

Transmission Expansion Advisory Committee FirstEnergy Supplemental Projects

October 8, 2024

Changes to the Existing Projects

s1757: Originally presented in 09/28/2018 and 10/26/2018 SRTEP Western meetings
Changes are marked in red

Supplemental Project Driver(s):

Equipment Material Condition, Performance and Risk

Specific Assumption Reference(s)

Substation Condition Rebuild / Replacement

- Power Transformers and Load Tap Changers (LTC)

Problem Statement

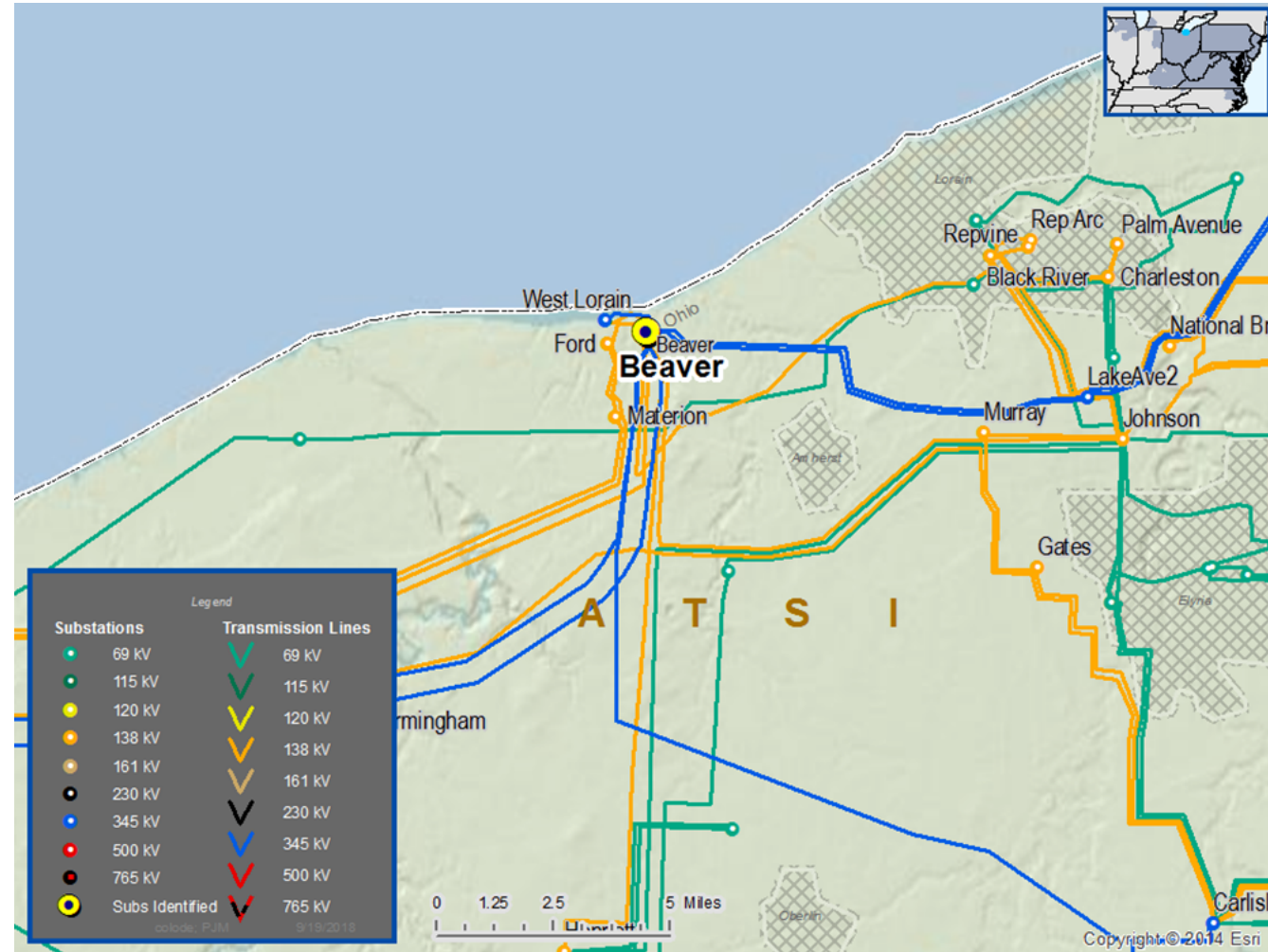
Beaver 345 / 138 / 13.2 kV 392 MVA #1 Transformer

