



Initial Review and Screening 2023 RTEP Proposal Window 2 - Clusters No. 4 & 6

June 4, 2024

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2023 RTEP Proposal Window No. 2 – Cluster3 No. 4 & 6

As part of its 2023 RTEP process cycle of studies, PJM identified clustered groups of flowgates that were put forward for proposals as part of 2023 RTEP Window No. 2. Specifically, Clusters No. 4 & 6 - discussed in this Initial Review and Screening report - includes those flowgates listed in **Table 1**. Cluster 4 includes the overloads on the R.P. Mone – Maddox Creek 345kV line, while Cluster 6 include the overload on the Allen – R.P. Mone 345kV line.

Table 1. 2023 RTEP Proposal Window No. 2 – Cluster No. 4 & 6 List of Flowgates

Cluster	Flowgate	kV Level	Driver
4	2023W2-GD-S170, 2023W2-GD-S142, 2023W2-GD-W213, 2023W2-GD-W58	345	Thermal
6	2023W2-GD-W12	345	Thermal

Proposals Submitted to PJM

PJM conducted 2023 RTEP Proposal Window No. 2 for 30 days beginning March 6, 2024 and closing April 5, 2024. During the window, one entity, the incumbent TO - AEP, submitted seven proposals for these two clusters 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. 2023 RTEP Proposal Window No. 2 – Cluster No. 4 & 6 List of Proposals

Cluster (s)	Proposal ID#	Project Type	Project Description	Total Construction Cost M\$	Cost Capping Provisions (Y/N)
4	561	UPGRADE	Reconductor the 9.4 mile 345 kV line between RP Mone and Maddox Creek stations.	16.719	N
4	975	UPGRADE	Rebuild the 9.4 mile 345 kV line between RP Mone and Maddox Creek stations.	39.034	N
6	683	UPGRADE	Mitigate three clearance issues on Allen - RP Mone 345 kV line to allow line to operate to conductor's designed rating.	0.450	N
6	169	UPGRADE	Reconductor approximately 18.6 miles of 345 kV line between Allen and RP Mone stations.	32.486	N
6	819	UPGRADE	Rebuild approximately 18.6 miles of 345 kV line between Allen and RP Mone stations.	49.875	N
4&6	11	UPGRADE	Install 345 kV Phase Shifting Transformer at East Lima station on line towards Fostoria Central.	40.301	N

Cluster (s)	Proposal ID#	Project Type	Project Description	Total Construction Cost M\$	Cost Capping Provisions (Y/N)
4&6	334	UPGRADE	String the open positions of the 345 kV line between Maddox Creek and Sorenson stations to establish a new 345 kV circuit between the two stations (42.6 miles). Reconductor the existing conductors on the line. Perform station work at Maddox Creek, Sorenson, and East Lima stations.	134.397	N

Initial Review and Screening

PJM has completed an initial review and screening of the proposals listed in **Table 2** and PJM identified the option described in the preceding section 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 in Table 3:

Table 3. 2023 RTEP Proposal Window No. 2 – Cluster No. 4 & 6 Reliability Analysis Summary

Cluster (s)	Proposal ID#	Analysis Summary	Total Construction Cost M\$
4	561	Solves the target FGs, causes overload on Maddox -E. Lima 345kV line, increases the loading on Alllen - RP Mone line	16.719
4	975	Solves the target FGs, causes overload on Maddox -E. Lima 345kV line, increases the loading on Alllen - RP Mone line	39.034
6	683	Solves the target FG. Margin is not big though (93.4%)	0.450
6	169	Solves the target FG, increases the loading on the RPMORE- Maddox, causes overload on the Maddox - E Lima 345KV line	32.486
6	819	Solves the target FG, increases the loading on the RPMORE- Maddox, causes overload on the Maddox - E Lima 345KV line	49.875

Cluster (s)	Proposal ID#	Analysis Summary	Total Construction Cost M\$
4&6	11	Solves the target FGs ,causes overload on E. Lima transformer #2, W. Fremont - Fremont AEP/ATSI 138KV tie	40.301
4&6	334	Solves the target FGs	134.397

PJM’s initial performance review showed that all 7 proposals solve the posted/intended reliability criteria violations. However, proposal 11 causes the new overloads on the E. Lima 345/138/13.8kV transformer #2 and W. Fremont – Fremont AEP/ATSI 138kV tie line, plus the In Service date is 6/1/2029, which is beyond the required In Service Date, 6/1/2027, so it is not considered further.

