New York ISO
Independent System Operator

Public Policy Transmission Planning Process

Attachment B

Information for a Proposed Solution to a Public Policy Transmission Need

Issued: MM/DD/YYYY

DRAFT – FOR DISCUSSION PURPOSES ONLY

Issued: MM/DD/YYYY

Prepared by: System & Resource Planning

New York Independent System Operator
10 Krey Boulevard
Rensselaer, NY 12144
(518) 356-6060
www.nyiso.com

Disclaimer: The information contained within this manual attachment, along with other NYISO manual attachments, is intended to be used for information purposes only, and is subject to change. The NYISO is not responsible for the user's reliance on these publications, or for any erroneous or misleading material.

Information for a Proposed Solution to a Public Policy Transmission Need

(Completed proposal should be sent to PublicPolicyPlanningMailbox@nyiso.com)

Name of Developer:_____

(NOTE: *Developers that are jointly proposing a solution must each be specifically named above and qualified under OATT Section 31.4.4.3.6 or seeking qualification in accordance with OATT Section 31.4.4.3.7*)

Mailing Address: _____

City: _____State:_____Zip:_____

Contact Person: _____

Telephone: (_____) _____Fax: (_____) _____

Email Address: _____

Name of Project: _____

Public Policy Transmission Need Being Addressed:

_____

1. Please indicate what type of solution you are proposing to address the above-identified Public Policy Transmission Need:

   □ Public Policy Transmission Project

   □ Other Public Policy Project

   Only complete the areas below specific to the type of solution (i.e., Public Policy Transmission Project or Other Public Policy Project) that is proposed to address the Public Policy Transmission Need.

Information for an Other Public Policy Project

2. For an Other Public Policy Project, please provide a description of the project, including type, size, and geographic and electrical location, as well as planning and engineering specifications and drawings as appropriate.

3. For an Other Public Policy Project, please provide the lead time necessary to complete the project, including, if available, the construction windows in which the Developer can perform construction and what, if any, outages may be required during these periods.

4. For an Other Public Policy Project, please provide evidence of a commercially viable technology.

5. For an Other Public Policy Project, please provide a major milestone schedule.

6. For an Other Public Policy Project, please provide the schedule for obtaining any required permits and other certifications, if available.

Information for a Public Policy Transmission Project or an Other Public Policy Project

7. Please provide status of NYISO interconnection studies and interconnection agreement, if applicable.

8. For a Public Policy Transmission Project or an Other Public Policy Project, please provide a demonstration of Site Control, or a schedule for obtaining such control. Provide plan to obtain temporary easements or leases for laydown areas, and construction equipment (e.g., trenchless equipment)

9. For a Public Policy Transmission Project or an Other Public Policy Project, please provide status of equipment availability and procurement for each major project components, as applicable.

10. For a Public Policy Transmission Project or an Other Public Policy Project, please provide the status of any contracts (other than an interconnection agreement) that are under negotiation or in place.

11. For a Public Policy Transmission Project or an Other Public Policy Project, please provide evidence of financing or ability to finance the project.

12. For a Public Policy Transmission Project, please provide any updates to the qualifications that the Developer relied on demonstrating its financial resources, technical expertise, and experience needed to finance, develop, construct, operate, and maintain a regulated transmission project. Please also provide any information that demonstrates the Developer's ability to finance, develop, construct, operate, and maintain the type, size, and complexity of the proposed solution set forth in this form or Attachment C for the above-identified Public Policy Transmission Need.

13. For a Public Policy Transmission Project or an Other Public Policy Project, please provide any other information required by NYISO procedures or requested by the NYISO.

In responding to Nos. 6, 7, 8, 10, and 11 above, the following excerpts from the NYISO's tariff further describe the type information that can be described to indicate the status of contracts, status of required permits, and evidence of financing and the obligations of a Developer to update the status, if applicable.

> A Developer shall submit the following information to indicate the status of any contracts: (i) copies of all final contracts the ISO determines are relevant to its consideration, or (ii) where one or more contracts are pending, a timeline on the status of discussions and negotiations with the relevant documents and when the negotiations are expected to be completed. The final contracts shall be submitted to the ISO when available. The ISO shall treat on a confidential basis in accordance with the requirements of Section 31.4.15 and its Code of Conduct in Attachment F of the ISO OATT any contract that is submitted to the ISO and is designated by the Developer as "Confidential Information."
>
> A Developer shall submit the following information to indicate the status of any required permits: (i) copies of all final permits received that the ISO determines are relevant to its consideration, or (ii) where one or more permits are pending, the completed permit application(s) with information on what additional actions must be taken to meet the permit requirements and a timeline providing the expected timing for finalization and receipt of the final permit(s). The final permits shall be submitted to the ISO when available.

A Developer shall submit the following information, as appropriate, to indicate evidence of financing by it or any Affiliate upon which it is relying for financing: (i) copies of all loan commitment letter(s) and signed financing contract(s), or (ii) where such financing is pending, the status of the application for any relevant financing, including a timeline providing the status of discussions and negotiations of relevant documents and when the negotiations are expected to be completed. The final contracts shall be submitted to the ISO when available.

Upon the completion of any interconnection study or transmission expansion study of a proposed Public Policy Transmission Project or Other Public Policy Project that is performed under Sections 3.7 or 4.5 of the ISO OATT or Attachments P or X of the ISO OATT, the Developer of the proposed project shall notify the ISO that the study has been completed and, at the ISO's request, shall submit to the ISO any study report and related materials prepared in connection with the study.

Information for a Public Policy Transmission Project

14. For a Public Policy Transmission Project, please include the estimated Project cost details, as described below.

Provide estimates using the basic format and content shown below in the example estimate and add items as necessary to reflect proposed scope of the solution. The Developer is encouraged to provide backup details and attach its own project estimating forms or tools to offer reference and background as to the Developer's methodology and logic for cost estimating. At a minimum, the ~~form~~ data below should be filled out completely and as accurately as possible with differentiation between the intended accuracy estimate and the contingency range estimates, which the Developer is using for its particular project depending on the type of construction and the unknowns for the type(s) of construction being proposed. All cost categories should be rounded to the nearest $1,000. If a contingency % adder is included in the estimate, a detailed description of the factors that went into the contingency percentage(s) must be provided. Contingency factor is to be applied on the total sum; not on individual line items. Developers should consider performing the estimate to industry standards, such as a Class 4 estimate or better as defined in the Association for the Advancement of Cost Engineering International Recommended Practice.

