



**INTERCONNECTION
FACILITIES STUDY
REPORT**

GEN-2018-056

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By SPP Generator Interconnections Dept.

REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION
February 14, 2024	SPP	Initial draft report issued.

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SUMMARY

INTRODUCTION

This Interconnection Facilities Study (IFS) for Interconnection Request GEN-2018-056 is for a 102.6 MW generating facility located in Knox/Holt, NE. The Interconnection Request was studied in the DISIS-2018-001 Impact Study for ER/NR. The Interconnection Customer's requested in-service date is December 31, 2028.

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 Twenty-eight (28) 3.66 MW Inverters for a total generating nameplate capacity of 102.6 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 345 kV transformation substation with associated 34.5 kV and 345 kV switchgear;
- One 345/34.5 kV 102/136/225 MVA (ONAN/ONAF/ONAF) step-up transformer to be owned and maintained by the Interconnection Customer at the Interconnection Customer's substation;
- An Approximately 2 miles overhead kV line to connect the Interconnection Customer's substation to the Point of Interconnection ("POI") at the 345 kV bus at existing Transmission Owner substation ("Grand Prairie 345kV") 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 (\$)
<u>Transmission Owner’s Fort Thompson-Grand Island (Grand Prairie) 345kV GEN-2018-056 Interconnection (TOIF) (WAPA) (UID156028): Facilitate the interconnection of GEN-2018-056</u> <u>Estimated Lead Time: 67 Months</u>	\$430,000	100.00%	\$430,000
Total	\$430,000		\$430,000

Table 2: Non-Shared Network Upgrade(s)

Non-Shared Network Upgrades Description	ILTCR	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)
<u>Transmission Owner’s Raise Spans on Holt Co to Grand Island 345 kV (UID158561): Raise spans on the existing Holt Co to Grand Island 345 kV 82.3 mile line with a minimum summer emergency rating of 844 MVA</u> <u>Estimated Lead Time: 44 Months</u>	Eligible	\$1,537,000	100.00%	\$1,537,000
<u>Transmission Owner’s Build a 50 MVAR STATCOM at GR PRAIRIE 345 kV (UID158562): Install a 50 MVAR STATCOM at the GR PRAIRIE 345 kV substation</u> <u>Estimated Lead Time: 92 Months</u>	Eligible	\$47,180,000	100.00%	\$47,180,000

Non-Shared Network Upgrades Description	ILTCR	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)
<u>Transmission Owner's Fort Thompson-Grand Island (Grand Prairie) 345kV Line Tap (DISIS-2018-001) (UID156029): Facilitate the interconnection of GEN-2018-056 Estimated Lead Time: 67 Months</u>	Ineligible	\$4,530,000	100.00%	\$4,530,000
Total		\$53,247,000		\$53,247,000

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 (\$)
<u>NA</u>				
Total				

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
NPPD's Gentleman to Cherry County and Cherry County to Holt new 345 kV line (UIDNTC 200220): Build approximately 110 miles of new 345kV line from Gentleman to Cherry County and 117 miles from Cherry County to Holt County Estimated Lead Time: NTC 200220 Months	\$0	12/31/2026

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 (\$)
<u>NA</u>			
Total			

CONCLUSION

After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 102.6 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 Facilities Upgrade(s)	\$430,000
Non-Shared Network Upgrade(s)	\$53,247,000
Shared Network Upgrade(s)	\$0
Affected System Upgrade(s)	\$0
Total	\$53,677,000

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).

Interconnection Facilities Study Report

*Southwest Power Pool, Inc. (SPP) Generator
Interconnection Request GEN-2018-056*

(DISIS-2018-001)



**Western Area
Power Administration**

Upper Great Plains Region (WAPA-UGP)

December 2023





1.0 Background:

The Western Area Power Administration Upper Great Plains Region (WAPA-UGP¹) 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 Knox and Holt Counties, Nebraska to WAPA-UGP's Grand Prairie Switching Station. SPP generator interconnection request GEN-2018-056 represents a 102.6 MW nameplate solar generation facility with the Point of Interconnection (POI) at the 345-kV bus of WAPA-UGP's Grand Prairie Switching Station.

