PJM RTEP – 2014 Project Proposal Window 2:

Skin Fork Area Improvements

A proposal to PJM Interconnection, Submitted November 17, 2014

Submitted by

American Electric Power "AEP" Transmission

1 Riverside Plaza, Columbus, Ohio 43215-2372

A. Executive Summary

Introduction:

American Electric Power ("AEP") submits this proposal (the "Proposal") to PJM Interconnection, LLC ("PJM") in response to the *PJM RTEP 2014 Project Proposal Window 2 (AEP Criteria Thermal)*. This Proposal details a proposed solution to one or more potential violations on facilities referenced in the *Problem Statement & Requirements Document*, dated October 17, 2014. AEP seeks to be considered the Designated Entity for the project described within this Proposal.

As the Designated Entity AEP is proposing to construct, own, operate and maintain the proposed greenfield station, as well as the proposed 138 and 46 kV lines.

Proposed Project:

The Proposal intends to establish a greenfield 138/46 kV station near Skin Fork station in Bald Knob, WV. A new double circuit 138 kV line will extend to the west from two 138 kV circuit breakers from the new station and cut into the Baileysville – Sundial 138kV circuit. Greenfield station equipment will include a 138/46 kV transformer with high side circuit switcher and low side breaker protection. A new 46 kV line will connect the low side of the 138/46 kV transformer to the existing Skin Fork station at a breaker. As part of this proposed project the Becco – Latrobe section of the Becco – Skin Fork 46 kV circuit will be rebuilt. Circuit switchers will be added to the high side of the 46/12 kV transformers at Skin Fork and Becco stations.

Total project cost is expected to be $25,977,000 with an in-service date by early 2019. Please see sections C-2 and C-3 of this document for further information related to cost and schedule.

Resolved Reliability Problems:

FG#	Monitored Facility	Rat e B	% Overload	Cont Name	Contingency	Violation Date	Analysis Case
AEP-T8	244471 BECCO 46.0 244481 LATROBE 46.0 1	23	123.67	8756_B3_SKINFORK 46.0-T1	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 / 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1 END	6/1/2019	TO criteria_AEP_2019.sav
AEP-T11	244471 BECCO 46.0 244481 LATROBE 46.0 1	23	121.1	8757_B2	CONTINGENCY '8757_B2' OPEN BRANCH FROM BUS 244334 TO BUS 244436 CKT 1 / 244334 BAILSVL 46.0 244436 OCEANA 46.0 1 END	6/1/2019	TO criteria_AEP_2019.sav
AEP-T12	244471 BECCO 46.0 244481 LATROBE 46.0 1	23	115.03	8762_B3_05SUNDL2 138-	CONTINGENCY '8762_B3_05SUNDL2 138-' OPEN BRANCH FROM BUS 244529 TO BUS 242821 CKT 1 / 244529 SUNDILEQ 999 242821 05SUNDL2 138 1 OPEN BRANCH FROM BUS 244529 TO BUS 244528 CKT 1 / 244529 SUNDILEQ 999 244528 SUNDIAL 69.0 1 OPEN BRANCH FROM BUS 244529 TO BUS 244448 CKT 1 / 244529 SUNDILEQ 999 244448 SUNDIAL 46.0 1 OPEN BRANCH FROM BUS 242696 TO BUS 242821 CKT 1 / 242696 05KOPPER 138 242821 05SUNDL2 138 1 OPEN BRANCH FROM BUS 242821 TO BUS 242828 CKT 1 / 242821 05SUNDL2 138 242828 05TENMIL 138 1 END	6/1/2019	TO criteria_AEP_2019.sav

AEP-T15	244471	BECCO	46.0	244481	LATROBE	46.0	1	23	106.38	5356_B2_TOR12638	CONTINGENCY '5356_B2_TOR12638' OPEN BRANCH FROM BUS 244477 TO BUS 242554 CKT 1 / 244477 BIM EQ 999 242554 05BIM 138 1 OPEN BRANCH FROM BUS 244477 TO BUS 244475 CKT 1 / 244477 BIM EQ 999 244475 BIM 69.0 1 OPEN BRANCH FROM BUS 244477 TO BUS 244474 CKT 1 / 244477 BIM EQ 999 244474 BIM 46.0 1 OPEN BRANCH FROM BUS 242554 TO BUS 242847 CKT 1 / 242554 05BIM 138 242847 05WHARTZ 138 1 OPEN BRANCH FROM BUS 242799 TO BUS 242820 CKT 1 / 242799 05SHUMAT 138 242820 05SUNDLI 138 1 OPEN BRANCH FROM BUS 242799 TO BUS 242847 CKT 1 / 242799 05SHUMAT 138 242847 05WHARTZ 138 1 OPEN BRANCH FROM BUS 242846 TO BUS 242847 CKT 1 / 242846 05WHARTN 138 242847 05WHARTZ 138 1 OPEN BRANCH FROM BUS 242799 TO BUS 244487 CKT Z1 / 242799 05SHUMAT 138 244487 SHUMATE 23.0 Z1 OPEN BRANCH FROM BUS 242846 TO BUS 244533 CKT 1 / 242846 05WHARTN 138 244533 WHARTONJL 13.2 1 OPEN BRANCH FROM BUS 244475 TO BUS 244479 CKT 1 / 244475 BIM 69.0 244479 CHAP 69.0 1 OPEN BRANCH FROM BUS 244475 TO BUS 244504 CKT 1 / 244475 BIM 69.0 244504 KOHLSAAT 69.0 1 END		6/1/2019 TO criteria_AEP_2019.sav
AEP-T16	244471	BECCO	46.0	244481	LATROBE	46.0	1	23	106.26	8761_B2_WOMOAB	CONTINGENCY '8761_B2_WOMOAB' OPEN BRANCH FROM BUS 244334 TO BUS 244436 CKT 1 / 244334 BAILSYL 46.0 244436 OCEANA 46.0 1 OPEN BRANCH FROM BUS 244393 TO BUS 244436 CKT 1 / 244393 COAL MTN 46.0 244436 OCEANA 46.0 1 OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 / 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244460 TO BUS 244454 CKT 1 / 244460 DRYBRANC 46.0 244454 UPPER BR 46.0 1 OPEN BRANCH FROM BUS 244436 TO BUS 244454 CKT 1 / 244436 OCEANA 46.0 244454 UPPER BR 46.0 1 END		6/1/2019 TO criteria_AEP_2019.sav
AEP-T25	244516	SKINFORK	46.0	244526	THREEFRK	46.0	1	29	100.29	8758_B3_BECCO 46.0-T1	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END		6/1/2019 TO criteria_AEP_2019.sav

FG#	Bus #	Bus Name	Base	Cont Name	Base Vi	Cont Vi	Contingency		Violation Da	Analysis Case
AEP-V1	244520	TONEYFRK	46	8758_B3_BECCO 46.0-T1	0.9596	0.8691	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 END	/ 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V2	244541	CYCLONE	46	8758_B3_BECCO 46.0-T1	0.9597	0.8691	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 END	/ 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V3	244481	LATROBE	46	8758_B3_BECCO 46.0-T1	0.9793	0.8725	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 END	/ 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V4	244537	CRANEC2	46	8758_B3_BECCO 46.0-T1	0.9649	0.8749	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 END	/ 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V5	244536	CRANEC1	46	8758_B3_BECCO 46.0-T1	0.9649	0.8749	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 END	/ 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V6	244505	PARDEE	46	8758_B3_BECCO 46.0-T1	0.9594	0.886	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 END	/ 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V7	244526	THREEFRK	46	8756_B3_SKINFORK 46.0-T1	0.9619	0.9005	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 END	/ 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V10	244526	THREEFRK	46	8758_B3_BECCO 46.0-T1	0.9619	0.9027	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 END	/ 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V12	244505	PARDEE	46	8756_B3_SKINFORK 46.0-T1	0.9594	0.9039	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 END	/ 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1		6/1/2019 TO criteria_AEP_2019.sav
AEP-V25	244520	TONEYFRK	46	8756_B3_SKINFORK 46.0-T1	0.9596	0.9116	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 END	/ 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1		6/1/2019 TO criteria_AEP_2019.sav

