. The proposed schedule is dependent on the time of year the MPFCA is executed as it affects the construction seasons available, timely receipt of all approvals associated with constructing the Transmission Owner Network Upgrades, higher queued projects, outage availability, equipment lead-time and labor resource availability. As previously mentioned, the availability of labor resources at reasonable costs is a concern as well as outage availability given the amount of work expected in Iowa and MISO West footprint. It is anticipated that outages will be restricted during the mid-May to mid-September period. No additional right-of-way is expected for this project. Long lead-time items include substation steel structures, circuit breakers, conductor and STATCOM.

1. Prepare preliminary engineering, procurement and construction ("EPC") documents
2. Order or reserve certain long lead equipment
3. Finalize EPC bid documents and issue project for bids
4. Review proposals and award bid
5. Commence STATCOM and capacitor switching study
6. Complete engineering
7. Review and submit all necessary permits for the project
8. Coordinate outages, material and resource availability
9. Begin construction
10. Complete project work

7.13 A13 - Permits, Licenses, Regulatory Approvals and Authorization

It is not expected that any required approvals will delay completion of this upgrade. Typical permits, licenses and approvals required to construct the Transmission Owner facilities may include, but are not limited to:

- Landowner easements – No additional easements assumed
- Local Building/Construction permit for substation
- County Engineer Approval – 1 to 2 months
- Local City Government Approval
- Iowa Department of Transportation
- Iowa Department of Natural Resources – 3 to 6 months
- Iowa Historical Society Review and Application – 1 to 2 months
- US Corps of Engineers Approval
- US Fish and Wildlife Approval
- Foreign Utility Conflicts Approval
- FAA Approval
- Iowa Utilities Board (Assumed not to be required.)

7.14 A14 - Interconnection and Operating Guidelines

Not Applicable

CRITICAL ENERGY INFRASTRUCTURE INFORMATION NOTICE

The materials contained in this document and attachments include Critical Energy Infrastructure Information ("CEII"). All materials designated as CEII must be handled and protected per the requirements in FERC CEII Policy. There may be additional requirements for CEII materials in the future.

Facilities Study
for
Montezuma Substation
Add One 345 kV, 100 MVAR Capacitor

Related to MISO Affected System Study Results
for
SPP DISIS 2017-001 Study

Submitted by
MidAmerican Energy Company

December 2022

1.1 Project Summary

MidAmerican Energy Company ("MidAmerican" or "Transmission Owner") was retained by MISO ("Transmission Provider") to perform a facilities study for the upgrades necessary to add one 345 kV, 100 MVAR capacitor at Montezuma Substation as a result of the MISO Affected System Study for SPP DISIS 2017-001. Montezuma Substation is operated by Transmission Owner and jointly owned with ITC Midwest with undivided ownership interests as tenants in common. Transmission Owner would complete the upgrades as operator of the substation. The following table summarizes the estimated cost and estimated project duration for Transmission Owner's upgrade. These Transmission Owner facilities were identified as Network Upgrades.

Updates to this facilities study may be necessary to reflect 1) effects of the required upgrades identified in restudies of the MISO Affected System Study for SPP DISIS 2017-001 steady state and stability studies, 2) changes in information from the Interconnection Customers, 3) updates or restudies made to previously completed DPP studies or DISIS studies and/or 4) results of any Optional Studies being performed for the Interconnection Customers. The following table summarizes the estimated costs of the Network Upgrade.

Table 1-1. Cost Estimate of Network Upgrades

Upgrade Classification	Description of Upgrade	Cost Estimate ($)*
Non-Stand Alone Network Upgrade	Montezuma Substation Add One 345 kV, 100 MVAR Capacitor	$6,000,000
	Total	$6,000,000

* Estimated cost includes AFUDC and is in 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years. Tax gross-up does not apply based on present IRS rules. Transmission Owner plans to elect self-funding.

