

INTERCONNECTION FACILITIES STUDY REPORT

GEN-2016-004 (IFS-2016-001-25)

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By SPP Generator Interconnections Dept.

REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION
1/23/2020	SPP	Initial draft report issued.
2/19/2020	SPP	Final report issued.

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SUMMARY

INTRODUCTION

This Interconnection Facilities Study (IFS) for Interconnection Request <u>GEN-2016-004/IFS-2016-001-25</u> is for a <u>202</u> MW generating facility located in <u>Oliver County</u>, <u>North Dakota</u>. The Interconnection Request was studied in the <u>DISIS-2016-001</u> Impact Study and <u>Restudies</u> for <u>Energy</u> <u>Resource Interconnection Service (ERIS) and Network Resource Interconnection Service (NRIS)</u>. The Interconnection Customer's requested in-service date is <u>December 1, 2020</u>.

The interconnecting Transmission Owner, <u>Basin Electric Power Cooperative (BEPC)</u>, 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, Previous 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.

CREDITS/COMPENSATION FOR AMOUNTS ADVANCED FOR NETWORK UPGRADE(S)

Interconnection Customer shall be entitled to compensation in accordance with Attachment Z2 of the SPP OATT for the cost of SPP creditable-type Network Upgrades, including any tax gross-up or any other tax-related payments associated with the Network Upgrades, that are not otherwise refunded to the Interconnection Customer. Compensation shall be in the form of either revenue credits or incremental Long Term Congestion Rights (iLTCR).

INTERCONNECTION CUSTOMER INTERCONNECTION FACILITIES

The Generating Facility is proposed to consist of <u>fifty-one (51)</u> Vestas V136 3.6 MW and nine (9) <u>Vestas V110 2.0 MW wind turbine generators</u> for a total generating nameplate capacity of <u>201.6</u> <u>MW</u>.

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 (1) 230/34.5 kV 80/100/133 MVA (ONAN/ONAF/ONAF) step-up transformer to be owned and maintained by the Interconnection Customer at the Interconnection Customer's substation;
- A 16.5 mile overhead 230 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 ("Basin Electric 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. Additionally approximately 16.45 Mvars¹ of reactors will be required to compensate for injection of reactive power into the transmission system under no/reduced generating conditions. The Interconnection Customer may use turbine 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.

¹ This approximate minimum reactor amount is needed for the current configuration of GEN-2016-004 as studied in the DISIS-2016-001 Impact Study and Restudies.

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.

Transmission Owner Interconnection Facilities (TOIF)	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)	Estimated Lead Time
Transmission Owner Basin Electric 230 kV Interconnection Substation: Construct one (1) 230 kV 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.	\$1,120,226	100%	\$1,120,226	22 Months
Total	\$1,120,226		\$1,120,226	

Table 1: Transmission Owner Interconnection Facilities (TOIF)

Table 2: Non-Shared Network Upgrade(s)

Non-Shared Network Upgrades Description	Z2 Type ²	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)	Estimated Lead Time
Transmission Owner Basin Electric 230 kV Interconnection Substation: Expansion of the substation to accommodate re-termination of the Leland Olds 230 kV transmission line, 230/115 kV transformer and provide a termination point for the interconnection.	non- creditable	\$12,447,239	100%	\$12,447,239	22 Months

Interconnection Facilities Study Report GEN-2016-004/IFS-2016-001-25

² Indicates the method used for calculating credit impacts under Attachment Z2 of the Tariff.

Non-Shared Network Upgrades Description	Z2 Type ²	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)	Estimated Lead Time
 Western Area Power Administration (WAPA) Jamestown 230 kV Redundant Bus Tie Breaker Addition: Move existing disconnect switch (WU6E) to new location requiring new foundations. Move potential transformers (VU7B) to south end of 230 kV bus requiring new foundations and 230 kV bus extension. Remove existing foundations and 230 kV bus. Install new foundation and new 230 kV power circuit breaker. Install new 230 kV bus and connections. Install new control panel and complete modifications to existing panel, RTAC and SCADA. 	non- creditable	\$1,510,000	100%	\$1,510,000	10 Months
Total		\$13,957,239		\$13,957,239	

SHARED NETWORK UPGRADE(S)

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

Shared Network Upgrades Description	Z2 Type	Total Cost Estimate (\$)	Allocated Percent (%)	Allocated Cost Estimate (\$)	Estimated Lead Time
None	N/A	\$0	N/A	\$0	N/A
Total		\$0		\$0	

 Table 3: Interconnection Customer Shared Network Upgrade(s)

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.