Provide Attachments B.14.1 through B.14.4 for detailed Project Cost estimates and include the following:

- ~~All~~Project cost details for each of the following categories (as applicable) and all assumptions in developing the estimate~~.~~:

- ~~Facilities required to be added, removed, or replaced by proposed project but not owned by [Developer], if any, should be itemized, explained, and shown in the submitted total cost estimate.~~

    - ~~Estimates need to include distribution underbuild costs, if applicable.~~Proposed project (separately identifying costs for new transmission facilities and Public Policy Transmission Upgrades);

    - Potential Interconnection Facilities (e.g., Network Upgrade Facilities if undergoing study under Attachment P or Attachment Facilities, System Upgrade Facilities, System Deliverability Upgrades, as applicable, if the transmission project qualifies and is being studied under another NYISO interconnection process) or NYISO-identified Interconnection Facilities, if known from a NYISO-conducted interconnection study.

- Each major piece of equipment with unique ratings is to be listed with a description of its nameplate ratings, each unique foundation is to be listed separately with the quantity of cubic yards provided. Each unique structure is to be listed separately.

- ~~State what~~ ROW and site acquisition costs ~~are~~ included in the estimate, such as new ~~ROW~~ROWs or site purchases or easements, supplemental easement costs, and whether or not existing available easement or ROW already exists~~?~~.

- ~~All Developers must provide project cost details for each of the following categories (as applicable):~~

  - ~~Proposed project (separately including new transmission facilities and Public Policy Transmission Upgrades)~~

  - ~~Potential Interconnection Facilities or NYISO-identified Interconnection Facilities (e.g., Network Upgrade Facilities if undergoing study under Attachment P or Attachment Facilities, System Upgrade Facilities, System Deliverability Upgrades, as applicable, if undergoing study under Attachment X) if known from a NYISO-conducted interconnection study~~

  - ~~Costs to construct a new local control center or modify an existing control center~~

- Cost containment ~~mechanisms~~mechanism that a Developer voluntarily includes as part of a proposed Public Policy Transmission Project. The Cost Cap must cover all the Included Capital Costs, as defined in OATT Section 31.4.5.1.8.1. The only allowed exceptions are the Excluded Capital Costs, as defined in Section 31.4.5.1.8.2 and Section 31.4.8.2.1 of OATT. Accordingly, a Developer must submit ~~two versions of the tables below – one version~~following information for Included Capital Costs and ~~one version~~ for Excluded Capital Costs as provided in the tariff.

Estimated Project Cost Detail:

~~List and explain any major assets that are identified by the Developer as Public Policy Transmission Upgrades or potential interconnection facilities (e.g., Network Upgrade Facilities) as per OATT:~~

Included Capital Costs: Clearly identify project facilities and/or components of Included Capital Costs, including costs to construct/modify a control center, consistent with the definitions under the OATT.

Total Cost Estimate Accuracy: ([+/- X% Engineering & ROW acquisition], [+/- XX% Construction])

(Include this statement if applicable) This project is [ ]% compensable by [source of other ownership/funding].

Excluded Capital Costs: Clearly identify project facilities and/or components of Excluded Capital Costs consistent with the definitions under the OATT.

Total Cost Estimate Accuracy: ([+/- X% Engineering & ROW acquisition], [+/- XX% Construction])

~~Total Project Cost [Developer] and Others: $xx~~

~~(total of estimated [Developer] costs)~~

~~Total Facilities Cost not owned, or paid for, by [Developer]: $xx~~

(Include this statement if applicable) ~~-~~This project is [ ]% compensable by [source of other ownership/funding].

~~Total Project Cost: $xx~~

Project Life and Operation and Maintenance Costs:

The estimated life of the project's installed facilities is [ ] years.

The project's estimated annual maintenance/operating costs for the proposed solution over the life of the facilities is $[ ]/year. Provide detail to substantiate costs.

Cost Cap (including escalation and/or contingency) for Included Capital Costs voluntarily submitted by Developer:

Hard Cost Cap: $xx

Or Soft Cost Cap: $xx

Risk shared by Developer %

Risk shared by ratepayers %

~~Clearly identify project components as Included Capital Costs or Excluded Capital Costs consistent with the definitions under the OATT.~~

Transmission Line Proposed Project Scope Document

Attachment B.14.1

Cost Estimate – New Transmission Facilities

(List only new transmission facilities of the Project but not preliminary identified interconnection facilities)

Transmission Line Proposed Project Scope Document

Attachment B.14.2

Cost Estimate –Public Policy Transmission Upgrades and Preliminary Identified Interconnection Facilities

(List Public Policy Transmission Upgrades of the Project and preliminarily identified interconnection facilities)

Transmission Line Proposed Project Scope Document

Attachment B.14.3
Cost Estimate Assumptions and Clarifications

(Review the following assumptions & clarifications.
Delete those that do not apply and add others as required)

1. This estimate contains [___%] contingency amounts. [Developer] does not require contractor bonds or liquidated damages, so the costs for bonds and liquidated damages have not been included.
2. All costs are estimated in (year) dollars, and then escalated at a rate of x.x% per year to the year of expenditure. Engineering costs are assumed to be incurred in (year). All construction and material costs are escalated to a rate of x.x% and assumed to be incurred in (year). The percentages will be provided in the requests for solutions.
3. A cost for miscellaneous equipment and materials, which is assumed to be [x%] of the total cost of the equipment and materials, is included. Miscellaneous construction costs, which are assumed to be [x%] of the total construction labor cost (excluding engineering and construction inspection), are also included. These costs are listed as sundries in the estimates.
4. New York State sales and use taxes have been added and are applied to material and the applicable labor categories.
5. All transmission line and substation construction will be performed by "contract labor."
6. All materials removed for this project are assumed to be scrapped. No salvage value is assumed for the existing structures, conductors and hardware during removal/modification of the existing lines.
7. The quantities of materials and labor shown are those estimated to be actually required (no extras) for the design and construction of the line and substation(s) except for the purchase of the line conductor and shield wire. The conductor and shield wire contains [ ] percent extra (*3-5% typical*).
8. The estimate is based on the existing transmission line being [energized / de-energized], distribution circuits being [energized / de-energized], and substation(s) being [energized/de-energized] during the construction period.
9. New transmission line structures will be located as close as possible to existing structures along the line route.
10. The estimate is based on the following restrictions on placement of transmission line structures in wetlands. The following mitigation costs are included for the wetland areas: (present details if applicable and available)
11. It is assumed that [ ]% of the existing right-of-way will require [light / medium / heavy] clearing for line rebuild.
12. OPGW termination equipment [is / is not] included in any estimate.

13. Approximately [ ] ground rods will be installed at each transmission line structure to achieve a target ground resistance of less than 40 ohms.
14. The need for protective matting during construction is based on input from [Contractor].
15. This estimate includes the assumption that [Location(s)] will be used for pole and material delivery and laydown.
16. Statement of compliance with, and identification of, all reliability standards, interconnection requirements, and design standards applicable to the project.

