

TEAC: AEP Supplemental Projects

November 6, 2024

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

AEP Transmission Zone M-3 Process Fort Wayne, IN

Need Number: AEP-2024-IM014

Process Stage: Need Meeting: 11/6/2024

Project Driver: Equipment Condition/Performance/Risk

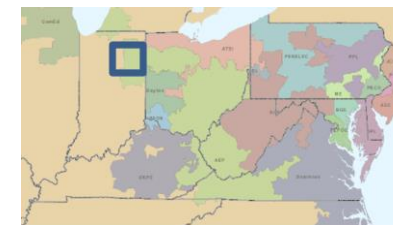
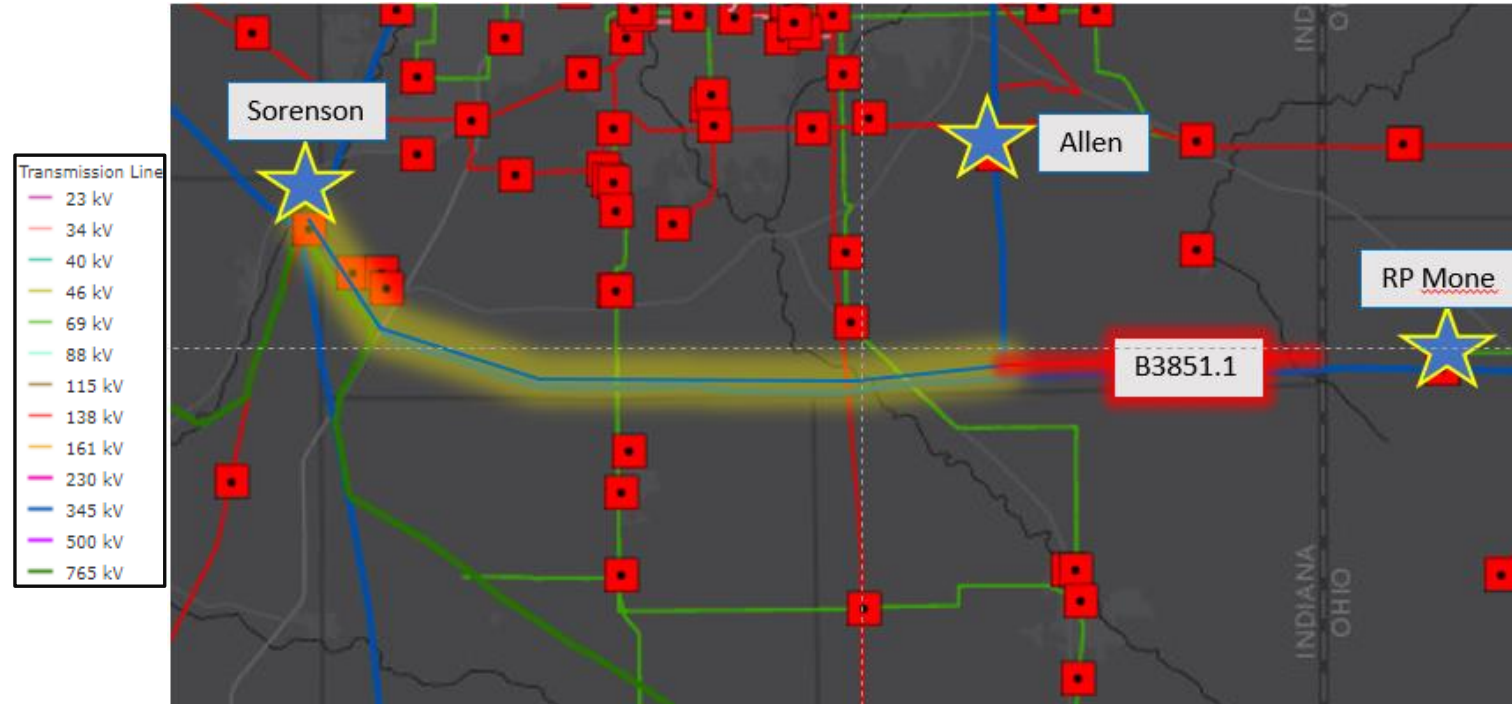
Specific Assumption Reference: AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

Problem Statement:

On 05/09/2023 AEP presented phase 1 of the Paper Expanded lines plan along with specific concerns to the paper expanded conductor lines on AEP's footprint. The below line is part of this plan.