The Generating Facility's collector substation will be located in close proximity to the proposed POI at WAPA-UGP'S Grand Prairie Switching Station. The collector station will consist of a 345/34.5-kV transformer and multiple 34.5-kV feeders. The Interconnection Customer (IC) will construct, own, and maintain a 2 mile long 345-kV tie-line between the collector substation and WAPA-UGP's Grand Prairie Switching Station. The POI will be at the 345-kV bus at WAPA-UGP's Grand Prairie Switching Station. The Point of Change of Ownership between IC and WAPA-UGP will be at the points where IC's 345-kV conductors, jumpers, and insulators connect to WAPA-UGP's 345-kV take-off structure and the rigid bus underhung from the 345-kV take-off structure, as illustrated in Attachment B.

This 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 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.
- 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.

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



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 Upgrades by WAPA-UGP: WAPA-UGP has determined that following additions are required to maintain a safe and reliable interconnection to WAPA-UGP's transmission system:

- A 345-kV line bay addition at WAPA-UGP's Grand Prairie Switching Station to the ring bus which will require one (1) 345-kV power circuit breaker, three (3) 345-kV disconnect switches, instrument transformers, associated control and protection equipment, high voltage bus, one (1) transmission line take-off-structure, conductor, and communication equipment.

WAPA-UGP's estimated cost for labor, overhead, equipment, construction, and other miscellaneous costs for the additions to WAPA-UGP's Grand Prairie Switching Station are outlined in Attachment A. The total cost is estimated at \$4,960,000.

3.1.1 Transmission Owner's Interconnection Facilities (TOIF): Equipment installed by WAPA-UGP for the sole purpose of this interconnection is considered TOIF. TOIF includes equipment between of the POI and Point of Change of Ownership, interrogation, and communication equipment, and are considered direct assigned costs to the IC and not subject to inclusion as Network Upgrades. The direct assigned costs for TOIF are estimated at \$430,000.

3.1.2 Non-Shared Network Upgrades constructed by Transmission Owner (TO): Non-shared Network Upgrades to be designed, procured, constructed, installed, and owned by WAPA-UGP are the cost responsibility of the IC. This includes the new WAPA owned 345-kV line bay at WAPA-UGP's Grand Prairie Switching Station. The cost estimate for the Network Upgrades constructed by the TO is \$4,530,000. Based on WAPA-UGP's understanding of the SPP Tariff, these Non-Shared Network Upgrades are considered 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, as TO, will need to execute a GIA (or initially an Interim GIA, if applicable, with a subsequent execution of a GIA) with the IC 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 IC and WAPA-UGP for review and signature. A payment schedule based on design, procurement, and construction activities will be included in the GIA consistent with the SPP Tariff provisions. Upon completion of the work WAPA-UGP will own, operate, and maintain the modifications and improvements to WAPA-UGP's Grand Prairie Switching Station.

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.

IC shall install metering at their 345/34.5-kV collector substation in accordance with SPP and WAPA-UGP metering requirements. WAPA-UGP's generation metering requirements, as the TO, must be also met, unless specific SPP 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>

WAPA-UGP'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 IC 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 IC's Request. WAPA-UGP anticipates the new 345-kV line bay at Grand Prairie Switching Station would be completed by September 2029. This schedule is based on the GIA (or Interim GIA) being executed prior to March 15, 2024, and issuance of the NEPA Finding of No Significant Impact or Record of Decision by December 1, 2025. The schedule is also dependent on outage availability.

3.6 Environmental Review:

WAPA-UGP is a federal agency under the U.S. Department of Energy and is subject to the National Environmental Policy Act (NEPA), 42 U.S.C §4321, et seq., as amended. 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, will be coordinated between WAPA-UGP and the IC. WAPA-UGP anticipates an Environmental Assessment level of NEPA review. The Environmental Review is performed at the IC's expense, and those costs are considered direct assigned costs and are ineligible for credits under the SPP Tariff. Until the appropriate NEPA review is completed (issuance of a FONSI, ROD, or other), no construction activities relating to the TO's TOIF and Network Upgrades may commence.

