



Market Efficiency Update

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Transmission Expansion Advisory Committee

January 11th, 2022

2020/21 Long-Term Window 1

- Cluster No. 1 (APS) - French's Mill to Junction 138 kV
 - Analysis completed: Proposal 756, terminal equipment upgrades at the French's Mill and Junction 138 kV substations, with a projected in-service date of 4/1/22, selected as the preferred solution. 1st Read presented at the 11/30/21 TEAC meeting.
- Cluster No. 2 (PECO) - Plymouth Meeting to Whitpain 230 kV
 - Analysis completed: Proposal 704, terminal equipment upgrades at the Plymouth Meeting and Whitpain 230 kV substations, with a projected in-service date of 6/1/25, selected as the preferred solution. 2nd Read presented at the 11/30/21 TEAC meeting.
- Cluster No. 3 (PPL) - Juniata to Cumberland 230 kV
 - Analysis completed: Proposal 218, reconductor the Juniata-Cumberland 230 kV line, with a projected in-service date of 12/1/23, selected as the preferred solution. 2nd Read presented at the 11/30/21 TEAC meeting.
- Cluster No. 4 (DOM) - Charlottesville to Proffit 230 kV
 - Analysis completed: Proposal 651, series reactor on the Charlottesville-Proffit 230 kV line, with a projected in-service date of 6/1/23, selected as the preferred solution. 2nd Read presented at the 11/30/21 TEAC meeting.



2020/21 Long-Term Window 2nd Read

- Proposal 756, terminal equipment upgrades at the Junction and French’s Mill 138 kV substations, selected as the preferred solution:
 - Addresses the target congestion and has the highest B/C Ratio, 119.03.
 - Lowest Cost: \$0.77 million.
 - Projected in-service date: 4/1/2022.
 - Passes all PROMOD sensitivity scenarios.
 - Reliability analysis has been completed and no reliability violations identified associated with this solution.
- 1st Read presented at the TEAC meeting from 11/30/2021.
- PJM staff intends to submit Proposal 756 to be approved by the PJM Board for inclusion in the Regional Transmission Expansion Plan.



Proposal No. 756 (French's Mill - Junction Terminal Upgrades)

Project ID: 202021_756

Proposed Solution:
Replace terminal equipment on the French's Mill-Junction 138 kV line.

