Sub Regional RTEP Committee
Western Region
ATSI

February 20, 2019

ATSI 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

ATSI Transmission Zone

Need Number: ATSI-2019-051

Process Stage: Need Meeting

Need Presented: 2/20/2019

Project Driver(s):

Equipment Material Condition, Performance, and Risk

Specific Assumption Reference(s)

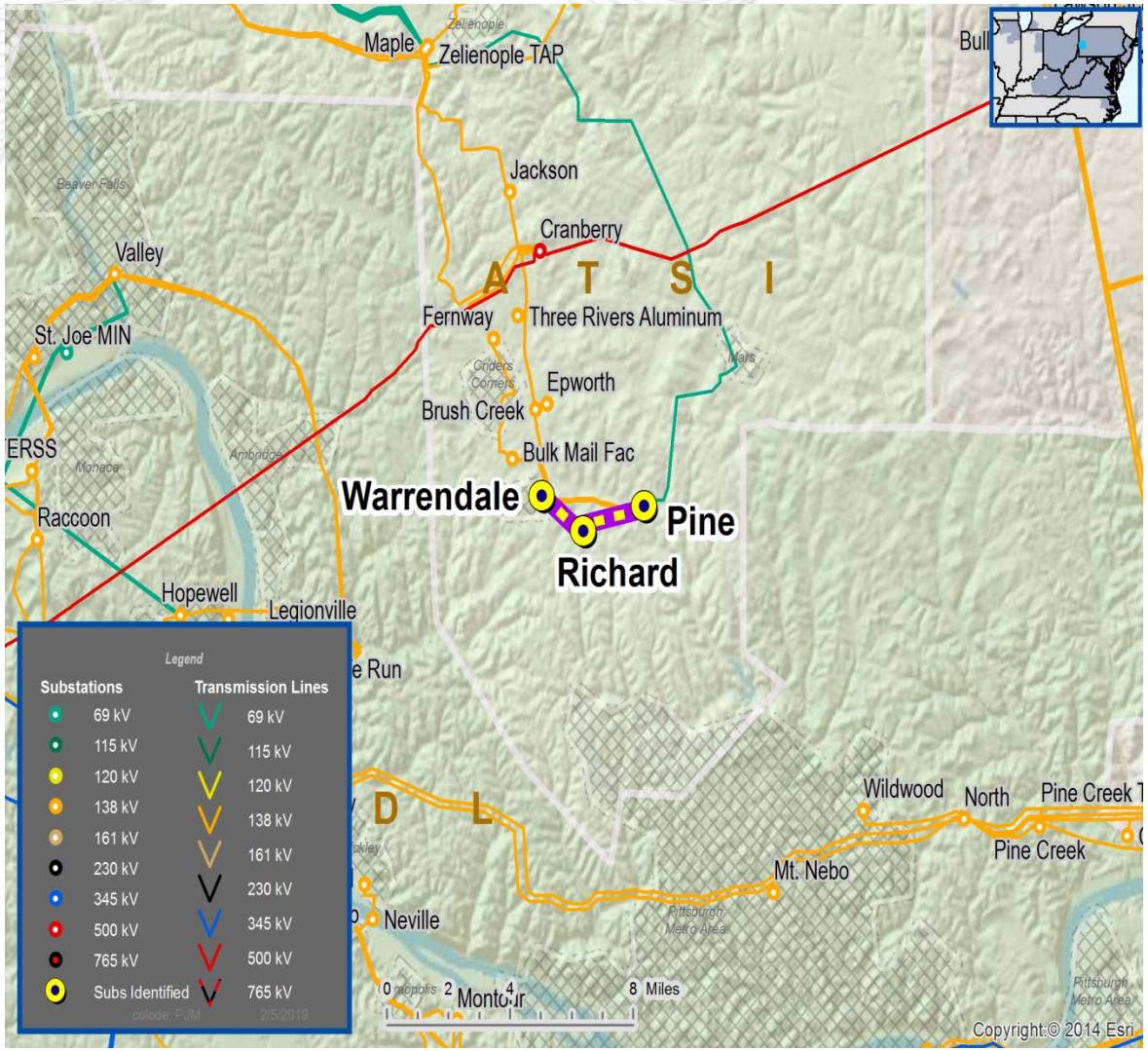
Assessment of existing transmission lines for equipment characteristics that are at, or beyond their existing service life, or contain components that are obsolete.

