Subregional RTEP Committee – Western
FirstEnergy Supplemental Projects

August 16, 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

APS Transmission Zone M-3 Process
Oak Grove – Parkersburg 138 kV Line

Need Number: APS-2021-007

Process Stage: Need Meeting 08/16/2021

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

Global Factors

- System reliability and performance
- Substation and line equipment limits
- Upgrade Relay Schemes
  - Relay schemes that have a history of misoperation
  - Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
  - Communication technology upgrades
  - Bus protection schemes

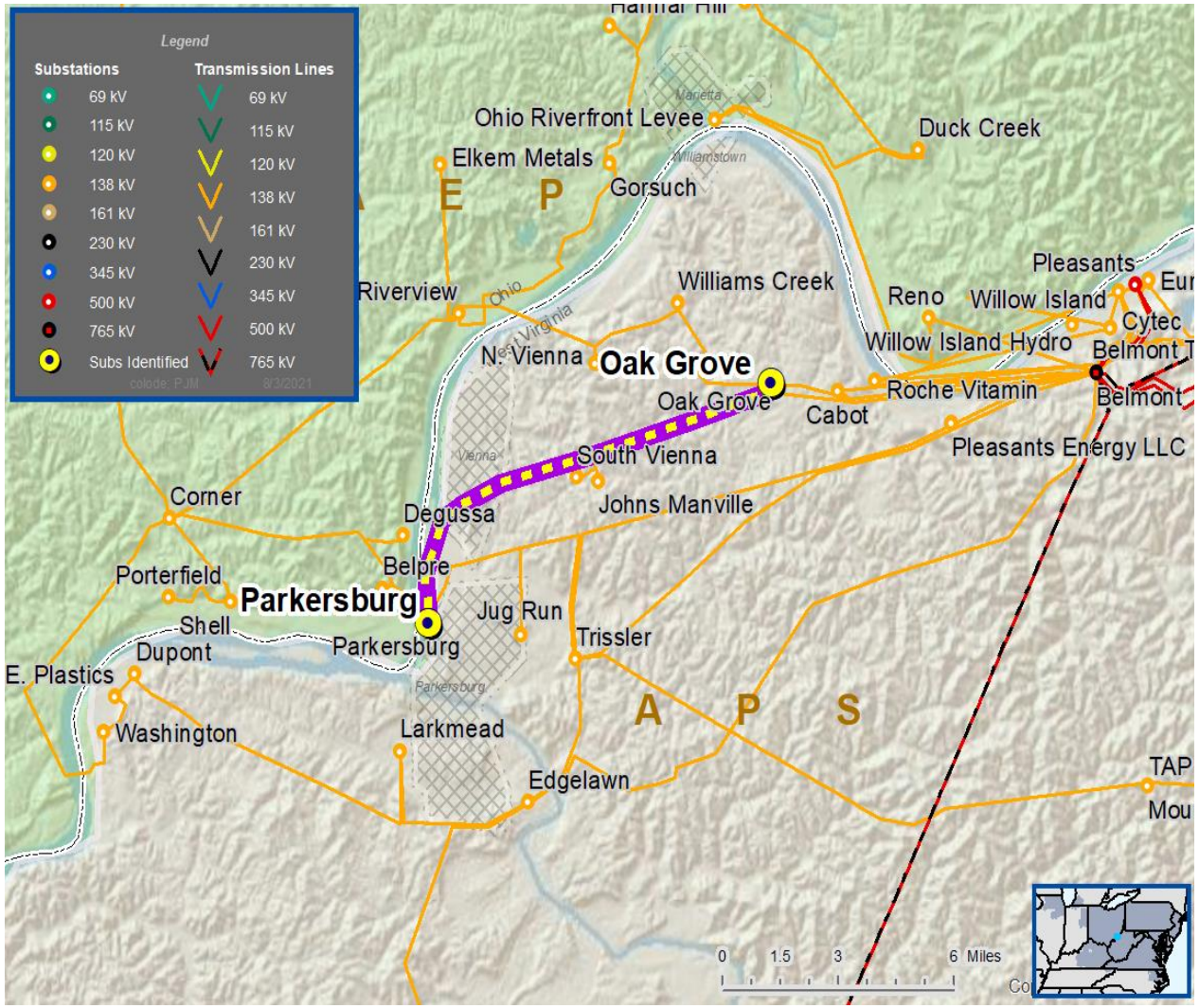
Problem Statement:

- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform properly together during a fault
- The identified protection equipment cannot be effectively repaired for reasons such as lack of replacement parts and available expertise in the outdated technology.
- Newer equipment provides better monitoring, enhances capability of system event analysis, and performs more reliably

- Transmission line ratings are limited by terminal equipment

Oak Grove – Parkersburg 638 138 kV Line (substation conductor)

- Existing line rating: : 225 / 287 MVA (SN / SE)
- Existing Transmission conductor rating: 309 / 376 MVA (SN / SE)



APS Transmission Zone M-3 Process
Belmont – Trissler 138 kV Line

Need Number: APS-2021-008

Process Stage: Need Meeting 08/16/2021

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

Global Factors

- System reliability and performance
- Substation and line equipment limits
- Upgrade Relay Schemes
  - Relay schemes that have a history of misoperation
  - Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
  - Communication technology upgrades
  - Bus protection schemes

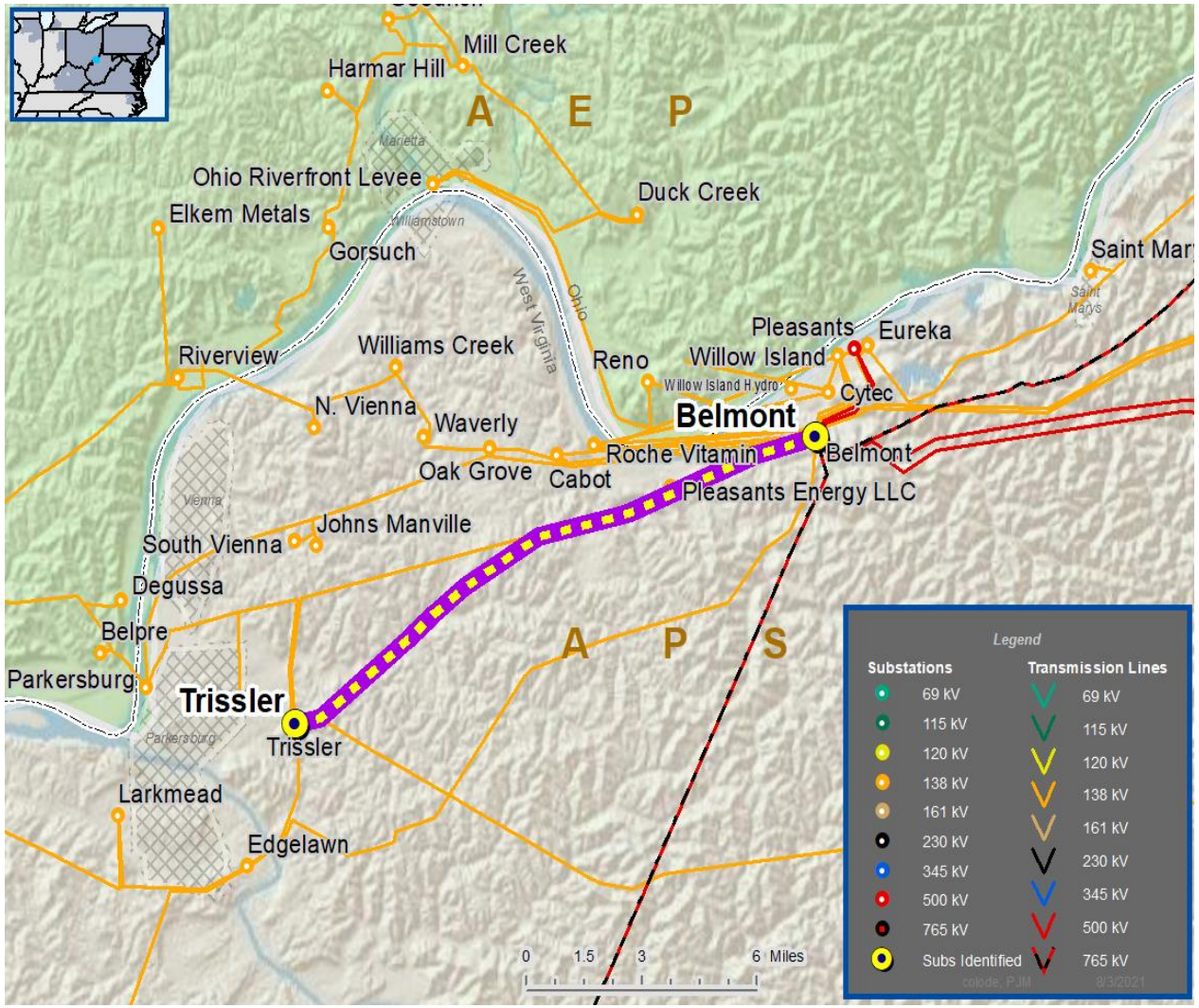
Problem Statement:

- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform properly together during a fault
- The identified protection equipment cannot be effectively repaired for reasons such as lack of replacement parts and available expertise in the outdated technology.
- Newer equipment provides better monitoring, enhances capability of system event analysis, and performs more reliably

- Transmission line ratings are limited by terminal equipment

Belmont - Trissler 648 138 kV Line(substation conductor)

- Existing line rating: 293 / 342 MVA (SN / SE)
- Existing Transmission conductor rating: 309 / 376 MVA (SN / SE)



APS Transmission Zone M-3 Process
French Creek – Pickens 138 kV Line

Need Number: APS-2021-009

Process Stage: Need Meeting 08/16/2021

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

Global Factors

- System reliability and performance
- Substation and line equipment limits
- Upgrade Relay Schemes
  - Relay schemes that have a history of misoperation
  - Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
  - Communication technology upgrades
  - Bus protection schemes

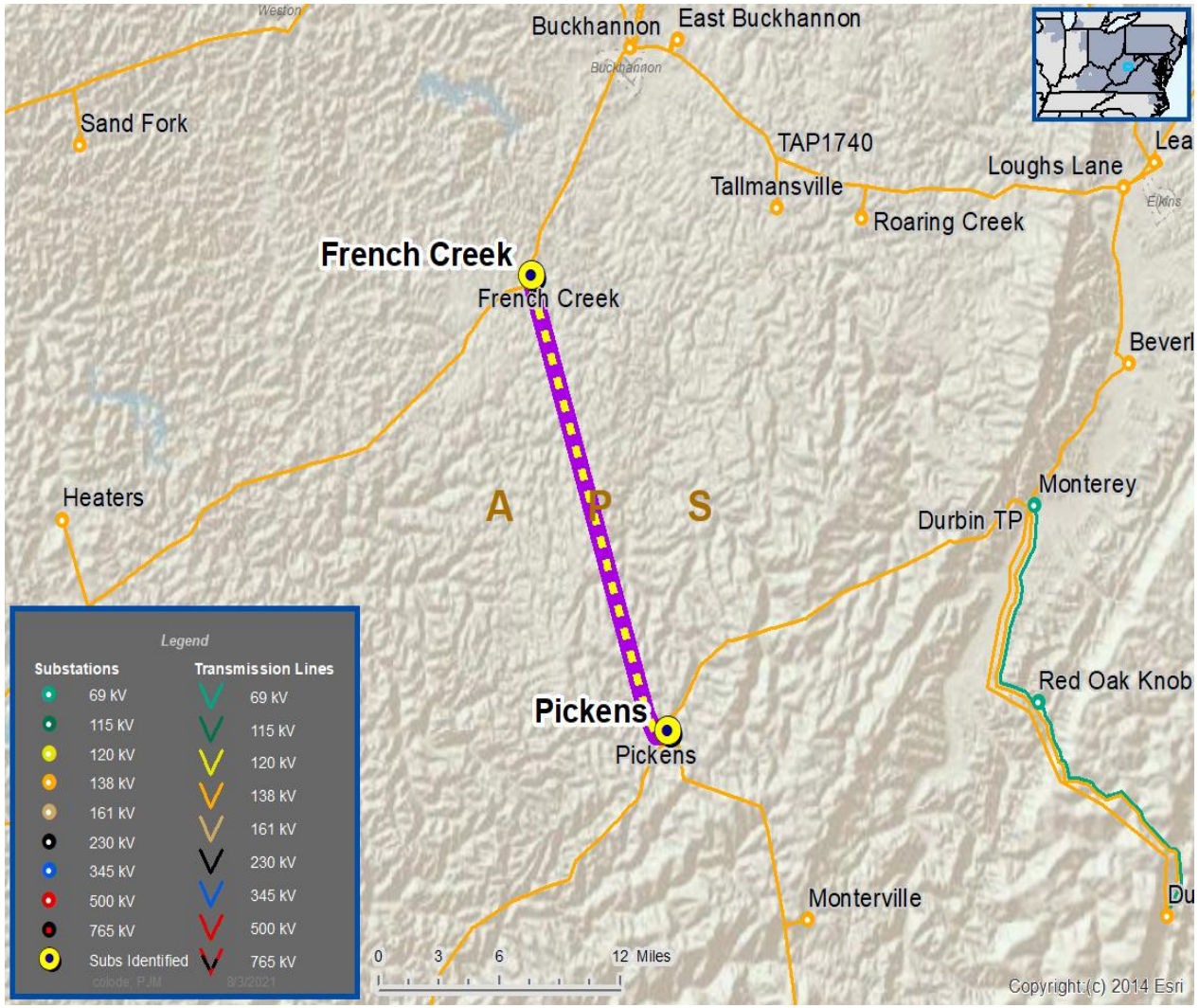
Problem Statement:

- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform properly together during a fault
- The identified protection equipment cannot be effectively repaired for reasons such as lack of replacement parts and available expertise in the outdated technology.
- Newer equipment provides better monitoring, enhances capability of system event analysis, and performs more reliably

- Transmission line ratings are limited by terminal equipment

French Creek - Pickens 56 138 kV Line (substation conductor)

- Existing line rating: 293 / 306 MVA (SN / SE)
- Existing Transmission conductor rating: 308 / 376 MVA (SN / SE)



APS Transmission Zone M-3 Process
Buckhannon - Pruntytown 138 kV Line

Need Number: APS-2021-010

Process Stage: Need Meeting 08/16/2021

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

Global Factors

- System reliability and performance
- Substation and line equipment limits
- Upgrade Relay Schemes
  - Relay schemes that have a history of misoperation
  - Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
  - Communication technology upgrades
  - Bus protection schemes

