

Sub Regional RTEP Committee: Western Dayton Supplemental Projects

March 19, 2021

Needs

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Need Number: Dayton-2021-002

Process Stage: Need Meeting 03/19/2021

Project Driver:

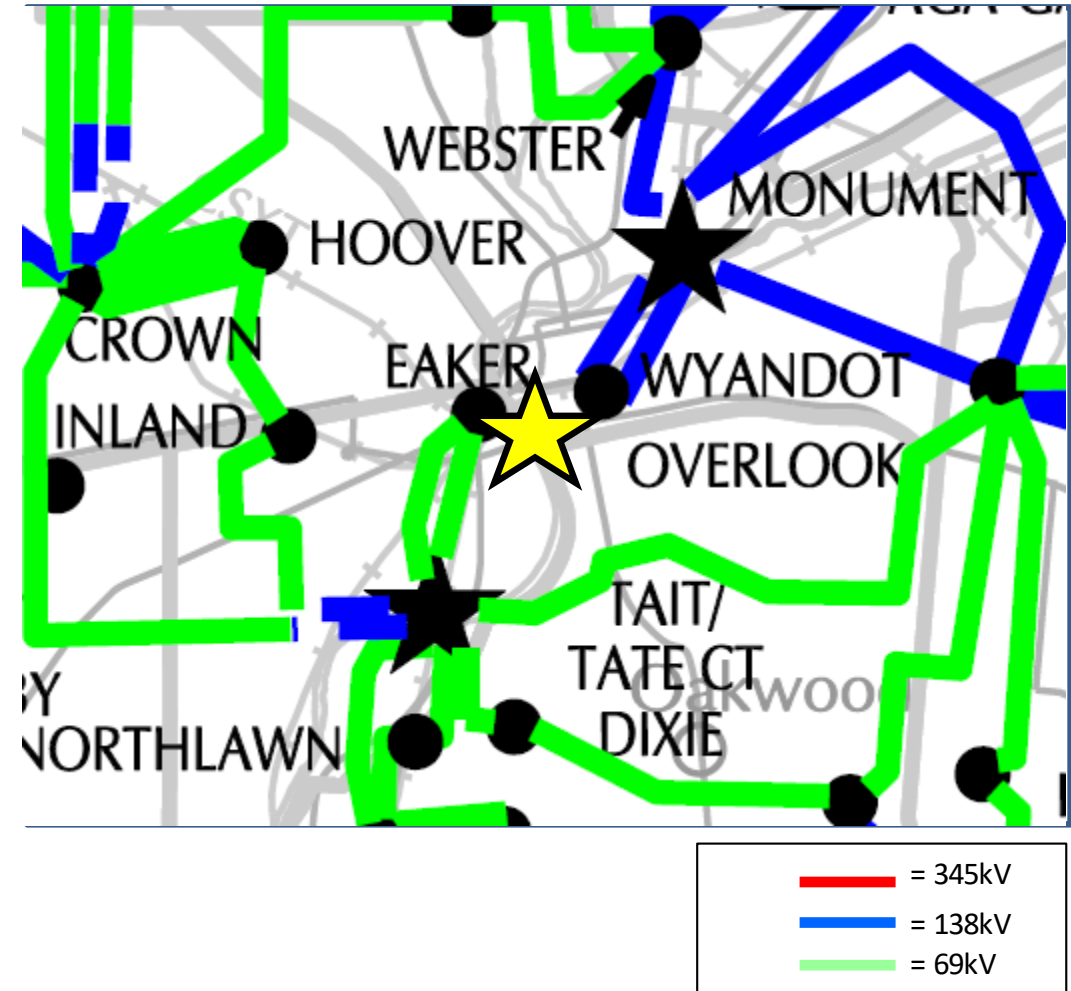
Source for underlying distribution

Specific Assumption Reference:

Dayton Local Plan Assumptions (Slide 5)

Problem Statement:

- DP&L d/b/a AES Ohio Distribution is planning for a 5MVA load increase from a new development near the Montgomery County Fairgrounds. Currently, this area is served via the Eaker Substation and the distribution circuits out of Eaker are heavily loaded and would be over 100% with the addition of this new load. This general area has experienced growth in recent years and the load addition of 5MVA will require additional capacity.
- Additionally, the Tait substation provides distribution services to The University of Dayton and a local critical facility through a 2.0+ mile long URD cables. The cables have historically been difficult to work with during outages and will need future upgrades. It is essential that a new source is located near the load center and critical customer to reduce exposure to cable faults and serve the growing load.
- Additional circuit ties exist in the area but do not have enough capacity for significant load transfers and would further limit the ability to conduct circuit switching during outages.



Solutions

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

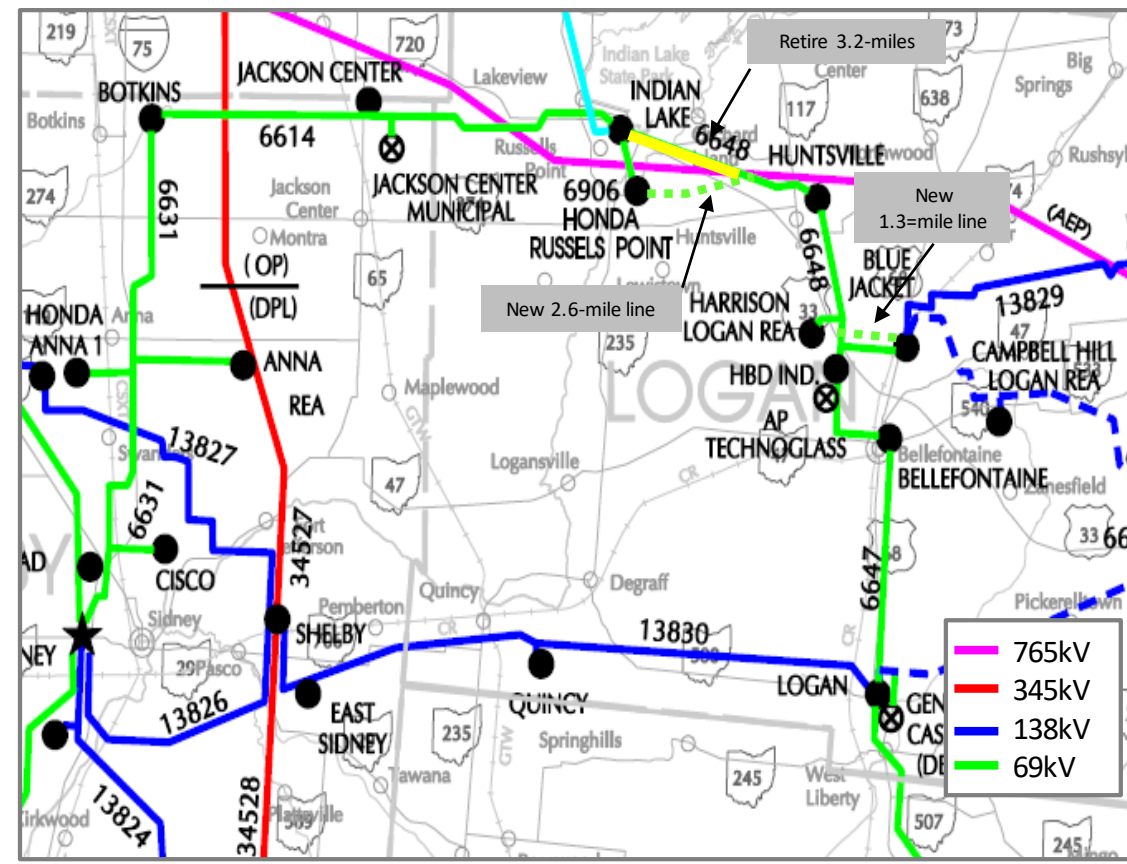
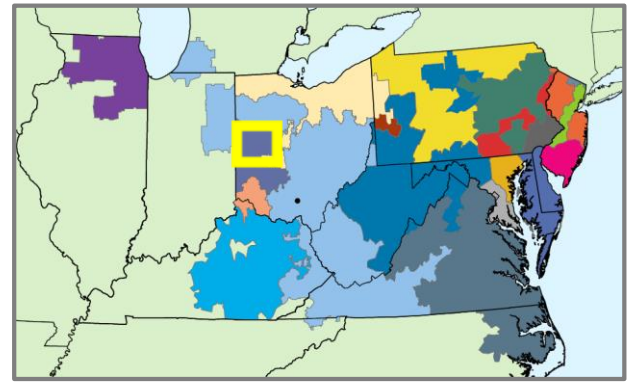
Need Number: Dayton-2020-007
Process Stage: Solutions Meeting 03/19/2021
Previously Presented: Need Meeting 06/19/2020