Transmission Line Proposed Project Scope Document
Attachment B.14.4

(Provide Developer's Estimated Cost Breakdown Sheet)

[Title of Project] – Project Cost Estimate Summary		
Estimate Revision:	**#**	
Direct Costs		***Total Each Segment***
Direct Labor, Material & Equipment Costs	[Transmission Line Name] - OH-Install	$ -
Direct Labor, Material & Equipment Costs	[Transmission Line Name] - UG - Install	$ -
Direct Labor, Material & Equipment Costs	[Transmission Line Name] - Removal	$ -
Direct Labor, Material & Equipment Costs	[Substation Name] - Install	$ -
Direct Labor, Material & Equipment Costs	[Substation Name] - Removal	$ -
	SUBTOTAL:	$ -
	CONTRACTOR MARK-UP (OH&P)	$ -
	CONTINGENCY ON ENTIRE PROJECT	$ -
	TOTAL DIRECT:	$ -
Indirect Costs		***Total Each Segment***
Indirect Costs	[Transmission Line Name] - OH-Install	$ -
Indirect Costs	[Transmission Line Name] - UG - Install	$ -
Indirect Costs	[Transmission Line Name] - Removal	$ -
Indirect Costs	[Substation Name] - Install	$ -

[Title of Project] – Project Cost Estimate Summary		
Indirect Costs	[Substation Name] - Removal	$ -
	TOTAL INDIRECT:	$ -
	TOTAL ESTIMATED COST:	$ -

[Title of Project]					[Transmission Line Name] - OH-Install					
Estimate Revision:	**#**	**Total:**	**$ -**							
	[Title of Project]									
		Supply	*Installation*	*Total*						
	[Transmission Line Name] - OH-Install									
	1. CLEARING & ACCESS	$ -	$ -	$ -						
	2. FOUNDATIONS	$ -	$ -	$ -						
	3. STRUCTURES	$ -	$ -	$ -						
	4. CONDUCTOR, SHIELDWIRE, OPGW	$ -	$ -	$ -						
	5. INSULATORS, FITTINGS, HARDWARE	$ -	$ -	$ -						
	6. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	$ -	$ -	$ -						
	CONTRACTOR MARK-UP (OH&P)	$ -	$ -	$ -						
	SUBTOTAL:	$ -	$ -	$ -						
	CONTINGENCY ON ENTIRE PROJECT	$ -	$ -	$ -						
	TOTAL:	$ -	$ -	$ -						
Description of Work:										

[Title of Project]					[Transmission Line Name] - OH-Install					
Item	**Item Description**	**Estimated Quantity**	**Unit of Measure**	**Material Supply Rate**	**Material Supply Sum**	**Labor & Equipment Supply Rate**	**Labor & Equipment Sum**	**Total Unit Rate**	**TOTAL**	**Comments:**
[Transmission Line Name] - OH-Install										
1. CLEARING & ACCESS										
1.1	Clearing the ROW - Heavy (mowing & clearing)		Acre	$ -	$ -		$ -	$ -	**$** -	
1.2	Clearing the ROW - Light (mowing)		Acre		$ -		$ -	$ -	**$** -	
1.3	Permanent Access Road		LF	$ -	$ -		$ -	$ -	**$** -	
1.4	Silt Fence		LF	$ -	$ -		$ -	$ -	**$** -	
1.5	Matting - Access and ROW		LF	$ -	$ -		$ -	$ -	**$** -	
1.6	Matting - To Work Area		LF	$ -	$ -		$ -	$ -	**$** -	
1.7	Snow Removal		Mile	$ -	$ -		$ -	$ -	**$** -	
1.8	ROW Restoration		Mile	$ -	$ -		$ -	$ -	**$** -	
1.9	Work Pads		SF	$ -	$ -		$ -	$ -	**$** -	
1.10	Restoration for Work Pad areas		SF	$ -	$ -		$ -	$ -	**$** -	
1.11	Temporary Access Bridge		EA	$ -	$ -		$ -	$ -	**$** -	
1.12	Air Bridge		EA	$ -	$ -		$ -	$ -	**$** -	
1.13	Stabilized Construction Entrance		EA	$ -	$ -		$ -	$ -	**$** -	
1.14	Maintenance and Protection of Traffic on Public Roads		EA	$ -	$ -		$ -	$ -	**$** -	
1.15	Culverts / Misc. Access		EA	$ -	$ -		$ -	$ -	**$** -	

[Title of Project]				-	[Transmission Line Name] - OH-Install					
1.16	Gates		EA	$ -	$ -		$ -	$ -	$ -	
1.17	Concrete Washout Station		EA	$ -	$ -		$ -	$ -	$ -	
TOTAL - CLEARING & ACCESS:					$ -		$ -		$ -	
2. FOUNDATIONS										
2.1	[Add Description of each foundation type]		Structure		$ -		$ -	$ -	$ -	
2.2			Structure		$ -		$ -	$ -	$ -	
2.3			Structure		$ -		$ -	$ -	$ -	
2.4			Structure		$ -		$ -	$ -	$ -	
2.5			Structure		$ -		$ -	$ -	$ -	
2.6			Structure		$ -		$ -	$ -	$ -	
2.7			Structure		$ -		$ -	$ -	$ -	
2.8			Structure		$ -		$ -	$ -	$ -	
2.10	Rock Excavation Adder		CY	$ -	$ -		$ -	$ -	$ -	
TOTAL - FOUNDATIONS:					$ -		$ -		$ -	
3. STRUCTURES										
3.1	[Add Description of each structure type]		Structure		$ -	$ -	$ -	$ -	$ -	
3.2			Structure		$ -	$ -	$ -	$ -	$ -	
3.3			Structure		$ -	$ -	$ -	$ -	$ -	
3.4			Structure		$ -	$ -	$ -	$ -	$ -	
3.5			Structure		$ -	$ -	$ -	$ -	$ -	
3.6			Structure		$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Transmission Line Name] - OH-Install					
3.7			Structure		$ -	$ -	$ -	$ -	$ -	
3.8			Structure		$ -	$ -	$ -	$ -	$ -	
3.9			Structure		$ -	$ -	$ -	$ -	$ -	
3.10	Install Grounding and Grounding Accessories		Structure		$ -	$ -	$ -	$ -	$ -	
TOTAL - STRUCTURES:					$ -		$ -		$ -	
4. CONDUCTOR, SHIELDWIRE, OPGW										
4.1	[Add Description of each conductor type]		LF		$ -		$ -	$ -	$ -	
4.2			LF		$ -		$ -	$ -	$ -	
4.3			LF		$ -		$ -	$ -	$ -	
4.4			LF		$ -		$ -	$ -	$ -	
4.5			LF		$ -		$ -	$ -	$ -	
4.6			LF		$ -		$ -	$ -	$ -	
4.7	Rider Poles (# of locations)		Set		$ -		$ -	$ -	$ -	
TOTAL: CONDUCTOR, SHIELDWIRE, OPGW:					$ -		$ -		$ -	
5. INSULATOR, FITTINGS, HARDWARE										
5.1	[Add Description of each type]		Assembly		$ -		$ -	$ -	$ -	
5.2			Assembly		$ -		$ -	$ -	$ -	
5.3			Assembly		$ -		$ -	$ -	$ -	
5.4			Assembly		$ -		$ -	$ -	$ -	
5.5			Assembly		$ -		$ -	$ -	$ -	
5.6			Assembly		$ -		$ -	$ -	$ -	

