



**Generation Interconnection
Feasibility Study Report
for
Queue Project AG1-034
CENTERBURG-CONESVILLE 138 KV
63 MW Capacity / 150 MW Energy**

January 2021

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1 Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is AEP.

2 Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. Cost allocation rules for network upgrades can be found in PJM Manual 14A, Attachment B. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Interconnection Customer seeking to interconnect a wind or solar generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

An Interconnection Customer with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Licking County, Ohio. The installed facilities will have a total capability of 150 MW with 63 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is October 31, 2023. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-034
Project Name	CENTERBURG-CONESVILLE 138 KV
State	Ohio
County	Licking
Transmission Owner	AEP
MFO	150
MWE	150
MWC	63
Fuel	Solar
Basecase Study Year	2024

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

AG1-034 will interconnect with the AEP transmission system tapping the Centerburg to Conesville 138 kV line.

To accommodate the interconnection on the Centerburg - Conesville 138 kV circuit, a new three (3) circuit breaker 138 kV switching station physically configured and operated as a ring-bus will be constructed (Attachment 1). Installation of associated protection and control equipment, 138 kV line risers, SCADA, and 138 kV revenue metering will also be required. AEP reserves the right to specify the final acceptable configuration considering design practices, future expansion, and compliance requirements.

Installation of the generator lead first span exiting the POI station, including the first structure outside the AEP fence, will also be included in AEP's scope. In the case where the generator lead is a single span, the structure in the customer station will be the customer's responsibility.

5 Cost Summary

The AG1-034 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$9,282,000
Total System Network Upgrade Costs	\$0
Total Costs	\$9,282,000

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 2016-36, 2016-25 I.R.B. (6/20/2016). If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

Cost allocations for any System Upgrades will be provided in the System Impact Study Report.

The estimates provided in this report are preliminary in nature, as they were determined without the benefit of detailed engineering studies. Final estimates will require an on-site review and coordination to determine final construction requirements. In addition, Stability analysis will be completed during the Facilities Study stage. It is possible that a need for additional upgrades could be identified by these studies.

6 Transmission Owner Scope of Work

The total physical interconnection costs is given in the table below:

6.1 Attachment Facilities

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
138 kV Revenue Metering	\$388,000
Total Attachment Facility Costs	\$388,000

*Assumes that the generator lead conductor will consist of a single span extending directly from a structure within the POI station to a structure within the Collector station.

6.2 Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
A new three (3) circuit breaker 138 kV switching station physically configured and operated as a ring-bus will be constructed. Installation of associated protection and control equipment, 138 kV line risers, and SCADA will also be required.	\$8,034,000
Total Direct Connection Facility Costs	\$8,034,000

6.3 Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Centerburg - Conesville 138 kV T-Line Cut In	\$770,000
Review Protection and Control Settings at the Centerburg 138 kV substation	\$45,000
Review Protection and Control Settings at the Conesville 138 kV substation	\$45,000
Total Non-Direct Connection Facility Costs	\$860,000

7 Schedule

It is anticipated that the time between receipt of executed Agreements and Commercial Operation may range from 12 to 18 months if no line work is required. If line work is required, construction time would generally be between 24 to 36 months after Agreement execution.

8 Interconnection Customer Requirements

It is understood that the Interconnection Customer (IC) is responsible for all costs associated with this interconnection. The costs above are reimbursable to the Transmission Owner. The cost of the IC's generating plant and the costs for the line connecting the generating plant to the Point of Interconnection are not included in this report; these are assumed to be the IC's responsibility.

The Generation Interconnection Agreement does not in or by itself establish a requirement for the Transmission Owner to provide power for consumption at the developer's facilities. A separate agreement may be reached with the local utility that provides service in the area to ensure that infrastructure is in place to meet this demand and proper metering equipment is installed. It is the responsibility of the developer to contact the local service provider to determine if a local service agreement is required.

