Subregional RTEP Committee – Western
FirstEnergy Supplemental Projects

January 17, 2025

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 M-3 Process
Huron Area

Need Number: ATSI-2025-001
Process Stage: Need Meeting – 1/17/2025

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

Specific Assumption Reference(s):
Global Factors

- System reliability and performance
- Load at risk in planning and operational scenarios
- Substation/line equipment limits

Problem Statement:

- The existing load served from the ATSI Greenfield –Rye Beach 69 kV Line and Rye Beach - Shinrock 69 kV Line is approximately 66 MW and 7,284 customers for a total of nine delivery points.
- Huron Muni, served from AMPT's Rye Beach substation on the existing Greenfield – Shinrock 69 kV Line, serves approximately 40 MVA of greenhouse load with future load growth expected (winter peaking). The Muni is anticipating future load growth of 5-15 MVA for a total of 45-55 MVA.

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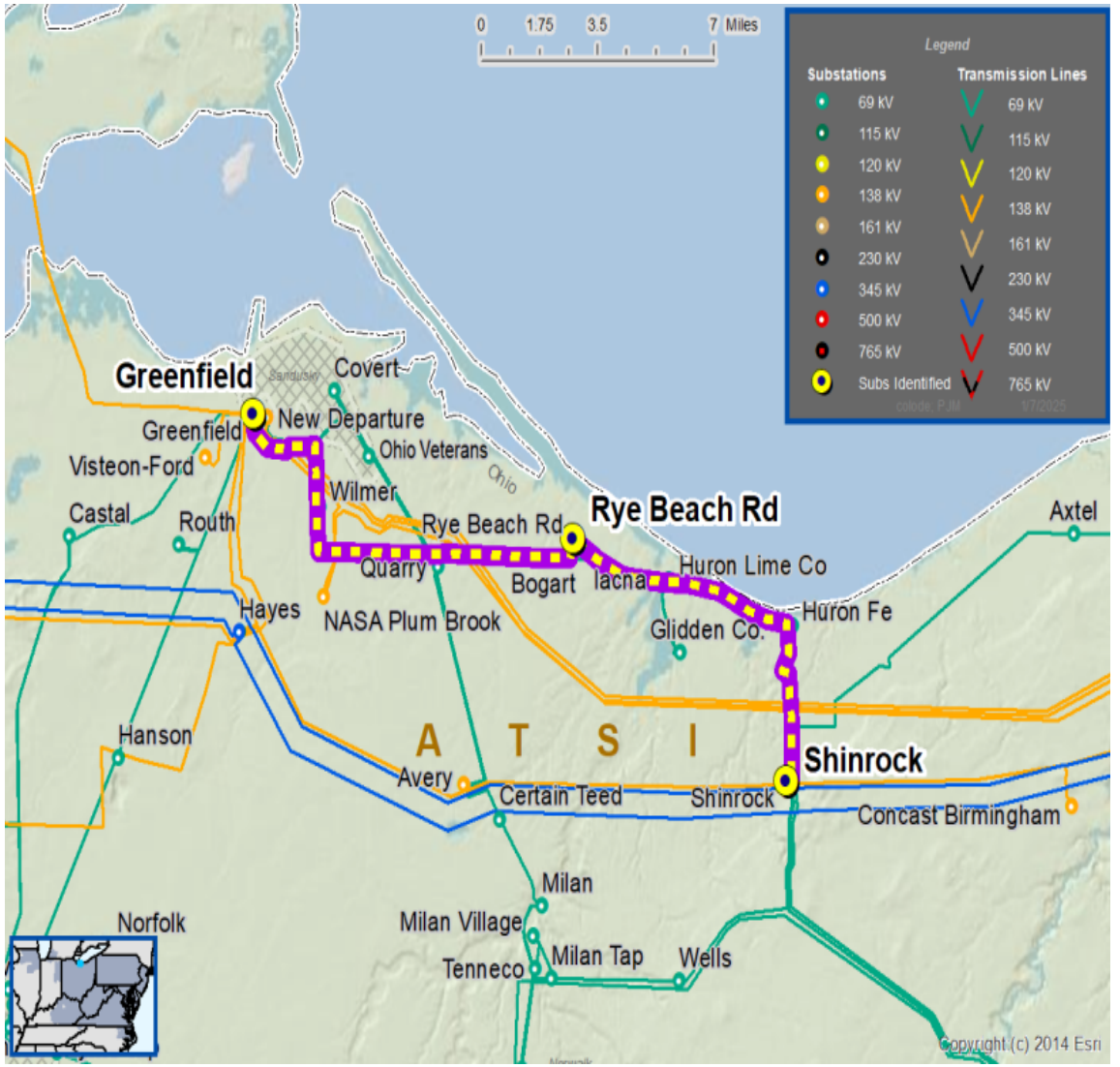


