



Final Review and Recommendation 2023 RTEP Proposal Window 1 - Cluster No. 2

February 29, 2024

For Public Use

This page is intentionally left blank.

2023 RTEP Proposal Window No. 1 - Cluster No. 2

2023 RTEP Proposal Window No. 1 - Cluster No. 2 Flowgates

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. 1. Specifically, Cluster No. 2 - discussed in this Final Review and Recommendation report - includes those flowgates listed in **Table 1**.

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

Flowgate	kV Level	Driver
2023W1-GD-S554, 2023W1-GD-S1259, 2023W1-GD-S571, 2023W1-GD-S563, 2023W1-GD-S1260, 2023W1-GD-S570, 2023W1-GD-S190, 2023W1-GD-S548	345	Thermal

Proposals Submitted to PJM

PJM conducted 2023 RTEP Proposal Window No. 1 for 60 days beginning July 24, 2023 and closing September 22, 2023. During the window, several entities submitted six 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. 2023 RTEP Proposal Window No. 1 – Cluster No. 2 List of Proposals

Proposal ID#	Project Type	Project Description	Total Construction Cost M\$	Cost Capping Provisions (Y/N)
35	UPGRADE	Reconductor 18.7 miles of 345 kV lines 11620 & 11622 from Elwood to Goodings Grove with two conductor bundled 1033.5 ACSS conductor. Modify and replace towers as necessary to accommodate the higher mechanical loads of the bundled conductor.	61.84	N
138	GREENFIELD	Install two new 345 kV circuits from Elwood to Joliet for a distance of approximately 8 miles.	97.50	N
663	GREENFIELD	The Elwood - Joliet 345kV transmission project consists of an approximately 4 mile double circuit 345kV transmission line from the Elwood Substation to the Joliet Substation.	29.37	Y
937	UPGRADE	Apply conductor coating to lines 11620 & 11622 from Elwood to Goodings Grove. The coating increases emissivity and reduces absorptivity of the conductor, allowing for increased ratings. This technology was presented at PJM's Emerging Technology Forum on 3/17/21.	8.52	N

Final Review

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

1. *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.
2. *Comparative Cost Review* – PJM reviewed the estimated project costs and cost containment mechanisms submitted for those projects sufficiently addressing the same violation(s) or constraint(s) submitted through the proposal window. An Independent cost was developed, and a comparative analysis of the costs and cost containment was performed.
3. *Feasibility Review* – PJM reviewed the overall proposed implementation plan to determine if the project, as proposed, can feasibly be constructed.
4. *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.

Performance Review

Final performance reviews yielded the following results:

PJM's final performance review showed that all four proposals solve the posted/intended reliability criteria violations. However, Proposal 937 barely lowered the loading below the required 100% threshold, and so was not considered further. PJM's short circuit analysis showed additional overdutied breakers for the remaining three proposals (Proposals 35, 138 and 663).

Comparative Cost Review

PJM's reviewed the remaining three proposal components and costs, and made adjustments to develop an Independent Cost based on the following:

- Where more accurate scope and costs were known from the incumbent TO
- Additional scope and cost required to address the identified overdutied breakers

The below **Table 3** provides a summary of PJM's independent review of costs of the remaining 3 proposals. Additional scope considered in PJM's independent review is marked in **red** under the Project Description.

Table 3. Independent Review of Proposal Costs

Proposal ID	Proposing Entity	Project Type	Project Description	Proposal Cost (\$M)	Independent Cost (\$M)	Independent Cost Adjustment Reasoning
35	COMED	UPGRADE	Reconductor 18.7 miles of 345 kV lines 11620 & 11622 from Elwood to Goodings Grove with two conductor bundled 1033.5 ACSS conductor. Modify and replace towers as necessary to accommodate the higher mechanical loads of the bundled conductor. Adjust reclosing cycle on for Goodings Grove 345 kV circuit breaker '116 9806' to eliminate the reclosing derating (zero cost).	61.84	61.84	Include scope to adjust reclosing for one of the breakers at Goodings Grove 345 kV at no additional cost.
138	COMED	GREENFIELD	Install two new 345 kV circuits from Elwood to Joliet for a distance of approximately 8 miles. Inclusion of additional breaker replacements at Lockport 345 kV.	97.50	102.70	Cost adjusted to account for 2 additional breaker replacements at Lockport 345 kV (\$5.2 M).
663	CNTLTM	GREENFIELD	The Elwood - Joliet 345kV transmission project consists of an approximately 4 mile double circuit 345kV transmission line from the Elwood Substation to the Joliet Substation. Inclusion of ComEd substation scope of work from proposal 138 and additional breaker replacements at Lockport 345 kV.	29.37	58.02	The substation components were replaced with those from proposal 138 as ComEd identified the work required at their substations. Cost also adjusted to account for 2 additional breaker replacements at Lockport 345 kV (\$5.2 M).