East Lima – Sorenson 345kV Line Need

- The majority of the 30.01 miles of line (117/120 structures) consists of 1955-era double circuit steel lattice towers. This line consists of 2x 345kV circuits Allen – RP Mone 345kV, and Allen – Sorenson 345kV. The Allen – RP Mone 345kV circuit (~8.8 miles of the 30 mile line) is being rebuilt under B3851.1. This need covers the remainder of the line back to Sorenson station.
- The entire 345kV line consists of 1,275,000 ACSR/PE conductor
- There were 24 Structures throughout the line were assessed by drone and 13 structures assessed by ground crew. Of the structures that were assessed, the following conditions were found:
 - All towers show corrosion

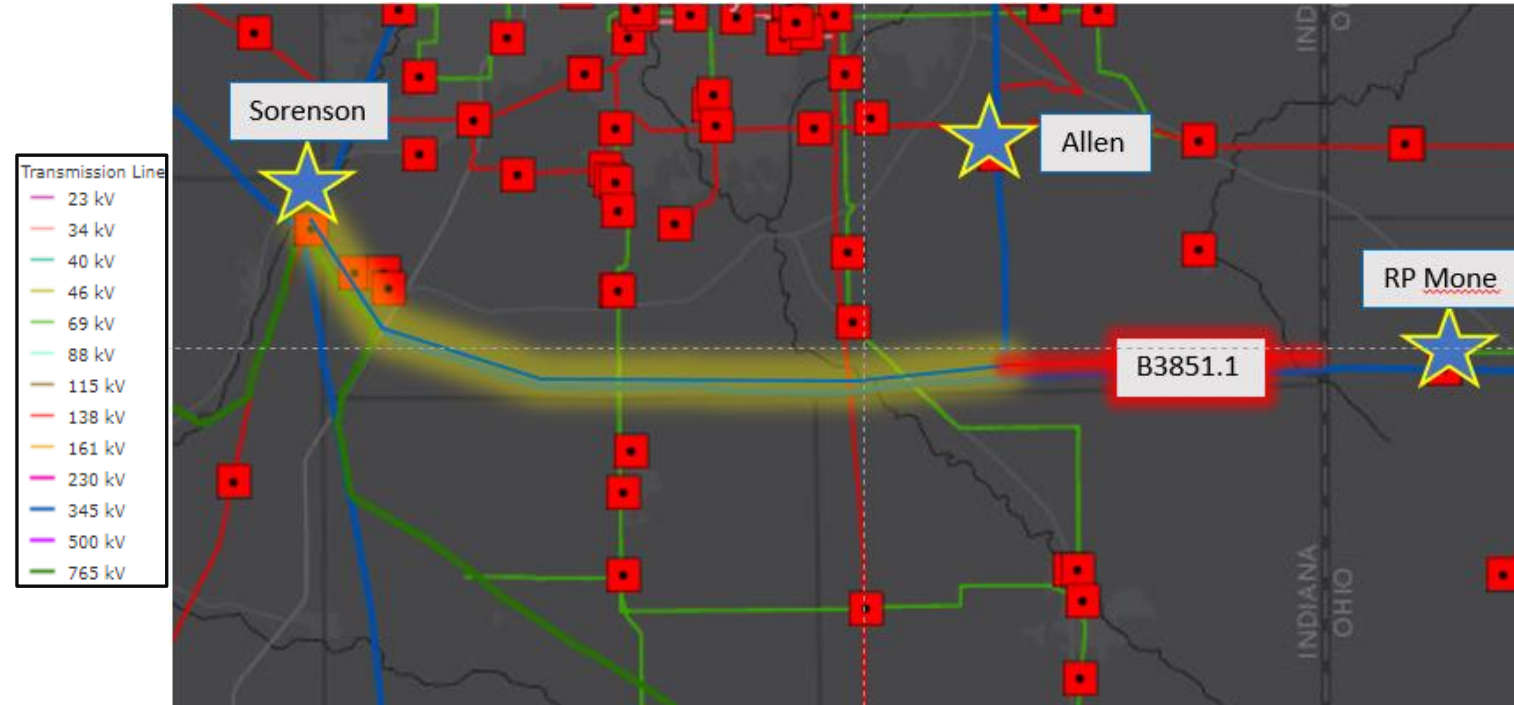


AEP Transmission Zone M-3 Process Fort Wayne, IN

Need Number: AEP-2024-IM014

Problem Statement (continued):

- Most towers have corroded insulator attachment hardware, worn arm brackets where the C-hook insulator attachment hardware connects
- Approximately 38% of the towers have broken or flashed insulators
- Many vertical insulators are contaminated from paint droppings
- Much of the line is built across farmland that is difficult to access due to soil conditions
- Since 2019, there has been 1 direct momentary outage caused by lightning
- Currently, there are 117 structures with at least one open structural, shielding or hardware condition which relates to 98% of the structures on the line. These open conditions include, but are not limited to the following:
 - Worn insulator assembly hardware, worn shield wire hardware, broken suspension insulators, and broken insulators. There is currently 1 open shielding condition related to broken shield wire strands



AEP Transmission Zone M-3 Process New Carlisle, IN

Need Number: AEP-2024-IM016

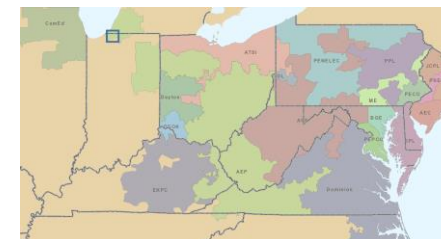
Process Stage: Need Meeting: 11/6/2024

Project Driver: Customer Service

Specific Assumption Reference: AEP Interconnection Guidelines
(AEP Assumptions Slide 12)

Problem Statement:

A customer has requested new service for 437MW of load in the New Carlisle, IN area. Initial service is requested by 3/15/2027.