1.2 Election to Transmission Owner self-fund of Network Upgrades

Transmission Owner plans to self-fund these Network Upgrades described in this facilities study. As a result, the Interconnection Customers would provide suitable financial security such as a parent guaranty, letter of credit or surety bond as part of the MPFCA. Later, the Interconnection Customers and Transmission Owner would enter into a Facilities Services Agreement ("FSA") or a Multi-Party FSA ("MPFSA") covering the payments for the Transmission Owner's share of the Network Upgrades. Interconnection Customers would also enter similar agreements with ITC Midwest for their share of the Network Upgrades.

2 Transmission Owner Interconnection Facilities

Not Applicable

3 Stand Alone Network Upgrades

None

4 Non-Stand Alone Network Upgrades

Network Upgrades to be installed by Transmission Owner

4.1 Montezuma Substation Add One 345 kV, 100 MVAR Capacitor

4.1.1 Overview

The MISO Affected System Study for SPP DISIS 2017-001 study showed the need for capacitive VAR support at Montezuma Substation to increase voltages in the area to mitigate the impacts of the Interconnection Customers on the system. The Montezuma Substation was reviewed to determine the potential placement of one 345 kV, 100 MVAR capacitor including the expansion needed to accommodate the capacitor. If a MISO Affected System Study for SPP DISIS 2017-001 restudy required a different amount of capacitance at Montezuma Substation, then a revised or new facilities study would be required.

The review did not include a capacitor bank switching analysis or a harmonic frequency scan analysis. Such analyses will be completed as part of the design process should this project proceed.

The substation is operated by Transmission Owner and jointly owned with ITC Midwest with undivided ownership interests as tenants in common. Transmission Owner owns 52% and ITC Midwest owns 48%. The upgrades would be jointly owned by the existing owners, as tenants in common, consistent with the existing agreements that govern the Montezuma Substation and be operated by Transmission Owner. Transmission Owner would work as agent for ITC Midwest in constructing the new facilities. Prior to the Transmission Owner substation project being closed to charges, ITC Midwest will likely pay Transmission Owner for 48% of the Network Upgrade charges related to ITC Midwest's ownership share.

The scope of the substation work assumed in the estimated cost and schedule for the 345 kV capacitor installation at Montezuma Substation includes one 345 kV, 100 MVAR capacitor, switching breaker, disconnect switches, control and relaying, steel support structures and expanding the yard.

The substation upgrades are estimated to cost $6,000,000 in year 2022 U.S. dollars +/- 20% and does not include the effects of inflation or escalation to future years and are described below and shown in preliminary drawing in Exhibits A4.

4.1.2 Assumptions

- It is assumed outages to complete the Network Upgrades will be granted when requested to meet project schedule.
- It is assumed based on the present tax laws in effect at the time of this study that tax gross-up would not apply and is not included in the cost estimates.
- It is assumed labor resources and equipment will be available at reasonable costs. For example, low unemployment rates and significant amounts of transmission and

substation project work related to new wind and solar farm interconnections requesting to be eligible for the Federal Production Tax Credit ("PTC"), the Infrastructure Investment and Jobs Act ("IIJA") and other initiatives may drive costs significantly higher and affect schedule.

- It is assumed that timely receipt of financial security will be provided by all the Interconnection Customers.
- It is assumed that the capacitor bank switching analysis and harmonic frequency scan analysis that will be completed as part of the design process will not result in significant changes to the project scope.
- The results of recent DPP studies and Affected System Studies have required numerous capacitor banks in eastern Iowa to improve system voltage, it is assumed that these installations will not have negative interactions with each other.
- The capacitor addition requires an expansion of the substation yard and acquisition of additional land to the west or to the south of the substation. For the purposes of the cost estimate, it is assumed this land can be obtained. If additional land is also needed to meet governmental setback or other requirements, it is assumed additional land can be purchased. No land costs are included in the estimate, but it is assumed it can be obtained at a reasonable cost. This is a preliminary design that is subject to change during detailed design stage should the Interconnection Customers proceed further.