[Title of Project]					[Transmission Line Name] - OH-Install					
5.7			Assembly		$ -		$ -	$ -	$ -	
5.8			Assembly		$ -		$ -	$ -	$ -	
TOTAL - INSULATORS, FITTINGS, HARDWARE:					$ -		$ -		$ -	
[Transmission Line Name] - OH-Install					$ -		$ -		$ -	**Total Direct Costs**
6. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
	Contractor Mobilization / Demobilization									
6.1	Mob / Demob	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Project Management, Material Handling & Amenities									
6.2	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	Includes all PM Staff, Per Diems, Vehicles and Expenses. 6 months added for pre-construction time and 2 months for close-out time.
6.3	Utility PM and Project Oversite	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.4	Site Accommodation, Facilities, Storage	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Engineering									
6.5	Design Engineering	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.6	LiDAR	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.7	Geotech	-	Location	$ -	$ -		$ -	$ -	$ -	One Test Bore Per Mile.
6.8	Surveying/Staking	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	

[Title of Project]				-	[Transmission Line Name] - OH-Install					
	Testing & Commissioning									
6.9	Testing & Commissioning of T-Line and Equipment	-	LS	$ -	$ -		$ -	$ -	**$** -	
	Permitting and Additional Costs									
6.10	Environmental Licensing & Permitting Costs	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	In DPS.
6.11	Environmental Mitigation	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	In DPS.
6.12	Warranties / LOC's	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
6.13	Real Estate Costs (New ROW)	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
6.14	Real Estate Costs (Incumbent Utility ROW)	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
6.15	Legal Fees	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	In DPS.
6.16	Sales Tax on Materials	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
6.17	Fees for permits, including roadway, railroad, building or other local permits	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:					$ -		$ -		**$** -	**Total Indirect Costs**

[Title of Project]				-	[Transmission Line Name] - UG - Install					
Estimate Revision:	**#**	**Total:**	**$** -							
	[Title of Project]									
		Supply	*Installation*	*Total*						

[Title of Project]					[Transmission Line Name] - UG - Install					
	[Transmission Line Name] - UG - Install									
	1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT	$ -	$ -	$ -						
	2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION	$ -	$ -	$ -						
	3. ONSHORE CABLE PROCUREMENT AND INSTALLATION	$ -	$ -	$ -						
	4. MISCELLANEOUS	$ -	$ -	$ -						
	6. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	$ -	$ -	$ -						
	CONTRACTOR MARK-UP (OH&P)	$ -	$ -	$ -						
	SUBTOTAL:	$ -	$ -	$ -						
	CONTINGENCY ON ENTIRE PROJECT	$ -	$ -	$ -						
	TOTAL:	$ -	$ -	$ -						
Description of Work:										
Item	**Item Description**	**Estimated Quantity**	**Unit of Measure**	**Material Supply Rate**	**Material Supply Sum**	**Labor & Equipment Supply Rate**	**Labor & Equipment Sum**	**Total Unit Rate**	**TOTAL**	**Comments:**
[Transmission Line Name] - UG - Install										
1. SITE PREP/ACCESS/TRAFFIC MANAGEMENT										
1.1	Environmental BMPs / SWPPP Installation, Maintenance & Repairs		LF	$ -	$ -		$ -	$ -	$ -	

[Title of Project]				-	[Transmission Line Name] - UG - Install					
1.2	Existing Utility Conflict and Relocation		Mile		$ -		$ -	$ -	$ -	
1.3	Flaggers		DAY	$ -	$ -		$ -	$ -	$ -	
1.4	K Rail / Lane Control / Metal Plates		LF	$ -	$ -		$ -	$ -	$ -	
1.5	Police Support		HR	$ -	$ -		$ -	$ -	$ -	
1.6	Additional Traffic Management		LS	$ -	$ -		$ -	$ -	$ -	
1.7	Access / Clearing Costs		LS	$ -	$ -		$ -	$ -	$ -	
1.8	Snow Removal		DAY	$ -	$ -		$ -	$ -	$ -	
1.9	Existing Utility Protection		Mile	$ -	$ -		$ -	$ -	$ -	
1.10				$ -	$ -		$ -	$ -	$ -	
1.11				$ -	$ -		$ -	$ -	$ -	
1.12				$ -	$ -		$ -	$ -	$ -	
1.13				$ -	$ -		$ -	$ -	$ -	
1.14				$ -	$ -		$ -	$ -	$ -	
1.15				$ -	$ -		$ -	$ -	$ -	
TOTAL - SITE PREP/ACCESS/TRAFFIC MANAGEMENT:					$ -		$ -		$ -	
2. ONSHORE CABLE CONDUITS & VAULTS INSTALLATION										
2.1	Trench Box Shoring & Trench Box Install Crew		Miles		$ -		$ -	$ -	$ -	
2.2	Formwork in Trench		SF		$ -		$ -	$ -	$ -	
2.3	Trench Excavation		CY		$ -		$ -	$ -	$ -	
2.4	Supply & Install XX" Sand Bedding for direct bury conduits		SF		$ -		$ -	$ -	$ -	

[Title of Project]					[Transmission Line Name] - UG - Install					
2.5	Supply & Install Thermal Backfill		CY		$ -		$ -	$ -	$ -	
2.6	Supply & Install Concrete Cap (XX")		CY		$ -		$ -	$ -	$ -	
2.7	Native Backfill -direct bury conduits sys Trench		CY		$ -		$ -	$ -	$ -	
2.8	Supply & Install Ductbank Concrete		CY		$ -		$ -	$ -	$ -	
2.9	Conduit XX" HDPE		LF		$ -		$ -	$ -	$ -	
2.10	Conduit XX" HDPE		LF		$ -		$ -	$ -	$ -	
2.11	Conduit XX" HDPE		LF		$ -		$ -	$ -	$ -	
2.12	Warning Tape		LF		$ -		$ -	$ -	$ -	
2.13	Trench Box Shoring (Vault)		EA		$ -		$ -	$ -	$ -	
2.14	Splice Vault Excavation		CY		$ -		$ -	$ -	$ -	
2.15	Splice Vault Supply & Installation		EA		$ -		$ -	$ -	$ -	
2.16	Splice Vault Backfill		CY		$ -		$ -	$ -	$ -	
2.17	Jack and Bore along Route		LF		$ -		$ -	$ -	$ -	
2.18	HDD along Route		LF		$ -		$ -	$ -	$ -	
2.19	Air Test Ducts		LF		$ -		$ -	$ -	$ -	
2.20	PVMT, ASPHALT, 2" SURFACE COURSE		SY		$ -		$ -	$ -	$ -	
2.21	PVMT, AGGREGATE, 10", BASE COURSE		CY		$ -		$ -	$ -	$ -	
2.22	Concrete Ductbank Thermal Resistivity Testing (every 100CY of concrete poured)		EA		$ -		$ -	$ -	$ -	
2.23	Concrete Ductbank Compressive Strength Testing (every 100CY of concrete poured)		EA		$ -		$ -	$ -	$ -	