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

AEP Transmission Zone M-3 Process New Haven, Indiana

Need Number: AEP-2023-IM026

Process Stage: Solution Meeting: 11/6/2024

Previous Meetings: Needs Meetings: 9/20/2024, 12/15/2023

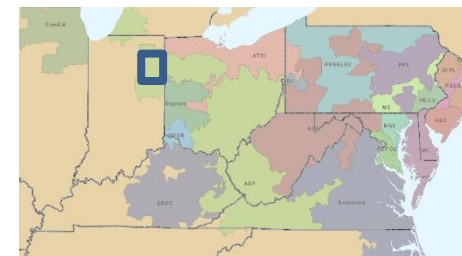
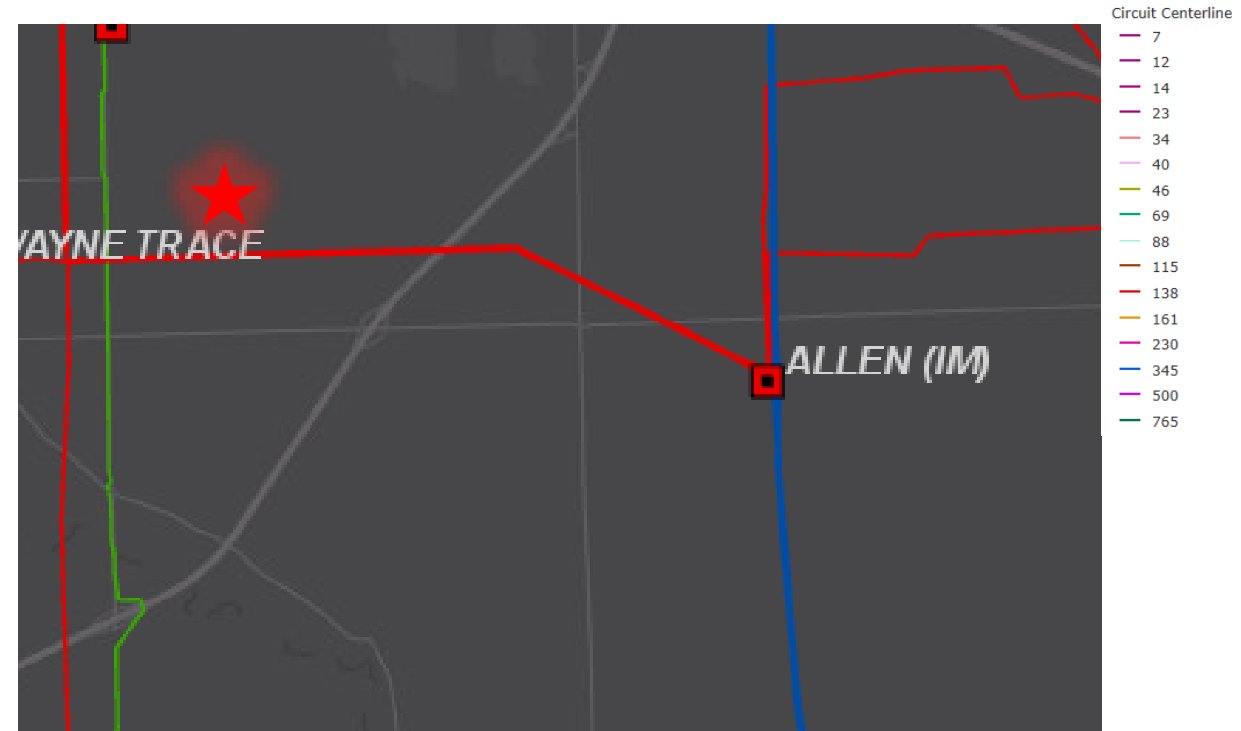
Supplemental Project Driver: Customer Service

