



# **AFFECTED SYSTEM FACILITIES STUDY REPORT**

MPC03800 – MPC04000

Bismarck – Ward 230 kV  
Transmission Line Upgrade

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By SPP Generator Interconnections Dept.

# REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION
October 6, 2023	SPP	Final report issued.

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## SUMMARY

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### INTRODUCTION

The Affected System Transmission Owner, Western Area Power Administration Upper Great Plains Region (WAPA-UGP), performed a detailed Affected System Interconnection Facilities Study (ASIFS) at the request of SPP for Non-Shared Network Upgrade(s) assigned in the SPP Generator Interconnection Affected System Impact Study for Minnkota Power Cooperative (MPC) Interconnection Requests MPC03800 (250 MW), MPC03900 (151.2 MW) , and MPC04000 (300 MW). The scope of the IFS is defined in the Generator Interconnection Procedures (GIP) under Attachment V of the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT). Affected System Generator Interconnection Request(s) (ASGIs) that have cost allocation responsibilities for assigned Network Upgrade(s) will require the assigned Network Upgrade(s) to be in-service for full Interconnection Service. The request for interconnection was placed with SPP in accordance with SPP's OATT, which covers new generator interconnections on SPP's transmission system. Based SPP Affected System Impact Study for MPC 03800-04000 results, the following Upgrade(s) are needed:

- Increase the rating of the WAPA-UGP's Bismarck-Ward 230-kV transmission line to a minimum of 345 MVA.

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.

**AFFECTED SYSTEM GENERATOR INTERCONNECTION REQUEST(S)**

The ASGI(s) assigned the Shared Network Upgrade(s) are listed in the corresponding Tables 1. **Table 1**

*Table 1: Affected System Generator Interconnection Requests for Network Upgrade(s)*

ASGI Request Number	Point of Interconnection (POI)	Capacity (MW)
MPC03800	Center-Prairie 345 kV Line	250
MPC03900	Center-Prairie 345 kV Line	151.2
MPC04000	Square Butte 230 kV Substation	300

**NON-NETWORK UPGRADE(S) FACILITIES DESCRIPTIONS AND COSTS**

**Table 2** lists Non-Network Upgrade(s) description, costs, and provides an estimated lead time for completion of construction. The estimated lead time begins when the Construction Agreement (CA) has been fully executed.

Non-Network Upgrade(s) Cost Allocation by each ASGI(s) responsibility is shown in the **Appendix A**.

*Table 2: Non-Network Upgrade(s)*

TOIF and Non-Shared Network Upgrade Description	Allocated Cost Estimate (\$)	Estimated Lead Time
<b><u>Ward to Bismark 230 kV Structure Replacements (MPC03800-MPC04000) (WAPA) (157176):</u></b> Replace three steel transmission line structures to accommodate two span raises.	\$1,840,000	36 Months
<b>Total</b>	<b>\$1,840,000</b>	<b>36 Months</b>

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.

## CONCLUSION

The Network Upgrade(s) listed in this Interconnection Facilities Study are required for full Interconnection Service for the ASGIs listed in **Table 1**. Interconnection Service will be delayed until the Non-Network Upgrade(s) listed in **Table 2** are constructed. The Non-Network Upgrades is summarized in the table below.

Description	Allocated Cost Estimate (\$)
Ward to Bismark 230 kV Structure Replacements (MPC03800-MPC04000) (WAPA) (157176)	\$1,840,000

A draft CA will be provided to the Interconnection Customer consistent with the final results of this ASIFS report. The Affected System Transmission Owner and Interconnection Customer will have 60 days to negotiate the terms of the CA consistent with the SPP OATT

# APPENDICES

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**A: TRANSMISSION OWNER'S AFFECTED SYSTEM 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).



# Affected System Facilities Study Report

*Southwest Power Pool, Inc. (SPP)*

*MPC 03800-MPC 04000*

*BISMARCK – WARD 230KV TRANSMISSION LINE  
UPGRADE (UID 157176)*



**Western Area  
Power Administration**

Upper Great Plains Region (WAPA-UGP)

*September 2023*





## **1.0 Background:**

The Western Area Power Administration Upper Great Plains Region (WAPA-UGP<sup>1</sup>) received a request from the Southwest Power Pool Inc. (SPP) for an Affected System Facilities Study in accordance with the SPP Open Access Transmission Tariff (Tariff). SPP identified the need to increase the rating of the WAPA-UGP's Bismarck-Ward 230-kV transmission line to a minimum of 345 MVA. SPP has identified the upgrade as UID 157176.