ATSI Transmission Zone M-3 Process
Huron Area

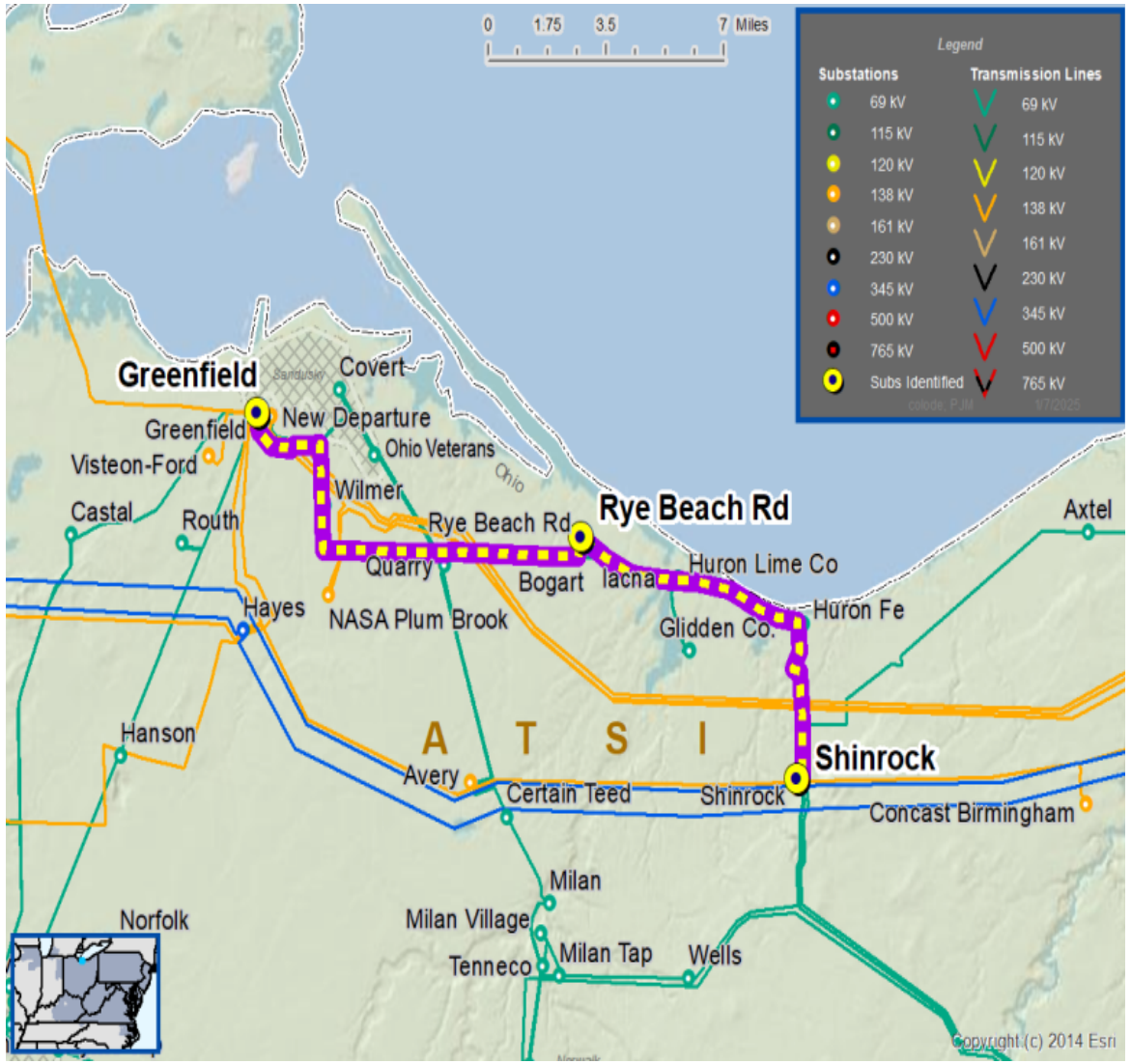
Need Number: ATSI-2025-001
Process Stage: Need Meeting – 1/17/2025

