

A decorative graphic consisting of numerous thin, white, wavy lines that flow from the top left towards the bottom right, creating a sense of movement and energy. The lines are set against a dark blue background.

Final Review and Recommendation 2021 RTEP Proposal Window 1 – Cluster No. 3

March 8, 2022

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2021 RTEP Proposal Window No. 1 - Cluster No. 3

As part of its 2021 RTEP process cycle of studies, PJM identified clustered groups of flowgates that were put forward for proposals as part of 2021 RTEP Window No. 1. Specifically, Cluster No. 3 - discussed in this Final Review and Recommendation report - includes those flowgates listed in **Table 1**.

Table 1. 2021 RTEP Proposal Window No. 1 – Cluster No. 3 List of Flowgates

Flowgate	kV Level	Driver
N1-LLT20, N1-LLT21, GD-LL45, GD-LL46	230/115/17.2 kV	Light Load Generation Deliverability and N-1 Thermal

Proposals Submitted to PJM

PJM conducted 2021 RTEP Proposal Window No. 1 for 60 days beginning July 2, 2021 and Closing August 31, 2021. During the window, one entity submitted two proposals through PJM's Competitive Planner Tool. The proposals are summarized in **Table 2**. Publicly available redacted versions of the proposals can be found on PJM's web site: <https://www.pjm.com/planning/competitive-planning-process/redacted-proposals.aspx>.

Table 2. 2021 RTEP Proposal Window No. 1 – Cluster No. 3 List of Proposals

Proposal ID#	Project Type	Project Description	Total Construction Cost M\$	Cost Capping Provisions (Y/N)
100	Upgrade	Install a new 230/115 kV transformer and associated facilities. Replace the Plant's 2B 115-17.2 kV transformer with a larger 230/17.2 kV transformer	\$8.775	N
306	Upgrade	Replace the Shawville 2A 230/115-17.2 kV Transformer with a larger unit	\$5.4	N

Final Review and Recommendation

PJM completed a final review of the proposals listed in **Table 2** above based on data and information provided by the project sponsors as part of their submitted proposals. This review and screening included the following preliminary analytical quality assessment:

- *Initial Performance Review* – PJM evaluated whether or not the project proposal solved the required reliability criteria violation drivers posted as part of the open solicitation process.
- *Initial Planning Level Cost Review* – PJM reviewed the estimated project cost submitted by the project sponsor and any relevant cost containment mechanisms submitted as well.
- *Initial Feasibility Review* – PJM reviewed the overall proposed implementation plan to determine if the project, as proposed, can feasibly be constructed.
- *Additional Benefits Review* – PJM reviewed information provided by the proposing entity to determine if the project, as proposed, provides additional benefits such as the elimination of other needs on the system

Initial performance reviews yielded the following results:

1. Both proposals solve the identified reliability criteria violations
2. None of the proposals create a new reliability issue

The cost reviews provide no significant factors to consider other than the differences in apparent costs. A high level review of the plans identified in the proposals does not reveal any concerns.

PJM presented a First Read of the Initial Performance Review and Recommended Solution at the February 8, 2022, TEAC meeting. No stakeholder comments in opposition to the selected solution were received at those meetings nor afterward via Planning Community.

Additional Benefits

In order to ensure that PJM develops more efficient or cost effective transmission solutions to the identified regional needs, RTEP Process consideration must be given to the additional benefits a proposal window-submitted project may provide beyond those required to solve identified reliability criteria violations. As discussed in Section 1.1 and Section 1.4.2 of PJM manual 14B, Transmission Owner Attachment M-3 needs and projects must be reviewed to determine any overlap with solutions proposed to solve the violations identified as part of opening an RTEP proposal window.

A review of these proposals as part of PJM's 2021 Window No. 1 screening has identified potential benefits beyond solving identified reliability criteria violations as discussed below.

Proposal No. 100 address the transformer's aging issue, the transformer was identified in First Energy's Candidate EOL Needs List. In addition, Proposal No. 100 provides operational flexibility at Shawville substation. This project will separate the plant's generation step-up transformer from the transmission transformer. This project will install a dedicated 230/115 kV transmission transformer and the plant's unit 2 will have a dedicated 230-17.2 kV transformer. In the current configuration of the substation, the 2A transformer serves as one of two GSUs for the unit (via the 17.2 kV tertiary winding). The other outlet is the Plant's 2B 115-17.2 kV transformer (which is not capable of accepting the

entire output of the unit). Any time the unit is placed online, taken offline, or trips, the transmission through path is interrupted with the current configuration. This project will eliminate this legacy configuration.

Proposal No. 306, replaces the Shawville 2A 230/115-17.2 kV Transformer with a larger unit and installing a breaker on the plant side of the transformer. Proposal No. 306 also address the transformer's aging issue, the transformer was identified in First Energy's Candidate EOL Needs List. The 17.2 kV winding of the 2A transformer is used as one of the two outlets for Unit 2 of the Shawville Plant (the other being the Plant owned 2B 230-17.2 kV transformer). The existing 17.2 kV disconnect switch is only operated de-energized. Since the 2A Transformer is part of a single zone of projection with the plant owned equipment (2B transformer and unit 2 17.2 kV bus), when the unit is placed online, taken offline, or trips, the MAIT 230 kV and 115 kV breakers must be opened, thereby interrupting the transmission through path. Replacing the switch with a breaker will allow for separation of the zones of protection for the MAIT 2A transformer and plant equipment

Recommended Solution

Based on this information, Proposal No. 100 is the more efficient and cost effective solution, and provides better operational flexibility between the two solutions in Cluster No. 3, with a projected in service date of 6/2026.

PJM presented this Recommended Solution with stakeholders at the March 8, 2022 TEAC. A final recommendation will be made to the PJM Board at its meeting scheduled for July 2022 for PJM Board review and approval.