Project Type: Upgrade

kV Level: 138 kV

In-Service Cost (\$M): \$0.77

In-Service Date: 4/1/2022

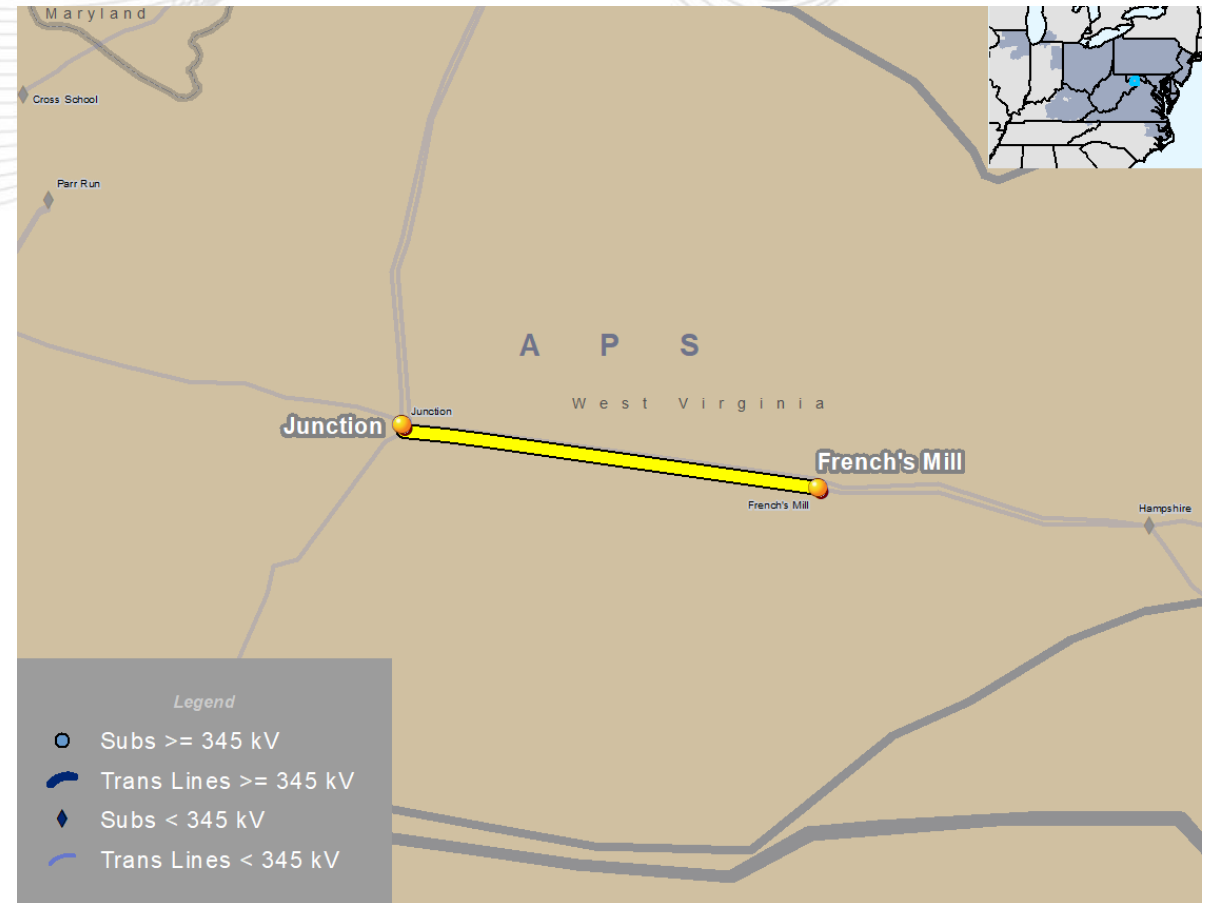
B/C Ratio = 119.03

Target Zone: APS

ME Constraints:

Junction to French's Mill 138 kV

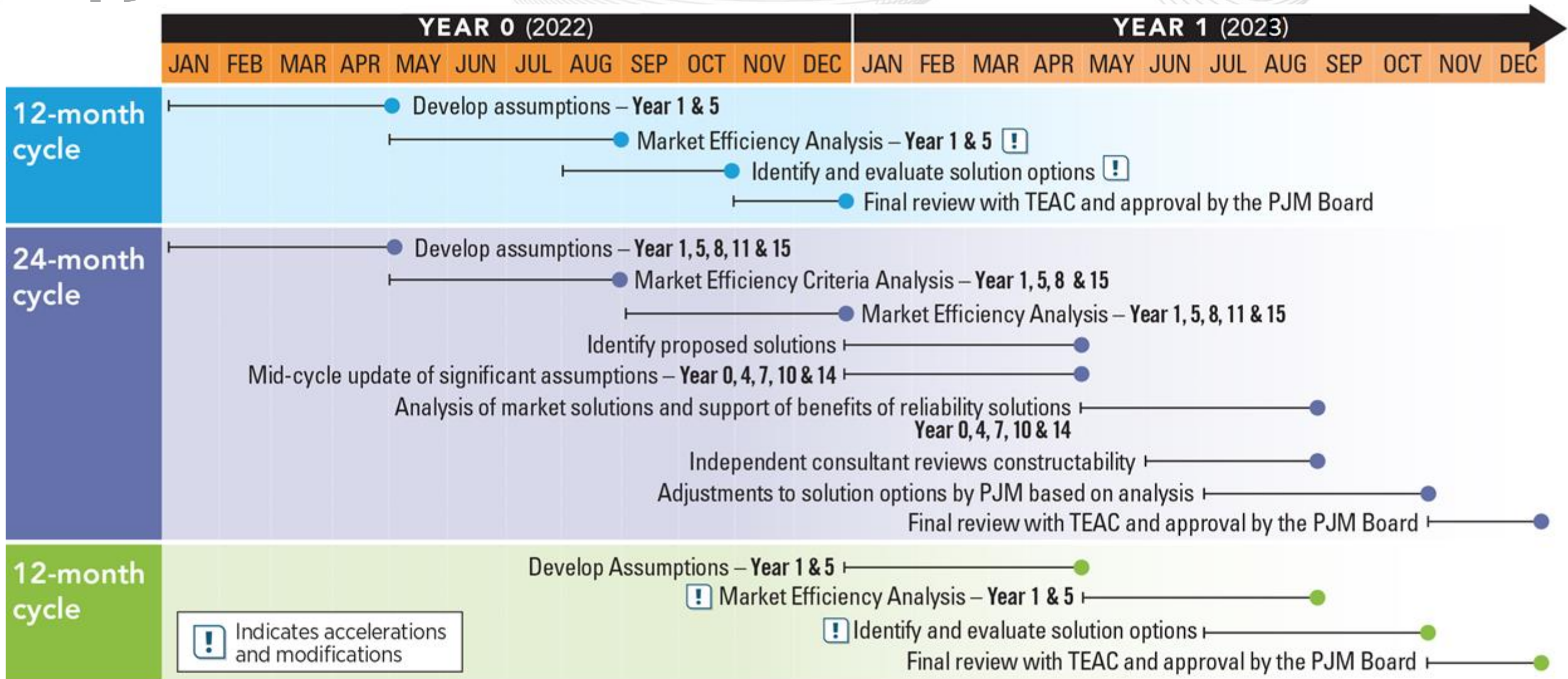
Notes: [Redacted Public Proposal 756](#)



- Final recommendation to the PJM Board for review and approval.

Proposal ID#	Proposal Baseline #	Project Description	Project Type	Transmission Owner	In-Service Date	Construction Cost (\$MM)	B/C Ratio Metric	B/C Ratio	Percent Congestion Alleviated
218	b3698	Juniata-Cumberland 230kV Line Reconductor	Upgrade	PPL	12/1/2023	\$9.00	Low voltage	11.28	100%
651	b3702	Charlottesville-Proffit 230kV Line Series Reactor	Upgrade	DOM	6/1/2023	\$11.38	Low voltage	16.05	99.52%
704	b3697	Plymouth Meeting-Whitpain 230kV Terminal Upgrades	Upgrade	PECO	6/1/2025	\$0.62	Low voltage	75.30	99.91%
756	b3701	French's Mill-Junction 138kV Terminal Upgrades	Upgrade	APS	4/1/2022	\$0.77	Low voltage	119.03	100%

2022/23 Market Efficiency Cycle



- Hitachi Energy PROMOD Database – Spring 2022.
- Powerflow consistent with the 2027 RTEP powerflow.
- Load Forecast and Demand Response based on PJM 2022 Load Forecast Report.
- Generation Expansion consistent with the machine list included in the Planning RTEP Powerflow.
- Fuel and Emissions Price forecasts provided by Hitachi Energy.
- Financial parameters Discount Rate and Carrying Charge, based on the Transmission Cost Information Center spreadsheet.

Step	Target Date
Develop Base Case Assumptions	May 2022
Post Preliminary Base Case	July 2022
Stakeholders Feedback	September 2022
Identify Congestion Drivers	September – November 2022
2022 Reevaluation Analysis	September – November 2022
2022 Acceleration Analysis	September – November 2022
Post Final Base Case and Target Congestion Drivers	January 2023
Long Term Proposal Window	January - May 2023
Analysis of Proposed Solutions	May – September 2023
TEAC Reviews and Board Approval	October - December 2023



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Market Efficiency Update



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- V1 – 1/6/2022 – Original slides posted