Supplemental Project Driver(s):
 System Configuration Improvements
 Operational Performance

Specific Assumption Reference(s):
 DP&L 2020 RTEP Assumptions, Slide 5

Problem Statement:

- The Bellefontaine-Blue Jacket-Indian Lake 6648 69kV transmission line is a 16 mile three-terminal line located in Logan County, Ohio. The line features wooden cross-arm and post construction designs.
- The 6648 line provides service to customers served at 7 different substations: Indian Lake (DP&L), Huntsville (DP&L), Harrison (Logan REA), HBD Thermoid (DP&L), AGC Automotive (DP&L), Bellefontaine (DP&L), and Blue Jacket (DP&L).
 - A fault on 6648 results in at least a momentary outage on 9 distribution transformers, 35MW of load, and possible sustained outages to the multitude of customers served from the line.
 - Also, an outage on 6648 between the Blue Jacket tap and Harrison (Logan REA) will make the remaining circuit radial that provides service to Honda T ransmission (Logan REA) and 10 other points of delivery served from the 6631 line in this configuration.
- The 6648 line has experienced 1 permanent and 3 momentary outages since 2017. The permanent outage was caused by a tree outside of the right of way and the momentary outages were caused by lightning, an issue on the distribution underbuild, and a failed piece of equipment during switching.
- The 6648 line serves approximately 35MW of load and has 16 miles of exposure (560MW-mile), although the line has performed well, there is significant exposure on this circuit that must be reduced to ensure long-term reliability.
- Immediately east of Indian Lake substation, the 6648 line crosses a low-lying area for approximately 0.75 miles. For several months of the year, structures are in standing water.
- Circuit 6906 is a radial line 2.0 mile long radial line connecting Indian Lake to a large industrial load (23 MW).



Potential Solution Slide

Need Number: Dayton-2020-007

Process Stage: Solutions Meeting 03/19/2021

Proposed Solution:

Indian Lake – Russells Point (HTM) – Blue Jacket: Eliminate the radial configuration currently serving the Honda Russells Point facility by rebuilding and rerouting the Indian Lake 69kV. This project will retire approximately 3.2 miles of the existing 6648 69kV transmission circuit that traverses a floodplain and build a new 2.6-mile single circuit 1351 AAC 69kV line extension from the Honda Russells Point that will loop the radial load and decrease line exposure.

Estimated Transmission Cost: \$4.6M, ISD 12/01/2024

New Russells Point Substation: Establish a new 69kV substation configured in a four breaker 69kV ring bus arrangement to the loop the radial load, reduce line exposure, and reconfigure the area into a more flexible transmission arrangement.

