Final Review and Recommendation
2021 RTEP Proposal Window 1 - Cluster No. 11

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2021 RTEP Proposal Window No. 1 - Cluster No. 11

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. 11 - 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. 11 List of Flowgates

Flowgate	kV Level	Driver
AEP -T6, AEP -T7, AEP -T8, AEP-VM1, AEP-VM2, AEP-VM3, AEP-VM4, AEP-VM5, AEP-VM6, AEP-VM7, AEP-VM8, AEP-VM9, AEP-VD1, AEP-VD2, AEP-VD3, AEP-VD4, AEP-VD5, AEP-VD6, AEP-VD7, AEP-VD8, AEP-VD9	46	Thermal and Voltage

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, several entities submitted three 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.11 List of Proposals

Proposal ID#	Project Type	Project Description	Total Construction Cost M$	Cost Capping Provisions (Y/N)
365	Greenfield	Accoville-Becco 69 kV line	13.048	N
310	Upgrade	Becco-Pine Gap Rebuild	50.191	N
488	Greenfield	Dehue Expansion and Line Rebuilds	65.798	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. No significant difference among the three proposals as to their respective ability to solve the identified reliability criteria violations
2. No creation of additional reliability criteria violations.

The cost reviews provide no significant factors to consider other than the differences in apparent costs. PJM also notes that Proposal No. 365 and Proposal No. 488 incorporate greenfield construction which may impact the ability to timely complete the projects.

PJM presented a First Read and Second Read of the Initial Performance Review and Recommended Solution at the November 2, 2021, and November 30, 2021, TEAC meetings, respectively. 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 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 overlaps as part of PJM's 2021 Window 1 screening has identified potential benefits beyond solving identified reliability criteria violations. Based on the information provided by the sponsor:

Proposal No. 310 will address supplemental need AEP-2020-AP044, presented in the 11/20/2020 western SRRTEP meeting.

Proposal No. 448 not only addresses supplemental need AEP-2020-AP044, but also addresses other asset performance, condition, and risk needs on the Chauncey - Pine Gap 46kV Line, which is a 1937 vintage wood pole line with 29 open structure conditions with 59% of the structures along the line with at least one open condition. Proposal 448, by constructing approximately 3.5 miles of greenfield 138 kV line and two new stations, allows for the

retirement of over 15 miles of deteriorating 46 kV line in very challenging territory, helping to reduce future rebuild investment required to address asset renewal needs on the 46 kV system (~15mile rebuild) and future operation and maintenance due to the retirement of the 15 mile 46kV line. This overall reduction in circuit miles is estimated to decrease operations and maintenance costs by approximately $29K/year. Additionally, proposal No. 488 addresses the supplemental needs at Pine Gap station by retiring the station:

- Transformer #1 is a 46/12kV 1949s vintage bank. The transformer has high levels of acetylene, decreasing and low interfacial tension (IFT), and high and rising moisture levels. These levels indicate increased decomposition of the paper insulating materials and indicate that electrical discharges have been occurring within the main tank. The insulation is shrinking and weakening. This is an indication of an aged oil with polar contaminants and oxidation byproducts. The values of IFT and moisture indicate the dielectric strength of the insulation system (oil and paper) is in poor condition. The oil containment is extremely deteriorated with the lining visible above the station stone.
- Pine Gap Substation currently employs 16 relays, implemented to ensure the adequate protection and operation of the substation. Currently, all 16 relays are in need of replacement. All 16 of these are of the electromechanical and static type which have significant limitations with regards to spare part availability and fault data collection and retention. In addition, these relays lack vendor support. The existing control house lacks enough panel space to accommodate new relaying.

Recommended Solution

Proposal No. 488 solves the identified reliability criteria violations and offers additional benefits in the form of eliminating multiple Attachment M-3 needs, and it does so at a cost that is demonstrated in Table 3, based on current year dollars and analysis to date. Notably, the initial planning level review indicates that, in addition to eliminating the reliability violations identified in 2021 RTEP Window No. 1 as identified in Table No. 1, Proposal No. 488 addresses the Attachment M-3 need, AEP-2020-AP044, supplemental needs on Chauncey – Pine Gap 46kV line and Pine Gap 46kV station, and reduces the future Operating and Maintenance costs for the 15 mile Chauncey - Pine Gap – Titanic 46KV line.

Table 3. 2021 RTEP Proposal Window No. 1– Cluster No.11 comparison of anticipated costs

Proposal ID#	Project Description	Estimated Total Construction Cost M$	Estimated Total Construction costs including Attachment M-3 need M$
365	Accoville-Becco 69 kV line	13.048	78.846
310	Becco-Pine Gap Rebuild	50.191	70.775
488	Dehue Expansion and Line Rebuilds	65.798	65.798

Based on this information, Proposal No. 488 is the more efficient and cost effective solution in Cluster No. 11 with a projected in service date of 6/30/2026.