- Oil Pump issues and maintenance
- Increased failure probability
- Aging/deteriorating bushings

The problem statement for Beaver # 2 345/138 kV transformer has been removed from this Need/Solution and is being addressed under need ATSI-2024-033

~~Beaver 345 / 138 / 13.2 kV 392 MVA #2 Transformer~~

- ~~▪ Oil Pump issues and maintenance~~
- ~~▪ Increased failure probability~~
- ~~▪ Aging/deteriorating bushings~~



Need Number: ATSI-2018-004 (s1757)
Process Stage: Re-Present Solutions Meeting – 10/8/2024

Proposed Solution:

Beaver #1 ~~and Beaver #2~~ 345/138 kV Transformer Replacement

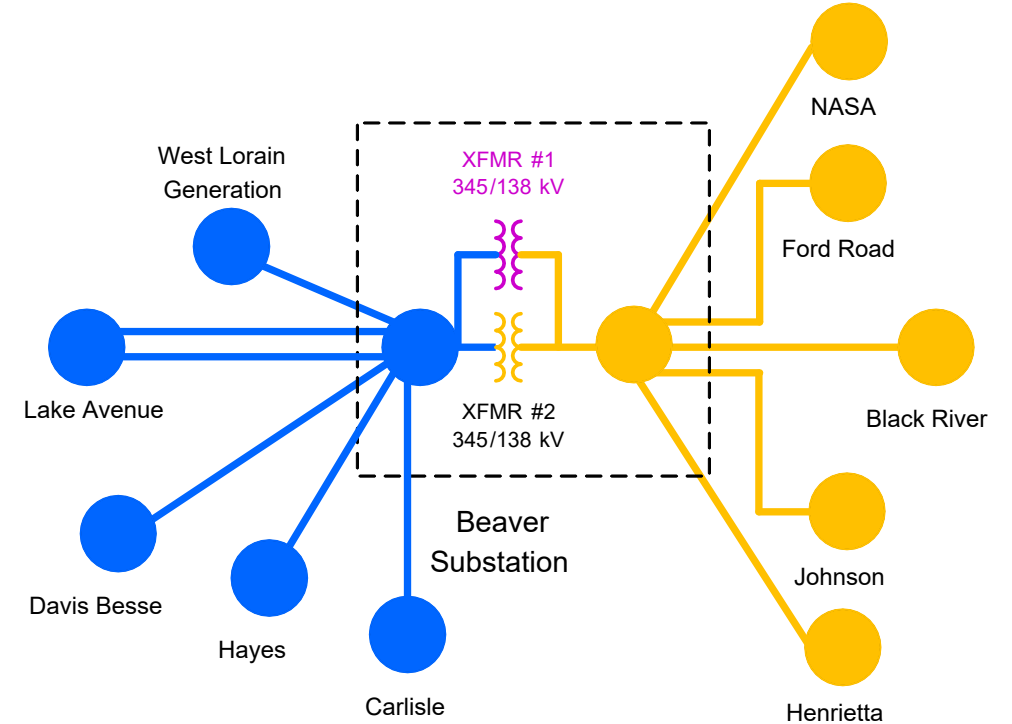
- Replace existing Beaver #1 345/138/13.2 kV transformer (350 MVA) with new 345/138/13.2 kV transformer (448 MVA)
- ~~Replace existing Beaver #2 345/138/13.2 kV transformer (350 MVA) with new 345/138 kV transformer (448 MVA)~~
- ~~Install new 138/13.2 kV transformer (14MVA) and breaker for power to station service at Beaver~~
- ~~Install new 138/13.2 kV transformer (14MVA) and breaker for power to station service at West Lorain Generation~~

Beaver Substation – Terminal equipment to be replaced include:

- Replace disconnect switches, VT’s, CCVT’s, and associated relaying.

