

TEAC: Dayton Supplemental Projects

December 6, 2022

Need Number: Dayton-2022-004

Previously Presented: Need Presented, 8/19/2022

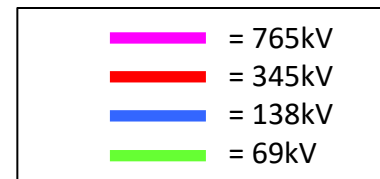
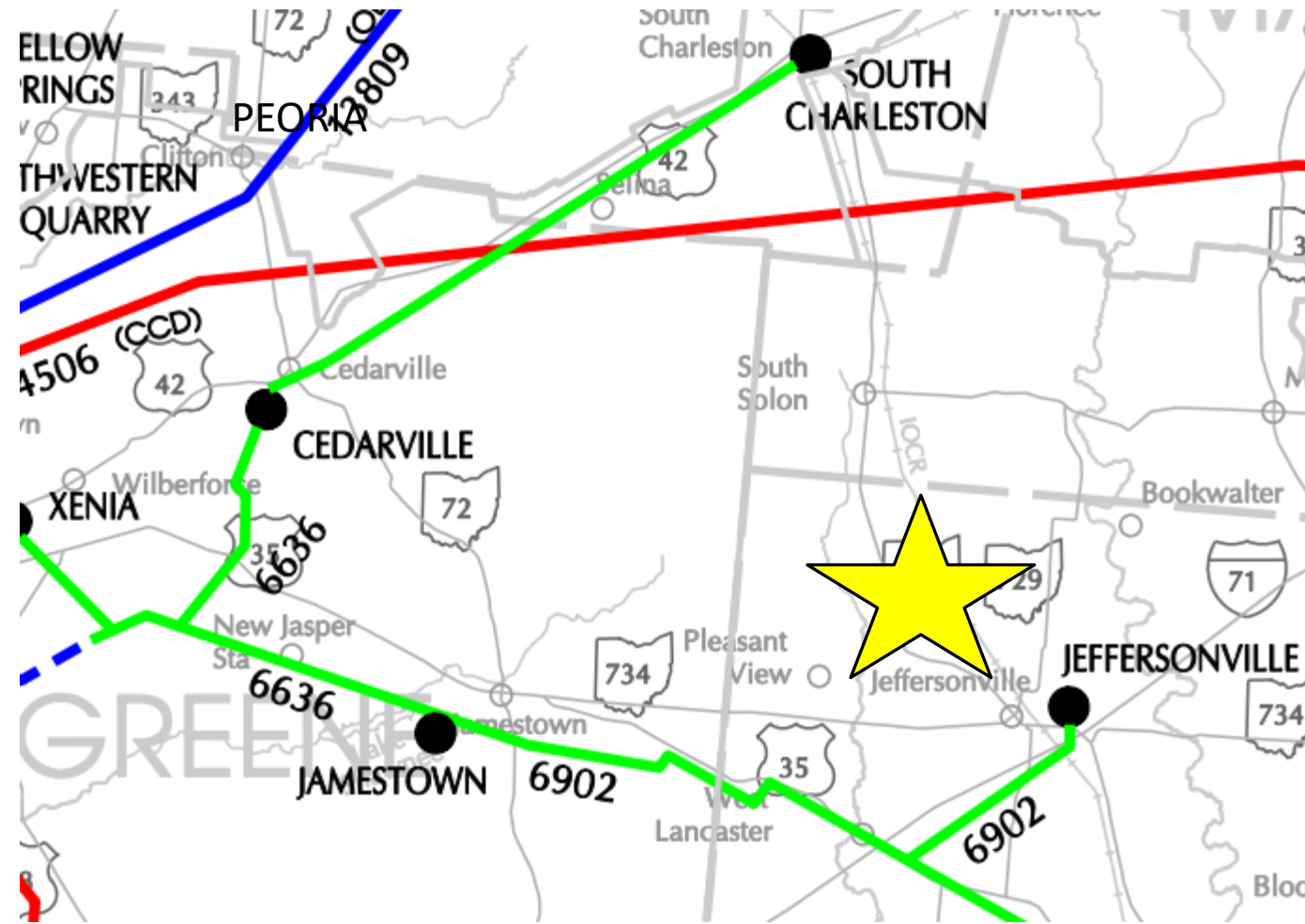
Process Stage: Solution Presentation, 12/6/2022