Problem Statement

- For N-1-1 outage of the Greenfield-Rye Beach & Shinrock-Rye Beach 69 kV Line
  - Results in approximately 100 MW of load loss impacting approximately 13,600 customers
- For P2-1 contingency of opening breaker at Shinrock Substation
  - The ATSI Greenfield-Rye Beach 69 kV line from Greenfield to Bogart substation overloads up to 96% of the line 110 MVA winter emergency rating
  - Low voltage concerns in the area.
  - Approximately 100 MW of load and 13,600 customers at risk.
- For P2-1 contingency of opening breaker at Greenfield Substation
  - The ATSI Shinrock-Rye beach 69 kV Line from Shinrock to Huron overloads up to 104% of the line rating 103 MVA winter emergency rating.
  - Low voltage concerns in the area.

- Line Ratings
  - Greenfield-Shinrock 69 kV Line:
    - Greenfield - Wilmer T: 76/92/87/110 (SN/SE/WN/WE)
    - Wilmer T - Bogart T: 76/92/87/111 MVA (SN/SE/WN/WE)
    - Bogart-Rye Beach: 80/96/90/114 MVA (SN/SE/WN/WE)
    - Rye BeachT - IACNA T: 80/96/90/114 MVA (SN/SE/WN/WE)
    - IACNA T – Glidden : 76/92/87/111 MVA (SN/SE/WN/WE)
    - Glidden-Huron Lime: 76/92/87/111 MVA (SN/SE/WN/WE)
    - Huron Lime-Huron :76/92/87/111 MVA (SN/SE/WN/WE)
    - Huron - Shinrock: 76/90/90/103 MVA (SN/SE/WN/WE)

Model: 2024 Series 2029 Winter RTEP 50/50



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 M-3 Process
Campbellsport-Ravenna No.1 69 kV Line

Need Number: ATSI-2023-002

Process Stage: Solution Meeting – 1/17/2025

Previously Presented: Need Meeting – 04/21/2023

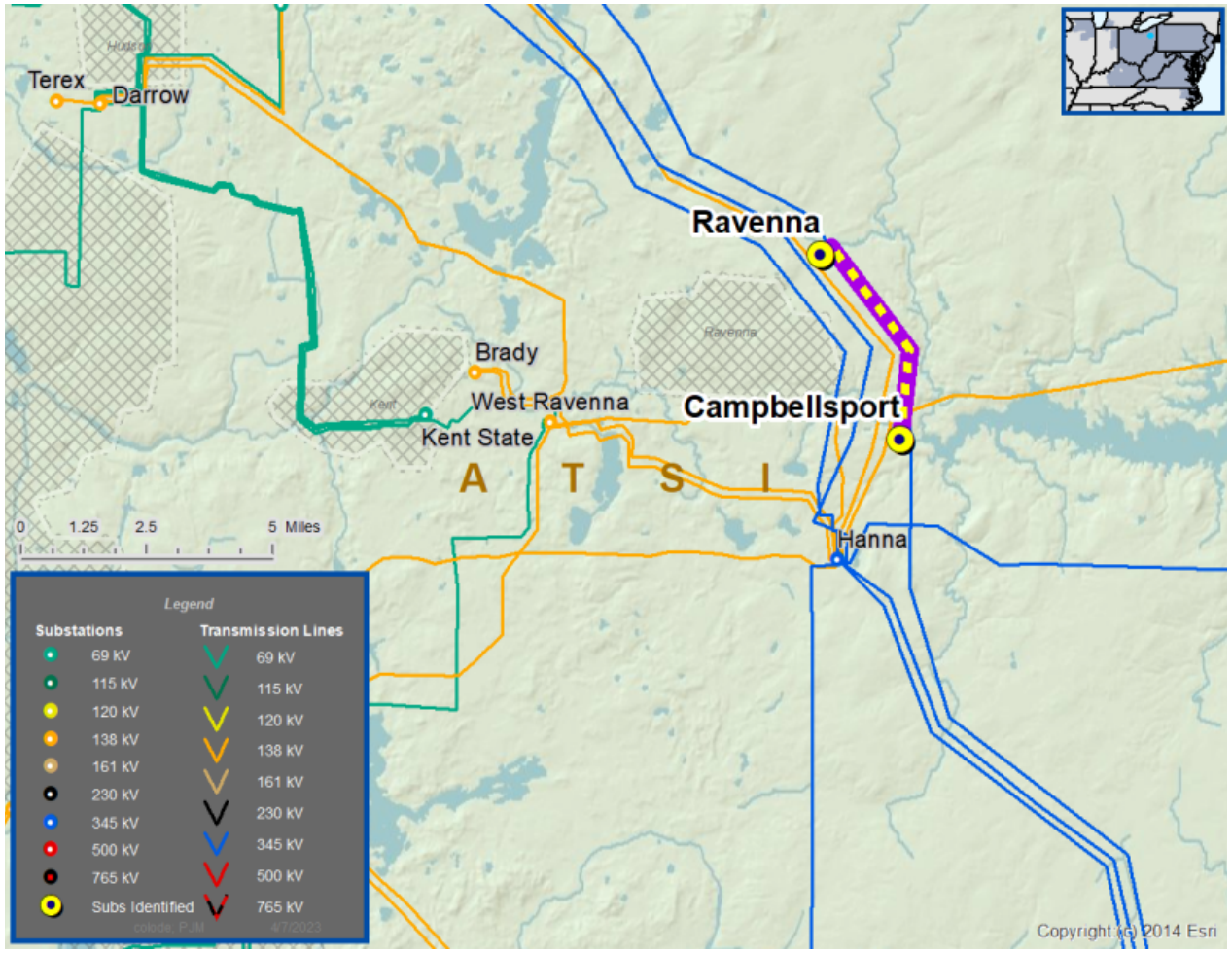
Supplemental Project Driver(s):
Equipment Material Condition, Performance and Risk