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

345-KV LINE BAY ADDITION AT WAPA-UGP'S GRAND PRAIRIE SWITCHING STATION

PROJECT ACTIVITY	ESTIMATED START DATE	ESTIMATED COST, MILESTONE PAYMENT DUE
Preconstruction activities – planning, project management, etc.	30 Calendar Days Following GIA Execution*	\$100,000
Provide staff and other resources to engineer, design, and plan construction	30 Calendar Days Following GIA Execution*	\$280,000
Procure equipment, parts, and control equipment necessary to construct	November 1, 2024**	\$1,450,000
Development, Solicitation, and Award of Construction Contract(s)	March 1, 2026	\$2,825,000
WAPA-UGP Construction Administration	May 1, 2027	\$75,000
Commissioning, Energization, and construction supervision	April 1, 2029	\$230,000
In-Service (Estimated Completion Date)	September 30, 2029	
TOTAL ESTIMATED COSTS		\$4,960,000***

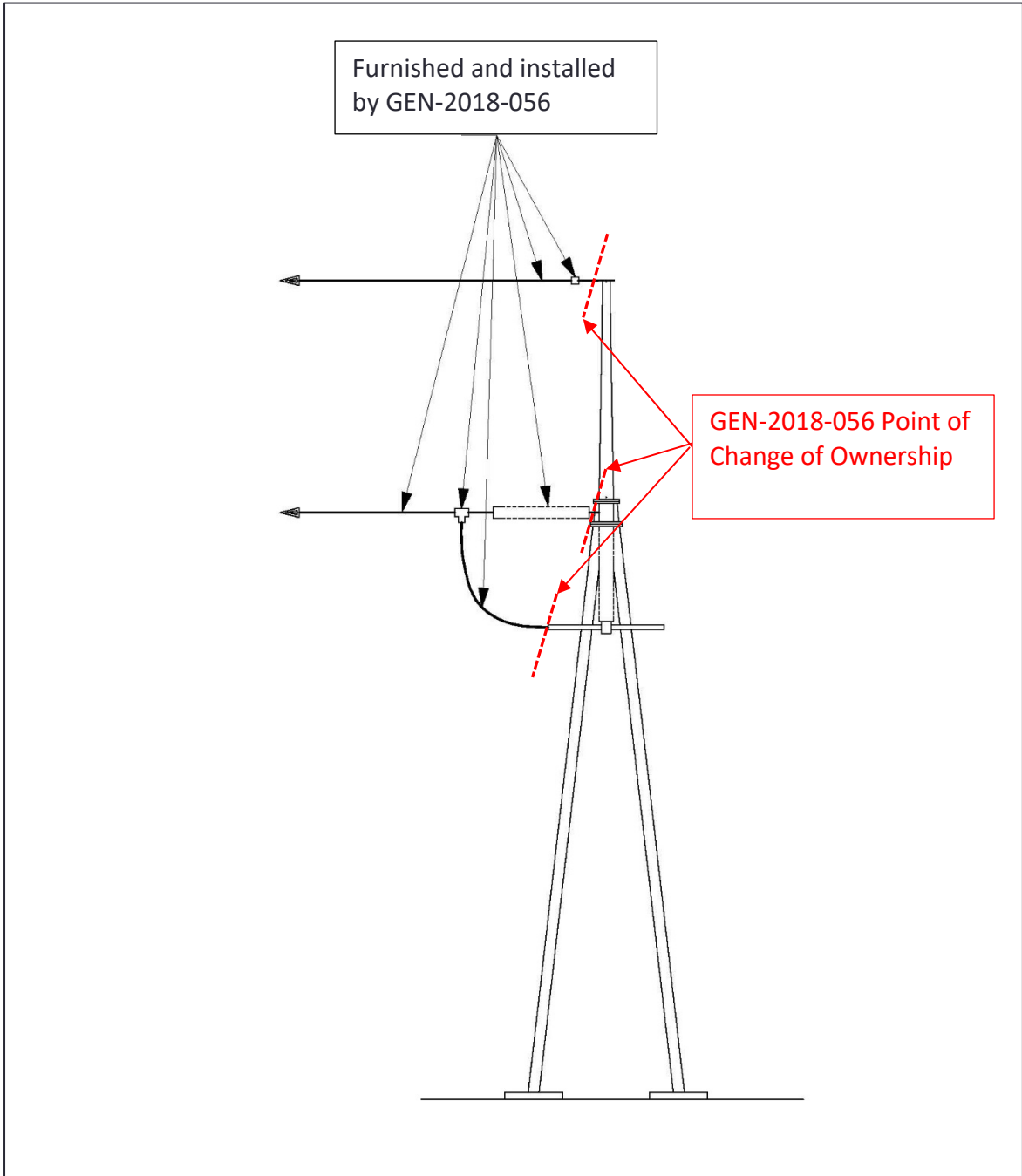
*Assumes Execution of GIA NLT March 15, 2024.