Project Driver: Customer Request

Specific Assumption Reference: Dayton Local Plan Assumptions (Slide 5)

Problem Statement:

- AES has received multiple large industrial customer requests for service in the Jeffersonville area.
- Total load requests have ranged from 100MW to several hundred megawatts
- Presently, Jeffersonville has certified 2,000-acres for industrial development with over 250 acres currently under option by customers.
- AES projects the site will be capable of supporting over 1,000 MWs of new manufacturing related load based upon the total number and size of customer requests.
- AES currently has a supplemental project, S0323, that proposes to build a 69kV line from South Charleston – Jeffersonville. AES believes that the magnitude of the load requests in the area exceed the capabilities of the existing project.



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Dayton Transmission Zone M-3 Process

Proposed Solution:

Fayette Substation:

- The newly established Fayette Substation will serve as the primary source for the Jeffersonville area and will step service down from 345kV to 138kV and 69kV. This substation is located central to the largest developing load center in the AES Ohio area supporting the electric vehicle manufacturing industry developing in the area. The new substation called Fayette will have a breaker and half 345kV design, two 345/138kV 450MVA transformers, a breaker and half 138kV design, a 138/69kV 200MVA transformer, 138kV capacitor, and 69kV feed to a new Panther Substation. A 0.25-mile 138kV extension will span from AES's Fayette Substation to a 138kV delivery point to serve the first 140MW development. **Estimated Transmission Cost: \$33.9M, ISD 8/1/2024**

Madison-Fayette 1 & 2 345kV Lines*:

- AES will construct a 13-mile double circuit 345kV line from Madison to Fayette Substation utilizing bundled 1024.5 ACAR 30x7 conductor. The new 345kV transmission lines will provide the primary feed into the new Fayette Substation and Jeffersonville, Ohio region which will be the primary load center between Dayton, Cincinnati, and Columbus, Ohio. **Estimated Transmission Cost: \$51.2M, ISD 8/1/2024**

Madison Substation*:

- AES will establish a new 3-bay breaker and half 345kV substation at Madison. Madison plays a critical role in sourcing the emerging load center while also improving reliability by looping present day radial loads at Cedarville, Jeffersonville, and South Charleston. The Madison Substation will have a single 345/69kV transformer and will have 4-345kV line exits. **Estimated Transmission Cost: \$27M, ISD 8/1/2024**

Jeffersonville 69kV Substation Relocation & Retirement:

- Retire the existing radial Jeffersonville Substation that is located in floodplain and not conducive to further expansion for an additional 69kV source. The retired substation will be replaced with a new 69kV looped substation called Panther. The new Panther Substation will have three 69/12kV 30MVA distribution transformers. The new Panther sub will be designed as a 69kV breaker and a half station. **Estimated Transmission Cost: \$15.5M, ISD 12/31/2025**

6946 69kV Reroute & Extension*:

- Establish a new ~1.5-mile 69kV transmission line from Fayette Substation to Panther Substation using 1351 AAC conductor. Reroute and upgrade to 1351 AAC conductor approximately 5.5 miles of line from Panther Substation to Octa Substation.

