Basin Electric Power Cooperative
Facility Study Report
GEN-2022-009_010_083

1. Background:

1.1 Per the Generator Interconnection Procedures (GIP), Attachment V, Section 8.11, SPP requests that Basin Electric Power Cooperative (BEPC) perform a facilities study in for the following Interconnection and/or Network Upgrade(s):

Upgrade Type	UID	Upgrade Name	DISIS Lead Time
Interconnection	158183	Judson Substation 345 kV GEN-2022-009 Interconnection (TOIF)(BEPC)	6 months
Interconnection	158184	Judson Substation 345 kV GEN-2022-010 Interconnection (TOIF)(BEPC)	6 months
Interconnection	158185	Judson Substation 345 kV GEN-2022-083 Interconnection (TOIF)(BEPC)	6 months

2. Study Requirements:

BEPC has performed this Facility Study report in accordance with the Generator Interconnection Procedures (GIP), Attachment V, Section 8.11 for the Interconnection and/or Network Upgrade(s) as described in Section 1.

2.1. The Facility Study report includes an evaluation of the following:

2.1.1. Perform/develop a substation layout, perform a preliminary bus design, determine all electrical equipment requirements, and if required determine a suitable site location to accommodate the Request. Develop/compile cost estimates for all BEPC 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 Facility Study report, the Point of Change of Ownership location is defined as the take-off structure(s) at the BEPC 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. BEPC's generation metering requirements, as an SPP Transmission Owner, must be met. A list of specific needs will be provided by BEPC once design has progressed.

3. Study Results for GEN-2022-009-010-083:

3.1. The following results document the analysis of the required facilities for this Interconnection Request as outlined in Section 1 for a new 345kV line terminal at the Judson 345/230kV Substation. BEPC has determined that the following additions and improvements are required to maintain a safe and reliable interconnection to BEPC's transmission system.

3.2 Substation/Switchyard

An existing 345kV terminal is available for use at Judson. Protection and Control schemes were reviewed for applicability for the interconnection. That review identified a change in protective relays to follow existing BEPC internal design standards. Reference Figures A1 and A2.

3.3 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.

3.4 Cost Estimate

GEN-2022-009 Estimated Costs TOIF Network Upgrades	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	$39,818.23
Construction Labor	$0
Site Property Rights	$0
Reactive Compensation	$0
Material	$15,473.18
Right of Way	$0
Station Sub Total	**$55,291.42**
AFUDC	$0
Contingency	$0
GEN-2022-009 Total Costs	**55,291.42**

GEN-2022-010 Estimated Costs TOIF Network Upgrades	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	$39,818.23
Construction Labor	$0
Site Property Rights	$0
Reactive Compensation	$0
Material	$15,473.18
Right of Way	$0
Station Sub Total	**55,291.42**
AFUDC	$0
Contingency	$0
GEN-2022-010 Total Costs	**55,291.42**

GEN-2022-083 Estimated Costs TOIF Network Upgrades	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	$39,818.23
Construction Labor	$0
Site Property Rights	$0
Reactive Compensation	$0
Material	$15,473.18
Right of Way	$0
Station Sub Total	**55,291.42**
AFUDC	$0
Contingency	$0
GEN-2022-083 Total Costs	**55,291.42**

Total Interconnection Cost	**$165,874,25**

3.5 Construction Schedule

The preliminary project schedule provided is for planning level purposes only and will be adjusted with additional project definition. If it is determined that NEPA and/or ROW condemnation is required, 12-18 months will be added to the In-Service date.