[Title of Project]				-	[Transmission Line Name] - UG - Install					
2.24	Backfill Thermal Resistivity Testing (every 100CY of backfill placed)		EA		$ -		$ -	$ -	$ -	
2.25	Additional misc. testing allowance (Native Backfill, Asphalt Density, Concrete Curb etc.)		LS		$ -		$ -	$ -	$ -	
2.26	Excess Materials Disposal to Certified Backfill		CY		$ -		$ -	$ -	$ -	
2.27	Rock Excavation and Removal		LS		$ -		$ -	$ -	$ -	
2.28	Dewatering		EA		$ -		$ -	$ -	$ -	
2.29	Contaminated Water Treatment and Disposal		LS		$ -		$ -	$ -	$ -	
2.30	Contaminated Spoils Disposal		LS		$ -		$ -	$ -	$ -	
2.31	Excavated material - stockpile management		CF		$ -		$ -	$ -	$ -	
2.32				$ -	$ -		$ -	$ -	$ -	
TOTAL - ONSHORE CABLE CONDUITS & VAULTS INSTALLATION:					$ -		$ -		$ -	
3. ONSHORE CABLE PROCUREMENT AND INSTALLATION										
3.1	Circuit #1- Procurement & Installation- XXXkV XXXXkcmil XXXXXXXX Cable		FT		$ -	$ -	$ -	$ -	$ -	
3.2	Circuit #1- Cable Splicing- XXXkV XXXXkcmil XXXXXXXXX Cable		EA		$ -	$ -	$ -	$ -	$ -	
3.3	Circuit #1- Cable Termination- XXXkV XXXXkcmil XXXXXXXXX Cable		EA		$ -	$ -	$ -	$ -	$ -	
3.4	Circuit #2- Procurement & Installation- XXXkV XXXXkcmil XXXXXXXX Cable		FT		$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Transmission Line Name] - UG - Install					
3.5	Circuit #2- Cable Splicing- XXXkV XXXXkcmil XXXXXXXXX Cable		EA		$ -	$ -	$ -	$ -	$ -	
3.6	Circuit #2- Cable Termination- XXXkV XXXXkcmil XXXXXXXXX Cable		EA		$ -	$ -	$ -	$ -	$ -	
3.7	Circuit #3- Procurement & Installation- XXXkV XXXXkcmil XXXXXXXX Cable		FT		$ -	$ -	$ -	$ -	$ -	
3.8	Circuit #3- Cable Splicing- XXXkV XXXXkcmil XXXXXXXXX Cable		EA		$ -	$ -	$ -	$ -	$ -	
3.9	Circuit #3- Cable Termination- XXXkV XXXXkcmil XXXXXXXXX Cable		EA		$ -	$ -	$ -	$ -	$ -	
3.10	Link Box & MH racking		EA		$ -	$ -	$ -	$ -	$ -	
3.11	Fiber Optic Cable		FT		$ -	$ -	$ -	$ -	$ -	
3.12	Ground Continuity Conductor		FT		$ -	$ -	$ -	$ -	$ -	
3.13					$ -	$ -	$ -	$ -	$ -	
3.14					$ -	$ -	$ -	$ -	$ -	
3.15					$ -	$ -	$ -	$ -	$ -	
TOTAL - ONSHORE CABLE PROCUREMENT AND INSTALLATION:					$ -		$ -		$ -	
4. MISCELLANEOUS										
4.1	[Add Description of each conductor type]		LF		$ -		$ -	$ -	$ -	
4.2			LF		$ -		$ -	$ -	$ -	
4.3			LF		$ -		$ -	$ -	$ -	
4.4			LF		$ -		$ -	$ -	$ -	

[Title of Project]				-	[Transmission Line Name] - UG - Install					
4.5			LF		$ -		$ -	$ -	$ -	
4.6			LF		$ -		$ -	$ -	$ -	
4.7	Rider Poles (# of locations)		Set		$ -		$ -	$ -	$ -	
TOTAL: MISCELLANEOUS					$ -		$ -		$ -	
[Transmission Line Name] - UG - Install					$ -		$ -		$ -	**Total Direct Costs**
5. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
	Contractor Mobilization / Demobilization									
5.1	Mob / Demob	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Project Management, Material Handling & Amenities									
5.2	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	Includes all PM Staff, Per Diems, Vehicles and Expenses. 6 months added for pre-construction time and 2 months for close-out time.
5.3	Utility PM and Project Oversite	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
5.4	Site Accommodation, Facilities, Storage	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Engineering									
5.5	Design Engineering	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
5.6	LiDAR	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
5.7	Geotech	-	Location	$ -	$ -		$ -	$ -	$ -	One Test Bore Per Mile.

[Title of Project]				-	[Transmission Line Name] - UG - Install					
5.8	Surveying/Staking	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	
	Testing & Commissioning									
5.9	Testing & Commissioning of T-Line and Equipment	-	LS	$ -	$ -		$ -	$ -	**$ -**	
	Permitting and Additional Costs									
5.10	Environmental Licensing & Permitting Costs	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	In DPS.
5.11	Environmental Mitigation	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	In DPS.
5.12	Warranties / LOC's	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	
5.13	Real Estate Costs (New ROW)	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	
5.14	Real Estate Costs (Incumbent Utility ROW)	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	
5.15	Legal Fees	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	In DPS.
5.16	Sales Tax on Materials	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	
5.17	Fees for permits, including roadway, railroad, building or other local permits	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:					$ -		$ -		**$ -**	**Total Indirect Costs**