AEP-V26	244541	CYCLONE	46	8756_B3_SKINFORK 46.0-T1	0.9597	0.9116	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 / 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V30	244536	CRANEC1	46	8756_B3_SKINFORK 46.0-T1	0.9649	0.9171	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V31	244537	CRANEC2	46	8756_B3_SKINFORK 46.0-T1	0.9649	0.9172	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V34	244520	TONEYFRK	46	8758_B3_BECCO 46.0-T1	0.9596	0.8691	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V35	244541	CYCLONE	46	8758_B3_BECCO 46.0-T1	0.9597	0.8691	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V36	244481	LATROBE	46	8758_B3_BECCO 46.0-T1	0.9793	0.8725	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V37	244537	CRANEC2	46	8758_B3_BECCO 46.0-T1	0.9649	0.8749	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V38	244536	CRANEC1	46	8758_B3_BECCO 46.0-T1	0.9649	0.8749	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V39	244505	PARDEE	46	8758_B3_BECCO 46.0-T1	0.9594	0.886	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V40	244526	THREEFRK	46	8756_B3_SKINFORK 46.0-T1	0.9619	0.9005	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 / 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V43	244526	THREEFRK	46	8758_B3_BECCO 46.0-T1	0.9619	0.9027	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V45	244505	PARDEE	46	8756_B3_SKINFORK 46.0-T1	0.9594	0.9039	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 / 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V58	244520	TONEYFRK	46	8756_B3_SKINFORK 46.0-T1	0.9596	0.9116	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 / 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V59	244541	CYCLONE	46	8756_B3_SKINFORK 46.0-T1	0.9597	0.9116	CONTINGENCY '8756_B3_SKINFORK 46.0-T1' OPEN BRANCH FROM BUS 244460 TO BUS 244516 CKT 1 / 244460 DRYBRANC 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244404 TO BUS 244516 CKT 1 / 244404 FARLEYBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244513 TO BUS 244516 CKT 1 / 244513 ROCKLKBR 46.0 244516 SKINFORK 46.0 1 OPEN BRANCH FROM BUS 244516 TO BUS 244526 CKT 1 / 244516 SKINFORK 46.0 244526 THREEFRK 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V63	244536	CRANEC1	46	8756_B3_SKINFORK 46.0-T1	0.9649	0.9171	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V64	244537	CRANEC2	46	8756_B3_SKINFORK 46.0-T1	0.9649	0.9172	CONTINGENCY '8758_B3_BECCO 46.0-T1' OPEN BRANCH FROM BUS 244471 TO BUS 244478 CKT 1 / 244471 BECCO 46.0 244478 BRAEHOLM 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244481 CKT 1 / 244471 BECCO 46.0 244481 LATROBE 46.0 1 OPEN BRANCH FROM BUS 244471 TO BUS 244517 CKT 1 / 244471 BECCO 46.0 244517 SLAGLE 46.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
AEP-V33	244479	CHAP 69		5356_B2_TOR12638	0.9844	0.9198	CONTINGENCY '5356_B2_TOR12638' OPEN BRANCH FROM BUS 244477 TO BUS 242554 CKT 1 / 244477 BIM EQ 999 242554 05BIM 138 1 OPEN BRANCH FROM BUS 244477 TO BUS 244475 CKT 1 / 244477 BIM EQ 999 244475 BIM 69.0 1 OPEN BRANCH FROM BUS 244477 TO BUS 244474 CKT 1 / 244477 BIM EQ 999 244474 BIM 46.0 1 OPEN BRANCH FROM BUS 242554 TO BUS 242847 CKT 1 / 242554 05BIM 138 242847 05WHARTZ 138 1 OPEN BRANCH FROM BUS 242799 TO BUS 242820 CKT 1 / 242799 05SHUMAT 138 242820 05SUNDL1 138 1 OPEN BRANCH FROM BUS 242799 TO BUS 242847 CKT 1 / 242799 05SHUMAT 138 242847 05WHARTZ 138 1 OPEN BRANCH FROM BUS 242846 TO BUS 242847 CKT 1 / 242846 05WHARTN 138 242847 05WHARTZ 138 1 OPEN BRANCH FROM BUS 242799 TO BUS 244487 CKT Z1 / 242799 05SHUMAT 138 244487 SHUMATE 23.0 Z1 OPEN BRANCH FROM BUS 242846 TO BUS 244533 CKT 1 / 242846 05WHARTN 138 244533 WHARTONL 13 2 1 OPEN BRANCH FROM BUS 244475 TO BUS 244479 CKT 1 / 244475 BIM 69.0 244479 CHAP 69.0 1 OPEN BRANCH FROM BUS 244475 TO BUS 244504 CKT 1 / 244475 BIM 69.0 244504 KOHLSAAT 69.0 1 END	6/1/2019 TO criteria_AEP_2019.sav
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B. Company Evaluation Information

In general, AEP will use the following approaches to provide project engineering and design, depending on the size, scope and location of a project:

Internal AEP resources will provide engineering services and other functions required for the final design package. AEP's capabilities are further described below.

An Engineering, Procurement and Construction (EPC) firm will provide multiple aspects of the project, including engineering and other functions required for a final design package. The experienced resources of AEP will be used to consult, review and approve this documentation. The EPC firm's project managers will monitor progress and communicate project status to the AEP team.

An experienced contractor will be used to provide one or all of these services. The approved firm will work closely with project management to monitor progress and communicate project status to the AEP team.

In the less likely event that an EPC firm is used, AEP's internal transmission engineering will coordinate with them and conduct a review and acceptance or approval, as required, of all engineering deliverables. This will include predefined reviews of engineering and design drawing packages throughout the engineering life cycle, review of equipment and material specifications and participation in witness and acceptance testing. In addition, AEP's transmission engineering personnel will lend assistance to the EPC firm as required for construction support. AEP transmission will maintain an assigned engineering team to provide the services stated above and any engineering support as required through project completion.

AEP Engineering Capabilities

AEP currently employs nearly 450 professionals in its line, station, and protection and control engineering organizations. In-house engineering expertise allows AEP to consistently deliver high-quality results and advanced technical innovations that both improve the transmission system and add value for customers. These skills have been developed over a 100+ year history of siting, designing, constructing, and operating over 37,000 miles of transmission lines and over 4,000 substations. AEP has multiple existing or pending patents for technologies developed throughout its history. In addition, as part of its current business practice, AEP has established partnerships with third-party engineering consultants who are trained in the appropriate application of AEP specifications and standards. If the work is performed by external consultants, AEP has extensive experience in providing oversight and is one of the few companies with the breadth and depth to effectively oversee all types of transmission siting, permitting, design and construction completed by outside firms.