Activity	Duration	Estimated Start	Estimated Finish
Executed GIA-Notice To Proceed Letter	--	Month 0	--
Project Planning	1 Month	Month 0	Month 1
Engineering Design	3 Months	Month 1	Month 4
Equipment Procurement	NA	NA	NA
Advertise and Award Construction Contracts	NA	NA	NA
Construction	1 Months	Month 4	Month 5
Energize and In-Service Date	1 Month	Month 5	Month 6

Figure A1: Proposed Switching Diagram

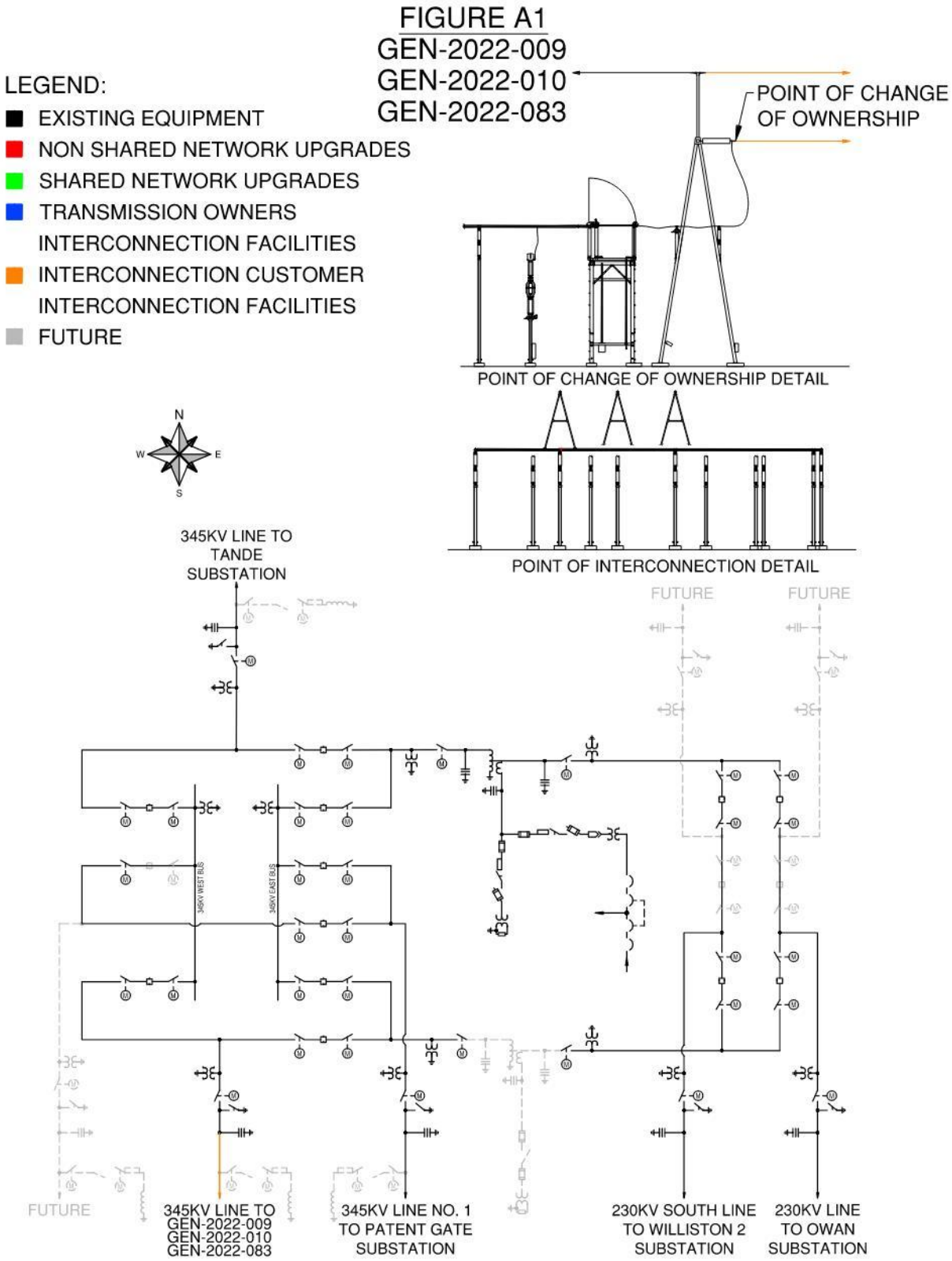

Figure A2: Proposed General Arrangement