[Title of Project]					[Transmission Line Name] - Removal					
Estimate Revision:	**#**	**Total:**	$ -							
	[Title of Project]									
		Supply	*Installation*	*Total*						
	[Transmission Line Name] - Removal									
	1. CLEARING & ACCESS	$ -	$ -	$ -						
	2. FOUNDATIONS	$ -	$ -	$ -						
	3. STRUCTURES	$ -	$ -	$ -						
	4. CONDUCTOR, SHIELDWIRE, OPGW	$ -	$ -	$ -						
	5. INSULATORS, FITTINGS, HARDWARE	$ -	$ -	$ -						
	6. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	$ -	$ -	$ -						
	CONTRACTOR MARK-UP (OH&P)	$ -	$ -	$ -						
	SUBTOTAL:	$ -	$ -	$ -						
	CONTINGENCY ON ENTIRE PROJECT	$ -	$ -	$ -						
	TOTAL:	$ -	$ -	$ -						
Description of Work:										

[Title of Project]					[Transmission Line Name] - Removal					
Item	**Item Description**	**Estimated Quantity**	**Unit of Measure**	**Material Supply Rate**	**Material Supply Sum**	**Labor & Equipment Supply Rate**	**Labor & Equipment Sum**	**Total Unit Rate**	**TOTAL**	**Comments:**
[Transmission Line Name] - Removal										
1	CLEARING & ACCESS			$ -	$ -		$ -	$ -	**$ -**	
2	FOUNDATIONS				$ -		$ -	$ -	**$ -**	
3	STRUCTURES			$ -	$ -		$ -	$ -	**$ -**	
4	CONDUCTOR, SHIELDWIRE, OPGW			$ -	$ -		$ -	$ -	**$ -**	
5	INSULATORS, FITTINGS, HARDWARE			$ -	$ -		$ -	$ -	**$ -**	
TOTAL -Removal:					$ -		$ -		**$ -**	
[Transmission Line Name] - Removal					$ -		$ -		**$ -**	**Total Direct Costs**
6. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
	Contractor Mobilization / Demobilization									
6.1	Mob / Demob	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	
	Project Management, Material Handling & Amenities									
6.2	Project Management & Staffing (includes PM, Field Engineers / Supervision,	-	LS	$ -	$ -	$ -	$ -	$ -	**$ -**	

[Title of Project]					[Transmission Line Name] - Removal					
	Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)									
6.3	Utility PM and Project Oversite	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.4	Site Accommodation, Facilities, Storage	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Engineering									
6.5	Design Engineering	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.6	LiDAR	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.7	Geotech	-	Location	$ -	$ -		$ -	$ -	$ -	
6.8	Surveying/Staking	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Testing & Commissioning									
6.9	Testing & Commissioning of T-Line and Equipment	-	LS	$ -	$ -		$ -	$ -	$ -	
	Permitting and Additional Costs									
6.10	Environmental Licensing & Permitting Costs	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.11	Environmental Mitigation	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.12	Warranties / LOC's	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.13	Real Estate Costs (New ROW)	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.14	Real Estate Costs (Incumbent Utility ROW)	-	LS	$ -	$ -		$ -	$ -	$ -	
6.15	Legal Fees	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Transmission Line Name] - Removal					
6.16		-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.17		-	LS	$ -	$ -		$ -	$ -	$ -	
6.18	Sales Tax on Materials	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
6.19	Fees for permits, including roadway, railroad, building or other local permits	-	LS		$ -	$ -	$ -	$ -	$ -	
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:					$ -		$ -		$ -	**Total Indirect Costs**

[Title of Project]					[Substation Name] - Install					
Estimate Revision:	**#**	**Total:**	**$ -**							
	[Title of Project]									
		Supply	*Installation*	*Total*						
	[Substation Name] - Install									
	1. SITE PREP/ GRADING/ FENCING / CIVIL	**$ -**	**$ -**	**$ -**						
	2. SUBSTATION FOUNDATIONS	**$ -**	**$ -**	**$ -**						
	3. SUBSTATION STRUCTURES	**$ -**	**$ -**	**$ -**						
	4. MAJOR EQUIPMENT	**$ -**	**$ -**	**$ -**						
	5. TURNKEY SYSTEMS	**$ -**	**$ -**	**$ -**						
	6. UNDERGROUND CABLES AND TERMINATIONS	**$ -**	**$ -**	**$ -**						

[Title of Project]					[Substation Name] - Install					-
	7. MINOR EQUIPMENT	$ -	$ -	$ -						
	8. CONTROL HOUSE / PANELS	$ -	$ -	$ -						
	9. MINOR MATERIALS	$ -	$ -	$ -						
	10. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	$ -	$ -	$ -						
	CONTRACTOR MARK-UP (OH&P)	$ -	$ -	$ -	**0.0%**					
	SUBTOTAL:	$ -	$ -	$ -						
	CONTINGENCY ON ENTIRE PROJECT	$ -	$ -	$ -	**0.0%**					
	TOTAL:	$ -	$ -	$ -						
Description of Work:										
Item	**Item Description**	**Estimated Quantity**	**Unit of Measure**	**Material Supply Rate**	**Material Supply Cost**	**Labor & Equipment Supply Rate**	**Labor & Equipment Cost**	**Total Unit Rate**	**TOTAL**	**Comments:**
[Substation Name] - Install										
1. SITE PREP/ GRADING/ FENCING / CIVIL										
1.1	Site Works including clearing, sediment controls, rough grading, and final grading.		ACRES	$ -	$ -	$ -	$ -	$ -	**$** -	
1.2	Station stone within substation fence.		CY	$ -	$ -	$ -	$ -	$ -	**$** -	
1.3	Substation Fence		LF	$ -	$ -	$ -	$ -	$ -	**$** -	
1.4	Retaining Wall		LF	$ -	$ -	$ -	$ -	$ -	**$** -	
1.5	Compacted Fill		CY	$ -	$ -	$ -	$ -	$ -	**$** -	
1.6	Permanent Access Road		LF	$ -	$ -	$ -	$ -	$ -	**$** -	

[Title of Project]					[Substation Name] - Install					-
TOTAL - SITE PREP/ GRADING/ FENCING / CIVIL					$ -		$ -		$ -	
2. SUBSTATION FOUNDATIONS										
2.1	**[Voltage Class]**									
2.1a	[List Foundation types]		EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1b			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1c			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1d			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1e			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1f			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1g			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1h			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1j			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.1k			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.2	**[Voltage Class]**									
2.2a	[List Foundation types]		EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.2b			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.2c			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.2d			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.2e			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	
2.2f			EA	$ -	$ -	$ -	$ -	$ -	**$ -**	

[Title of Project]					[Substation Name] - Install					-
2.2g			EA	$ -	$ -	$ -	$ -	$ -	$ -	
2.2h			EA	$ -	$ -	$ -	$ -	$ -	$ -	
2.2j			EA	$ -	$ -	$ -	$ -	$ -	$ -	
2.2k			EA	$ -	$ -	$ -	$ -	$ -	$ -	
				$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL - SUBSTATION FOUNDATIONS					$ -		$ -		$ -	
3. SUBSTATION STRUCTURES										
3.1	**[Voltage Class]**									Steel Weight/ Structure
3.1a	[List Structure types]		EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1b			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1c			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1d			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1e			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1f			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1g			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1h			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1j			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.1k			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2	**[Voltage Class]**									