AEP preliminary engineering capabilities include the following:

- Preparation, review and approval of scope documents
- Development of project schedule with project management

- Support of public Involvement & key stakeholder engagement efforts
- Support of permitting efforts as required
- Support of preparation of required siting applications, as required
- Contribution to functional estimates
- Calculation of preliminary project materials to support material bid activities early in the project to avoid project delays
- Development of construction labor resource strategy
- Coordination with right-of-way organizations
- Flexible line engineering based on routing needs
- Preparation of bids, evaluation of contracts
- Oversight for geotechnical investigation, LiDAR/Photography acquisition and ground surveying services
- Assistance in preparing bid specifications, bid analysis, awarding contracts, material testing, etc., for material procurement, as required
- Supply of line route and asset location information to right-of-way and other project team members
- Support of switching plan development for use in commissioning and energization

A key purpose of the preliminary engineering activities is to support siting and permitting efforts. Additionally, these preliminary engineering activities allow for expediting procurement activities. Engineers are typically engaged in development of the conceptual scope with the assigned lead engineer developing the functional scope. This may involve support from an assigned project manager. Engineers also engage as required with siting, permitting, construction, and right-of-way personnel on issues involving challenging terrain, preliminary project estimates and other project-specific needs. AEP has these abilities and expertise in-house.

AEP engineering is adept at maximizing both design approaches and construction efficiencies, instituting safe work practices and ensuring adherence to the project schedule and budget. If the work is performed by external consultants, AEP has extensive experience in providing oversight and is one of the few companies with the breadth and depth to effectively oversee all types of transmission siting, permitting, design and construction completed by outside firms.

If the project is led by an external consultant or EPC firm, AEP's internal transmission engineering will coordinate with these parties to conduct and complete a review and acceptance of all engineering deliverables. This includes scheduled reviews of engineering and design drawing packages throughout the project life cycle, review of equipment and material specifications and participation in witness and acceptance testing. AEP material, engineering, construction and safety specifications will be used during the project life cycle to achieve these objectives.
Key detailed engineer activities performed by AEP engineers include the following:

- Prepare designs and drawings using industry standard tools like PLS-CADD® and MicroStation®
- Produce and assemble Plan-and-Profile drawings, final bill of materials, standards, phasing diagrams, station drawings, panel drawings, and other such materials required for project specification book
- Produce detailed circuit diagrams, panel configuration schematics, clearances within substations for specified voltage levels, substation and structure grounding and control house specifications
- Prepare clearing specifications book

• Prepare one-line diagrams for installers
• Work with AEP and other environmental personnel to prepare Storm Water Pollution Prevention Plans and other environmental documents required
• Provide engineering construction support
• Ensure that field marked prints are returned to the engineer and electronic records are updated before project closeout

AEP engineers function as the primary contact for information required to support estimation, project management, siting and right-of-way, construction, testing and commissioning.

- Detailed description of proposing entity's (or its affiliate, partner or parent company) experience in:
  - developing, constructing, operating and maintaining the types of transmission facilities included in the project proposal;
  - adhering to standardized construction, maintenance, and operating practices, including the capability for emergency response and restoration of damaged equipment;
  - working in the geographical region in which the project has been proposed;
  - acquiring rights of way with specific emphasis on the geographical region in which the project has been proposed.

Permitting

AEP brings extensive experience and knowledge in transmission line siting, which includes regulatory approvals and environmental permitting. This experience traverses a 13 state service territory, resulting in broad and comprehensive siting and permitting ability.

AEP's has built many major transmission lines across state borders and federal lands, successfully obtaining state regulatory and federal permits. AEP has located and built EHV lines from the plains of Texas to the rugged Appalachian Mountains of West Virginia with each region having its unique challenges. The successful installation of several new transmission lines to support the Turk power plant illustrates AEP's ability to site and complete a complex project over a wide area in a short period of time.

Environmental

AEP's Capabilities

While the engineering groups at AEP deal with most of the following environmental issues as part of the routing, siting and permitting process, AEP has dedicated environmental specialists who work with them to protect the natural and human environments into which those assets are installed.

Concerns encountered when working in or around water can include the following:

• Construction activities in wetlands, streams, floodplains and critical dunes
• Storm water runoff from construction sites
• Run-off from hydro excavating activities and concrete wash off facilities

- Frac-outs from high pressure directional drilling
- Encounters with endangered species

Concerns encountered during construction on land can include the following:

- Management of excess soil and spoil material from construction sites, ensuring proper re-use or disposal and/or properly handling of PCBs (prevalent in substations built before 1980).
- Building demolitions present issues with asbestos, which is prevalent in stations and other buildings constructed prior to 1980. Asbestos removal and disposal is highly regulated by the Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA), and asbestos inspections and pre-demolition notifications must be filed with the responsible state regulatory agency before demolition occurs. Additionally, there may also be other wastes (hazardous and non-hazardous) left behind at the site that require proper disposal.
- Electrical equipment/used oil/ batteries/waste/scrap metals removal/recycling.
- Spill Prevention, Controls and Countermeasures (SPCC) plans. These plans must conform to federal SPCC regulations and must be in place before the facility is placed in operation. Plans are updated within six months of when changes occur.
- Spills must be promptly reported, contained and cleaned up in a timely manner.

Environmental management capabilities include (but are not limited to) the following:

- Mitigation plans and other measures/mitigations against environmental damage from construction of new transmission assets and maintenance of existing assets
- Avoidance of culturally significant areas, parks, and historical areas
- Environmental monitoring and testing
- State and local erosion and sediment control rules
- Oil SPCC plans and spill containment
- US Army Corps of Engineers permits (impacts to wetlands, water bodies, structures, fill, and crossings) and Similar state laws for impacts to water bodies, Stream crossings and borings
- Other state-specific environmental programs (e.g., Michigan Critical Dunes, floodplain construction)
- Wildlife protection laws (e.g., AEP Avian Protection Plan)
- Endangered species (e.g., the Indiana Bat)
- Environmental site assessments
- Station electrical equipment/oil removal and recycling
- Station/TL excavations activities (review excavation plans, conduct sampling, provide guidance on soil disposal)
- Site remediation (PCBs, TPH, arsenic, etc.)
- Waste management (solid & hazardous)
- Asbestos surveys and related waste disposal
- Building demolitions and pre-demolition regulatory notifications
- SPCC Plan surveys and survey updates
- Spills (oil, fuel, herbicide)
- Wood poles and preservatives

AEP ensures that internal and contract crews are trained and understand what is required to address various environmental issues and comply with applicable laws in a safe and effective manner during the various phases of any project.

Routing and Siting

AEP has several options to provide the routing and siting elements of project execution, taking into account the unique elements of each project like line length, line voltage, project location, environmental issues and federal, state and local requirements:

- Routing and siting studies will be performed by the internal routing and siting resources of AEP's described below.
- A specialized line routing and siting firm located close to the project area will provide routing and siting services via a service contract. AEP will monitor the progress of these activities via the designated project manager. AEP often use external firms with deep expertise in this specialized field and have extensive experience in completing projects across the United States.
- An EPC firm that is capable of successfully completing all engineering, procurement and construction aspects of the project development plan will provide routing and siting study services. AEP will work closely with the EPC firm's project managers and line routing experts to complete the study, to monitor progress and communicate project status.

The above approaches allow AEP to monitor the status of all projects to ensure quality deliverables and timely delivery.

AEP's Capabilities

AEP's capabilities include the following:

- Route design
- Stakeholder engagement
- Landowner negotiation and relationships
- Environmental preservation
- Public and key stakeholder outreach and communication
- Permitting

The siting methods used may vary due to unique elements of each project, including line length, line voltage, project location, environmental issues and state and local requirements.

Over the past century, AEP has acquired right-of-way and sited transmission lines in 13 states. This experience has led AEP to develop efficient and effective standardized procedures and best practices for routing, siting and ROW acquisition.