Specific Assumption Reference: AEP Interconnection Guidelines (AEP Assumptions Slide 12)

Model: 2028 RTEP

Problem Statement:

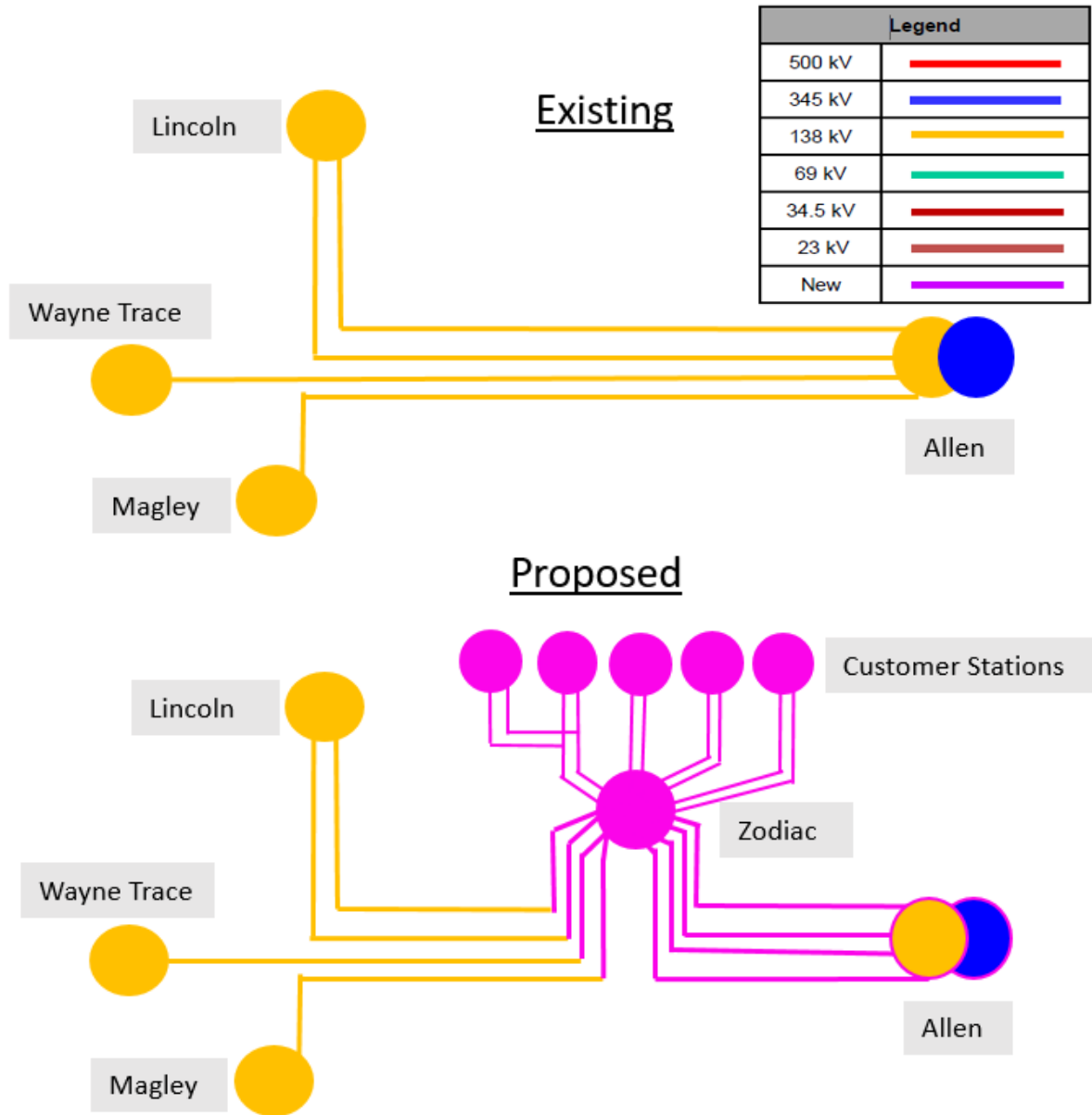
A customer has requested a new delivery point in New Haven Indiana for up to 480 MW by November 2026. This customer will begin to increase this load from 480MW to 1200MW by July 2029.