Estimated Transmission Cost: \$3.5M, ISD 12/01/2024

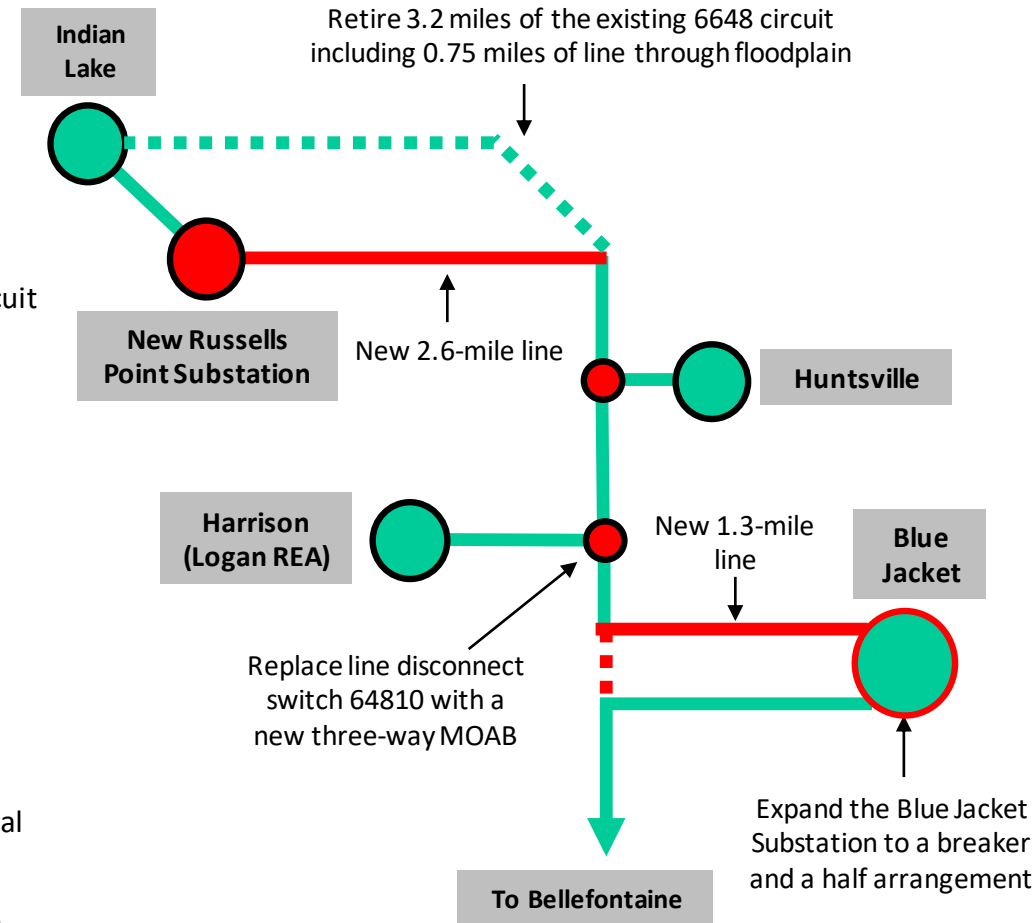
Blue Jacket Tap: Eliminate the three-terminal line arrangement by extending a new single circuit 69kV 1351 AAC line and looping it in and out of the Blue Jacket Substation. The elimination of the tap arrangement will reduce total circuit exposure by 60%, minimize the impact of line outages by tripping less equipment, and will significantly improve the operational flexibility in the area by having two distinct outlets coming out of Blue Jacket to the west.

Estimated Transmission Cost: \$1.4M, ISD 12/01/2024

Blue Jacket Substation: The 69kV portion of the Blue Jacket Substation will be expanded with three new 69kV breakers to accommodate the new 69kV line termination eliminating the three terminal line configuration.

Estimated Transmission Cost: \$6.5M

Dayton Transmission Zone M-3 Process Russells Point, Ohio



Potential Solution Slide

Need Number: Dayton-2020-007

Process Stage: Solutions Meeting 03/02/2021

Proposed Solution Continued:

Harrison Tap: The switches outside of the Harrison REA Delivery Point will be replaced with a new three-way MOAB with supervisory control to maintain switching flexibility once the Blue Jacket Tap switches are removed. This will ensure Harrison can be picked up in the event of an outage from Russells Point, Blue Jacket, or the DP&L system can separate from Harrison if there are issues on the Logan REA System.

Estimated Transmission Cost: \$0.55M, ISD 12/01/2024

Huntsville Tap: Install a new 3-way MOAB switch to increase operator flexibility to restore load during contingency conditions.