In 2013, AEP sited 413 line miles of new transmission line that included approximately 1500 easements with only 30 condemnations. AEP ROW personnel and contractors made over 50,000 property owner contacts in 2013.

AEP brings extensive experience and knowledge in transmission line siting, which includes regulatory approvals and environmental permitting. This experience traverses a combined 13 state service territory and beyond, resulting in broad and comprehensive siting ability. For example, AEP has located and built EHV lines in the plains of Texas and in the rugged Appalachian Mountains of West Virginia, each region having unique topographical challenges. Furthermore, AEP has built many major transmission lines across state borders and federal lands, successfully obtaining state regulatory and federal permits. AEP's successful siting and construction of 110 miles of transmission lines involving 15 transmission facilities and 12 stations to support the new power plant in Arkansas illustrates AEP's ability to site a large, complex project over a large area involving many habitat, cultural, historical, landowner, stakeholder, engineering and construction concerns.

Routing activity draws on expertise from engineering, siting, construction, communications, environmental and right-of-way to understand the complexities of transmission line routing and recognize the importance of public and key stakeholder input, collaboration and effective outreach. The companies' portfolios demonstrate they can successfully establish a route, obtain approvals and build transmission lines in today's dynamic landscape.

AEP employs a siting methodology that creates and analyzes several possible routes. This approach involves the following:

- Identification of the study area
- Siting criteria development
- Landowner and community engagement
- Local government meetings
- Public surveys
- Data collection
- Rigorous analysis of public survey results and landowner feedback
- Development of alternative routes
- Evaluation of alternative routes and preferred alternative route selection.

Once project end points are determined, AEP evaluates data from maps and aerial photography to establish area boundaries for data collection to establish the study corridor. Siting criteria allow the companies to accomplish the following:

- Avoid or minimize impact upon human, natural, visual and cultural resources
- Avoid or minimize visibility from populated areas, scenic roadways and designated scenic resources
- Avoid or minimize conflict with existing and proposed future land uses
- Avoid habitat fragmentation and designated areas of biodiversity concern
- Maximize the separation distance from dwellings, schools, daycare facilities, hospitals and other community facilities
- Maximize key stakeholder input
- Use or parallel existing rights-of-way where possible, minimizing both intrusion into surrounding areas and additional costs
- Minimize environmental impact and construction/maintenance costs by selecting shorter, more direct routes

• Route corridors through terrain where economical construction and environmental mitigation techniques can be employed while enabling feasible line operation and maintenance
• Maintain consistency with transmission needs, project schedules, regulatory agency oversight requirements and environmental regulations
• Adhere to FERC and state regulatory guidelines

A database of information is developed for the area described from the following sources:

• Literature review and data collection from published data, aerial photographs, USGS maps, and GIS data repositories
• Discussions with public officials and land owners concerning present and future land use and other community values and concerns
• Ground level surveys
• Apparent property boundaries
• Discussions with state and federal officials regarding natural resources like endangered or threatened species, cultural resources and protected areas like national parks, state parks, or various protected areas
• Input from public workshops and submitted comments

The data is summarized into a GIS constraints map that displays any exclusion and sensitive/avoidance areas present in the area. A preferred route is ultimately selected based on the evaluation of all potential routes using the siting criteria, evaluation of potential impacts to sensitive areas, field evaluations and the professional judgment of the siting team. This process ensures the final route reasonably minimizes adverse impacts to both landowners and sensitive resources and is consistent with the siting criteria of the jurisdictional agency.

Engineers are consulted during this process to advice on issues like costs associated with types of terrain, rough project estimates and other project needs associated with a given path for the project.

ROW agents support all aspects of the siting process. Early in the siting process, ROW agents identify landowners affected by proposed routes and research property deeds. ROW agents work with siting personnel, environmental experts and project engineers to determine the location of sensitive areas, such as family farms, properties owned by federal, state or local governments, cemeteries, monuments or nature preserves.

Surveying

AEP retain minimal in-house surveying personnel. As such, AEP will generally choose one of the following methods to provide surveying for a project:

• An experienced external firm that specializes in surveying services will be used. AEP will work closely with the firm's project management to monitor project progress.
• An EPC firm will provide surveying services while AEP relies on its own experienced resources to achieve the project development plan. AEP personnel will work closely with the EPC firm's project managers to monitor progress and communicate project status.

Each of the above approaches allows AEP to monitor the status of all projects to ensure quality deliverables and timely project delivery.

Right-of-Way (ROW)

AEP will use one or more of the following approaches to right-of-way and other real estate acquisition depending on the size, location and scope of a project:

• The internal right-of-way and real estate acquisition resources of AEP described below will provide these services to the project.
• A firm specialized in right-of-way and real estate acquisition in the vicinity of to the project will be used. AEP would then work closely with the firm's project management to monitor progress and project status.
• An EPC firm will be used to develop the project. This EPC firm may perform right-of-way services or use an experienced right-of-way consultant. AEP will work closely with the EPC firm's project managers to monitor progress and project status.
Each of the above approaches allows AEP to monitor the status of all projects to ensure quality deliverables, appropriate real

Each of the above approaches allows AEP to monitor the status of all projects to ensure quality deliverables, appropriate real estate and right-of-way acquisition at minimal cost and ensure timely project delivery.

AEP's Capabilities

AEP's capabilities include the following:

• Title and deed search
• Location of possible site problems
• Database of property owners and existing easements
• Landowner relationships and negotiations leading to landowner satisfaction
• Minimizing property damage during construction
• Public relations and information meetings
• Environmental mitigation
• Preservation of habitat and historic sites
• Lowest possible right-of-way cost
• Court filings for new rights-of-way and easements
• Fast, reliable service
• Condemnation services as a last resort
• Collaboration with siting, engineering and legal staff

Real estate acquisition time varies depending on the size and scope of the project. ROW agents frequently retain local surveyors and real estate companies to assist with land acquisitions.

Land values vary depending on factors such as land use, e.g., whether the land is to be used for a transmission line or substation. Every effort is made to reach a consensus with property owners before resorting to the condemnation process. If a consensus cannot be obtained, ROW agents work

with AEP Legal staff to arrive at an appraisal that is fair to both parties. An example of the success of AEP's 'good neighbor' policy is the condemnation rates were less than 1% for the Turk Power Plant in Arkansas, resulting in minimal delay, controlled costs and good relationships for the future. AEP's condemnation through eminent domain process is described in Section 6.xii below.

The ROW agent is assigned to communicate with the landowners from negotiations throughout the construction process. If issues arise during construction, the ROW agent continues to be the familiar face to the landowners. Agents proactively inform landowners in advance of construction activity on their property and the actions AEP will take to mitigate and repair any damage.

ROW agents also support the siting process. Early in the siting process, ROW agents identify landowners affected by proposed routes and research property deeds to identify affected property owners. ROW agents work with internal or external environmental experts and project engineers to determine the location of sensitive areas like family farms, cemeteries, monuments, nature preserves or properties owned by federal, state or local governments. Areas with pipelines, railroads and other possible hazards are also avoided to the extent possible.

ROW agents notify property owners of the public meetings to be held in their area, once the preferred route is identified. The project team, which may include internal and external ROW personnel, engineers and environmental specialists, hosts public information meetings at which residents are invited to review and discuss project plans and to express their concerns. Several meetings may be conducted in different counties depending on state requirements and project size. These meetings also allow ROW agents to communicate additional information about easements to property owners.

ROW agents also assist with consistency of information for project estimates during the estimation process. For example, AEP estimation guidelines require multiple project estimates before a project is funded, and accurate estimates depend heavily on accurate historical information about property owners, parcels, surveys and terrain type. Including this information in the estimate helps AEP achieve consistent, accurate estimates at the earliest possible point in the process.