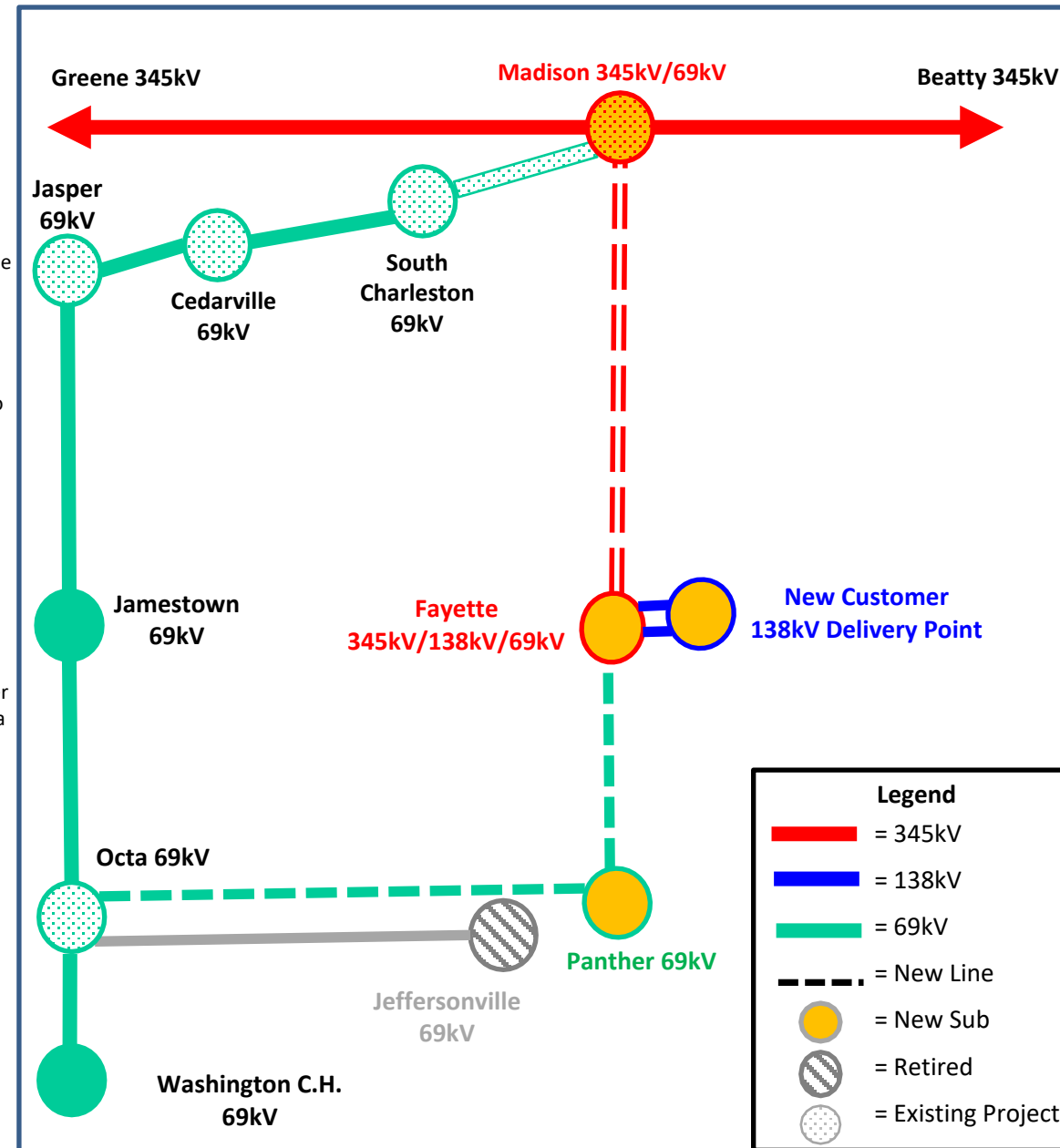
Estimated Transmission Cost: \$17.5M, ISD 12/31/2025

Total Cost : \$145.10M

*Approximately \$10M of this Solution will take the place of Supplemental Projects s0322 and s0323. The previous projects were scoped primarily to loop radial load and not serve major development.

Alternatives Considered:

- Madison 345/138kV Transformer & Madison-Fayette 1&2 138kV Lines
 Estimated Total Transmission Cost: \$120.9M, ISD 8/1/2024
 Not selected due to putting primary transformation 12 miles from load center.
- Madison-Fayette 345kV Line & N. Wilmington 345kV line:
 Estimated Total Transmission Cost: \$196.4M, ISD 8/1/2024
 Not selected due to higher cost.



Appendix

High Level M-3 Meeting Schedule

Assumptions	Activity	Timing
	Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
	Stakeholder comments	10 days after Assumptions Meeting
Needs	Activity	Timing
	TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
	Stakeholder comments	10 days after Needs Meeting
Solutions	Activity	Timing
	TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
	Stakeholder comments	10 days after Solutions Meeting
Submission of Supplemental Projects & Local Plan	Activity	Timing
	Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
	Post selected solution(s)	Following completion of DNH analysis
	Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
	Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

Revision History

11/21/2022 – V1 – Original version posted to pjm.com