[Title of Project]					[Substation Name] - Install					-
3.2a	[List Structure types]		EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2b			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2c			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2d			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2e			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2f			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2g			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2h			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2j			EA	$ -	$ -	$ -	$ -	$ -	$ -	
3.2k			EA	$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL - SUBSTATION STRUCTURES					$ -		$ -		$ -	
4. MAJOR EQUIPMENT										
4.1	**[Voltage Class}**									
4.1a	[ListMajor Equipment - Transformers, breakers, capacitors, reactors, etc)]		EA	$ -	$ -	$ -	$ -	$ -	$ -	
4.1b			EA	$ -	$ -	$ -	$ -	$ -	$ -	
4.1c			EA	$ -	$ -	$ -	$ -	$ -	$ -	
4.1d			EA	$ -	$ -	$ -	$ -	$ -	$ -	
4.1e			EA	$ -	$ -	$ -	$ -	$ -	$ -	
4.2	**[Voltage Class}**									
4.2a	[ListMajor Equipment]		EA	$ -	$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Substation Name] - Install					-
4.2b			EA	$ -	$ -	$ -	$ -	$ -	$ -	
4.2c			EA	$ -	$ -	$ -	$ -	$ -	$ -	
4.2d			EA	$ -	$ -	$ -	$ -	$ -	$ -	
4.2e			EA	$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL - MAJOR EQUIPTMENT					$ -		$ -		$ -	
5. MANUFACTURER TURNKEY EQUIPMENT SYSTEMS (HVDC, GIS, etc.)										
5.1	**[Voltage Class}**									
5.1a	[List Turnkey Equipment System -HVDC, GIS, etc. include description of scope of work included such as components, building, foundations, shipping, installation, testing, etc.)]		EA	$ -	$ -	$ -	$ -	$ -	$ -	
5.1b			EA	$ -	$ -	$ -	$ -	$ -	$ -	
5.1c			EA	$ -	$ -	$ -	$ -	$ -	$ -	
5.1d			EA	$ -	$ -	$ -	$ -	$ -	$ -	
5.1e			EA	$ -	$ -	$ -	$ -	$ -	$ -	
5.2	**[Voltage Class}**									
5.2a	[List Turnkey Equipment System -HVDC, GIS, etc. include description of scope of work included such as components, building, foundations, shipping, installation, testing, etc.)]		EA	$ -	$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Substation Name] - Install					-
5.2b			EA	$ -	$ -	$ -	$ -	$ -	$ -	
5.2c			EA	$ -	$ -	$ -	$ -	$ -	$ -	
5.2d			EA	$ -	$ -	$ -	$ -	$ -	$ -	
5.2e			EA	$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL - TURNKEY SYSTEMS					$ -		$ -		$ -	
6. UNDERGROUND POWER CABLES AND TERMINATIONS										
6.1	**[Voltage Class}**									
6.1a	[List underground power cables routed within substation or interties between adjacent substations. (Do not include transmission lines cables included in Transmission Section.) List cable terminations installed within the substation.]		EA	$ -	$ -	$ -	$ -	$ -	$ -	
6.1b			EA	$ -	$ -	$ -	$ -	$ -	$ -	
6.1c			EA	$ -	$ -	$ -	$ -	$ -	$ -	
6.1d			EA	$ -	$ -	$ -	$ -	$ -	$ -	
6.1e			EA	$ -	$ -	$ -	$ -	$ -	$ -	
6.2	**[Voltage Class}**									

[Title of Project]					[Substation Name] - Install					-
6.2a	[List underground power cables routed within substation or interties between adjacent substations. (Do not include transmission lines cables included in Transmission Section.) List cable terminations installed within the substation.]		EA	$ -	$ -	$ -	$ -	$ -	**$** -	
6.2b			EA	$ -	$ -	$ -	$ -	$ -	**$** -	
6.2c			EA	$ -	$ -	$ -	$ -	$ -	**$** -	
6.2d			EA	$ -	$ -	$ -	$ -	$ -	**$** -	
6.2e			EA	$ -	$ -	$ -	$ -	$ -	**$** -	
TOTAL - UNDERGROUND POWER CABLES AND TERMINATIONS					$ -		$ -		$ -	
7. MINOR EQUIPMENT										
7.1	**[Voltage Class]**									
7.1a	[List Equipment -Switches, VT's CCVT's, CT's Arresters, Wave Traps, Station Service equipment, etc]		EA	$ -	$ -	$ -	$ -	$ -	**$** -	
7.1b			EA	$ -	$ -	$ -	$ -	$ -	**$** -	
7.1c			EA	$ -	$ -	$ -	$ -	$ -	**$** -	
7.1d			EA	$ -	$ -	$ -	$ -	$ -	**$** -	
7.1e			EA	$ -	$ -	$ -	$ -	$ -	**$** -	
7.1f			EA	$ -	$ -	$ -	$ -	$ -	**$** -	