Estimated Transmission Cost: \$0.55M, ISD 12/01/2024

Total Transmission Cost: \$17.0M, ISD 12/01/2024

Alternatives Considered:

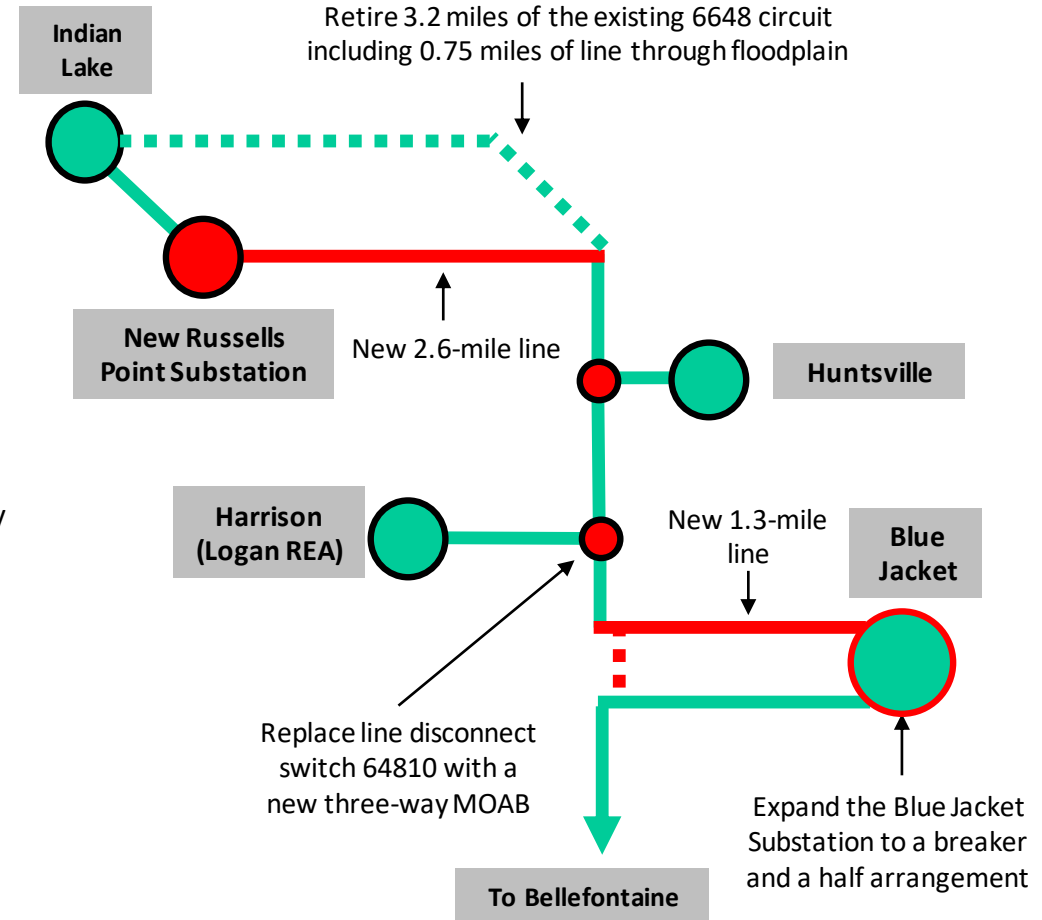
1. In lieu of constructing the additional extension from 6648 into Blue Jacket, establish a new 69kV four breaker ring station in the vicinity of the Blue Jacket tap. As well as completing the work associated with Indian Lake – Russells Point – Blue Jacket 69kV line, the Russels Point Substation, and the Blue Jacket Substation. **Estimated Cost: \$24M**

Projected In-Service: 12/1/2024

Project Status: Conceptual

Model: 2020 RTEP – 2025 Summer Case

Dayton Transmission Zone M-3 Process Russells Point, Ohio



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

3/9/2021 – V1 – Original version posted to pjm.com