Equipment and Material Procurement

AEP will provide the material procurement functions for a project. AEP's capabilities are further described below.

This approach will allow AEP to monitor the status of all projects to ensure quality deliverables and timely delivery.

AEP Capabilities

As one of the largest electric utilities in the country and the largest Transmission Owner in SPP, AEP is able to leverage its size with both material suppliers and labor contractors. AEP purchasing volumes across all of its operating companies and joint ventures benefit from the economies of

scale. AEP presence in the marketplace allows realization of the lowest total evaluated cost for materials. AEP has developed strong relationships with multiple suppliers and leverages an approximately $1.8 billion annual capital spend in transmission, which enables AEP to negotiate industry-leading terms for pricing, delivery and other contract provisions.

AEP's purchasing power gives it the unique ability to reserve shop space in advance of actual purchase to meet project needs. AEP has relationships and contracts with most major vendors that meet its exacting engineering and manufacturing standards. Strategic master agreements with many of the largest global and domestic equipment manufacturers are used as necessary and offer AEP a decided advantage, particularly when respond to emergencies such as storm damage or equipment failures.

In a May, 2012 survey of AEP's equipment vendors and manufacturers, a significant majority of vendors indicated that AEP manufacturing standards are better in terms of quality, depth and detail and that AEP outperforms its peers in system-wide application of standards.

Established relationships with equipment and material suppliers facilitate the development of quality project cost estimates. AEP has established equipment and material blankets, with competitive pricing for such items as circuit breakers, transformers, reactors and steel for station and line structures. AEP's relationships with construction contractors provide certainty when estimating project costs.

The Transmission Procurement group consists of 34 professionals located throughout the AEP service territory. This group provides the following services to AEP Transmission:

- Material location
- Logistics for delivery
- Bid management
- Award of contracts
- Installation of all blanket contracts
- Determination of unit price
- Commercial correspondence
- Procurement of spare parts
- Compliance with and establishment of AEP Procurement policy

AEP Procurement administers all material requests, purchase requisitions and contract requisitions. This group also exercises oversight and approval according to AEP policy, which emphasizes fair, competitive bidding and technical and commercial qualification to assure the lowest possible cost for quality goods and services.

AEP's Procurement group collaborates with AEP Legal, Risk Management, and Environment and Safety teams to establish overall corporate procurement policies. The highest standards of personal conduct and business ethics are required of each AEP employee involved in the procurement of equipment, material and services and those who are in a position to influence purchase decisions or business relationships with contractors or suppliers.

AEP has structured processes in place to assure appropriate separation of duties for bid development, review, approval, award and administration.

AEP's procurement process ensures bids are evaluated on a "low-cost and best" basis. This means that contracts for materials and services are generally awarded on the basis of being the best value for AEP by providing high quality, timely delivery and lowest possible cost.

Certain oversight and approval criteria have been established for special expenditure amounts as follows:

• Acquisitions of goods and services valued above $100,000.00 must be made through competitive bidding or have documented sole source justification.
• Procurement personnel processing material requisitions, purchase requisitions and contract requisitions are encouraged to competitively bid any dollar value in order to obtain the best value and delivery to AEP.

If an award is to be made based on criteria other than the lowest evaluated, technically and commercially qualified bid, evaluation criteria must be documented and approved similarly to the sole source process.

AEP supports supplier diversity in selecting services and materials in accordance with AEP corporate diversity expectations. AEP makes concerted efforts to extend opportunities to qualified diversity suppliers.

Project management (including cost control, scope and schedule mgmt.)

Depending on the size, scope and location of a project, AEP will choose one or more of the following methods to provide project management for a project:

• Project management functions will be provided by the internal project management resources of AEP described below.

• A firm specializing in project management will manage the project. This contract project management firm will work with AEP to monitor progress and communicate project status.
• An EPC firm will perform project management functions while AEP relies on its experienced resources to achieve the project development plan. AEP will work closely with the EPC firm's project managers to monitor progress and communicate project status.

Each of the above allows AEP to manage and monitor the status of a project to ensure quality deliverables and timely delivery.

AEP's project management with its extensive knowledge and experience in transmission projects will oversee and manage the EPC firm. This assigned AEP project manager will oversee the overall project execution. The project manager will serve as the liaison between the EPC firm and the internal and external engineering, procurement, siting & environmental, construction management, and safety resources for a project. The assigned project manager will be responsible for managing overall project costs, schedules and adherence to AEP process and practices.

AEP Capabilities

AEP employs more than 100 professionals in its transmission project and construction management organizations. These organizations annually manage more than 100 large projects with a combined value of over $1 billion. AEP's substation and line project managers are capable of executing projects of varying complexity from small projects, like the addition of circuit breakers, to large projects, such as the construction of over 280 miles of 765 kV line in mountainous terrain.

AEP project managers have demonstrated the ability to consistently deliver projects on time and within budget.

A few examples of AEP's recent project and construction management successes include the following:

• AEP managed the construction of approximately 465 miles of double-circuit 345kV lines and 16 substations and the acquisition of rights-of-way across 578 tracts of land, coordinating efforts between multiple right-of-way agencies, construction companies and suppliers for the Competitive Renewable Energy Zone (CREZ) projects in Texas. AEP simultaneously constructed the line in sections while managing it as one project to ensure completion of this exceptional project within the project schedule. AEP Transmission's $1.5 billion investment in the CREZ program makes it the largest transmission project in AEP history.
• AEP managed the reconductoring of approximately 216 energized miles of 345kV transmission lines in south Texas, interfacing with engineers, government entities, right of way agents, construction contractors, city, state, and local authorities.
• AEP managed the construction of a new $136M transmission substation near Sunbury, Ohio. The 765/345/138kV Vassell Station is a major transmission reinforcement effort to help AEP maintain transmission reliability in central Ohio.

Construction

AEP will implement one or a combination of the following approaches to project construction:

• The project will use the internal construction crews and construction management resources of AEP described below.
• One or more experienced external construction firms will perform the work. These firms will be managed by internal construction management staff. AEP will work closely with the construction management staff to monitor progress and communicate project status.
• An experienced EPC firm will construct the project. This external firm may use sub-contractors approved by AEP. AEP will work closely with the EPC firm's project managers to monitor progress and communicate project status.

Each of the above approaches allows AEP to monitor the status of all projects to ensure quality deliverables and timely project delivery.

In general, AEP favors the use of internal construction personnel for work on high-impact, high-sensitivity, high-value activities requiring specialized skill sets, like commissioning and installation of protection and control systems, large transformers and large circuit breakers. External contractors are generally used for less sensitive installations, like structures and substation construction, due to the availability and competitive pricing of suitable approved contractors.

AEP Capabilities

AEP's construction capabilities include the following:

- Experience with voltages from 69kV to 765kV in all types of terrain
- New overhead line construction
- Line relocations and rebuilds
- New station construction and expansion
- New and upgraded system protection systems

The AEP Transmission construction management group includes 200 experienced construction professionals, making it among the largest and most experienced in the country, equaling or exceeding the capabilities of most outside firms. This group is further enhanced by an extensive field construction organization consisting of the following personnel:

Staff	Functional Area
8	Administrators
15	Coordinators
53	Line Mechanics
8	Line Supervisors (NE)
22	Managers
1	P&C Coordinators
19	P&C Electricians
16	P&C Engineers

AEP can also augment its construction activities with the extensive expertise of almost 700 professionals from AEP's Transmission Field Operations organization. These individuals are based throughout AEP's 11-state service territory.