## **2.0 Status of Existing Studies applicable to Request:**

SPP posted the Affected System Impact Study for MPC 03800-04000 on 1/18/2023. The study identified the requirement to increase the rating on WAPA-UGP's Bismarck – Ward 230 kV transmission line to accommodate Minnkota Power Cooperative, Inc. (MPC) requests MPC 03800, MPC 03900, and MPC 04000.

This Affected System Facilities Study evaluates the required upgrades to WAPA-UGP's Bismarck – Ward 230 kV transmission line to achieve a minimum rating of 345 MVA.

## **3.0 Study Requirements:**

WAPA-UGP has performed this Affected System Facilities Study to determine a good faith estimate of (i) the cost estimate for the required upgrades, and the interconnection customer's appropriate share of the cost of any required upgrades, and (ii) the time required to complete construction. This Affected System Facilities Study includes an evaluation of the following:

- 3.1 Develop/compile cost estimates for all WAPA-UGP labor, overheads, equipment additions, modifications, etc.
- 3.2 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.
- 3.3 Develop an overall time schedule for completion of the necessary addition/modifications.

## **4.0 Study Results:**

The following results document WAPA-UGP's analysis of the upgrade to WAPA-UGP's Bismarck – Ward 230 kV transmission line and fulfill the tasks outlined in Section 2.0 above:

**4.1 Facility Upgrades:** The evaluation of WAPA-UGP's Bismarck – Ward 230 kV transmission line identified the following requirements:

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



- Replace three steel transmission line structures to accommodate two span raises.

WAPA-UGP's estimated cost for labor, overhead, demolition, modifications, replacements, and other miscellaneous costs are outlined in Attachment A. The total cost is estimated at \$1,840,000.

**4.2 Contractual Agreements:** A facilities construction agreement is required for the advancement of funds to perform the upgrades on WAPA-UGP's Bismarck – Ward 230 kV transmission line. SPP will tender a facilities construction agreement for negotiation and execution between the parties. The interconnection customer(s) will be responsible for the actual costs of the project 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 Bismarck – Ward 230 kV transmission line.

**4.3 Interconnection/Control Area Requirements:** N/A

**4.4 Schedule:** WAPA-UGP's estimated milestone schedule to perform the upgrades on WAPA-UGP's Bismarck – Ward 230 kV transmission line is shown in Attachment A. The schedule is subject to execution of a facilities construction agreement, advance funding being provided, outage availability, and completion of an Environmental Review by the timeframes identified in the facilities construction agreement. WAPA-UGP anticipates the upgrades would be completed by the end of November 2026. This schedule is based on a facilities construction agreement being executed prior to February 1, 2024.

#### **5.0 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. An Environmental Review for this project will be required prior to construction activities taking place. WAPA-UGP anticipates a Categorical Exclusion (CX) level of NEPA review will be required.

#### **6.0 Facilities Study Cost:**

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



## ATTACHMENT A

### AFFECTED SYSTEM IMPACT STUDY FOR MPC 03800-04000 BISMARCK – WARD 230 KV TRANSMISSION LINE UPGRADE

PROJECT ACTIVITY	ESTIMATED START DATE	ESTIMATED COST
Provide staff and other resources to engineer, design, and plan construction	March 1, 2024 <sup>[1]</sup>	\$180,000
Procure materials necessary to construct	August 1, 2024	\$540,000
Procure Construction Contract	August 1, 2025 <sup>[2]</sup>	\$1,020,000
Construction Activities	May 15, 2026	\$100,000
In-Service (Estimated Completion Date)	November 2026	
<b>TOTAL ESTIMATED COSTS</b>		<b>\$1,840,000</b>

[1] Subject to execution of a facilities construction agreement and advance funding being provided.

[2] Subject to completion of an Environmental Review prior to the start of construction.

