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PA-PUC Bureau of Technical Utility Services  
Data Requests  
Docket No. A-2019-3007945

Note: If any responses contain Confidential Security Information (CSI), please inform TUS staff via phone call or email.

**TUS-1** Please explain the process that PJM will use to evaluate PPL's project S0864 that is driven by alleged N-1-1 reliability violations and Form 715 criteria violations related to voltage drops. For informational purposes, please refer to pages 8-13 of PPL's application <http://www.puc.state.pa.us/pcdocs/1606387.pdf> and pages 4-10 of Attachment 1 <http://www.puc.state.pa.us/pcdocs/1606388.pdf> describing the need for the project.

**PJM RESPONSE**

With respect to proposed supplemental projects like S0864, PJM conducted a "do no harm" test to evaluate whether a proposed supplemental project would adversely impact the reliability of the transmission system as represented in the planning models used in all other PJM reliability planning studies. PJM's "do no harm" analysis for this project did not identify any reliability criteria violations.

In August 2018, PPL asked PJM to conduct a limited N-1-1 reliability analysis on project S0864. Using a 2023 study year power flow case, PJM's study without the 500 kV portion of the S0864 project identified voltage violations in the Wescosville area of the PPL system. The results were subsequently communicated to PPL.

**TUS-2** With respect to the baseline drivers for S0864, has PJM reviewed the proposed baseline reliability drivers and PPL Form 715 criteria drivers, as applied to PPL's proposed solution?

**PJM RESPONSE**

S0864 remains a supplemental project. PJM has not yet performed a complete reliability analysis. See PJM responses to TUS-1 and TUS-3.

**TUS-3** Has PJM and its stakeholders been formally informed of the new baseline drivers for S0864? If not, what is PJM's process to update the stakeholders of the update?

**PJM RESPONSE**

PJM reviewed supplemental project S0864 with PJM stakeholders as part of the following PJM Transmission Expansion Advisory Committee (TEAC) meeting presentations:

- January 7, 2015 Presentation (Slide No. 91): <https://pjm.com/~media/committees-groups/committees/teac/20150107/20150107-reliability-analysis-update.ashx>
- April 9, 2015 Presentation (Slide No. 30): <https://www.pjm.com/~media/committees-groups/committees/teac/20150409/20150409-reliability-analysis-update.ashx>

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Subsequent to PPL's August 2018 request (described in PJM's response to TUS-1), PJM will perform a complete reliability analysis in the absence of project S0864 in the course of the 2019 RTEP, and will review the results with stakeholders.

**TUS-4 If project S0864 is not built and is removed from the RTEP, does PJM identify a BES reliability violation and, if so, when is that violation projected to occur? Has PJM proposed any solutions to this violation? Has PJM independently verified and vetted the most efficient and/or least cost solution that resolves the violation? Under the PPL FERC Form 715 analysis, when does PJM see a TO criteria violation first occurring?**

**PJM RESPONSE**

As it stands, without the 500 kV portion of the S0864 project, PJM identified NERC reliability criteria violations and communicated them to PPL as described in response to TUS-1.

If the S0864 project is not built and removed from the RTEP, and PJM were to identify NERC reliability criteria violations like that described in response to TUS-1, then yes, PJM would be obligated to pursue a baseline solution consistent with established RTEP process.

Given that S0864 remains a supplemental project in the RTEP, PJM has not pursued development of a baseline solution as part of its RTEP process. Nor has PJM independently analyzed whether there exists a more efficient or cost effective solution that resolves identified reliability violations.

**TUS-5 Is a special protection scheme a permitted solution to both the PPL Form 715 criteria and PJM BES reliability violations?**

**PJM RESPONSE**

No, it is not. See also PPL's related statements in its February 15, 2019 filing, Attachment 1, Section 5.3, beginning on page 8.

**TUS-6 How will cost allocation be affected if the project is approved as a (1) supplemental project, (2) baseline 715 TO criteria, or (3) PJM BES reliability criteria (N-1-1)? What will be the cost allocation if both the Form 715 criteria and PJM BES reliability criteria violations drive a project?**

**PJM RESPONSE**

Supplemental projects are allocated 100% to the zone in which the facilities will be located.

Today, per Schedule 12 of the PJM Open Access Transmission Tariff, a Form 715 project (if the project were to be approved as such) is allocated 100% to the responsible customers in the zone of the transmission owner who filed the Form 715. The FERC decision accepting that allocation is currently under appeal.

Regional Facilities needed for reliability (if the project were to be approved as such) are allocated 50% on a load-ratio share basis across the PJM region, and 50% based on solution based DFAX methodology.

**TUS -7 What are the specific reliability criteria differences, as applied to this case, between the PPL TO Form 715 and PJM BES reliability criteria?**

**PJM RESPONSE**

From a PJM RTEP process perspective, PJM tests both its regional reliability criteria and each Transmission Owner's Form 715 criteria. As part of its reliability tests, PJM applies the more limiting of the two sets of criteria. With respect to the S0864 project, PJM identified voltage criteria violations in light of the following:

*500 kV Voltage Drop Criteria:*

- PJM: 5% voltage drop
- PPL/TO Form 715: 5% voltage drop

*500 kV Post-contingency Low Voltage Limit Criteria:*

- PJM: 485 kV
- PPL/TO Form 715: 485 kV

*138 kV Voltage Drop Criteria:*

- PJM: 10%
- PPL/TO Form 715: 8%

*138 kV Post-contingency Low Voltage Limit Criteria:*

- PJM: 127 kV
- PPL/TO Form 715: 27 kV

*69 kV Voltage Drop Criteria:*

- PJM: 69 kV not part of BES facilities monitored by PJM as part of RTEP process
- PPL/TO Form 715: 8%

*69 kV Low Voltage Post-contingency Limit Criteria:*

- PJM: 69 kV not part of BES facilities monitored by PJM as part of RTEP process
- PPL/TO Form 715: 61.6 kV

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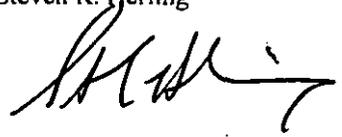
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VERIFICATION

I, Steven R. Herling, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: June 24, 2019

  
Steven R. Herling

 7/2/19

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