AEP constructs more than 100 large projects (more than $1 million) with a combined value of over $1 billion annually. This amount is expected to increase in the coming years.

AEP construction crews are equally at home in terrain that varies from flat fields to the Appalachian Mountains to the corrosive environments of Texas coastline. Construction managers and engineers collaborate on projects. Large and difficult projects, like the construction of over 280 miles of 765 kV line in mountainous terrain, have led to many construction innovations, including use of partially-assembled structures delivered and installed via helicopter, development of specialized foundations for replacement structures in inaccessible areas and new anchor technologies. The versatility and coordination of AEP and contract construction teams enabled crews to simultaneously construct several sections of the CREZ project in Texas in 2013 to complete a very large and complicated project on-time.

In addition to AEP construction management employees, AEP relies on an extensive network of approved construction contractors to build large projects. AEP has established relationships with construction contractors who can provide the qualified labor to build station and line projects. AEP regularly employs contract crews from approved construction contracting firms and currently uses over 1,200 construction personnel. AEP has over 35 construction firms that are used regularly and many more on AEP's approved contractor list. Many of these firms are regional or national firms that operate in multiple states.

The combination of in-house engineering, construction management expertise and experienced, trained internal and contract construction crews with specialized construction equipment allows AEP to deliver consistent, high-quality results together with advanced technical innovations that improve the transmission system and add value for customers.

Commissioning of new lines

AEP will primarily perform commissioning and testing using the internal field maintenance and construction resources of AEP described below. However, AEP may also use experienced contract resources and EPC firms for these services. AEP will monitor the status of all projects via project management to ensure quality deliverables, appropriate commissioning and testing and timely project in-service dates.

AEP Capabilities

Commissioning and testing are performed to AEP's exacting standards for the following equipment:

- Drop-in control modules, including visual and mechanical inspections, system checks, station communications systems and protection scheme and functional testing
- Circuit breaker assembly and testing
- Transformer assembly, oil processing and testing
- Direct current systems, including battery chargers and batteries
- Instrument transformers, including current transformers, voltage transformers, coupling capacitor voltage transformers and Current Transformer Voltage Transformers
- Circuit verification of sensing devices, including current circuit verification and potential circuit verification for both single and three-phase systems
- Protection systems, including relays, Ethernet and router connections, D20/D200 installation and commissioning, verification of communication, GPS clock setup and carrier and transfer trip TC/TCF/LPA 100
- Protection scheme testing for each established protection scheme

Commissioning and Testing are performed by the AEP Transmission Field Services group (TFS), which includes approximately 950 employees covering 250,000 square miles of territory, 37,000 miles of transmission lines and over 3,500 switching stations. These employees have specialized skills qualifying them to safely work in the complex environment of high voltage transmission lines and substations.

One of the great strengths of this group is its combined technical expertise, which allows it to commission large station equipment and relay protection schemes. The ability to oversee and coordinate commissioning activities is scarce and in high demand, making the internal capability to commission AEP assets critically important.

TFS performs activities to ensure AEP is compliant with all industry reliability standards. TFS performs periodic station protection inspections of batteries, checks current and potential transformers and tests protective relay systems. Protective relay systems are tested and calibrated on a fixed schedule to be compliant with NERC guidelines.

Control Center Operations

AEP Capabilities

AEP provides the following Control Center Operations capabilities:

- Decades of experience operating voltages from 69kV to 765kV
- 5 geographically dispersed TDCs that are the dispatching authority for all switching, tagging, and clearances in accordance with the AEP switching and tagging policy procedures described below with an accuracy rate in excess of 99.99%
- 1 hot backup site that can be fully operation in 1 hour
- 24x7 system monitoring, diagnostics, alarms, coordination and communication, state estimation, real-time contingency and visualization and situational awareness tools
- 24x7 emergency switching and qualified crews with ability to augment with qualified contractors if necessary
- NERC-certified control personnel
- Remote sensing and diagnostics capability
- Aerial inspection and damage assessment capability
- TDCs and the System Control Center (SCC) develop dispatching plans and orders, performing real-time coordination with neighboring Transmission Operators and provide storm response coordination
- Established policies, procedures and operational plans followed by trained, qualified personnel

AEP has 267 employees dedicated to operating its 5 TDCs and SCCs on a 24x7x365 basis. The TDCs are staffed with NERC-certified personnel who direct and manage all transmission dispatching and switching functions across the AEP system. They successfully complete 250,000 annual switching steps with an accuracy rate in excess of 99.99%. TDCs coordinate with other Transmission Operators as appropriate.

Operators in the SCC use a variety of tools to operate the AEP system including state estimation, real-time contingency, and visualization and situational awareness tools. Contingency analyses are run every 4 minutes for several hundred potential contingencies.

AEP has a robust, NERC-compliant operator training and development program that ensures operators can address any condition on the system.

All switching orders will be issued by AEP TDCs in coordination with other regional authorities as required. Switching and tagging procedures are well-documented in the AEP Transmission and Distribution Switching and Tagging Policy document. This document is issued by the AEP Transmission and Dispatch organizations and gives AEP the ability to produce reliable, efficient and uniform day-to-day operation of the company's electrical facilities without compromising safety.

Storm/outage response and restoration

AEP Capabilities

- Structured emergency and recovery procedures, plans and resources
- Decades of experience at emergency response from 69kV to 765kV
- Support from expert engineering staff, project management, procurement, field services
- Established relationships with approved contract firms that have the equipment, manpower and skill sets to complete work efficiently and with quality
- 5 strategically located TDCs for efficient and effective response, planning, coordination between Transmission Operators, switching orders and clearances
- Spare parts strategically located throughout AEP and KCP&L service area
- Working relationships with neighboring utilities for assistance and materials if needed
- Member Midwest Mutual Assistance Group (MMAG)
- Part of EEI's Spare Transformer Equipment Program (STEP)

AEP has a strong track record of providing fast, high-quality emergency response based upon structured restoration processes and extensive skills and experience over a wide range of voltages and terrains. AEP has pioneered innovative techniques like the extensive use of helicopters to facilitate the rapid restoration of facilities that are located in difficult terrain. AEP has directly responded effectively to a wide range of emergencies involving line and station equipment at voltage levels from 69kV to 765kV.

The AEP Transmission Emergency Operating Plan (EOP) provides the planned policies and procedures to guide the response to any emergency affecting a transmission asset. The focus of the EOP is on preventing major power outages of wide extent involving generating plants, transmission lines and bulk power substations that collectively furnish the power to major points of distribution. The EOP addresses several issues as required by NERC and the various Reliability Entities in which AEP operates, including, but not limited to, transmission emergency procedures (e.g., real time loadability issues), major storm restoration and system restoration (e.g., black start). A copy of the EOP is available upon request. Please note that a non-disclosure agreement is required to obtain a copy of this document.

AEP maintains a large spare equipment inventory stored throughout their respective service areas. This significantly reduces the delivery time compared to making a replacement equipment purchase from a supplier. Spare components are kept at regionally-appropriate storage locations to place spare parts at a reasonable distance from point of use.

AEP uses an integrated supply model for acquiring maintenance, repair and operations (MRO) materials. AEP has a third party vendor who is the lead integrator supplier and is the direct supplier for half of AEP's required MRO goods. The vendor also manages or integrates the services of second

tier suppliers for the other half of purchased goods. Thus, instead of dealing with over 4,000 suppliers, AEP deals with one integrator supplier and a handful of 2nd-tier suppliers. This integrator supplier is able to deliver material anywhere in North America.

