PJM RTEP – 2017 RTEP Proposal Window #1

Barking Road-Wright Road 138 kV

A Proposal to PJM Interconnection, Submitted August 25, 2017

Submitted by

Transource® Energy, LLC

1 Riverside Plaza, Columbus, Ohio 43215-2372

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A. Executive Summary

Transource® Energy, LLC (Transource) is pleased to provide the following proposal to PJM in response to the *PJM RTEP-2017 RTEP Proposal Window #1 Problem Statement & Requirements Document*. Transource was specifically formed as a joint venture between subsidiaries of American Electric Power Company (AEP) and Great Plains Energy Incorporated (GPE) to participate in competitive processes for transmission development and to provide benefits to transmission customers through the planning, construction, and ownership of high quality, low cost transmission infrastructure. Transource is located at 1 Riverside Plaza in Columbus, Ohio.

A.1. General Description of Proposed Project

Transource proposes to build the "Barking Road – Wright Road 138 kV Project" (or, "the Project") in Western Pennsylvania. The Project will establish two new greenfield 138 kV stations, "Barking Road" and "Wright Road." The Project will also construct a new greenfield 2.2 mile 138 kV double circuit transmission line from the proposed Barking Road station to the proposed Wright Road station. Barking Road station will also cut into the existing Logans Ferry – Highland 138 kV circuit #2 and the Logans Ferry – Universal 138 kV circuit. Wright Road station will also cut into the existing Springdale – Huntingdon 138 kV circuit and the Springdale – Yukon 138 kV circuit (via AA2-161 and Wycoff).

Transource has completed the necessary preliminary project development work to determine project constructability, preliminary cost estimates, and a construction schedule. Experienced AEP engineering, siting, permitting, project management, and construction personnel were the primary resources for this work.

A.2. Reliability Problem(s) Proposed to Resolve

The Project addresses the planning criteria violations listed below:

Table 1. Addressed Contingencies Identified by PJM

Version: 2

PJM Generation Deliverability Result

FG #	Fr Bu	Name	To Bu	Name	C	KV	Area	Rati n	FN DC Flow	FN AC Flow	FN DC %	FN AC %	Cont Label	Cont Typ	Conductor Rating (MVA)	Accepting Poposa	PJM Comment
GD-S44	235152	01BUTLER	235246	01SHANOR	1	138/138	201/201	452	540.31	529.12	119.54	117.06	'AP-P1-2-WP-500-302T'	single	Same as basecase	Yes	
GD-S53	235246	01SHANOR	235205	01KRENDL	1	138/138	201/201	452	527.01	517.29	116.6	114.44	'AP-P1-2-WP-500-302T'	single	Same as basecase	Yes	
~~GD-S483~~	~~235277~~	~~01YUKON~~	~~235252~~	~~01SMTH62~~	~~1~~	~~138/138~~	~~201/201~~	~~376~~	~~380.92~~	~~376.12~~	~~101.31~~	~~100.03~~	~~'AP-P2-2-WP-138-013'~~	~~bus~~	~~Same as baseease~~	~~Yes~~	Removed in V2 Update
GD-S857	235277	01YUKON	235252	01SMTH62	1	138/138	201/201	376	383.18	378.18	101.91	100.58	'AP-P2-3-WP-138-204'	breaker	Same as basecase	Yes	
GD-S578	235277	01YUKON	235252	01SMTH62	1	138/138	201/201	376	419.73	414.53	111.63	110.25	'AP-P7-1-WPP-138-78'	tower	Same as basecase	Yes	
GD-S582	235135	01ALLENP	235161	01CHARLR	1	138/138	201/201	179	195.27	192.57	109.09	107.58	'AP-P7-1-WPP-138-78'	tower	Rate B=192	Yes	Geographically proximate with other violations
GD-S584	235252	01SMTH62	235247	01SHEPLR	1	138/138	201/201	376	406.63	402.73	108.15	107.11	'AP-P7-1-WPP-138-78'	tower	Same as basecase	Yes	
GD-S577	235277	01YUKON	235252	01SMTH62	1	138/138	201/201	376	424.83	419.63	112.99	111.6	'AP-P7-1-WPP-138-80'	tower	Same as basecase	Yes	
GD-S581	235135	01ALLENP	235161	01CHARLR	1	138/138	201/201	179	198.47	195.67	110.88	109.31	'AP-P7-1-WPP-138-80'	tower	Rate B=192	Yes	Geographically proximate with other violations
GD-S583	235252	01SMTH62	235247	01SHEPLR	1	138/138	201/201	376	411.73	407.73	109.5	108.44	'AP-P7-1-WPP-138-80'	tower	Same as basecase	Yes	
GD-S766	235152	01BUTLER	235246	01SHANOR	1	138/138	201/201	452	512.49	504.51	113.38	111.62	'ATSI-P2-3-DEE-138-138T'	breaker	Same as basecase	Yes	
GD-S787	235246	01SHANOR	235205	01KRENDL	1	138/138	201/201	452	499.19	492.69	110.44	109.	'ATSI-P2-3-DEE-138-138T'	breaker	Same as basecase	Yes	
GD-S765	235152	01BUTLER	235246	01SHANOR	1	138/138	201/201	452	512.49	504.51	113.38	111.62	'ATSI-P2-3-DEE-138-139T'	breaker	Same as basecase	Yes	
GD-S786	235246	01SHANOR	235205	01KRENDL	1	138/138	201/201	452	499.19	492.69	110.44	109.	'ATSI-P2-3-DEE-138-139T'	breaker	Same as basecase	Yes	