- Aged or deteriorated wood pole transmission line structures.
- Negatively impact customer outage frequency and/or durations.
- Demonstrate an increasing trend in maintenance findings and/or costs

Problem Statement

Pine-Warrendale 69 kV Condition Assessment

- Warrendale-Richard segment of the line (approximately 3.6 miles of the 6.42 mile line) has been identified as having obsolete and deteriorated equipment.
  - Damaged conductor identified along the line.
  - Construction is mostly 42 year old construction; poor inspection results.
- Customers and load at risk: 6,135 customers and 22 MWs of load.
- The Pine-Warrendale 69 kV line has experienced 4 outages in the past five years.



ATSI Transmission Zone

Need Number: ATSI-2019-052
Process Stage: Need Meeting
Need Presented: 2/20/2019

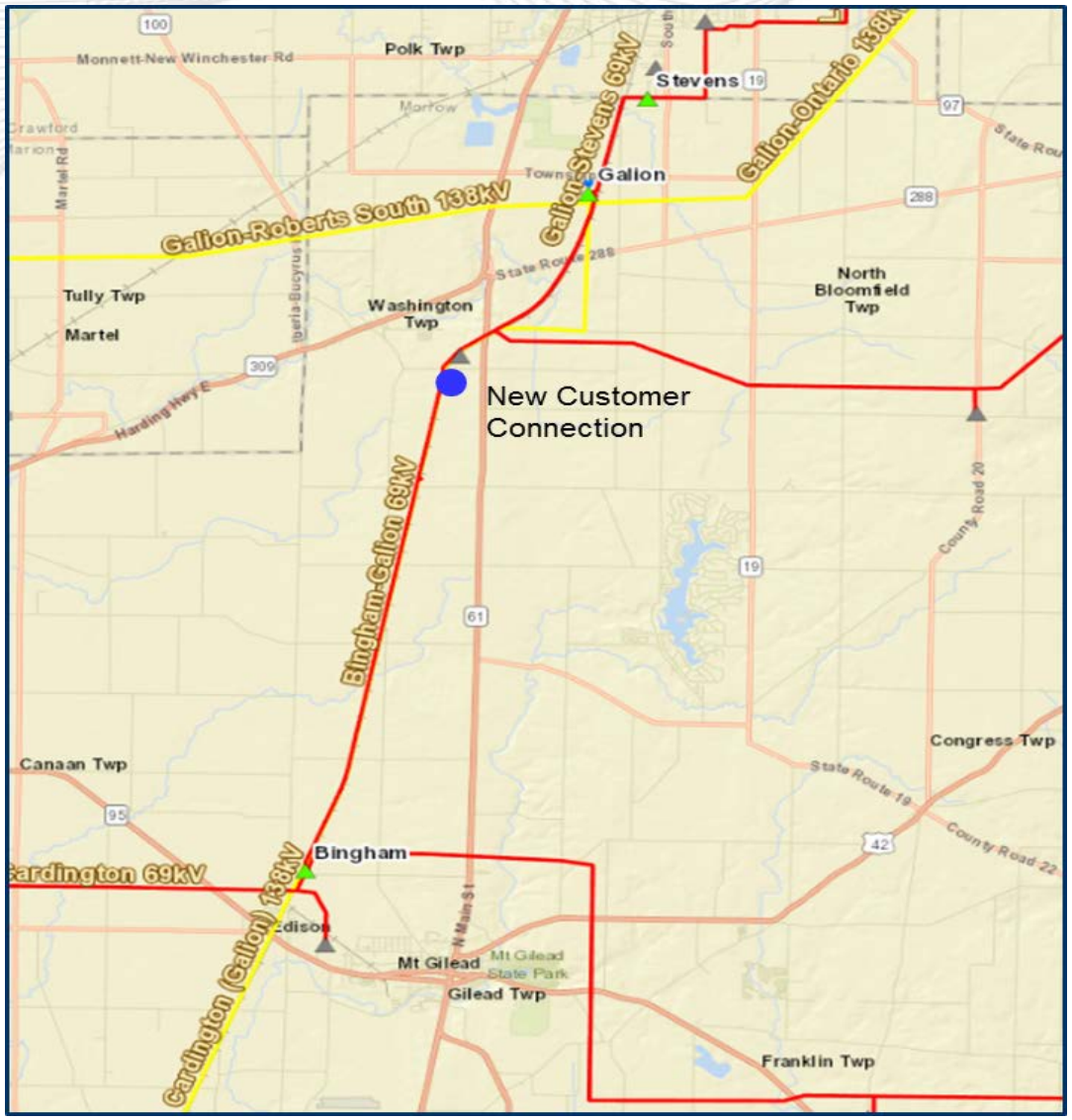
Project Driver(s):
Customer Service

Specific Assumption Reference(s)

New customer connection request evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement

New Customer Connection - A customer requested 69 kV service for a load of approximately 1.3 MVA near the Bingham – Galion 69 kV Line.