PREVIOUS NETWORK UPGRADE(S)

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

Table 4: Interconnection Customer Previous Network Upgrade(s)

Previous Network Upgrade(s) Description	Current Cost Assignment	Estimated In- Service Date
<u>SPP-NTC-200220 - R-Plan:</u> Build new 222 mile, 345		
kV line from Gentleman - Cherry Co - Holt Co. Build	\$412,074,343	5/01/2021
new 345 kV substations at Cherry Co and Holt Co.		
Terminal upgrades at Gentleman.		

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 Previous Network Upgrades.

Southwest Power Pool, Inc.

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 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 202 MW can be granted. Full Interconnection Service will be delayed until the TOIF, Non-Shared NU, Shared NU, Previous NU, Affected System Upgrades that are required for full interconnection service are completed. The Interconnection Customer's estimated cost responsibility for TOIF and Non-Shared NU that is required for full interconnection service is summarized in the table below.

Table 6: Cost Summary

Description	Allocated Cost Estimate
Transmission Owner Interconnection Facilities	\$1,120,226
Network Upgrades	\$13,957,239
Total	\$15,077,465

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).



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).

Basin Electric Power Cooperative GI Cluster Impact Re-Study DISIS-2016-001-2 Interconnection Facilities Study GEN-2016-004

1. Background:

Per the SPP Generator Interconnection Procedures (GIP)¹, SPP requested² that Basin Electric Power Cooperative (BEPC) perform a facilities study in accordance with the Scope of Interconnection Facilities Study GIP Section 8.10 and the Interconnection Facilities Study Procedures in accordance with GIP Section 8.13 for the following Interconnection Request(s):

GI Request #	Point of Interconnection	Capacity (MW)	Fuel Type	Comments
GEN-2016-004	Basin Electric 230 kV Substation	202	Wind	Please provide cost estimates for POI at Basin Electric 230 kV Substation

¹SPP Tariff Attachment V Generator Interconnection Procedures (GIP) Section 8.10 and 8.13 are to be referred to in the SPP Tariff Attachment V prior to 7/1/2019.

²Reference Attachment D for SPP Interconnection Facilities Study request letter dated November 26, 2019.

2. Study Requirements:

Basin Electric has completed this Interconnection Facilities Study (IFS) in accordance with the Scope of Interconnection Facilities Study GIP Section 8.10 and the Interconnection Facilities Study Procedures in accordance with GIP Section 8.13 for the Interconnection Request(s) as described in Section 1.

- **2.1.** The Interconnection Facilities Study includes an evaluation of the following:
 - **2.1.1.** Perform/develop a substation/switching station layout, perform a preliminary bus design, determine all electrical equipment requirements, and determine a suitable site location to accommodate the Request. Develop/compile cost estimates for all Basin Electric labor, overheads, equipment additions, modifications, etc. to accommodate the generator interconnection.
 - **2.1.2.** Develop an overall construction schedule for completion of the necessary additions and/or modifications.
 - **2.1.3.** Point Of Change of Ownership. For the purposes of this Interconnection Facilities Study, the Point of Change of Ownership location is defined as the take-off structure(s) at the Basin Electric substation/switching station where the Interconnection Customer's transmission line(s) connects to the take-off structure(s). Interconnection Customer will furnish and install the conductor jumper and insulator assembly to the take-off structure(s).
 - **2.1.4.** Other Interconnection/Metering Requirements. Basic indication, metering, monitoring, control, and relaying requirements due to a generator interconnection are included in the cost estimate. Basin Electric's generation metering requirements, as an SPP Transmission Owner, must be met. A list of specific needs will be provided by Basin Electric once design has progressed.

3. Study Results for GEN-2016-004:

3.1. The following results document the analysis of the required facilities for this Interconnection Request as outlined in Section 1 for a new 230kV switchyard. Basin Electric has determined that the following additions and improvements are required to maintain a safe and reliable interconnection to Basin Electric's transmission system.

