INTERCONNECTION FACILITIES STUDY REPORT

J526

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By SPP Generator Interconnections Dept.

REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION
03/03/2021	SPP	Final report posted.

CONTENTS

SUMMARY

INTRODUCTION

This Interconnection Facilities Study (IFS) for Interconnection Request J526 is for a 300 MW generating facility located in Deuel County, Minnesota. This request was studied in the MISO DPP 2016 February West study and the Morris-Johnson Junction – Ortonville 115kV Transmission Line was identified as an impacted facility. The Interconnection Customer's requested in-service date is December 1st, 2020.

The impacted Transmission Owner, Western Area Power Administration (WAPA), performed a detailed IFS at the request of SPP. The full report is included in Appendix A.

The primary objective of the IFS is to identify any necessary Network Upgrades and to provide cost estimates and 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, 2

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
None	$0	N/A	$0	N/A
Total	**$0**		**$0**	

Table 2: Non-Shared Network Upgrade(s)

Non-Shared Network Upgrades Description	ILTCR	Total Cost Estimate ($)	Allocated Percent (%)	Allocated Cost Estimate ($)	Estimated Lead Time
Morris 115kV Substation Upgrades (WAPA-UGPR): Replace conductors connecting the bay switches to the main and transfer busses and replace the vertical conductors between the line switches rigid bus and the transmission line	N/A	$30,000	N/A	$30,000	TBD
Total		**$30,000**		**$30,000**	

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 ($)	Allocated Percent (%)	Allocated Cost Estimate ($)	Estimated Lead Time
None	N/A	$0	N/A	$0	N/A
Total		**$0**		**$0**	

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
None	$0	N/A

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 MISO 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 ($)	Allocated Share (%)	Allocated Cost Estimate ($)
None	$0	N/A	$0
Total	**$0**		**$0**

CONCLUSION

After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for [Insert Interconnection Amount] 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 [Insert all upgrades (TOIF, non-shared NU, shared NU, affected system, etc)] that is required for full interconnection service is summarized in the table below.

Table 6: Cost Summary

Description	Allocated Cost Estimate
Transmission Owner Interconnection Facilitie Upgrade(s)	$0
Non-Shared Network Upgrade(s)	$30,000
Shared Network Upgrade(s)	$0
Affected System Upgrade(s)	$0
Total	**$30,000**

A draft Facilities Construction Agreement will be provided to the Interconnection Customer within a few days following the posting of this report.

APPENDICES

Affected System Facilities Study Report

Morris-Johnson Junction-Ortonville 115kV Transmission Line (WAPA-UGP Morris Substation)

Southwest Power Pool, Inc.

Western Area Power Administration

Upper Great Plains Region

February 2021

1.0 Background:

The Western Area Power Administration Upper Great Plains Region (WAPA-UGP[1]) 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). Interconnection request J526 in the Midcontinent Independent System Operator (MISO) generator interconnection queue represents a 300 MW wind generating facility with Point of Interconnection at the Brookings County-Big Stone South 345kV Transmission Line in Deuel County, Minnesota. The Morris-Johnson Junction-Ortonville 115kV Transmission Line was identified as an impacted facility. WAPA-UGP owns the terminal equipment at the Morris Substation for the Morris-Johnson Junction-Ortonville 115kV Transmission Line. The ownership of the Morris-Johnson Junction-Ortonville 115kV Transmission Line changes to a MISO member at the 115-kV take-off structure at the Morris Substation. The WAPA-UGP owned terminal equipment at the Morris Substation not a MISO facility and is considered an Affected System.

2.0 Status of Existing Studies applicable to Request:

MISO completed the DPP 2016 February West Area studies that identified the Morris-Johnson Junction-Ortonville 115kV Transmission Line as an impacted facility due to interconnection request J526.

This Affected System Facility Study evaluates impacts of interconnection request J526 to the Morris-Johnson Junction-Ortonville 115-kV Transmission Line and the required facility upgrades at the Morris Substation to accommodate the identified minimum line rating of 137.5 MVA.

3.0 Study Requirements:

WAPA-UGP has performed this Affected System Facilities Study to determine a good faith estimate of (i) the 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 additions/modifications.

3.4 Identify contractual arrangements needed to support completion of the necessary additions/modifications.

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

4.0 Study Results:

WAPA-UGP performed the following tasks to evaluate the additions to the system to accommodate the line rating increase request as studied and outlined in Section 3.0 above:

4.1 **Facility additions:** The evaluation of facilities at the WAPA-UGPR Morris Substation to accommodate the identified rating of 137.5 MVA for the Morris-Johnson Junction-Ortonville 115kV Transmission Line identified the following requirements:

- Replace conductors connecting the bay switches to the main and transfer busses and replace the vertical conductors between the line switches rigid bus and the transmission line.

WAPA-UGP's estimated cost for labor, overhead, materials, and other miscellaneous costs to complete the upgrades at the WAPA-UGP Morris Substation (i.e. to achieve the identified minimum line rating of 137.5 MVA) are outlined in Attachment A. The total cost is estimated to be $30,000.

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

4.3 **Schedule:** Completion of the upgrades at the WAPA-UGP Morris Substation requires outages of the main bus, transfer bus, and transmission line, which may be difficult to schedule and will necessitate additional coordination. Scheduling these outages is subject to execution of a facilities construction agreement, advance funding being provided, and completion of an Environmental Review.

4.4 **Contractual Agreements:** A construction agreement is required for the advancement of funds for the work at WAPA-UGP's Morris Substation to proceed. SPP will tender a facilities construction agreement for negotiation and execution between the parties. Upon completion of the work WAPA-UGP will own, operate, and maintain the modifications and improvements at WAPA-UGP's Morris Substation.

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. WAPA-UGP will determine the appropriate level of NEPA level of Environment Review for the upgrades at the WAPA-UGP Morris Substation.

6.0 Facilities Study Cost:

WAPA-UGP will audit the Affected System Facilities Study costs and provide a summary of these costs to SPP.

ATTACHMENT A

ESTIMATED COST FOR UPGRADES AT THE WAPA-UGP MORRIS SUBSTATION

ITEM	ESTIMATED COST	PAYMENT SCHEDULE
Planning, project management, and completion of upgrades at the WAPA-UGP Morris Substation.	$30,000	Upon Execution of Construction Agreement
TOTAL ESTIMATED PROJECT COST	**$30,000**	