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.
2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

9 Revenue Metering and SCADA Requirements

9.1 PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

9.2 Meteorological Data Reporting Requirements

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Back Panel temperature (Fahrenheit) - (Required for plants with Maximum Facility Output of 3 MW or higher)

- Irradiance (Watts/meter²) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Ambient air temperature (Fahrenheit) - (Accepted, not required)
- Wind speed (meters/second) - (Accepted, not required)
- Wind direction (decimal degrees from true north) - (Accepted, not required)

9.3 Interconnected Transmission Owner Requirements

The IC will be required to comply with all Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

<http://www.pjm.com/planning/design-engineering/to-tech-standards/>

10 Summer Peak - Load Flow Analysis - Primary POI

The Queue Project AG1-034 was evaluated as a 150.0 MW (Capacity 63.0 MW) injection tapping the Centerburg to Conesville 138 kV line in the AEP area. Project AG1-034 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-034 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

10.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

10.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None

10.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

10.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC/D C	MW IMPAC T
1680714 63	24348 2	05CENTBG	138.0	AEP	24358 3	05TRENT	138.0	AEP	1	AEP_P1-2_#5858_138 37-B	operati on	338.0	84.29	128.67	DC	150.0
1680714 64	24348 2	05CENTBG	138.0	AEP	24358 3	05TRENT	138.0	AEP	1	Base Case	operati on	285.0	75.49	107.44	DC	91.05
1680716 46	24349 3	05CRVERD	138.0	AEP	24596 2	05DLAWAR 3	138.0	AEP	1	AEP_P1-2_#5858_138 37-B	operati on	341.0	63.08	103.07	DC	136.38
1680715 42	24357 4	05SUNBURY SS	138.0	AEP	24347 8	05BRKSHR	138.0	AEP	1	AEP_P1-2_#5858_138 37-B	operati on	361.0	76.04	117.59	DC	150.0
1680715 21	24358 3	05TRENT	138.0	AEP	24357 4	05SUNBURY SS	138.0	AEP	1	AEP_P1-2_#5858_138 37-B	operati on	361.0	77.78	119.34	DC	150.0
1680715 22	24358 3	05TRENT	138.0	AEP	24357 4	05SUNBURY SS	138.0	AEP	1	Base Case	operati on	285.0	73.22	105.17	DC	91.05
1680716 27	24391 5	05BERRYWO OD	138.0	AEP	24349 3	05CRVERD	138.0	AEP	1	AEP_P1-2_#5858_138 37-B	operati on	338.0	65.21	105.56	DC	136.38
1698386 14	96192 0	AG1-034 TAP	138.0	AEP	24348 8	05CONESVIL LE	138.0	AEP	1	AEP_P1-2_#5842_114 18	operati on	338.0	84.29	128.67	DC	150.0

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC DC	MW IMPACT
169838615	961920	AG1-034 TAP	138.0	AEP	243488	05CONESVILLE	138.0	AEP	1	AEP_P2-1_24348205CENTBG138 24358305TRENT 1381	operation	338.0	84.29	128.67	DC	150.0

10.5 System Reinforcements - Summer Peak Load Flow - Primary POI

None

10.6 Flow Gate Details - Primary POI

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

10.7 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

None

10.8 Contingency Descriptions - Primary POI

Contingency Name	Contingency Definition
Base Case	
AEP_P1-2_#5842_11418	CONTINGENCY 'AEP_P1-2_#5842_11418' OPEN BRANCH FROM BUS 243478 TO BUS 243574 CKT 1 / 243478 05BRKSHR 138 243574 05SUNBURY SS 138 1 OPEN BRANCH FROM BUS 243482 TO BUS 243583 CKT 1 / 243482 05CENTBG 138 243583 05TRENT 138 1 OPEN BRANCH FROM BUS 243574 TO BUS 243583 CKT 1 / 243574 05SUNBURY SS 138 243583 05TRENT 138 1 REMOVE SWSHUNT FROM BUS 243583 / 243583 05TRENT 138 END
AEP_P2-1_243482 05CENTBG 138 243583 05TRENT 138 1	CONTINGENCY 'AEP_P2-1_243482 05CENTBG 138 243583 05TRENT 138 1' OPEN BRANCH FROM BUS 243482 TO BUS 243583 CKT 1 END
AEP_P1-2_#5858_13837-B	CONTINGENCY 'AEP_P1-2_#5858_13837-B' OPEN BRANCH FROM BUS 961920 TO BUS 243488 CKT 1 / 961920 AG1-034 TAP 138 243488 05CONESVILLE 138 1 END

11 Short Circuit Analysis - Primary POI

The following Breakers are overdutied

None

12 Summer Peak - Load Flow Analysis - Secondary POI

The Queue Project AG1-034 was evaluated as a 150.0 MW (Capacity 63.0 MW) injection at the Centerburg 138 kV substation in the AEP area. Project AG1-034 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-034 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