3.2. Transmission Line/Transmission Structures

- **3.2.1.** The proposed interconnection substation/switching station would include an expansion of the Basin Electric 230kV substation to accommodate re-termination of the Leland Olds 230kV transmission line, 230/115kV transformer and provide a termination point for the Interconnection Customer. Attachment A shows an example location with potential transmission line routes. This location was selected due to proximity to the existing Basin Electric 230kV substation as well as BEPC ownership of real estate for the proposed interconnection substation/switching station.
- **3.2.2.** Final location and transmission distances will be subject to detailed design and site specific evaluation.
- **3.2.3.** The conductor selection for the new 230kV transmission would be evaluated during detailed design and project planning. For purposes of this estimate, BEPC standard 230kV conductor, 1272 ACSR Bittern, has been assumed.
- **3.2.4.** BEPC anticipates utilizing galvanized steel monopoles with a delta configuration for the line. The steel poles will have davit arms with glass suspension insulators. All structures will be installed on drilled pier foundations. During detailed design and routing, it may be necessary to consider other structure types and configurations.
- **3.2.5.** For purposes of this estimate, three new structure locations were assumed one single-circuit deadend and two double-circuit deadends. A total distance of 1500 feet has been assumed for new transmission construction. NESC, ASCE and BEPC standard loading requirements will apply. Quantities have been assumed based on the example routes shown in Attachment A.

4. Substation/Switchyard

- 4.1. A new 230kV substation/switching station will be built to accommodate the new generation resource interconnection. This substation/switching station will initially be built in a 3 breaker ring bus configuration with future potential to be converted to a breaker-and-a-half configuration with 6 line terminals. This layout is depicted on Attachment B and C. The grading plan, control building, and any common infrastructure will be sized appropriately for the ultimate build out configuration. All equipment will follow Basin Electric's internal design standards for minimum BIL, ampacity, and fault capabilities.
- **4.2.** The associated work at the new 230kV substation/switching station includes the following major additions:
 - (3) 230 kV Line Take-Off
 - (3) 230 kV Breakers
 - (7) 230 kV Breaker Disconnect Switches
 - (3) Sets of Line Potential Transformers
 - (1) Set of Current Transformers
 - (3) Sets of Line Surge Arrestors

- **4.3.** Additional associated work will include a review and update to relay/protection schemes and SCADA RTU configurations at both the Basin Electric Substation and the Leland Olds 230kV line terminals.
- **4.4.** This cost estimate assumes existing access is available up to the property line of the substation/switching station.

5. Environmental Requirements

Compliance with all applicable federal, state and local regulations will be strictly adhered to. Additionally, all applicable and required permits and approvals will be obtained prior to construction. For the purposes of this Study, it is anticipated that this new 230kV substation/switching station will require incidental minor local permitting.

6. Cost Estimate

GEN-2016-004 Estimated Costs	Current Voar \$
Non-Shared Network Upgrades	
Line Costs	
Engineering Labor	\$109,000
Construction Labor	\$283,000
Reactive Compensation (Labor & Materials)	\$0
Material	\$245,000
Right of Way	\$0
Line Sub Total	\$637,000
Station Costs	
Engineering Labor	\$600,000
Construction Labor	\$4,573,929
Site Property Rights	\$0
Reactive Compensation (Labor & Materials)	\$0
Material	\$3,470,453
Right of Way	\$0
Station Sub Total	\$8,644,382
AFUDC	\$0
Contingency	\$3,165,857
Non - Shared Network Upgrades Total	\$12,447,239

GEN-2016-004 Estimated Costs Transmission Owners Interconnection Facilities	Current Year \$
Line Costs	
Engineering Labor	\$0
Construction Labor	\$0
Reactive Compensation (Labor & Materials)	\$0
Material	\$0
Right of Way	\$0
Line Sub Total	\$0
Station Costs	
Engineering Labor	\$0
Construction Labor	\$421,000
Site Property Rights	\$0
Reactive Compensation (Labor & Materials)	\$0
Material	\$414,305
Right of Way	\$0
Station Sub Total	\$835,305
AFUDC	\$0
Contingency	\$284,921
Transmission Owners Interconnection Facilities Total	\$1,120,226
Total Interconnection Cost	\$13,567,465

7. Construction Schedule

The preliminary project schedule provided is for planning level purposes only and will be adjusted with additional project definition.