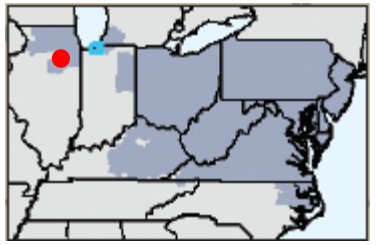
Specific Assumption Reference(s)

- Substation / Line equipment limits
- System reliability and performance
- Reliability of Non-Bulk Electric System (Non-BES) Facilities
- Transmission line with high loading

Problem Statement:

- Campbellsport - Ravenna #1 69 kV Line is 10.77 miles, and a section of the line approximately 2.8 miles has high loading (95% of Summer Emergency rating) using the 2021 RTEP 2026 Summer peak case for an N-1-1 outage.
- FE Transmission System Operations identified a potential real-time overload on the Campbellsport – Ravenna #1 69 kV Line and issued two PCLLRW's in two consecutive days 6/28/2021 & 6/29/2021 for the same N-1-1 outage noted above.





Legend	
345 kV	
138 kV	
69 kV	

ATSI Transmission Zone M-3 Process
Campbellsport-Ravenna No.1 69 kV Line

Need Number: ATSI-2023-002

Process Stage: Solution Meeting – 01/17/2025

Previously Presented: Need Meeting – 04/21/2023

Proposed Solution:

Campbellsport – Ravenna No.1 69 kV Line Reconductor

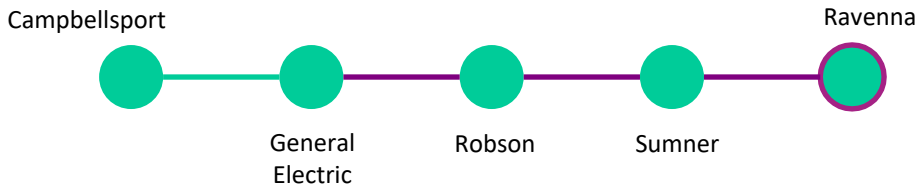
- Reconductor approximately 2.8 miles of the Campbellsport - Ravenna No.1 69 kV Line using 556 kcmil 26/7 ACSR conductor.
- Upgrade A-115 switch with new 1200A units with SCADA control.
- Install vacuum bottle on A-408 switch.
- Install new 1200A switch with vacuum bottle and SCADA control at the Robson tap.

Ravenna Substation:

- Adjust relay settings.
- Upgrade D-15, and D-16 switches with new 1200A units with whips.
- Upgrade the SCCIR 477 kcmil ACSR substation conductor with 605 kcmil ACSR conductor.

Sumner Substation:

- Upgrade A-9, A-10 and A-44 switches with new 1200A units with whips.
- Upgrade the SCCIR 477 kcmil ACSR substation conductor with 605 kcmil ACSR conductor.
- Install new 1200A switch with vacuum bottle and SCADA control.