AEP Transmission Zone M-3 Process New Haven, Indiana

Need Number: AEP-2023-IM026
Process Stage: Solution Meeting: 11/6/2024

- Proposed solution:**
- Allen Station:** Expand Allen station with 2x additional 345/138kV transformers. Install 3x 345kV breaker and 3x 138kV breaker for transformer protection. Land purchase for station expansion is included. The transformers are added for overloads identified under N-1-1 analysis for loss of Robison Park Transformer #5 and Allen Transformer #2, or N-1-1 loss of both existing transformers at Allen station. Estimated Cost: \$58.5 M
 - Zodiac Station:** Install greenfield 138kv breaker and a half station. Zodiac 138kV station will include 8-138kV AEP circuit exits and customer terminations to 5 customer buildings. Estimated Cost: \$38.1 M
 - Allen-Zodiac 138kV Lines:** Cut into 2x existing double circuit 138kV lines, (4x circuits total) and install 4x double circuit 0.2 mile extension to new Zodiac 138kV station. Rebuild both ~3.7 mile 138kV double circuit lines from Allen-Zodiac Station (~7.4 mile double circuit total). Estimated Cost: \$44 M
 - Customer Radials:** Install 5x double circuit 138kV ~0.75 mile radials to customer owned stations from Zodiac station with fiber. . Estimated Cost: \$28.5 M
 - Transmission Cost Estimate:** \$169.1 M