PJM also compared the cost containment proposed for the remaining 3 proposals as shown in **Table 4** below.

Table 4. Review of Cost Containment

Category	Proposal 663	Proposal 138	Proposal 35
Independent Cost (\$M)	\$58.02	\$102.70	\$61.84
Proposal Project Cost (\$M)	\$23.97 (Includes work by incumbent)	\$97.50	\$61.84
Proposal Project Cost - Capped Components only (\$M)	\$15.12 (excludes work by incumbent)	N/A	N/A
Binding Project Cost Cap (\$M)	\$15.12	None	None
Binding ROE Cap (inclusive of adders/incentives)	9.80%	None	None
Binding Equity % Cap	50%	None	None

Exclusions	<p>Costs and Expenses due to:</p> <ol style="list-style-type: none"> 1. Scope change by PJM, the TO, or a generator 2. Uncontrollable Force, which includes: <ol style="list-style-type: none"> a. Destruction or damage to the property, or interruption in performance to complete the project, caused by natural disasters, fires or explosions, epidemics/pandemics, third party acts, strikes b. The issuance of any law or regulation or change in enforcement of a law or regulation after 9/22/23 c. A need to reroute or deviate from the design or routing set forth in the proposal d. A request by PJM to modify, delay or suspend any activities related to the Project, or e. A delay caused by a TO 3. Payments for interconnection facilities and/or use or acquisition of land controlled by an incumbent TO; and 4. Operation and maintenance of the project, including purchasing spare or replacement parts 	N/A	N/A
------------	---	-----	-----

PJM performed scenario analysis to demonstrate the comparative cost containment for the remaining 3 proposals as shown in **Table 5** below.

Table 5. Cost Containment Scenario Analysis

Scenarios	Proposal 663 *Recovered Cost (\$M)	Proposal 138 *Recovered Cost (\$M)	Proposal 35 *Recovered Cost (\$M)	Comments
Actual Project Cost equals Independent Cost Estimate	\$58.02	\$102.70	\$61.84	Proposal 663 cost containment does not prevent recovered cost increases as independent cost increases are to incumbent costs
Actual Project Cost increased - due to route deviations for greenfield projects (Final route length of 10 miles)	\$80.70	\$117.66	\$61.84	Proposal 663 cost containment does not prevent recovered cost increases due to exclusion of incremental expenses due to route deviation from cost cap
Actual Project Cost (+100%) - due to increased labor/equipment cost	\$100.91	\$205.40	\$123.68	Proposal 663 cost containment effectively limits recovered cost increases, but for capped components costs only

Note*: These scenario examples are for illustrative purposes only as the recovered cost estimates are not escalated to in-service year dollars, and only reflect the capital cost component.

The above scenario analysis indicates that while there are cost containment advantages for Proposal 663 over Proposals 35 and 135, which have no cost containment, these benefits are limited only to the greenfield components of Proposal 663, and do not extend to the incumbent scope. In addition, there is a risk for any incremental cost increase for Proposal 663 costs not being capped should the final greenfield route deviate from that which was proposed, which is a distinct possibility.

Feasibility Review

PJM conducted a feasibility review in the form of risk assessment, for which the criteria is shown below in **Table 4**. The summary of the risk assessment is shown in **Table 5**. Proposal 35 considerations include the lack of cost containment and potential outage coordination concerns with the planned reconductor of Elwood-Goodings Grove 345 kV double circuit. However, it is a Brownfield solution utilizing existing ROW, and is most likely to be completed by the required in-service date. Proposal 138 considerations include the lack of cost containment also, and general constructability and schedule risks associated with a Greenfield solution. For Proposal 663, while cost containment provisions were included, there is risk for incremental cost increase should the route deviate from that which was proposed. The route proposed has more potential permitting concerns than alternate longer route proposed by proposal 138. A higher schedule risk is also assigned to proposal 663, taking into consideration that the proposing entity would need to apply to become an incumbent TO in the state of Illinois.