12.1 Generation Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

12.2 Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
173775623	243482	05CENTBG	138.0	AEP	243583	05TRENT	138.0	AEP	1	AEP_P4_#9585_05CONE SVILLE 138_2S	breaker	338.0	84.29	128.67	DC	150.0
173958447	243493	05CRVERD	138.0	AEP	245962	05DLAWAR3	138.0	AEP	1	AEP_P4_#9585_05CONE SVILLE 138_2S	breaker	341.0	63.08	103.07	DC	136.38
173958358	243574	05SUNBURYSS	138.0	AEP	243478	05BRKSHR	138.0	AEP	1	AEP_P4_#9585_05CONE SVILLE 138_2S	breaker	361.0	76.04	117.59	DC	150.0
173958346	243583	05TRENT	138.0	AEP	243574	05SUNBURYSS	138.0	AEP	1	AEP_P4_#9585_05CONE SVILLE 138_2S	breaker	361.0	77.78	119.34	DC	150.0
173958418	243915	05BERRYWOOD	138.0	AEP	243493	05CRVERD	138.0	AEP	1	AEP_P4_#9585_05CONE SVILLE 138_2S	breaker	338.0	65.21	105.56	DC	136.38

12.3 Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

12.4 Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
168071464	243482	05CENTBG	138.0	AEP	243583	05TRENT	138.0	AEP	1	Base Case	operation	285.0	75.49	109.12	DC	95.86
174775714	243482	05CENTBG	138.0	AEP	243488	05CONESVILLE	138.0	AEP	1	AEP_P1-2_#5842_11418	operation	338.0	84.29	128.67	DC	150.0
168071522	243583	05TRENT	138.0	AEP	243574	05SUNBURYSS	138.0	AEP	1	Base Case	operation	285.0	73.22	106.86	DC	95.86

12.5 Flow Gate Details - Secondary POI

The following indices contain additional information about each facility presented in the body of the report. For each index, a description of the flowgate and its contingency was included for convenience. The intent of the indices is to provide more details on which projects/generators have contributions to the flowgate in question. All New Service Queue Requests, through the end of the Queue under study, that are contributors to a flowgate will be listed in the indices. Please note that there may be contributors that are subsequently queued after the queue under study that are not listed in the indices. Although this information is not used "as is" for cost allocation purposes, it can be used to gage the impact of other projects/generators. It should be noted the project/generator MW contributions presented in the body of the report are Full MW Impact contributions which are also noted in the indices column named "Full MW Impact", whereas the loading percentages reported in the body of the report, take into consideration the PJM Generator Deliverability Test rules such as commercial probability of each project as well as the ramping impact of "Adder" contributions. The MW Impact found and used in the analysis is shown in the indices column named "Gendeliv MW Impact".

12.5.1 Index 1

ID	FROM BUS#	FROM BUS	FRO M BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Ratin g MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
173775623	243482	05CENTB G	AEP	243583	05TREN T	AEP	1	AEP_P4_#9585_05CONESVILL E 138_2S	breake r	338.0	84.29	128.67	DC	150.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936521	AD2-067 C O1	57.0000	50/50	57.0000
936522	AD2-067 E O1	93.0000	50/50	93.0000
940851	AE2-073 C	21.0000	50/50	21.0000
940852	AE2-073 E	29.0000	50/50	29.0000
961821	AG1-024 C	42.0000	50/50	42.0000
961822	AG1-024 E	58.0000	50/50	58.0000
961921	AG1-034 C O2	63.0000	50/50	63.0000
961922	AG1-034 E O2	87.0000	50/50	87.0000

12.5.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
17395844 7	24349 3	05CRVER D	AEP	24596 2	05DLAWAR 3	AEP	1	AEP_P4_#9585_05CONESVIL LE 138_2S	breaker	341.0	63.08	103.07	DC	136.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
247965	Y1-063 E	3.6368	50/50	3.6368
936521	AD2-067 C O1	51.8250	50/50	51.8250
936522	AD2-067 E O1	84.5565	50/50	84.5565
940851	AE2-073 C	19.0934	50/50	19.0934
940852	AE2-073 E	26.3671	50/50	26.3671
961821	AG1-024 C	38.1868	50/50	38.1868
961822	AG1-024 E	52.7342	50/50	52.7342
961921	AG1-034 C O2	57.2802	50/50	57.2802
961922	AG1-034 E O2	79.1013	50/50	79.1013