4.1.3 Structure and Foundation

Yard Development

- Grading and expansion of yard
- Installation of additional station ground grid system
- Installation of additional substation yard rock surfacing
- Installation of additional below grade control conduit and manhole system
- Modification and installation of high security fence

Steel Structures

- Support structures for 345 kV switching breaker, manual breaker 345 kV disconnect switch, CCVT, shield masts, 345 kV bus work
- Drilled pier foundations will be used for all equipment support structures as design permits

4.1.4 Major Items

345 kV Capacitor Bank

- One (1) 345 kV, nominal 100 MVAR capacitor
- Capacitor will have an inrush/outrush reactor sized as per IEEE Standard C37.06
- Includes installing foundations, support structures, arresters

345 kV Gas Circuit Breakers

- One (1) 345 kV, SF6 gas circuit breakers rated 3000 A, 50 kA interrupting capability, with synchronous closing
- Includes installing foundations, control conduit to the circuit breaker, jumpers to the associated disconnect switch and control cable to the control building

345 kV Disconnect Switches

- One (1) disconnect switch rated 345 kV, 3000 A continuous, 100 kA momentary, 1300 kV BIL is required to allow isolation of the capacitor
- Includes installing foundations and support structures

345 kV Rigid Aluminum Bus

- The main bus additions will be aluminum rigid tubular bus

4.1.5 SCADA and Communications

- Updates to RTU and SCADA for capacitor and breaker addition

4.1.6 Protection and Control

345 kV Relay/Control/Metering Panels

- One (1) protection panel for capacitor bank, SEL-487V or equivalent
- Includes installing the panels in the control building, connection of control cable wiring, checkout and commissioning of the associated systems
- Includes modification to other protection panels

4.1.7 Price

The cost estimate for Network Upgrades is $6,000,000 in year 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years.