ATSI 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

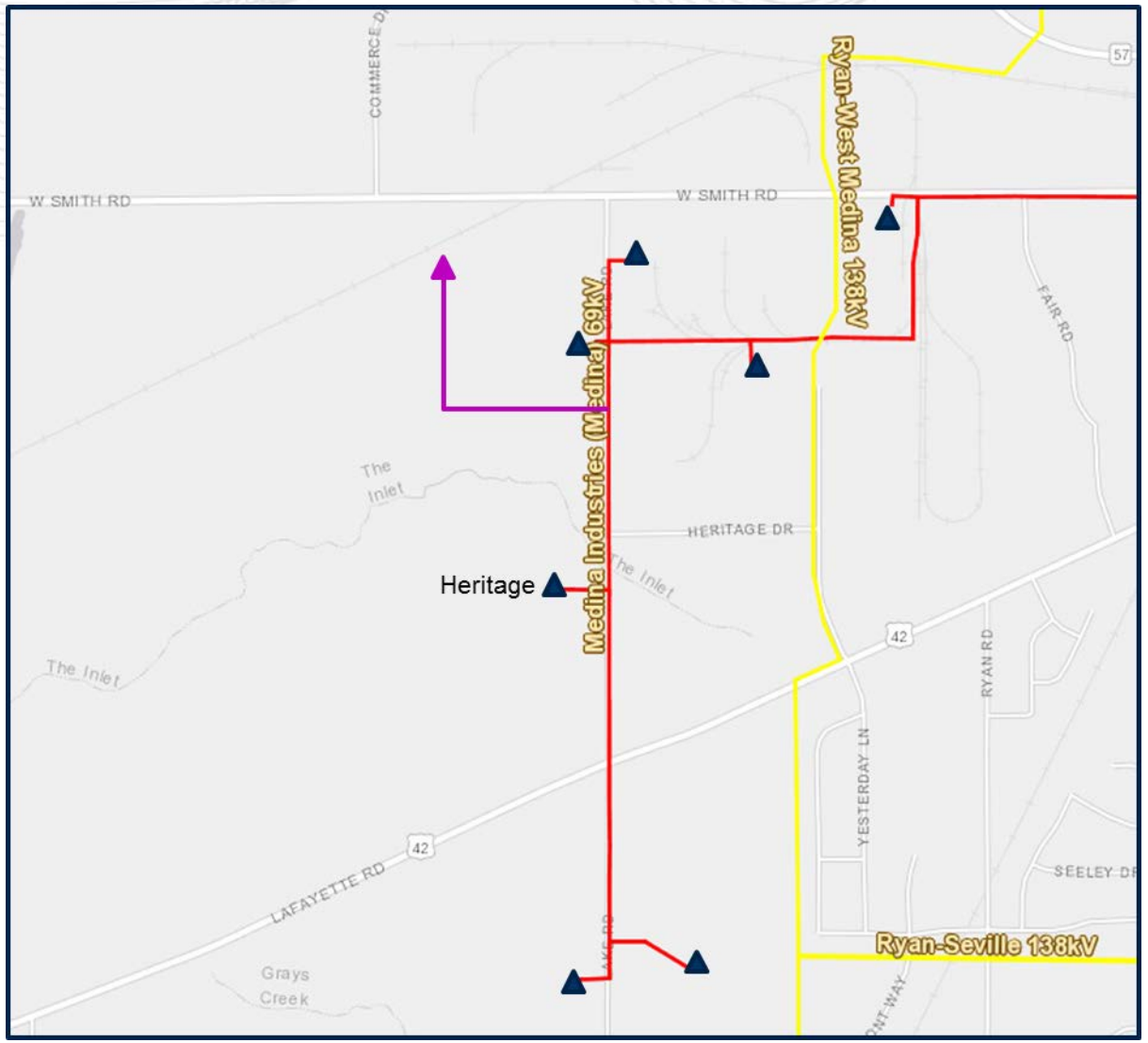
ATSI Transmission Zone

Need Number: ATSI-2018-021
Process Stage: Solutions Meeting
Date: 02/20/2019
Need Presented: 11/29/2018

Project Driver(s):
Customer Service

Specific Assumption Reference(s)
New customer connection request will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement
New Customer Connection - A customer requested 69 kV service for load of approximately 10 MVA near the Medina-Medina industries 69 kV line.