Proposal 683 has the lowest cost within Cluster 6. By itself, it brings loading on the Allen – R.P. Mone 345kV line loading down to ~94%. However, once it combines with the proposal (either proposal 561 or proposal 975) in Cluster 4, the loading of the Allen – R.P. Mone 345kV line will go up to 98%- 99%. Therefore, it is not considered further.

To solve all the violations in both cluster 4 and 6, the following three options are further reviewed:

Option 1: Proposal #169 (Allen –R.P. Mone reconductor) +Proposal #561 (R.P. Mone – Maddox Creek reconductor) + Portion of Proposal #334 (Station work at E. Lima & Maddox Creek)

Option 2: Proposal #819 (Allen –R.P. Mone rebuild) + Proposal #957 (R.P. Mone – Maddox Creek rebuild) + Portion of Proposal #334 (Station work at E. Lima & Maddox Creek)

Option 3: Proposal #334 (New 345 kV circuit between Maddox Creek and Sorenson stations (42.6 miles); Reconductor the existing conductors on the line; Station work at Maddox Creek, Sorenson, and East Lima stations.)

Any of the three options can solves all the violations in both cluster 4 and 6.

Initial cost reviews show none of the seven proposals in the clusters include cost commitment provisions.

PJM also notes that all seven proposals are upgrades. A high level review of the plans identified in the proposals does not reveal concerns at this stage of review.

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.

Both the R.P. Mone – Maddox Creek and the Allen – R.P. Mone 345kV circuits are in AEP EOL list. The R.P. Mone – Maddox Creek 345kV line has 9.4 miles of Paper Expanded (PE) Conductor originally installed in 1955. All but one of the existing structures on the line were originally installed in 1955. The Allen – R.P. Mone 345kV line has 24.6 miles of Paper Expanded (PE) Conductor originally installed in 1955 and 1968. All but two of the existing structures on the line were originally installed in 1955 or 1968.

The additional benefits of the three options are listed in the Table 4. Option 2 fully addressed the EOL issues on the Allen – R.P. Mone and R.P. Mone – Maddox Creek 345kV circuits, while either Option 1 or Option 2 only address the EOL issues on partially. The full EOL issues needed to be addressed fully anyway. Option 2 doesn't cause any additional transmission cost to address these issues and minimizes the outages.

Table 4. **Additional Benefits Comparison for the Three Options**

Option	1	2	3
Cost (\$M)	52.766	92.470	134.397
EOL Consideration	Addresses the EOL issues on conductor, but not on the structures for both Allen – R.P. Mone and R.P. Mone - Maddox Creek 345kV circuits.	Addresses the EOL issues on conductor and structures for both Allen – R.P. Mone and R.P. Mone - Maddox Creek 345kV circuits	Partially addresses the EOL issues for both Allen – R.P. Mone and R.P. Mone - Maddox Creek 345kV circuits

Initial Review Conclusions and next steps

Considering PJM's initial review and screening, Option 2, Proposal #819 (Allen –R.P. Mone rebuild) + Proposal #957 (R.P. Mone – Maddox Creek rebuild) + Portion of Proposal #334 (Station work at E. Lima & Maddox Creek), appears to be the more efficient or cost effective solution in Clusters No. 4 & 6 to address both the reliability needs and EOL needs. PJM's initial planning level cost review and initial feasibility review suggests that further constructability review and financial analysis would not materially contribute to the analysis of the other proposals submitted for this cluster.