5 System Protection Facilities constructed by Transmission Owner

None

6 Distribution Upgrades

None

7 Exhibits

7.1 A1 - Interconnection Customer One Line and Site Map

A1-1 One-line Diagram for IC Project

A1-2 Site Map for IC Project

Not Applicable

7.2 A2 - Transmission Owner One Line

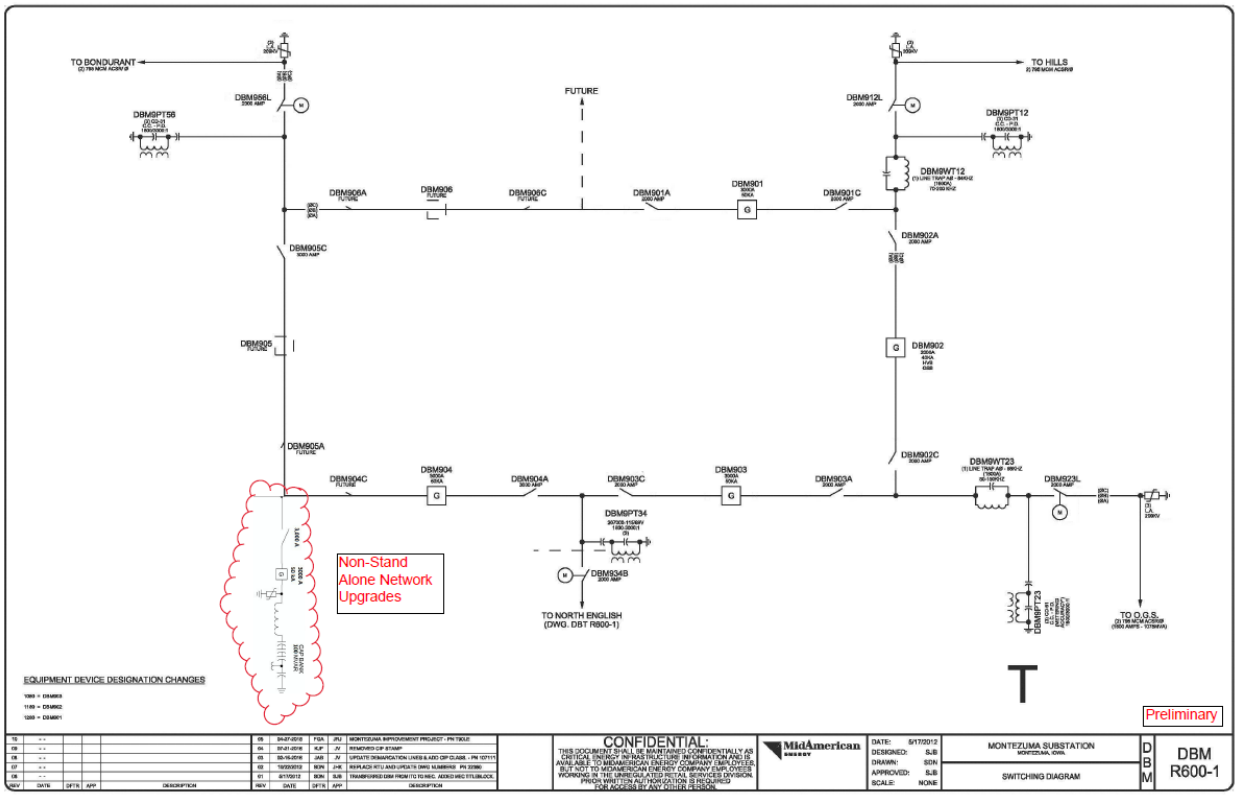
Not Applicable

7.3 A3 - Site Plans or General Arrangement Drawing

Not Applicable

7.4 A4 – Network Upgrade Plan and Profile

Montezuma Substation: Expansion to Add One 345 kV, 100 MVAR Capacitor



7.5 A5 - Facilities to be Constructed by Transmission Owner

Upgrade Classification	Description of Upgrade	Cost Estimate ($)*
Non-Stand Alone Network Upgrade	Montezuma Substation Add One 345 kV, 100 MVAR Capacitor	$6,000,000
	Total	$6,000,000

* Estimated cost includes AFUDC and is in 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years. Tax gross-up does not apply based on present IRS rules. Transmission Owner plans to elect self-funding.

7.6 A6 - Detailed Cost of Facilities to be Constructed by Transmission Owner

Table A6-1 Construct Transmission Owner Interconnection Facilities

Not Applicable

Table A6-2 Construct Stand Alone Network Upgrade
Not Applicable

Table A6-3 Construct Non-Stand Alone Network Upgrade

Montezuma Substation Add One 345 kV, 100 MVAR Capacitor
Network Upgrade Estimate

Description	Cost Estimate ($)*
Stores (arresters, insulators, conductor, etc)	$125,000
Substation Steel, Bus, Connectors	$175,000
Capacitors	$500,000
Disconnect Switches	$30,000
Circuit Breakers	$350,000
Instrument Transformers	$50,000
Control & Metering	$125,000
Civil (foundations, raceways, grounding, yard)	$1,200,000
Consultant Design Labor & Project Management	$250,000
Contractor Labor & Commissioning	$1,800,000
Company Labor	$130,000
Transportation	$5,000
Miscellaneous	$500,000
General & Administrative	$530,000
AFUDC	$230,000
Total Substation Network Upgrades w/ AFUDC	**$6,000,000**

* Estimated cost includes AFUDC and is in 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years. Tax gross-up does not apply based on present IRS rules. Transmission Owner plans to elect self-funding.

Schedule is dependent on outage availability, labor availability, equipment lead times and milestones in the Multi-Party Facilities Construction Agreement ("MPFCA") including receipt of acceptable financial security and what time of year the MPFCA is signed because of the effect on the available construction seasons.