The generation deliverability thermal overload on the Butler – Shanor Manor 138 kV circuit and Shanor Manor – Krendale 138 kV circuit occurs for the loss of the single Cabot – Cranberry 500kV line as well as the breaker failure outage involving the Cabot – Cranberry 500kV line and the Cranberry 500/138 kV Transformer #1. The generation deliverability thermal overloads for the Yukon – Smithton – Sheppler Hill 138 kV and the Allenport – Charleroi 138 kV circuits occur due to a breaker failure at Charleroi station as well as tower outages involving the Yukon – Charleroi 138kV and Yukon – West Raver – Charleroi 138 kV circuits. The Project addresses these issues by creating a more direct 138 kV tie between the Allegheny and Duquesne transmission systems to serve the load center in the Pittsburgh area.

Furthermore, Transource performed analysis of existing and new contingencies that the Project may create and found no planning criteria violations.

A.3. Overall Schedule Duration

The Project is expected to be placed in service 52 months after execution of the PJM Designated Entity Agreement (DEA). Assuming the DEA is executed by February 1, 2018, Transource could place the Project in service June 1, 2022.

A.4. Overview of Estimate

The estimated capital cost of the Project is approximately $29,460,667 (in 2017 dollars). This estimated cost includes all Project components, including work that PJM may consider as upgrades. Please refer to Section E of this proposal for details on the project cost.

A.5. Designated Entity Statement of Intent

Transource, as the pre-qualified entity, seeks to be considered the Designated Entity for the project described within this Proposal. Ultimately, Transource anticipates that its wholly-owned subsidiary companies, Transource Pennsylvania, LLC (Transource Pennsylvania) will design, construct, own, operate, and maintain the facilities and assets, subject to determination regarding components deemed upgrades by PJM. Transource Pennsylvania will design, construct, own, operate, and maintain the facilities and assets located within the state of Pennsylvania. As such, should PJM award this project to Transource, we respectfully request that PJM address the Construction Designation in Attachment A of the Notification of Designation of Construction Responsibility (NDCR) letter to Transource Pennsylvania, according to the intended ownership described above.

B. Company Evaluation Information

Transource Energy, LLC is located at 1 Riverside Plaza in Columbus, Ohio. Specific contact information is provided below.