12.5.3 Index 3

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
173958358	243574	05SUNBURY SS	AEP	243478	05BRKSHR	AEP	1	AEP_P4_#9585_05CONESVILLE 138_25	breaker	361.0	76.04	117.59	DC	150.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
247965	Y1-063 E	4.0000	50/50	4.0000
936521	AD2-067 C O1	57.0000	50/50	57.0000
936522	AD2-067 E O1	93.0000	50/50	93.0000
940851	AE2-073 C	21.0000	50/50	21.0000
940852	AE2-073 E	29.0000	50/50	29.0000
961821	AG1-024 C	42.0000	50/50	42.0000
961822	AG1-024 E	58.0000	50/50	58.0000
961921	AG1-034 C O2	63.0000	50/50	63.0000
961922	AG1-034 E O2	87.0000	50/50	87.0000

12.5.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
17395834 6	24358 3	05TREN T	AEP	24357 4	05SUNBUR Y SS	AEP	1	AEP_P4_#9585_05CONESVIL LE 138_2S	breaker	361.0	77.78	119.34	DC	150.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
247965	Y1-063 E	4.0000	50/50	4.0000
936521	AD2-067 C O1	57.0000	50/50	57.0000
936522	AD2-067 E O1	93.0000	50/50	93.0000
940851	AE2-073 C	21.0000	50/50	21.0000
940852	AE2-073 E	29.0000	50/50	29.0000
961821	AG1-024 C	42.0000	50/50	42.0000
961822	AG1-024 E	58.0000	50/50	58.0000
961921	AG1-034 C O2	63.0000	50/50	63.0000
961922	AG1-034 E O2	87.0000	50/50	87.0000

12.5.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC D C	MW IMPAC T
173958418	243915	05BERRYWOOD	AEP	243493	05CRVERD	AEP	1	AEP_P4_#9585_05CONESVILLE 138_2S	breaker	338.0	65.21	105.56	DC	136.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
247965	Y1-063 E	3.6368	50/50	3.6368
936521	AD2-067 C O1	51.8250	50/50	51.8250
936522	AD2-067 E O1	84.5565	50/50	84.5565
940851	AE2-073 C	19.0934	50/50	19.0934
940852	AE2-073 E	26.3671	50/50	26.3671
961821	AG1-024 C	38.1868	50/50	38.1868
961822	AG1-024 E	52.7342	50/50	52.7342
961921	AG1-034 C O2	57.2802	50/50	57.2802
961922	AG1-034 E O2	79.1013	50/50	79.1013

12.6 Contingency Descriptions - Secondary POI

Contingency Name	Contingency Definition
Base Case	
AEP_P1-2_#5842_11418	CONTINGENCY 'AEP_P1-2_#5842_11418' / 405 OPEN BRANCH FROM BUS 243478 TO BUS 243574 CKT 1 / 243478 05BRKSHR 138 243574 05SUNBURY SS 138 1 OPEN BRANCH FROM BUS 243482 TO BUS 243583 CKT 1 / 243482 05CENTBG 138 243583 05TRENT 138 1 OPEN BRANCH FROM BUS 243574 TO BUS 243583 CKT 1 / 243574 05SUNBURY SS 138 243583 05TRENT 138 1 REMOVE SWSHUNT FROM BUS 243583 /* 243583 05TRENT 138 END
AEP_P4_#9585_05CONESVILLE 138_2S	CONTINGENCY 'AEP_P4_#9585_05CONESVILLE 138_2S' / 438 OPEN BRANCH FROM BUS 243482 TO BUS 243488 CKT 1 / 243482 05CENTBG 138 243488 05CONESVILLE 138 1 REMOVE SWSHUNT FROM BUS 243488 /* 243488 05CONESVILLE 138 END

13 Affected Systems

13.1 TVA

TVA Impacts to be determined during later study phases (as applicable).

13.2 Duke Energy Progress

Duke Energy Progress Impacts to be determined during later study phases (as applicable).

13.3 MISO

MISO Impacts to be determined during later study phases (as applicable).

13.4 LG&E

LG&E Impacts to be determined during later study phases (as applicable).