See Section 4.1.2 Assumptions for more information.

7.7 A7 - Facilities to be Constructed by Interconnection Customer

None

7.8 A8 - Detailed Cost of Transmission Owner Facilities to be Constructed by Interconnection Customer

Not applicable

7.9 A9 - Facilities Subject to MISO Attachment FF

Upgrade Classification	Description of Upgrade	Cost Estimate ($)*
Non-Stand Alone Network Upgrade	Montezuma Substation Add One 345 kV, 100 MVAR Capacitor	$6,000,000
	Total	$6,000,000

* Estimated cost includes AFUDC and is in 2022 U.S. dollars +/-20% and does not include the effects of inflation or escalation to future years. Tax gross-up does not apply based on present IRS rules. Transmission Owner plans to elect self-funding.

For Network Upgrades at 345 kV, ten percent (10%) of the total costs identified as Network Upgrades are eligible for reimbursement according to the existing provisions in Attachment FF of the MISO Open Access Transmission, Energy and Operating Reserve Markets Tariff. The cost estimate is the 100% cost estimate.

Since the Transmission Owner and ITC Midwest plan to elect self-funding, the Network Upgrade costs included in the FSAs or MPFSAs would reflect the ten percent (10%) reimbursement being effectively paid to the Interconnection Customer, subject to the terms of the FSAs or MPFSAs. Interconnection Customers would enter into separate FSAs or MPFSAs with Transmission Owner and ITC Midwest for their share of the Network Upgrades.

7.10 A10 - Contingent Facilities

MISO will provide this exhibit.

7.11 A11 - Interconnection Customer Milestones

Not Applicable

7.12 A12 - Construction and Coordination Schedules

Transmission Owner estimates that construction of the Network Upgrades described in this report can be completed approximately 30-36 months after the Interconnection Customers meet financial security requirements in the executed MPFCA. The proposed schedule is dependent on the time of year the MPFCA is executed as it affects the construction seasons available, timely receipt of all approvals associated with constructing the Transmission Owner Network Upgrades, higher queued projects, outage availability, equipment lead-time and labor resource availability. As previously mentioned, the availability of labor resources at reasonable costs is a concern as well as outage availability given the amount of work expected in Iowa and MISO West footprint. It is anticipated that outages will be restricted during the mid-May to mid-September period. No additional right-of-way is expected for this project. However, the project requires an expansion of the substation yard and acquisition of additional land to the west or to the south of the substation. It is assumed this land can be obtained timely and at a reasonable cost. Long lead-time items include substation steel structures, circuit breaker/capacitor switching device.

1. Begin preparing preliminary engineering, procurement and construction ("EPC") documents
2. Order or reserve certain long lead equipment
3. Finalize EPC bid documents and issue project for bids
4. Review proposals and award bid
5. Commence capacitor switching study
6. Review and submit all necessary permits for the project
7. Coordinate outages, material and resource availability
8. Begin construction
9. Complete project work

7.13 A13 - Permits, Licenses, Regulatory Approvals and Authorization

It is not expected that any required approvals will delay completion of this upgrade. However, the project requires an expansion of the substation yard and acquisition of additional land to the west or to the south of the substation. It is assumed this land can be obtained timely.

Typical permits, licenses and approvals required to construct the Transmission Owner facilities may include, but are not limited to:

- Landowner easements – No additional easements assumed
- Local Building/Construction permit for substation
- County Engineer Approval – 1 to 2 months
- Local City Government Approval
- Iowa Department of Transportation
- Iowa Department of Natural Resources – 3 to 6 months
- Iowa Historical Society Review and Application – 1 to 2 months
- US Corps of Engineers Approval
- US Fish and Wildlife Approval
- Foreign Utility Conflicts Approval
- FAA Approval
- Iowa Utilities Board (Assumed not to be required.)

7.14 A14 - Interconnection and Operating Guidelines

Not Applicable