Transource Contacts

Primary Contact	Adam Hickman Manager, Transource Business Development	Transource Energy, LLC 1 Riverside Plaza Columbus, Ohio 43215-2372 Telephone: 614-716-2854 Email Address: ajhickman@aep.com
Secondary Contact	Takis Laios Manager, Transmission Asset Strategy	Transource Energy, LLC 1 Riverside Plaza Columbus, Ohio 43215-2372 Telephone: 614-716-3462 Email Address: tlaios@aep.com

B.1. Transource Qualifications

Transource has been pre-qualified to be a Designated Entity for transmission projects in PJM under section 1.5.8 (a) of the PJM Operating Agreement. The pre-qualification information is contained in the document submitted to PJM on April 29, 2013, entitled *Pre-Qualification Application of American Electric Power and Certain Affiliates*. This document is on record with PJM and posted on the PJM website, with PJM pre-qualification ID of 13-05. PJM confirmed the pre-qualified status of Transource in a letter dated July 7, 2013. As required annually, Transource has reviewed this information and an Addendum to this posted document was submitted to PJM on September 30, 2016. PJM reaffirmed the pre-qualified status of AEP in a letter dated October 27, 2016.

Transource will bring to bear the talents, resources, and capabilities of AEP, GPE, and their respective subsidiaries to execute the Project. These capabilities are detailed in Transource's prequalification submittal to PJM.

Overview of Capital Resources

Transource Pennsylvania is anticipated to be the respective owner of the competitive portions of the awarded project that lie within the state boundaries of Pennsylvania. Transource Pennsylvania will follow the successful model of financing that is currently used by its affiliate sister companies. Transource Pennsylvania will intend to use a combination of debt and equity financing to fund its ownership of the projects. Figure 1 below depicts the legal structure and financing arrangement for Transource Energy and its existing active subsidiary companies, including Transource Missouri, LLC, which currently owns and operates transmission assets in SPP, and Transource West Virginia, LLC, Transource Maryland, LLC and Transource Pennsylvania, LLC which are developing transmission projects in the PJM Interconnection.