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

ATSI Transmission Zone M-3 Process
Campbellsport-Ravenna No.1 69 kV Line

Need Number: ATSI-2023-002

Process Stage: Solution Meeting – 01/17/2025

Previously Presented: Need Meeting – 04/21/2023

Transmission Line Ratings:

Ravenna - Sumner Tap
- Old rating 82MVA/SN, 92MVA/SE & 92MVA/WN, 92MVA/WE
- New rating 100MVA/SN, 121MVA/SE & 113MVA/WN, 143MVA/SE

Sumner Tap – Sumner
- Old rating 45MVA/SN, 54MVA/SE & 51MVA/WN, 65MVA/WE
- New rating 111MVA/SN, 134MVA/SE & 125MVA/WN, 159MVA/SE

Sumner Tap - Robinson Hospital Tap
- Old rating 45MVA/SN, 54MVA/SE & 51MVA/WN, 65MVA/WE
- New rating 111MVA/SN, 134MVA/SE & 125MVA/WN, 159MVA/SE

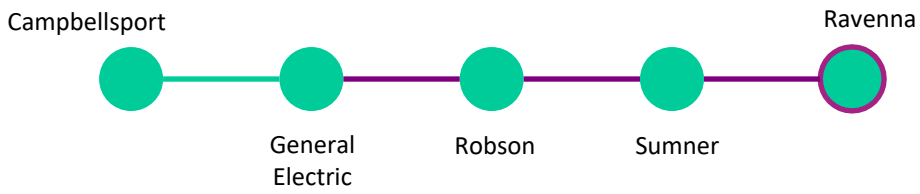
Robinson Hospital Tap – General Electric Tap
- Old rating 45MVA/SN, 54MVA/SE & 51MVA/WN, 65MVA/WE
- New rating 111MVA/SN, 134MVA/SE & 125MVA/WN, 159MVA/SE

Alternatives Considered:
- Maintain existing condition with elevated risk of operational load shed under contingency scenarios.

Estimated Project Cost: $6.7 M

Projected In-Service: 12/31/2025

Status: Project Development



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

Changes to the Existing Projects

ATSI Transmission Zone M-3 Process
West Chippewa 69 kV Substation

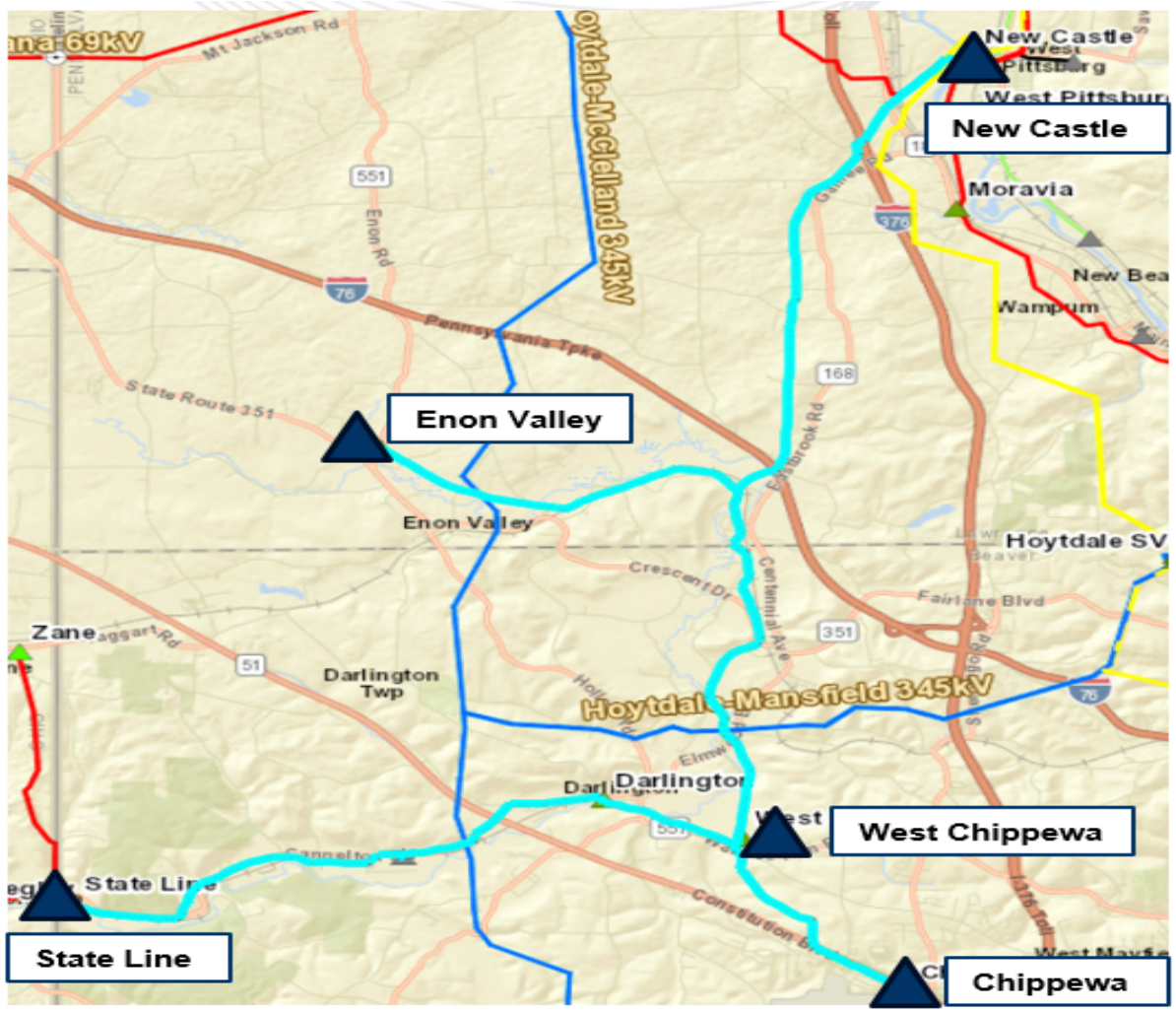
s1717: Originally presented in 08/31/2018 and 9/28/2018 SRRTEP Western meetings