Activity	Duration	Estimated Start	Estimated Finish
Receive NTC From SPP		Month 0	
Project Planning	1 Month	Month 0	Month 1
Land Acquisition/Environmental	3 Months	Month 1	Month 4
Engineering Design	3-6 Months	Month 1	Month 7
Equipment Procurement	6-12 Months	Month 2	Month 15
Advertise and Award Construction Contracts	2-3 Months	Month 9	Month 12
Construction	6-9 Months	Month 12	Month 21
Energize and In-Service Date	1 Month	Month 21	Month 22

ATTACHMENT A

PROPOSED SUBSTATION/SWITCHING STATION LOCATION

ATTACHMENT A

Interconnection Facilities Study Request BEPC



ATTACHMENT B

PROPOSED SUBSTATION/SWITCHING STATION SWITCHING DIAGRAM

LEGEND:

■ EXISTING EQUIPMENT

- NON SHARED NETWORK UPGRADES
- SHARED NETWORK UPGRADES
- TRANSMISSION OWNERS INTERCONNECTION FACILITIES
- INTERCONNECTION CUSTOMER INTERCONNECTION FACILITIES
- FUTURE



ATTACHMENT B



POINT OF CHANGE OF OWNERSHIP DETAIL

ATTACHMENT C

PROPOSED SUBSTATION/SWITCHING STATION LAYOUT







ATTACHMENT D

SPP INTERCONNECTION FACILITIES STUDY REQUEST LETTER

ATTACHMENT D



Helping our members work together to keep the lights on... today and in the future

November 26, 2019

Subject: Interconnection Facilities Study (IFS) for GI Cluster Impact Re-Study DISIS-2016-001-2

Dear Mr. Trester:

Per the SPP Generator Interconnection Procedures (GIP)¹, SPP requests that Basin Electric Power Cooperative (BEPC) perform facilities study in accordance with the Scope of Interconnection Facilities Study GIP Section 8.10 and the Interconnection Facilities Study Procedures in accordance with GIP Section 8.13 for the following Interconnection Request(s):

GI Request #	Point of Interconnection	Capacity (MW)	Fuel Type	Comments
GEN-2016-004	Basin Electric 230 kV Substation	202	Wind	Please provide cost estimates for POI at Basin Electric 230 kV Substation

The scope of the Interconnection Facilities Study is to determine interconnection related costs of upgrades for the addition of the SPP-GI Interconnection Request(s) mentioned above.

Identified upgrades and cost estimates should include:

- Costs estimates of equipment, engineering, procurement, and construction
- Associated lead times

If applicable, the DISIS Facilities Analysis conducted during DISIS impact study stage by BEPC can be used for the cost estimated and identified upgrades. If the DISIS Facilities Analysis is no longer applicable, please provide an updated cost estimate and lead time of upgrades needs.

Per GIP Section 8.13, SPP requests that BEPC provide an Interconnection Facilities Study grade estimate (+/-20%) and lead time necessary for the construction within sixty (60) calendar days of the receipt of this letter.

If any Interconnection Requests (not limited to the Interconnection Requests mentioned above) require BEPC assigned Network Upgrades in the DISIS-2016-002 Impact study, then a separate Interconnection Facilities Study Request Letter will be sent for those in the near future. The sixty (60) days for completion for those networks upgrade facility studies will start on the date the letters are received.

¹ SPP Tariff Attachment V Generator Interconnection Procedures (GIP) Section 8.10 and 8.13 are to be referred to in the SPP Tariff Attachment V prior to 7/1/2019.



For the completion of the Interconnection Facilities Study, please provide an Interconnection Facilities Study report to SPP within sixty (60) calendar days. If the DISIS Facilities Analysis upgrades and costs are no longer applicable, please provide an updated and completed Standardized Cost Estimate Reporting Template (SCERT) in accordance with SPP Business Practice 7060².

Please find attached to this Interconnection Facilities Study Request Letter, the Interconnection Customer executed Interconnection Facilities Study Agreement along with the supporting documentation.