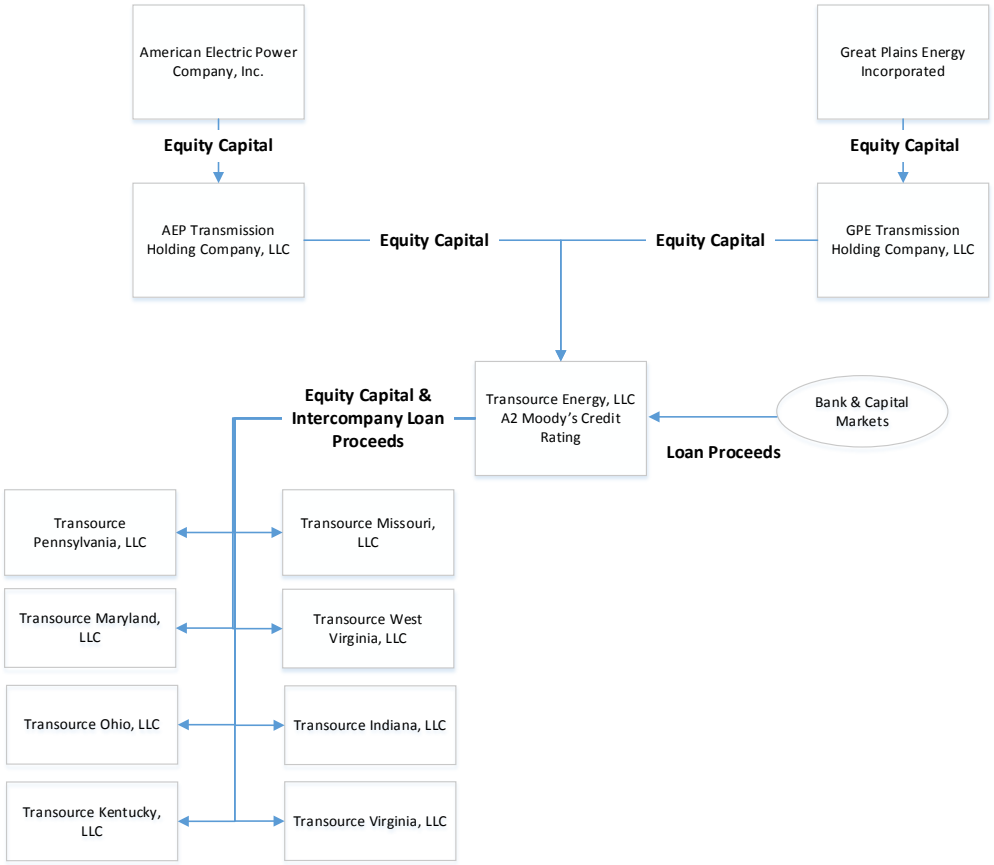

Figure 1. Transource Financial Structure

Transource's funding authority is governed by an Operating Agreement, whereby the Members of the Operating Agreement, AEP Transmission Holding Company, LLC and GPE Transmission Holding Company, LLC, have set forth an agreement with respect to obligations to fund capital contributions for ongoing expenditures at Transource Energy and its subsidiary companies. Debt capital raised at Transource Energy (A2 Moody's credit rating) will be lent, at cost, through an intercompany lending agreement to Transource Pennsylvania. Transource Pennsylvania will pay Transource Energy for the cost of these loans, including any interest expense, commitment fees, upfront lending fees, rating agency fees, or other financing costs according to each company's pro rata portion of the loans.

B.2. Overview of Transource Energy

Transource was formed to pursue the development of competitive transmission projects in marketplaces initiated by the implementation of FERC Order No. 1000. AEP owns 86.5 percent of Transource, and GPE owns 13.5 percent. Transource owns 100% of its subsidiary companies. The combined strengths of AEP and GPE in engineering, project management, procurement, project development, construction, and operation/maintenance will result in effective and efficient delivery of transmission solutions that benefit transmission customers.

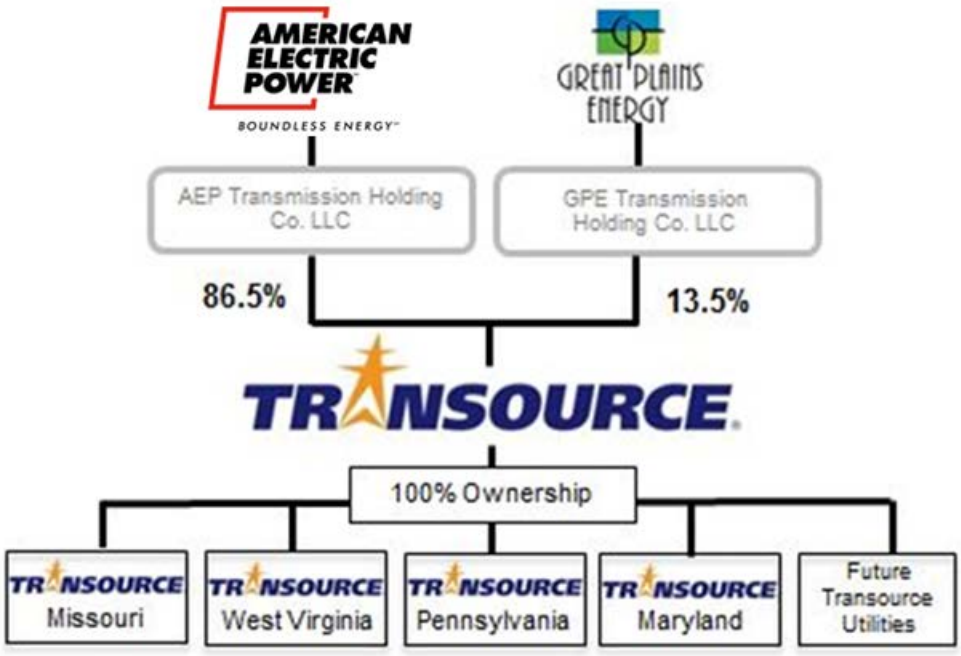

Figure 2. Summary of Transource Ownership Structure

Transource developed two Southwest Power Pool (SPP) approved transmission projects in the state of Missouri through its subsidiary Transource Missouri, LLC (Transource Missouri): The Iatan-Nashua 345 kV transmission project, placed into service in April 2015, and the Sibley-Nebraska City 345 kV transmission project, placed into service in December 2016.