**Assumes 345-kV breaker lead time of 222 weeks after purchase award.

***Includes TOIF costs estimated at \$430,000 and Non-Shared Network Upgrades constructed by Transmission Owner costs estimated at \$4,530,000.



ATTACHMENT B



Network Upgrade Facilities Study Report

*Southwest Power Pool, Inc. DISIS-2018-001
Grand Prairie 345-kV
STATCOM Addition*

(DISIS-2018-001)



**Western Area
Power Administration**

Upper Great Plains Region (WAPA-UGP)

February 2024





1.0 Background:

The Western Area Power Administration Upper Great Plains Region (WAPA-UGP¹) received a request from for a Network Upgrade Facilities Study in accordance with the Southwest Power Pool Inc. (SPP) Open Access Transmission Tariff (Tariff). The SPP DISIS-2018-001 study identified the need to install a 50 MVAR STATCOM at WAPA-UGP's Grand Prairie 345-kV Switching Station. WAPA-UGP's understanding is that this Network Upgrade has been 100% allocated to SPP generator interconnection request GEN-2018-056. GEN-2018-056 is a 102 MW solar farm with Point of Interconnection at WAPA-UGP's Grand Prairie 345-kV Switching Station.

This Network Upgrade Facilities Study does not address transmission service or any delivery component of transmission service.

2.0 Study Requirements:

This 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.
- 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 Upgrades by WAPA-UGP:** WAPA-UGP's planning group determined a 150 MVAR STATCOM is required to meet SPP Upper Missouri Zone's (UMZ or Zone 19) targeted design criteria of a 3% impact to the system voltage when sizing a static or dynamic reactive device. WAPA-UGP has determined the following additions are required accommodate and

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



maintain a safe and reliable addition of a 150 MVAR STATCOM to WAPA-UGP's transmission system:

- Conversion of the 4-breaker ring bus configuration to a breaker and half bus configuration to accommodate the 150 MVAR STATCOM addition
 - Four 345-kV circuit breakers, eight disconnect switches, three Coupling Capacitor Voltage Transformers (CCVT), control panel, relays, and other associated equipment and materials
- 150 MVAR STATCOM addition
 - Yard expansion and addition of a new control building
 - Two Step-up 345/24.5-kV transformers

WAPA-UGP's estimated costs for labor, overhead, equipment, construction, and other miscellaneous costs for the additions to WAPA-UGP's Grand Prairie 345-kV Switching Station to accommodate this Network Upgrade are outlined in Attachment A. The total cost is estimated at \$47,180,000.