If you have any questions, please feel free to contact SPP GI Department @ GIStudies@spp.org

Sincerely,

SPP Generator Interconnection Department 201 Worthen Drive Little Rock, AR 72223-4936

² Business Practice Link https://www.spp.org/documents/37750/spp%20oatt%20business%20practices%2020160412.pdf

Interconnection Facilities Study Report

Southwest Power Pool, Inc. IFS-2016-001-1 Network Upgrade(s)

GEN-2016-004



Western Area Power Administration

Upper Great Plains Region

November 2019



1.0 Background:

The Western Area Power Administration Upper Great Plains Region (WAPA-UGP¹) received a request from the Southwest Power Pool Inc. (SPP) for an Interconnection Facilities Study in accordance with the SPP Open Access Transmission Tariff (Tariff). Interconnection request GEN-2016-004 represents a 202 MW request at the Leland Olds 230-kV bus. GEN-2016-004 was included in the SPP DISIS-2016-001-1 study which identified the need to add a redundant bus-tie breaker on the 230-kV bus at WAPA-UGP's Jamestown Substation for breaker 9182 failure. WAPA-UGP is not the Transmission Owner of the Point of Interconnection (POI) at the Leland Olds 230-kV bus. The addition of a redundant bus-tie breaker on the 230-kV bus at WAPA-UGP's Jamestown Substation is considered a "Network Upgrade constructed by other transmission owning entity" and will require a Notification to Construct from SPP.

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

2.0 Study Requirements:

WAPA-UGP has performed this Interconnection 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 Interconnection System Facilities Study includes an evaluation of the following:

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

3.0 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:

- **3.1 Facility additions:** The evaluation of facilities to accommodate the addition of a redundant bustie breaker on the 230-kV bus at WAPA-UGP's Jamestown Substation identified the following requirements:
 - Move existing disconnect switch (WU6E) to new location requiring new foundations.
 - Move potential transformers (VU7B) to south end of 230-kV bus requiring new foundations and 230-kV bus extension.

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

- Remove existing foundations and 230-kV bus.
- Install new foundation and new 230-kV power circuit breaker.
- Install new 230-kV bus and connections.
- Install new control panel and complete modifications to existing panel, RTAC, and SCADA.

WAPA-UGP's estimated cost for labor, overhead, materials, and other miscellaneous costs to add a redundant bus-tie breaker on the 230kV bus at WAPA-UGP's Jamestown Substation are outlined in Attachment A. The total cost is estimated to be \$1,510,000. The interconnection customer is responsible for the entire cost of the project.

3.2 Contractual Agreements: Pursuant to the SPP Tariff, SPP and the Point of Interconnection Transmission Owner will need to execute a Generator Interconnection Agreement (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. The interconnection customer will be responsible for the actual costs of the facility additions at WAPA-UGP's Jamestown Substation, 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 Jamestown Substation.

3.3 Interconnection/Control Area Requirements: N/A

3.4 Schedule: WAPA-UGP's estimated milestone schedule for the addition of a redundant bus-tie breaker on the 230kV bus at WAPA-UGP's Jamestown Substation is shown in Attachment A. The schedule is subject to execution of a GIA, advance funding being provided, outage availability, and completion of an Environmental Review.

4.0 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 anticipates a Categorical Exclusion level of NEPA review will be required for the addition of a redundant bus-tie breaker on the 230kV bus at WAPA-UGP's Jamestown Substation. The cost for WAPA-UGP to complete its Environmental Review is included as part of the estimate provided in Attachment A.

5.0 Facilities Study Cost:

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



ATTACHMENT A

JAMESTOWN 230KV REDUNDANT BUS TIE BREAKER ADDITION

PROJECT ACTIVITY	ESTIMATED START DATE	ESTIMATED COST, MILESTONE PAYMENT DUE
Preconstruction activities – planning, project management, etc.	Upon receipt of funds following execution of the GIA.	\$50,000
Provide staff and other resources to engineer, design, and plan construction	Upon receipt of funds following execution of the GIA.	\$250,000
Procure equipment, parts, and control equipment necessary to construct	Upon receipt of funds following execution of the GIA.	\$215,000
Development & Solicitation of Construction Contract(s)	April 1, 2020	\$450,000
WAPA-UGP Construction Activities	April 1, 2020	\$320,000
Commissioning, Energization, and construction supervision	April 1, 2020	\$225,000
In-Service (Estimated Completion Date)	December 31, 2020*	
TOTAL ESTIMATED COSTS		\$1,510,000**

* Based on receiving initial funding by January 2020.

** 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.