[Title of Project]					[Substation Name] - Install					-
7.1g			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.1h			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.1j			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2	**[Voltage Class}**									
7.2a	[List Eqiuipment -Switches, VT's CCVT's, CT's Arresters, Wave Traps, Station Service equipment, etc]		EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2b			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2c			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2d			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2e			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2f			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2g			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2h			EA	$ -	$ -	$ -	$ -	$ -	$ -	
7.2j			EA	$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL - MINOR EQUIPMENT / MATERIALS					$ -		$ -		$ -	
8. CONTROL HOUSE / PANELS / GENERATOR										
8.1	CONTROL HOUSE ([Dimensions])		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.2	Batteries		EA	$ -	$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Substation Name] - Install					-
8.3	Control Cables		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.4	SCADA and Communications		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.5	Low Voltage AC Distribution		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.6	DC Distribution System		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.7	Security		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.8	Fire Alarm		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.9	Generator		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.10	Protection and Telecom Equipment Panels		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.11	Protection and Telecom Equipment Panels		EA	$ -	$ -	$ -	$ -	$ -	$ -	
8.12	Protection and Telecom Equipment Panels		EA	$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL - CONTROL HOUSE / PANELS / GENERATOR					$ -		$ -		$ -	
9. MINOR MATERIALS										
9.1	Cable Trench System		LF	$ -	$ -	$ -	$ -	$ -	$ -	
9.2	Conduit		LF	$ -	$ -	$ -	$ -	$ -	$ -	
9.3	Rigid Bus, Fittings & Insulators		LF	$ -	$ -	$ -	$ -	$ -	$ -	
9.4	Strain Bus, Connectors & Insulators		LF	$ -	$ -	$ -	$ -	$ -	$ -	
9.5	Grounding System		EA	$ -	$ -	$ -	$ -	$ -	$ -	
9.6			EA	$ -	$ -	$ -	$ -	$ -	$ -	
9.7			EA	$ -	$ -	$ -	$ -	$ -	$ -	
9.8			LS	$ -	$ -	$ -	$ -	$ -	$ -	
9.9			LS	$ -	$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Substation Name] - Install					-
9.10			LS	$ -	$ -	$ -	$ -	$ -	$ -	
9.11	Misc. Materials (Above and Below Ground)		LS	$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL - MISC ITEMS					$ -		$ -		$ -	
[Substation Name] - Install					$ -		$ -		$ -	**Total Direct Costs**
10. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
	Contractor Mobilization / Demobilization									
10.1	Mob / Demob	1.0	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Project Management, Material Handling & Amenities									
10.2	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost Manager, SHEQ Staff, and Admin Staff)	1	LS	$ -	$ -	$ -	$ -	$ -	$ -	
10.3	Utility PM and Project Oversite	1	LS	$ -	$ -	$ -	$ -	$ -	$ -	
10.4	Site Accommodation, Facilities, Storage	1	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Engineering									
10.5	Design Engineering	1	LS	$ -	$ -	$ -	$ -	$ -	$ -	
10.6	LiDAR	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
10.7	Geotech	4	EA	$ -	$ -		$ -	$ -	$ -	
10.8	Surveying/Staking	1	Site	$ -	$ -	$ -	$ -	$ -	$ -	
	Testing & Commissioning									
10.9	Testing & Commissioning of T-Line and Equipment	1	LS	$ -	$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Substation Name] - Install					
	Permitting and Additional Costs									
10.10	Environmental Licensing & Permitting Costs	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
10.11	Environmental Mitigation	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
10.12	Warranties / LOC's	1	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
10.13	Real Estate Costs (New)	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
10.14	Real Estate Costs (Incumbent Utility)	1	LS	$ -	$ -		$ -	$ -	**$** -	
10.15	Legal Fees	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
10.16	Allowance for Funds Used During Construction (AFUDC)	-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
10.17		-	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
10.18	Sales Tax on Materials	1	LS	$ -	$ -	$ -	$ -	$ -	**$** -	
10.19	Fees for permits, including roadway, railroad, building or other local permits	1	LS		$ -	$ -	$ -	$ -	**$** -	
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:					$ -		$ -		**$** -	**Total Indirect Costs**

[Title of Project]					[Substation Name] - Removal					
Estimate Revision:	**#**	**Total:**	**$** -							
	[Title of Project]									
		Supply	*Installation*	*Total*						

[Title of Project]					[Substation Name] - Removal					
	[Substation Name] - Removal									
	1. SITE PREP/ GRADING/ FENCING / CIVIL	$ -	$ -	$ -						
	2. SUBSTATION FOUNDATIONS	$ -	$ -	$ -						
	3. SUBSTATION STRUCTURES	$ -	$ -	$ -						
	4. MAJOR EQUIPMENT	$ -	$ -	$ -						
	5. MINOR EQUIPMENT	$ -	$ -	$ -						
	6. CONTROL HOUSE / PANELS	$ -	$ -	$ -						
	7. MINOR MATERIALS	$ -	$ -	$ -						
	8. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:	$ -	$ -	$ -						
	CONTRACTOR MARK-UP (OH&P)	$ -	$ -	$ -						
	SUBTOTAL:	$ -	$ -	$ -						
	CONTINGENCY ON ENTIRE PROJECT	$ -	$ -	$ -						
	TOTAL:	$ -	$ -	$ -						
Description of Work:										
Item	**Item Description**	**Estimated Quantity**	**Unit of Measure**	**Material Supply Rate**	**Material Supply Cost**	**Labor & Equipment Supply Rate**	**Labor & Equipment Cost**	**Total Unit Rate**	**TOTAL**	**Comments:**
[Substation Name] - Removal										
1. SITE PREP/ GRADING/ FENCING / CIVIL										

[Title of Project]					[Substation Name] - Removal					
1.1	[List Major components of removal]			$ -	$ -		$ -	$ -	$ -	
1.2				$ -	$ -		$ -	$ -	$ -	
1.3				$ -	$ -		$ -	$ -	$ -	
1.4				$ -	$ -	$ -	$ -	$ -	$ -	
1.5				$ -	$ -	$ -	$ -	$ -	$ -	
1.6				$ -	$ -	$ -	$ -	$ -	$ -	
1.7				$ -	$ -	$ -	$ -	$ -	$ -	
1.8				$ -	$ -	$ -	$ -	$ -	$ -	
1.9				$ -	$ -	$ -	$ -	$ -	$ -	
1.10				$ -	$ -	$ -	$ -	$ -	$ -	
TOTAL - Removal Costs					$ -		$ -		$ -	
[Substation Name] - Removal					$ -		$ -		$ -	**Total Direct Costs**
8. MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:										
	Contractor Mobilization / Demobilization									
8.1	Mob / Demob	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Project Management, Material Handling & Amenities									
8.2	Project Management & Staffing (includes PM, Field Engineers / Supervision, Scheduler and Cost	-	LS			$ -	$ -	$ -	$ -	

[Title of Project]					[Substation Name] - Removal					
	Manager, SHEQ Staff, and Admin Staff)									
8.3	Utility PM and Project Oversite	-	LS		$ -	$ -	$ -	$ -	$ -	
8.4	Site Accommodation, Facilities, Storage	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Engineering									
8.5	Design Engineering	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.6	LiDAR	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.7	Geotech	-	EA	$ -	$ -		$ -	$ -	$ -	
8.8	Surveying/Staking	-	Site	$ -	$ -	$ -	$ -	$ -	$ -	
	Testing & Commissioning									
8.9	Testing & Commissioning of T-Line and Equipment	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
	Permitting and Additional Costs									
8.10	Environmental Licensing & Permitting Costs	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.11	Environmental Mitigation	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.12	Warranties / LOC's	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.13	Real Estate Costs (New)	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.14	Real Estate Costs (Incumbent Utility)	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.15	Legal Fees	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.16	Allowance for Funds Used During Construction (AFUDC)	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	

[Title of Project]					[Substation Name] - Removal					
8.17		-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.18	Sales Tax on Materials	-	LS	$ -	$ -	$ -	$ -	$ -	$ -	
8.19	Fees for permits, including roadway, railroad, building or other local permits	-	LS		$ -	$ -	$ -	$ -	$ -	
TOTAL - MOB/DEMOB, ENGINEERING, PERMITTING, T&C, PM & INDIRECTS:					$ -		$ -		$ -	**Total Indirect Costs**

ESTIMATE ASSUMPTIONS & CLARIFICATIONS	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	