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 the Interconnection Customer (IC) responsible for the interconnection of the Generating Facility responsible for this Network Upgrade outlined in Paragraph 3.1. The GIA will address specific funding requirements and provide a payment schedule for this Network Upgrade to address WAPA-UGP's requirements. The GIA, which discusses the construction and interconnection aspects of this Network Upgrade, will need to be developed by SPP, pursuant to their obligations and procedures under the SPP Tariff, and forwarded to the IC and WAPA-UGP for review and signature. A payment schedule based on design, procurement, and construction activities will be included in the GIA consistent with the SPP Tariff provisions. The IC will be responsible for the actual costs for this Network Upgrade at WAPA-UGP's Grand Prairie 345-kV Switching Station. WAPA-UGP will require advance funding to proceed with the Network Upgrade. Upon completion of the work WAPA-UGP will own, operate, and maintain the modifications and improvements to WAPA-UGP's Grand Prairie 345-kV Switching Station.

3.3 Interconnection/Control Area Requirements: N/A

3.4 Schedule:

Attachment A outlines WAPA-UGP's estimated schedule for planning, design and construction of the facilities required to accommodate the necessary Network Upgrades. WAPA-UGP anticipates completion of these Network Upgrades at WAPA-UGP's Grand Prairie 345-kV Switching Station by December 2031. This is based on the GIA (or Interim GIA) being executed prior to March 15, 2025, and issuance of the NEPA Finding of No Significant Impact or Record of Decision by February 28, 2026. The schedule is also dependent on outage availability.



3.5 Environmental Review:

WAPA-UGP is a federal agency under the U.S. Department of Energy and is subject to the National Environmental Policy Act (NEPA), 42 U.S.C §4321, et seq., as amended. 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, will be coordinated between WAPA-UGP and the customer. WAPA-UGP anticipates an Environmental Assessment level of NEPA review. The Environmental Review is performed at the IC's expense, and those costs are considered direct assigned costs and are ineligible for credits under the SPP Tariff. Until the appropriate NEPA review is completed (issuance of a FONSI, ROD, or other), no construction activities relating to this Network Upgrade and the associated upgrades may commence.

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

**STATCOM ADDITION TO WAPA-UGP'S GRAND PRAIRIE
345-KV SWITCHING STATION**

PROJECT ACTIVITY	ESTIMATED START DATE	ESTIMATED COST, MILESTONE PAYMENT DUE
Preconstruction activities – planning, project management, etc.	30 Calendar Days Following GIA Execution*	\$500,000
Provide staff and other resources to engineer, design, and plan construction		\$1,000,000
Procure equipment, parts, and control equipment necessary to construct	Nov 15, 2025	\$3,500,000
Development, Solicitation, and Award of Construction Contract for yard expansion and breaker and a half conversion		\$11,000,000
Development, Solicitation, and Award of Turnkey STATCOM Contract which includes the control building and power transformers	Nov 1, 2027	\$30,000,000
WAPA-UGP Construction Administration	Jun 1, 2028	\$180,000
Commissioning, Energization, and construction supervision		\$1,000,000
In-Service (Estimated Completion Date)	Dec 15, 2031*	
TOTAL ESTIMATED COSTS		\$47,180,000

*Assumes Execution of GIA NLT March 15, 2025.



Network Upgrade Facilities Study Report

*Southwest Power Pool, Inc. DISIS-2018-001
Holt County-Grand Island 345-kV
Span Raises*

(DISIS-2018-001)



**Western Area
Power Administration**

Upper Great Plains Region (WAPA-UGP)

December 2023





1.0 Background:

The Western Area Power Administration Upper Great Plains Region (WAPA-UGP¹) received a request from for a Network Upgrade Facilities Study in accordance with the Southwest Power Pool Inc. (SPP) Open Access Transmission Tariff (Tariff). The SPP DISIS-2018-001 study identified the need to increase the rating of the WAPA-UGP Holt County-Grand Island 345-kV Transmission Line. WAPA-UGP's understanding is that this Network Upgrade has been 100% allocated to SPP generator interconnection request GEN-2018-056, and that the Point of Interconnection (POI) for GEN-2018-056 will be at WAPA-UGP's Grande Prairie Switchyard.