AEP maintains an ample supply of temporary and emergency structures, portable substations, transformers, circuit breakers, etc. for use in emergency situations to minimize service interruptions where alternate transmission facilities are unavailable. This inventory will be available to any asset and can readily be deployed across a wide geographic area. AEP maintains strategic agreements with suppliers like Valmont and Fort Worth Tower to provide expedited fabrication of steel structures should they be needed. AEP also has agreements with suppliers to stockpile wooden poles at strategic locations, and inventories are adjusted annually. AEP is also part of the EEI's STEP and can obtain replacement transformers from across the nation in the event of terrorist attack.

AEP system material inventory is a significant benefit when performing major storm restoration. The diversity of AEP operating areas typically limits system-wide exposure to major storms, so when a storm impacts one region, materials and supplies can be accessed from other regions, which can improve the speed in which restoration occurs.

For example, on June 29, 2012, AEP's eastern operating companies experienced a derecho storm (a widespread, long-lived, straight-line windstorm with winds that can exceed 100 miles per hour). This storm impacted over 260 transmission circuits, over 420 transmission stations, and more than 500 transmission poles, causing almost 1.5 million customer outages. Due to ongoing AEP transmission construction and maintenance activities, construction materials already in inventory were used during the restoration. Without the availability of the existing inventory, outside material suppliers would have been challenged to supply the needed materials as quickly. The existing inventory, combined with outstanding relationships with AEP material suppliers, prevented material issues from hindering the restoration of this unprecedented storm.

AEP is also implementing an Incident Command System (ICS) beginning in 2014. The ICS will enhance AEP's emergency response capabilities by providing additional tools to implement a structured approach to handling emergency responses on the AEP system. Its structure will be similar to those used by the military, emergency response organizations, local and state organizations and other utilities. ICS will enhance AEP's capabilities in the following areas:

- Establishes consistent roles and responsibilities
- Separates and defines key restoration roles (operations, planning, logistics, finance and safety)
- Limits spans of control
- Clearly defines and limits the focus of employees' responsibilities during restoration/emergency response
- Provides standardized terminology that will allow for effective and efficient communication internally and with external stakeholders
- Helps AEP staff support each other efficiently and effectively regardless of the incident or size of the storm event
- Helps AEP to easily transition employees throughout our system during events

ICS is part of a larger Emergency Response Plan (ERP) that is expected to be activated in 2015 and completed in 2016.

While AEP internal engineers have the capability to deal with any emergency, AEP also maintains relationships with several engineering firms to provide skilled labor as needed. These firms are already familiar with AEP standards and practices, so there is no learning curve. Many of these firms also operate outside the AEP service area.

Both approved contract firms and internal AEP field crews have the equipment necessary to handle any situation, including large boom trucks, helicopters, large flatbed trucks, and road building and earth moving equipment. They also possess the experience necessary to move cumbersome items like transformers, large reels of conductor and tall structures safely to the point of delivery.

AEP is a member of the MMAG, which allows AEP to request assistance through a mutual assistance process. AEP has both benefitted from and contributed to the mutual assistance relationships in place to restore service to affected customers, and these relationships have been very successful.

Transmission Maintenance - Staffing

AEP Capabilities

AEP's Transmission Field Services organization handles all planned and scheduled field maintenance and emergency repairs. AEP has a staff of almost 700 Transmission Field Operations personnel. For planned and scheduled maintenance, AEP will elect to maintain assets from existing AEP facilities in Arkansas, Indiana, Kentucky, Louisiana, Michigan, Ohio, Oklahoma, Tennessee, Virginia, West Virginia and Texas.

All internal personnel are trained to AEP standards, follow approved procedures and are among the most highly trained and skilled in the industry. AEP maintains a state-of-the-art transmission training facility staffed with experienced training coordinators to provide the required technical training for all transmission line, station and P&C maintenance personnel. The A. Ray King Transmission Training Center in Pataskala, Ohio is the only dedicated transmission training center in the eastern United States with a functioning low-voltage indoor transmission substation training facility. The center features an outdoor transmission line training area where classes train on same structures found on the live AEP system. Safety & Health training and testing are also a big part of the program.

Transmission facility and equipment maintenance

AEP Capabilities

AEP's maintenance practices are time proven by the fact that the majority of AEP's EHV system, which was put in-service between the late 1950s and the mid-1970s, is still operating reliably today. Overall, AEP has been operating and maintaining transmission facilities for over 100 years.

AEP's maintenance capabilities include the following:
- Established body of time-tested standards and practices
- High service quality, reliability and cost-effective maintenance
- Highly-trained and experienced workforce
- Inspection (aerial and ground) of all substation and transmission line facilities

- Live-line maintenance of EHV transmission lines
- Equipment testing and repair
- Preventative and predictive programs
- Vegetation management programs
- Infrared camera testing
- Transformer Portable Hydran test or Total Combustible Gas (TCG) testing
- HOBO Temperature Loggers (for LTC vs. Main Tank temperature differential profiling
- Dissolved Gas Analysis (DGA) samples
- Portable moisture analysis
- Laboratory Oil Analysis (OA) tests
- Sound level meter (for audible noise measurements)
- 5550FD Fault Detector fir internal arcing, sparking and partial discharge

AEP has implemented and utilizes an electronic information system to gather, record, and analyze information on the condition of the transmission line assets. This system includes the following features:

- Electronic means of reporting and recording conditions found on overhead transmission lines
- Condition based maintenance reporting system
- Line maintenance records
- Assist in tracking cost of maintenance on assets
- Inspection scheduling
- Report Forestry conditions and corrective maintenance
- Work order generation
- Engineering review of conditions
- Historical inspection and maintenance records
- Link inspections and corrective actions
- Automatic Equipment Investigation Report database

AEP has a robust asset lifecycle maintenance program that includes a complete set of inspection and maintenance policies, procedures, guidelines, and plans that reflect its extensive experience and strong compliance culture. This program incorporates a multitude of factors including asset age, performance, real-time monitoring results, periodic test results, and operating conditions into a multi-year plan to properly inspect and maintain all equipment. Real-time monitoring of critical network components coupled with regular inspections to evaluate the physical and operational condition of transmission lines, ROW clearances, and station equipment provide valuable information that informs preventive, predictive and corrective maintenance activities.

AEP's structured preventive maintenance plans result in AEP completing maintenance on approximately 80 EHV circuit breakers, 75 EHV transformers, and over 300 EHV protective relay schemes annually. AEP also inspects over 8,000 miles of EHV lines and performs the requisite maintenance as determined by the inspections. AEP's structured EHV ROW vegetation management has resulted in only one tree contact with an EHV line from inside the ROW since 2008 and no tree-related outages during storms since 2008. Inspections can also reveal certain trends, such as increasing structure deterioration or excessive compressor run times. This data allows for future planning, budgeting and scheduling of resources to forestall critical situations.

AEP's predictive maintenance takes advantage of non-intrusive methods of testing, like infra-red or dissolved gas analysis, to measure the condition of associated equipment. This program has been identified by several utilities as an important step to assist in the implementation of a Condition Based Maintenance Program and has demonstrated the ability to avoid future costly O&M and Capital expenditures through the early detection of problems using the use of a predictive maintenance program. AEP also has multiple oil labs for performing timely, detailed DGA and TCG analysis to supplement field tests.

Transmission Line inspection procedures are documented in the Transmission Line Inspection Guide, which covers components including wood poles, wood cross arms, guys, anchors, lattice structures, steel poles, concrete poles, insulators, aerial crossing markings, FAA warning systems, conductors and shield wires, clearances to vegetation and grounding systems.