ATSI Transmission Zone

Need Number: ATSI-2018-021

Process Stage: Solutions Meeting

Date: 02/20/2019

Need Presented: 11/29/2018

Proposed Solution:

- Tap the Medina-Medina Industries 69 kV line and extend a 69 kV line (approximately 0.4 miles) to the proposed customer site (match existing conductor size)
- Install in-line sectionalizing switches at the tap location.

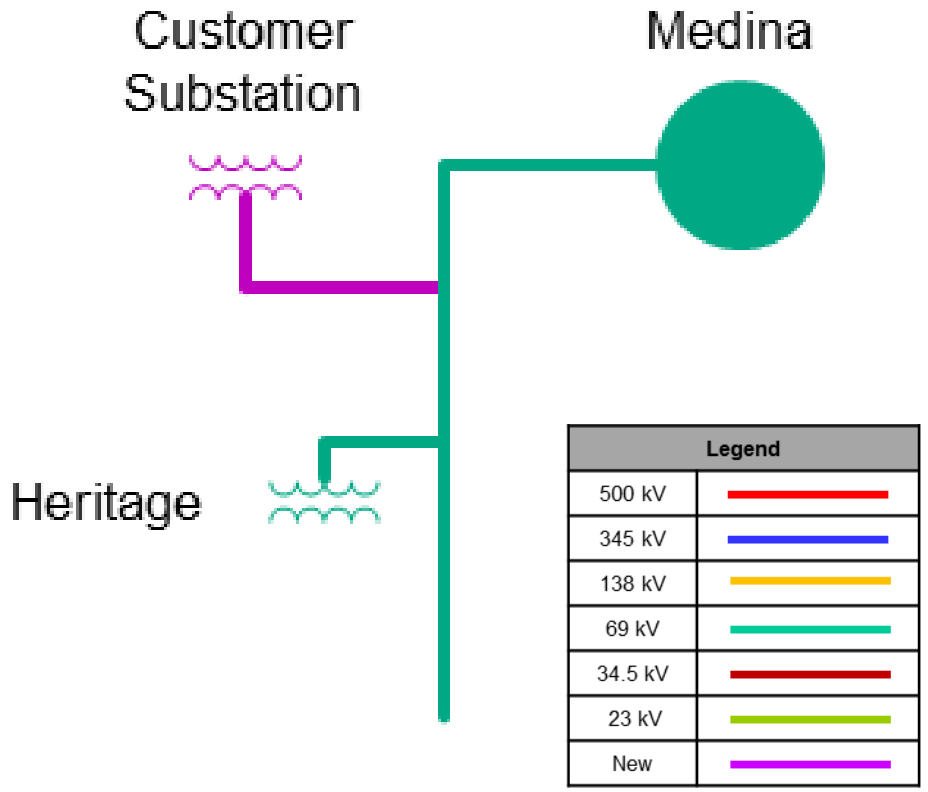
Alternatives Considered:

- None (obligation to serve)