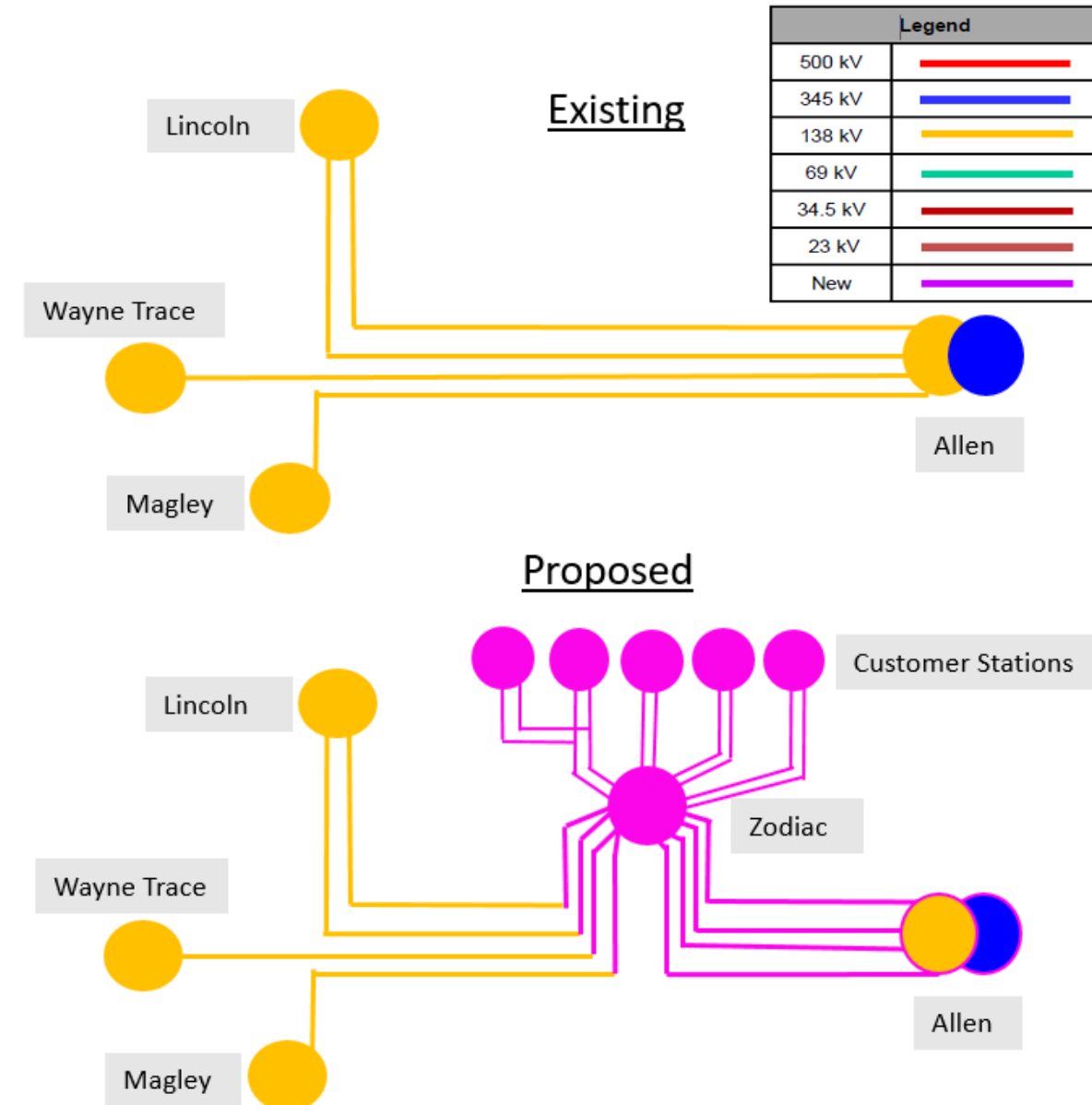
Process Stage: Solution Meeting: 11/6/2024

A project alternate would be to serve the customer off 345kV at Allen station instead of the 138kV. This would ultimately include an Allen station expansion with 3x 345kV breakers, ~3.7 miles of greenfield double circuit 345kV from Allen station to Zodiac station. The greenfield Zodiac station would be comprised of a high side 8x 345kV breaker and a half, 4x 345/138kV step down transformers and 18x 138kV low side breaker and a half. Customer radials from Zodiac would still be required. Due to the time required for 345kV greenfield, the higher loadings on the 345k with this alternate, and the customer's site location being adjacent to existing 138kV this alternate was not chosen.

Project Alternate Cost: \$214M

Projected In-Service: 07/01/2029

Project Status: Scoping



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

10/28/2024– V1 – Original version posted to pjm.com