- Proposed financing plan for the project including discussion of any cost advantages available to the proposing entity as a result of their financing plan and structure. Such submittal may include a letter of intent from a financial institution approved by the Office of the Interconnection or such other evidence of financial resources available to finance the construction, operation and maintenance of the proposed project.

With combined assets totaling approximately $56.4 billion and well-established relationships with more than 40 banks specializing in the financing needs of the energy generation and delivery industry, AEP and its subsidiaries are backed by the significant financial strength and experience of its investment-grade owners. AEP has been highly active in the capital markets, successfully raising approximately $8.2 billion in debt since the start of 2011.

AEP will leverage this vast network of resources to optimize the cost of capital and reduce the impact on the customer. To further minimize the overall financing cost, our expectation is that AEP will arrange for debt financings for the Project and allocate the debt capital to the new subsidiary. Until negotiations are complete with lenders, we cannot predict whether this will be achieved with one or more than one financing instrument, such as a revolving credit facility and/or a term loan. A likely scenario is that AEP will enter into an agreement with a syndicate of lenders that will be used for the Project during the construction period. Once the Project is complete, AEP will likely seek to refinance the construction debt with traditional long-term debt in the capital markets.

AEP will target investment grade credit quality for AEP and its subsidiaries. This is done to support steady access to capital markets that is necessary to raise the significant amount of debt that will be needed for the Project at cost-effective rates. The investment grade quality would also result in lower cost borrowing costs compared to non-investment grade credit quality.

- Description of proposing entity's (or its affiliate, partner or parent company) managerial ability to contain costs and adhere to construction schedules for the proposed project, including a description of verifiable past achievement of these goals;

AEP has a track record of successfully managing complex and technically-innovative projects to be both on-time and on-budget. AEP has decades of substation and transmission line experience.

C. Proposed Project Constructability Information

1. Component Scope

[redacted]

a. Greenfield Transmission Line Element Detail

Transmission Line Engineering Information:

Terminal Points:

[redacted]

Route Description:

[redacted]

[redacted]

[redacted]

Electrical Characteristics:

[redacted]

Physical Characteristics:

[redacted]

[redacted]

[redacted]

REDACTED

Figure C1: [redacted]

REDACTED

Figure C2: [redacted]

b. Greenfield Substation/ Switchyard Facility Element Detail

Station Engineering Information:

[redacted]

[redacted]

REDACTED

Figure C3: [redacted]

Substation Land Acquisition Plan:

[redacted]

Protection and Controls Engineering Information:

[redacted]

c. Transmission Facilities to be Constructed by Others

[redacted]

d. Environmental, Permitting and Land Acquisition

Environmental Impacts:

		[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Right-of-Way Acquisition Plan:

[redacted]

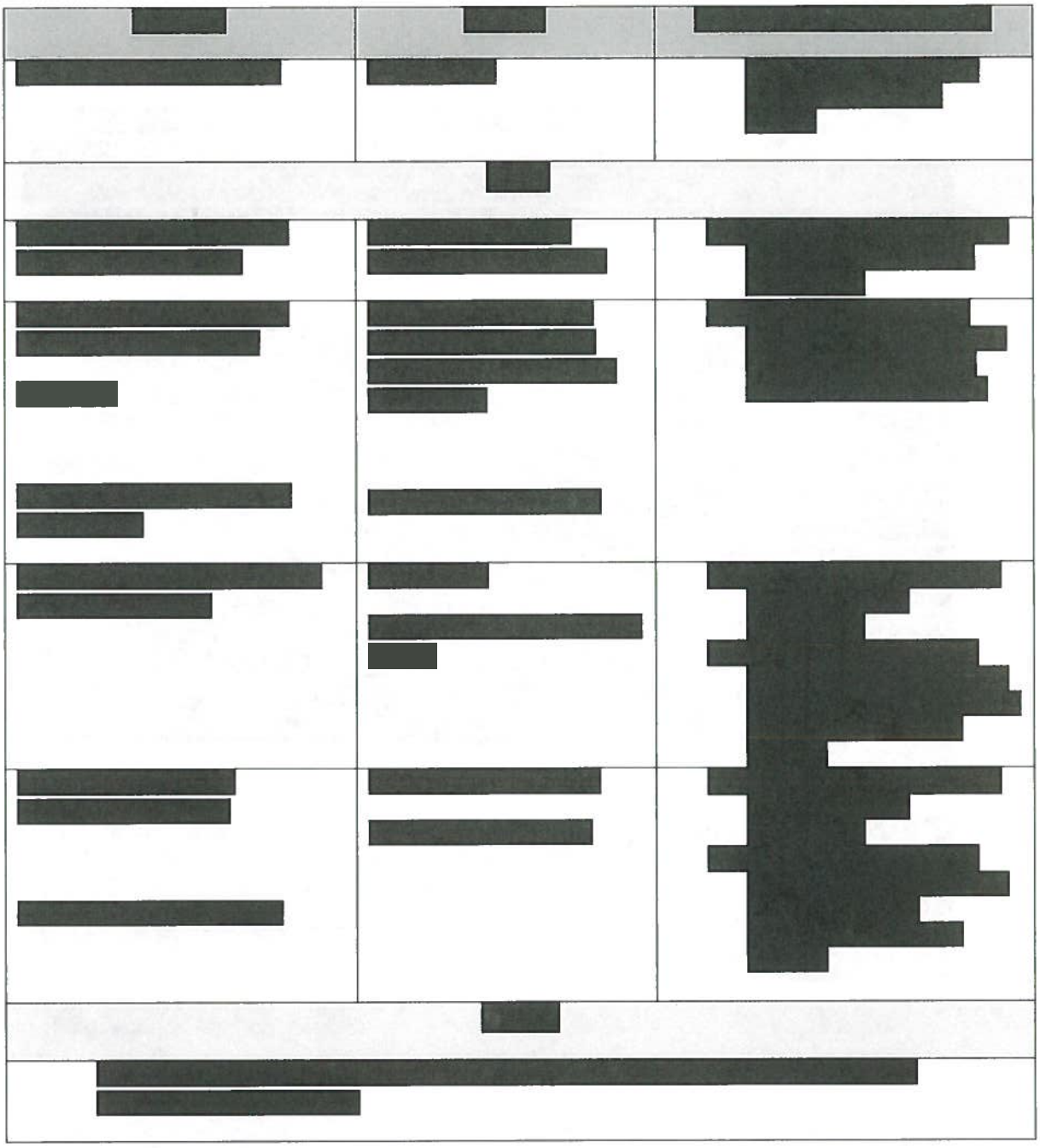
Permitting Plan and Communication:

[redacted]

[redacted]

[redacted]

[redacted]



2. *Project Component Cost Estimates*

REDACTED

3. Schedule

The following table depicts the conceptual schedule for the proposed project.

REDACTED

a. Operational Plan

Upon placing the Project into service, the new facilities will be operated using AEP's experienced resources and successful practices. AEP's Transmission Operations ("TOps") organization will provide control center operations for the facilities from AEP's state-of-the-art System Control Center ("SCC") located in New Albany, Ohio. AEP's Transmission Field Services ("TFS") organization will provide field switching for the equipment from the AEP's service locations in Charleston, WV. Please refer to the 'Company Evaluation Information' section of this Proposal for details about AEP's operational capabilities.

b. Maintenance Plan

Upon placing the Project into service, the new facilities will be maintained using AEP's experienced resources and successful practices. AEP's Transmission Field Services ("TFS") organization will provide preventive and corrective maintenance, first responder call out services and emergency service restoration for the equipment from the AEP's service locations in Charleston, WV.

4. Assumptions