Estimated Project Costs: $1.4M

Projected IS Date: 10/01/2019

Status: Conceptual



ATSI Transmission Zone

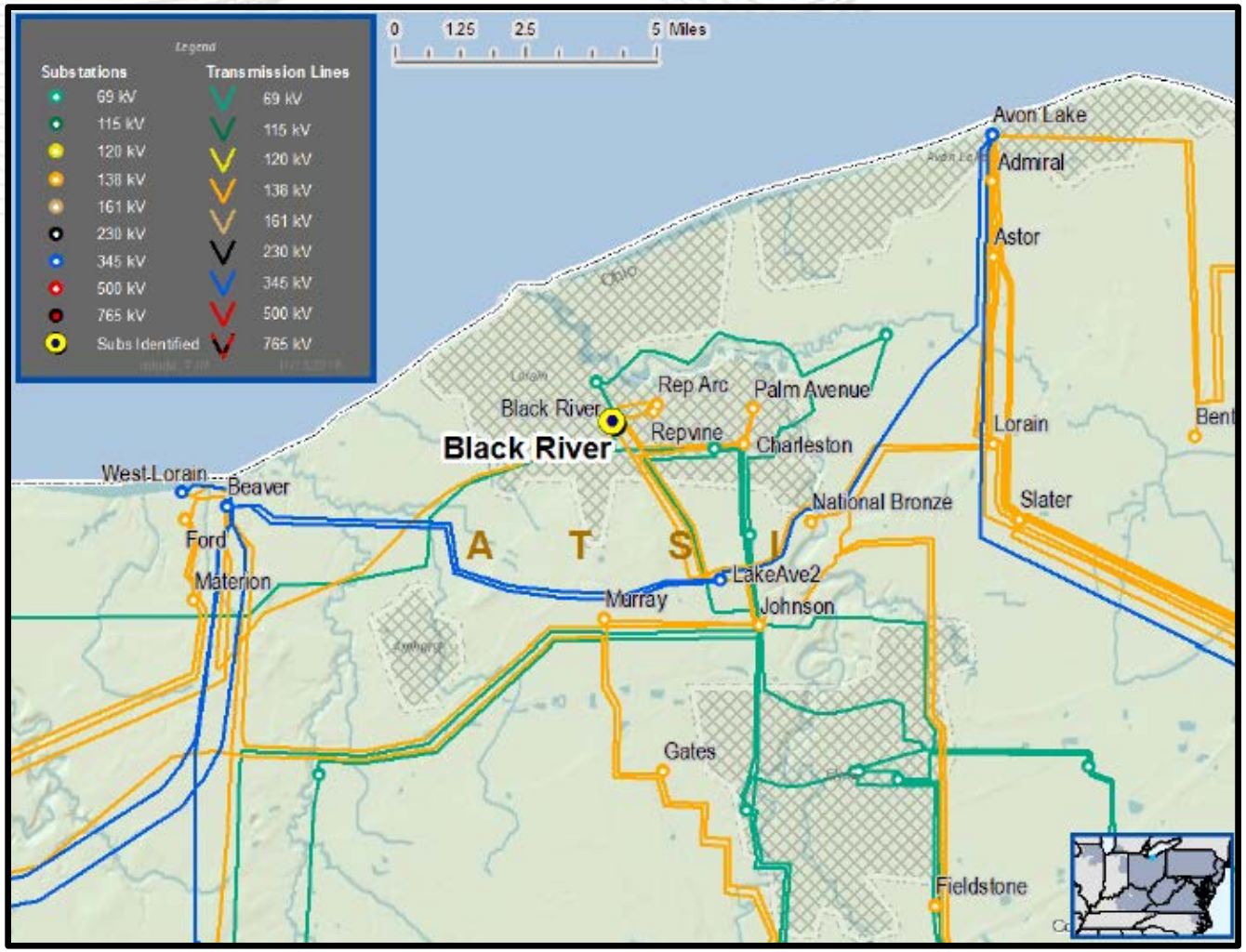
Need Number: ATSI-2018-023
Process Stage: Solutions Meeting
Date: 02/20/2019
Need Presented: 11/29/2018

Project Driver(s):
Operational Flexibility and Efficiency
Infrastructure Resilience

Specific Assumption Reference(s)
- Transmission lines with high loading
- Contingency constrained facilities
- Loading on adjacent facilities
- Accommodate future transmission facilities

Problem Statement

Black River 138 kV Area
- Thermal constraints identified in previous Gen Queue and Gen Deliverability Studies.
- Future year analysis shows potential thermal constraints.
  - For the loss of the Avon-Beaver #1 345 kV Line and the Avon-Beaver #2 345 kV Line results in the Black River-Charleston and Charleston-Lorain 138 kV Line loadings to greater than 90% emergency rating.