Table 6. PJM Risk Assessment Criteria

PJM Risk Assessment Criteria						
Risk Assessment	Cost Estimate Risks	Cost Containment Risk	Schedule Risks	Constructability Risks	Use of Existing ROW/Brownfield	Outage Coordination Risks
Low	Greater than or within 10% of Independent Estimate	Hard cost cap	Ratings assessed based on independent assessment of proposed in-service dates, and assessment of significant schedule risks such as such as permitting and constraint mitigation, long-lead material procurement, land/ROW acquisition, construction complexity.	Ratings assessed based on independent assessment of the number and severity of constructability risks assessed for the proposed project scope, such as permitting and constraint mitigation, land/ROW acquisition, construction complexity.	Rebuild/Reconductor Upgrades or Pure Brownfield	Minimal existing facility outages required, beyond short outages to cut-in to existing facilities
Medium	Within 10-30% of Independent Estimate	Soft cost containment (e.g. ROE caps)			Mostly Brownfield (i.e. Uses/Overlaps existing ROW but requires expansion)	Significant existing facility outages required, with reasonable outage coordination plan proposed
Medium-High	Within 30-50% of Independent Estimate	Less than comprehensive cost containment/Problematic Exclusions			Greenfield paralleling existing ROW	Significant existing facility outages required, with no coordination plan proposed
High	Less than 50% of Independent Estimate	No cost containment			Pure Greenfield	Significant existing facility outages required, with known operational concerns and no coordination plan proposed.

NOTE:

- PJM conducted its constructability evaluation of the project data submitted by proposers to evaluate the constructability, cost estimation, and cost containment risks of the projects.
- This risk assessment is not intended as a pass/fail or quantitative test, but rather as qualitative information on potential risks PJM has considered along with the reliability performance in selection of the finalist scenarios, and ultimately the recommended solution.

Table 7. PJM Risk Assessment Summary for 2023 Window No. 1 – Cluster No. 2

Proposal ID	Proposing Entity	Project Type	Proposal Cost (\$M)	Independent Cost (\$M)	Cost Estimate Risks	Cost Containment Risks	Schedule Risk	Constructability Risks	Use of Existing ROW & Brownfield	Outage Coordination Risks
35	COMED	UPGRADE	61.84	61.84	Low	High	Low	Low	Low	Medium
138	COMED	GREENFIELD	97.5	102.7	Low	High	Medium	Medium	High	Low
663	CNTLTM	GREENFIELD	29.37	58.02	Medium-High	Medium-High	Medium-High	Medium-High	High	Low

While PJM’s comparative cost review shows that proposals 35 and 663 are comparable in cost, also taking into account the cost containment advantage for proposal 663, the overall feasibility review shows that proposal 35 poses least risk of the 3 options considered. For this reason, PJM recommends proposal 35 to resolve the 2023 Window No. 1 Cluster No. 2 FGs.

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 2023 RTEP Proposal Window No. 1 recommendation has not identified any potential benefits beyond solving identified reliability criteria violations. However, the submitted proposals to provide the following additional benefits:

- **Proposal 35:** None noted.
- **Proposal 138:** Lessens the impact of the loss of Goodings Grove by providing a path for power from the generation congested Elwood area to the northern part of the ComEd system without going through Goodings Grove. While reducing the contingency impact and the general advantage inherent to additional physical paths were noted, results showed no significant, quantifiable future congestion was addressed by these new paths.
- **Proposal 663:** Lessens the impact of the loss of Goodings Grove by providing a path for power from the generation congested Elwood area to the northern part of the ComEd system without going through Goodings Grove. While reducing the contingency impact and the general advantage inherent to additional physical paths were noted, results showed no significant, quantifiable future congestion was addressed by these new paths.
- **Proposal 937:** Introduces new technology on the PJM system.

Final Review and Recommendation

Considering all aspects of PJM's Final Review, proposal 35 appears to be the more efficient or cost effective option in Cluster No. 2, and has been selected as the Recommended Solution.

PJM will present this Recommended Solution to stakeholders at the March 5, 2024 TEAC. A final recommendation will be made to the PJM Board at its next meeting scheduled for review and approval.