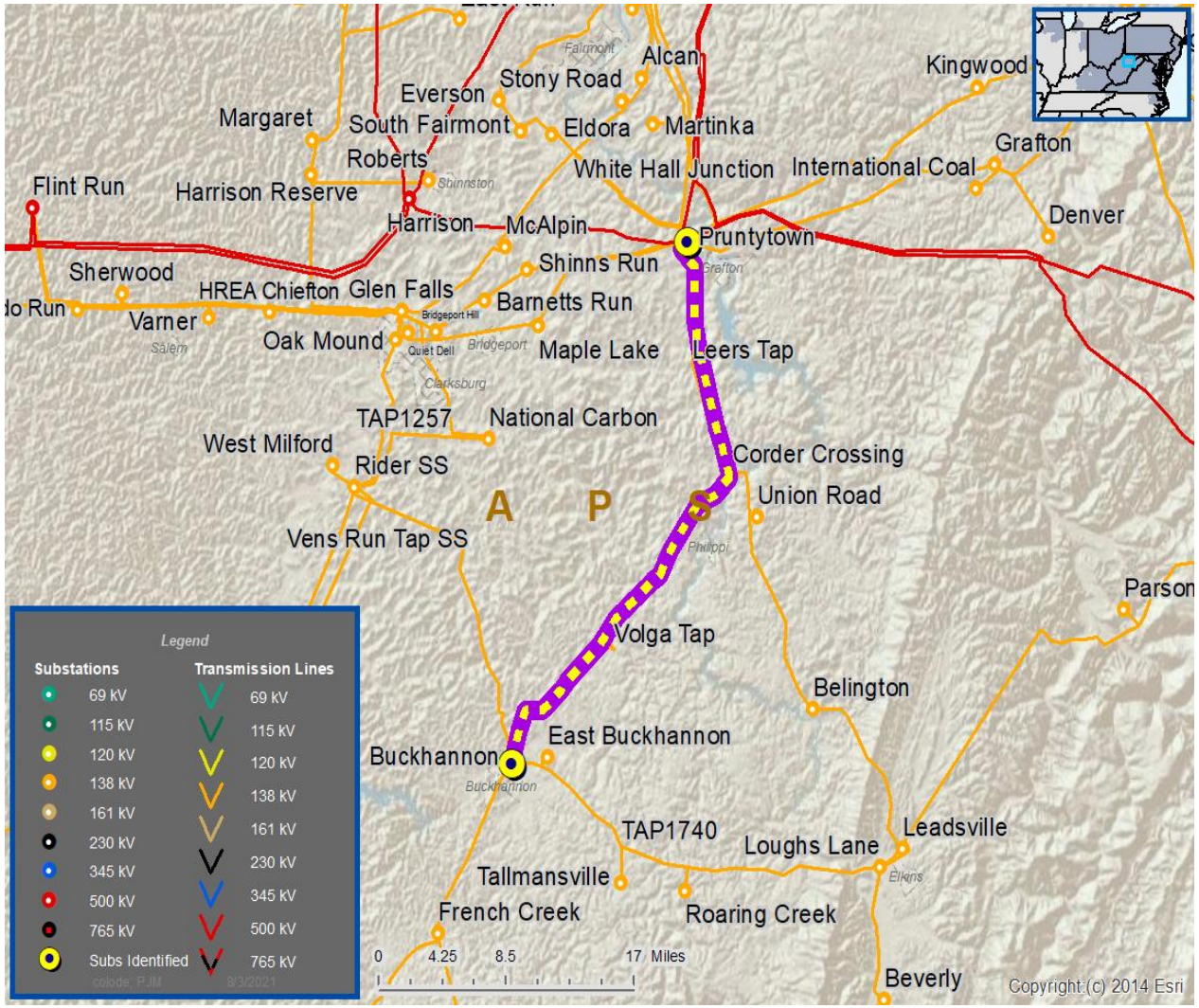
Problem Statement:

- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform properly together during a fault
- The identified protection equipment cannot be effectively repaired for reasons such as lack of replacement parts and available expertise in the outdated technology.
- Newer equipment provides better monitoring, enhances capability of system event analysis, and performs more reliably

- Transmission line ratings are limited by terminal equipment

Buckhannon - Pruntytown 12 138 kV Line(substation conductor)

- Existing line rating: 164 / 206 MVA (SN / SE)
- Existing Transmission conductor rating: 221 / 268 MVA (SN / SE)



APS Transmission Zone M-3 Process
Buckhannon – Pruntytown 138 kV Line – New Customer

Need Number: APS-2021-012

Process Stage: Need Meeting 08/16/2021

Project Driver(s):