Changes are marked in red

Problem Statement (Scope and Need/Drivers):

Operational Flexibility and Efficiency

- Improve operational flexibility during maintenance and restoration efforts.
- Improve reliability to customers; circuit line exposure is approximately 24 miles.
- Reduce amount of potential local load loss (Approximately 36 MWs) under (P1) contingency conditions.
  - *Loss of the New Castle-State Line 69 kV line.*



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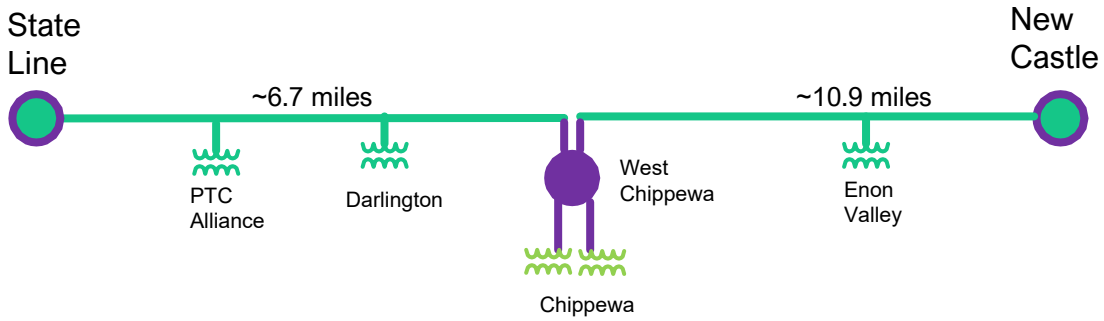
ATSI Transmission Zone M-3 Process
West Chippewa 69 kV Substation

Need Number: (s1717)
Process Stage: Re-Present Solutions Meeting – 1/17/2025

Proposed Solution:

West Chippewa 69 kV Ring Bus

- Construct a 5-breaker ring bus at West Chippewa substation
- Loop the State Line – New Castle 69 kV line in/out of the new West Chippawa 69 kV ring bus substation
  - Construct a new 69 kV line from the West Chippewa tap (Structure 163) into new ring bus (~0.1 mi) as a double circuit.
  - The project splits the State Line – New Castle 69 kV Line and creates the following two lines:
    - State Line – West Chippewa 69 kV Line
    - New Castle – West Chippewa 69 kV Line
- Install one ~~12.6~~ 15.6 MVAR cap at West Chippewa
- ~~Rebuild approximately 2.5 miles of 477 ACSR to double circuit 69 kV line to convert radial tap to networked line and load at Chippewa substation.~~
- Construct a new 69 kV line from West Chippawa 69 kV ring bus into the existing Chippewa substation (~2.7 mi).
- Rebuild the existing 69 kV line from West Chippawa 69 kV ring bus into the existing Chippewa substation (~2.7 mi).
- Install (3) 69 kV SCADA controlled switches outside of Chippewa substation.
- Reconfigure and re-terminate at Chippewa substation as necessary to accommodate the new 69 kV line and new switches.
- Revise relay settings at New Castle & State Line substations.
- ~~New Castle-State Line 69 kV line is being rebuilt under separate project to 477 ACSR~~
  - ~~Old Rating 71 MVA SN New Rating 100 MVA SN~~



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

ATSI Transmission Zone M-3 Process
West Chippewa 69 kV Substation

Need Number: (s1717)
Process Stage: Re-Present Solutions Meeting – 1/17/2025

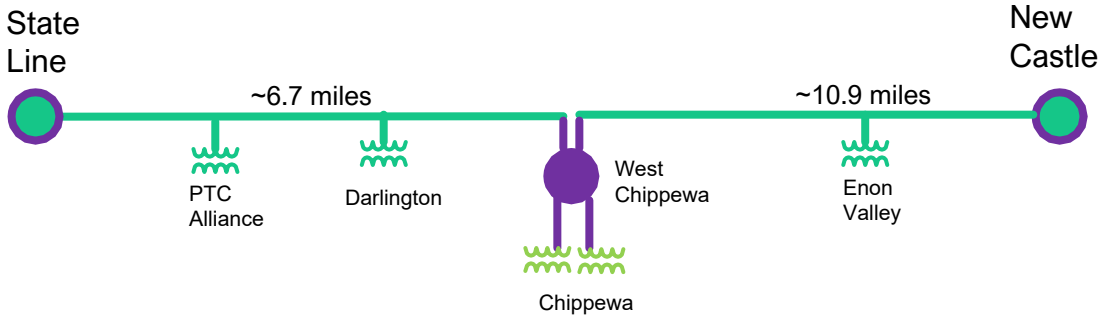
Transmission Line/Branch Ratings:

Enon Valley T - West Chippewa 69 kV Branch: 100/121/113/143 MVA (SN/SE/WN/WE)

Darlington - West Chippewa 69 kV Branch: 100/121/113/143 MVA (SN/SE/WN/WE)

Chippewa– West Chippewa #1 69 kV Line: 80/96/90/114 MVA (SN/SE/WN/WE)

Chippewa– West Chippewa #2 69 kV Line: 80/96/90/114 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
West Chippewa 69 kV Substation

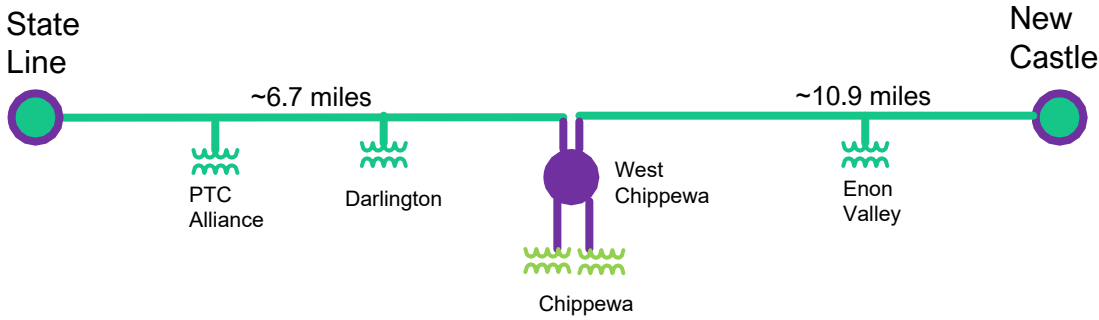
Need Number: (s1717)
Process Stage: Re-Present Solutions Meeting – 1/17/2025

Alternatives Considered: Maintain existing condition and risk of failure

Estimated Project Cost: ~~$9.1M~~ $34 M

Projected IS Date: ~~6/1/2021~~ 12/31/2025

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

1/7/2025 – V1 – Original version posted to pjm.com

1/8/2025 – V2 – Map added for s1717

1/13/2025 – V3 – Huron Area need number updated