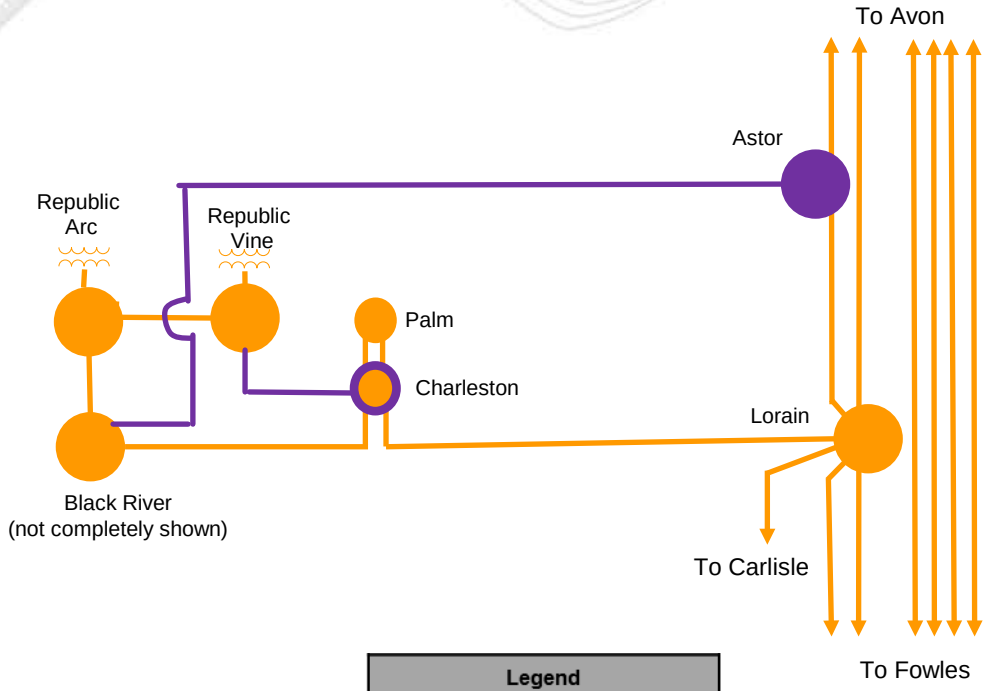
ATSI Transmission Zone

Need Number: ATSI-2018-023
Process Stage: Solutions Meeting
Date: 02/20/2019
Need Presented: 11/29/2018

Proposed Solution:

- Build approximately 8 miles of new 138kV line from Black River to Astor substation with a rating of 435 MVA SN / 500 MVA SE.
- Expand / Build a new 138kV four breaker ring bus at Astor to network the following lines and existing transformer at Astor substation:
  - Black River-Astor 138 kV Line (new)
  - Avon-Astor Q11 138 kV Line
  - Astor-Fowles Q11 138 kV Line
  - Astor Transformer #71 138/36 kV (Existing)
- Build approximately 2 miles of new 138 kV line from Republic Vine to Charleston substation with a rating of 278 MVA SN / 339 MVA SE.
- Expand the Charleston 138 kV four breaker ring bus into five (future 6) breaker ring bus to network the following lines at Charleston substation:
  - Republic Vine-Charleston 138 kV Line (new)
  - Black River-Charleston 138 kV Line
  - Charleston-Lorain 138 kV Line
  - Charleston-Palm #1 138 kV Line
  - Charleston-Palm #2 138 kV Line

Project results in a reduction in thermal loading on the Charleston-Lorain 138 kV line from greater than 90% to less than 83 % and on the Black River - Charleston 138 kV line from greater than 90% to less than 75% under problem statement contingency.



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

ATSI Transmission Zone

Need Number: ATSI-2018-023

Process Stage: Solutions Meeting

Date: 02/20/2019

Need Presented: 11/29/2018

Transmission Line Ratings:

- Black River – Astor 138 kV Line
  - Before Proposed Solution: N/A
  - After Proposed Solution: 435 MVA SN / 500 MVA SE
- Republic Vine – Charleston 138 kV Line
  - Before Proposed Solution: N/A
  - After Proposed Solution: 278 MVA SN / 339 MVA SE

Alternatives *Considered:*

- *Reconductor* Black River-Charleston 138 kV Line and the Charleston-Lorain 138 kV Line The existing transmission line has limited ROW throughout city and private properties, including the National Park and Forrest; Charleston tap is already double circuit with limited expansion and ability to acquire additional ROW. This alternative was not selected due to construction feasibility, cost, and overall long term effectiveness of solution.
- Build a new 345 kV line, approximately 50 miles, from Beaver substation to point along the Avon-Juniper 345 kV line. Build a new 345 kV switch station to network the 345 kV lines near the point along the Avon-Juniper 345 kV line. This alternative was not selected due to overall cost and feasibility to acquire additional ROW.

Estimated Project Costs: $24.5 M

Projected IS Date: 12/31/2023

Status: Conceptual

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

2/07/2019 – V1 – Original version posted to pjm.com