This Network Upgrade Facilities Study does not address transmission service or any delivery component of transmission service.

2.0 Study Requirements:

This 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.
- 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 Upgrades by WAPA-UGP:** WAPA-UGP has determined that following additions are required to maintain a safe and reliable interconnection to WAPA-UGP's transmission system:

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



- Raise Span between structures 223/4 and 223/5 on WAPA-UGP's Holt County-Grand Island 345-kV Transmission Line

The line upgrade will achieve the required rating of 844 MVA.

WAPA-UGP is not the Transmission Owner (TO) of the Holt County Substation terminal equipment and bus.

WAPA-UGP's estimated cost for labor, overhead, materials, construction, and other miscellaneous costs to raise the span on WAPA-UGP's Holt County-Grand Island 345-kV Transmission Line is outlined in Attachment A. The total cost is estimated at \$1,537,000.

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 the Interconnection Customer(s) (IC) responsible for the interconnection of the Generating Facility(ies) responsible for this Network Upgrade and the associated upgrades outlined in Paragraph 3.1. 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 IC and WAPA-UGP for review and signature. A payment schedule based on design, procurement, and construction activities will be included in the GIA consistent with the SPP Tariff provisions. The IC will be responsible for the actual costs for this Network Upgrade on WAPA-UGP's Holt County-Grand Island 345-kV Transmission Line and WAPA-UGP will require advance funding to proceed with the project. Upon completion of the work WAPA-UGP will own, operate, and maintain the modifications and improvements to WAPA-UGP's Holt County-Grand Island 345-kV Transmission Line.

3.3 Interconnection/Control Area Requirements: N/A

3.4 Schedule:

Attachment A outlines WAPA-UGP's estimated schedule for planning, design and construction of the facilities required to accommodate the necessary Network Upgrades. WAPA-UGP anticipates the Network Upgrades on the Holt County-Grand Island 345-kV Transmission Line would be completed by November 2027. This schedule is based on the GIA (or Interim GIA) being executed prior to March 15, 2024, and issuance of the NEPA Finding of No Significant Impact or Record of Decision by December 1, 2025. The schedule is also dependent on outage availability.

3.5 Environmental Review:

WAPA-UGP is a federal agency under the U.S. Department of Energy and is subject to the National Environmental Policy Act (NEPA), 42 U.S.C §4321, et seq., as amended. 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, will be coordinated between WAPA-UGP and the customer. WAPA-UGP anticipates an Environmental Assessment level of NEPA review. The Environmental Review is performed at the IC's expense, and those costs are considered direct assigned costs and are ineligible for credits under the SPP Tariff. Until the appropriate NEPA review is completed (issuance of a FONSI, ROD, or other), no construction activities relating to this Network Upgrade and the associated upgrades may commence.

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

WAPA-UGP’S HOLT COUNTY-GRAND ISLAND 345-KV TRANSMISSION LINE SPAN RAISE

PROJECT ACTIVITY	ESTIMATED START DATE	ESTIMATED COST, MILESTONE PAYMENT DUE
Preconstruction activities – planning, project management, etc.	30 Calendar Days Following GIA Execution*	\$60,000
Provide staff and other resources to engineer, design, and plan construction	30 Calendar Days Following GIA Execution*	\$100,000
Procure equipment, parts, and control equipment necessary to construct	Nov 15, 2024	\$565,000
Development, Solicitation, and Award of Construction Contract(s)	November 1, 2025	\$660,000
WAPA-UGP Construction Administration	June 1, 2026	\$50,000
Commissioning, Energization, and construction supervision	June1, 2026	\$102,000
In-Service (Estimated Completion Date)	Nov 15, 2027	
TOTAL ESTIMATED COSTS		\$1,537,000**

*Assumes Execution of GIA NLT March 15, 2024.

**Based on WAPA-UGP’s understanding of the SPP Tariff, these Network Upgrades are considered Capacity Network Upgrades and would be evaluated under Attachment Z2 of the SPP Tariff as Capacity Network Upgrades.