Transformer Circuit Ratings:

- Beaver #1 345/138 kV Transformer:
 - Before Proposed Solution: 498 / 642 / 606 / 702 MVA (SN/SE/WN/WE)
 - After Proposed Solution: 577 / 700 / 682 / 777 MVA (SN/SE/WN/WE)



| Legend | |
|---------|--|
| 500 kV | |
| 345 kV | |
| 138 kV | |
| 69 kV | |
| 34.5 kV | |
| 23 kV | |
| New | |



ATSI Transmission Zone M-3 Process Beaver No. 1 345/138 kV Transformer

Need Number: ATSI-2018-004 (s1757)
Process Stage: Re-Present Solutions Meeting – 10/8/2024

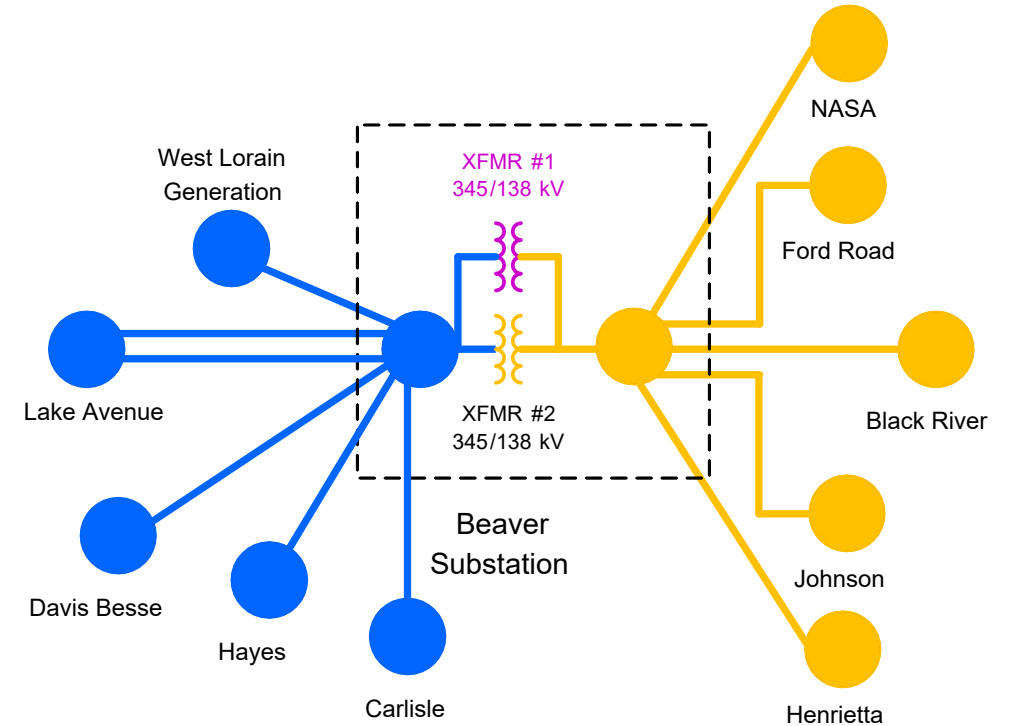
Alternatives Considered:

- Maintain existing condition and elevated risk of failure

Estimated Project Cost: ~~\$12.7M~~ 10.0 M

Projected IS Date: ~~12/31/2021~~ 4/23/2029

Status: ~~Conceptual~~ Engineering



| Legend | |
|---------|--|
| 500 kV | |
| 345 kV | |
| 138 kV | |
| 69 kV | |
| 34.5 kV | |
| 23 kV | |
| New | |

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

09/27/2024– V1 – Original version posted to pjm.com