Transource, in coordination with AEP affiliate Appalachian Power Company, is also developing a project in West Virginia through its subsidiary company, Transource West Virginia, LLC. The $75 million project consists of building 25 miles of 138 kV transmission line and three substations, and upgrades to other transmission facilities in Roane and Kanawha counties of West Virginia. The project is expected to be in-service in 2019.

In addition to these projects in Missouri and West Virginia, Transource was awarded PJM's largest-ever market efficiency project on the Pennsylvania-Maryland border in August 2016. In January 2017, Transource, through authorization from the Federal Energy Regulatory Commission (FERC), established formula rates and received approval for certain incentives.

The figure below provides a snapshot of the states in which Transource's owners, AEP and GPE, currently own or are developing transmission assets, demonstrating the breadth and capabilities of Transource.

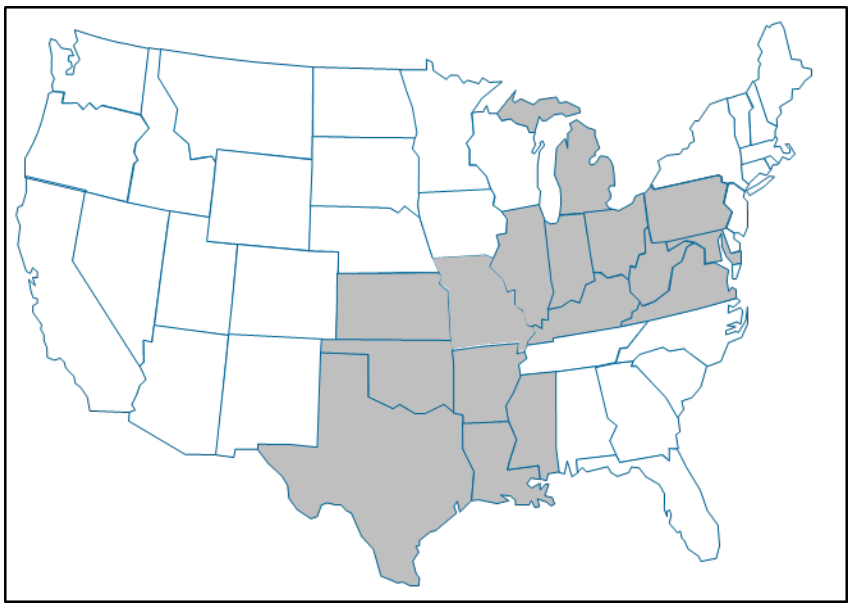

Figure 3. AEP and GPE Combined Transmission Presence

C. Proposed Project Constructability Information

[REDACTED]

D. Analytical Assessment

[REDACTED]

E. Cost

[REDACTED]

F. Schedule

[REDACTED]

G. Operations/Maintenance

G.1. Operational Plan

Transource is flexible regarding Project operations that can be provided using one of the following approaches:

- Transource can operate the new facilities directly using the capabilities of the AEP Transmission Operations (TOps) organization.
- Transource can work with the incumbent transmission owner to facilitate their operations of the new facilities.

The TOps organization operates from a state-of-the-art System Control Center (SCC) located in New Albany, Ohio. AEP TOps also operates five Transmission Operations Centers that coordinate transmission switch orders and interface with field personnel. The SCC and Transmission Operations Centers are staffed with NERC and PJM-Certified operators.

Operator tools include a State Estimator covering AEP's 11-state transmission system, real-time contingency analysis, and visualization and situational awareness tools. TOps has a back-up control center that can be staffed and fully functional within one hour from declaration of an emergency. TOps completes approximately 18,000 switching jobs totaling over 200,000 switching steps with an accuracy rate exceeding 99.99 percent annually.

G.2. Maintenance Plan

[REDACTED]

TRANSOURCE ENERGY, LLC
1 Riverside Plaza
Columbus, OH 43215
P 614-716-2884
E info@TranSourceEnergy.com
www.transourceenergy.com