Customer Service

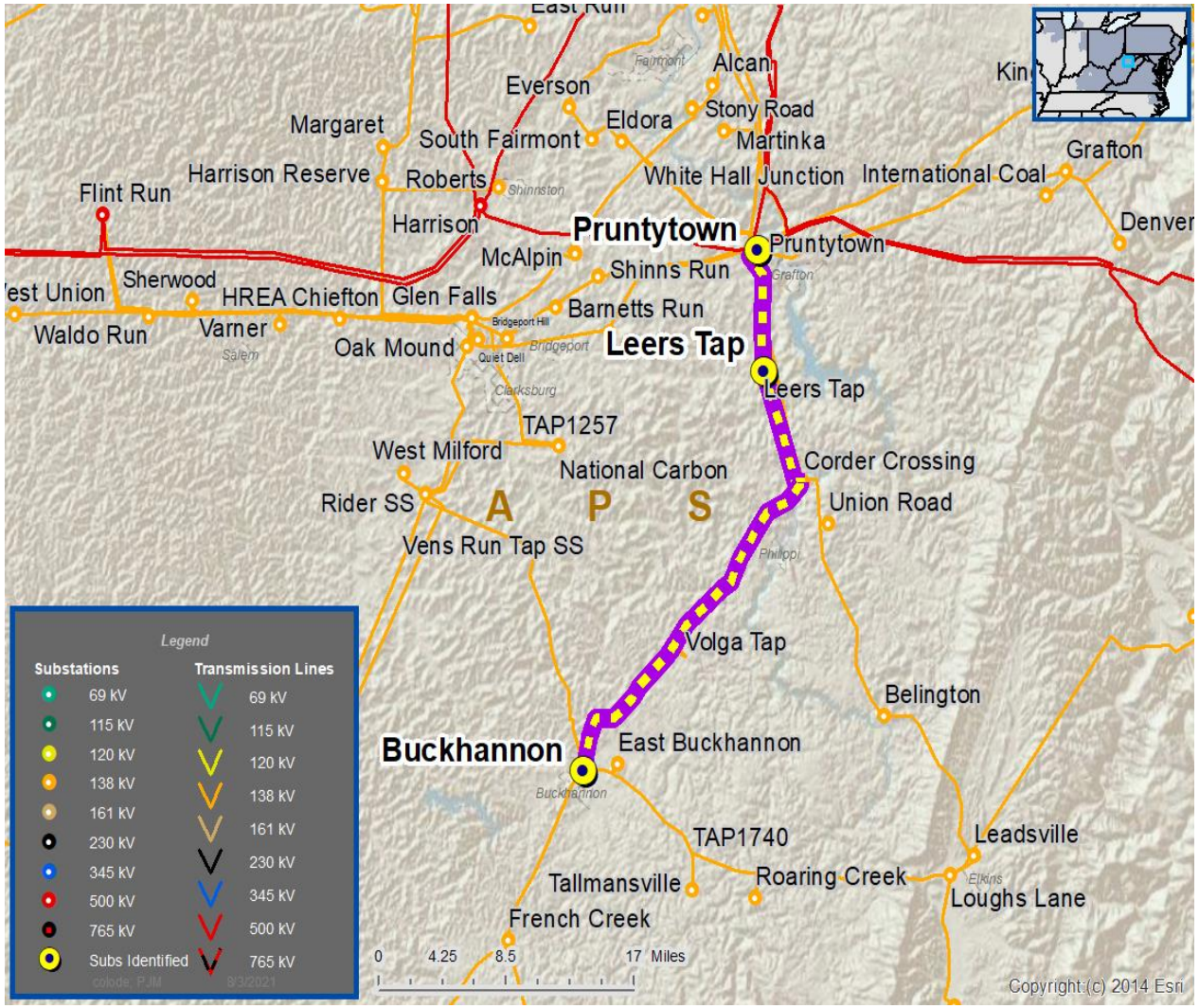
Specific Assumption Reference(s)

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 138 kV service. Anticipated load is 40 MVA. Location is approximately seven miles from the Arch Coal Wolf Run (Leer South) Tap and approximately four miles from the Pruntytown 138 kV Substation on the Buckhannon – Pruntytown (PR-BKH-12) 138 kV Line.

Requested in-service date is September 1, 2022.



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

08/05/2021 – V1 – Original version posted to pjm.com