SRRTEP Committee: Western EKPC Supplemental Projects

April 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

EKPC Transmission Zone M-3 Process
Clay Village 69 KV Tie

Need Number: EKPC-2021-012

Process Stage: Need Meeting – April 16, 2021

Supplemental Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

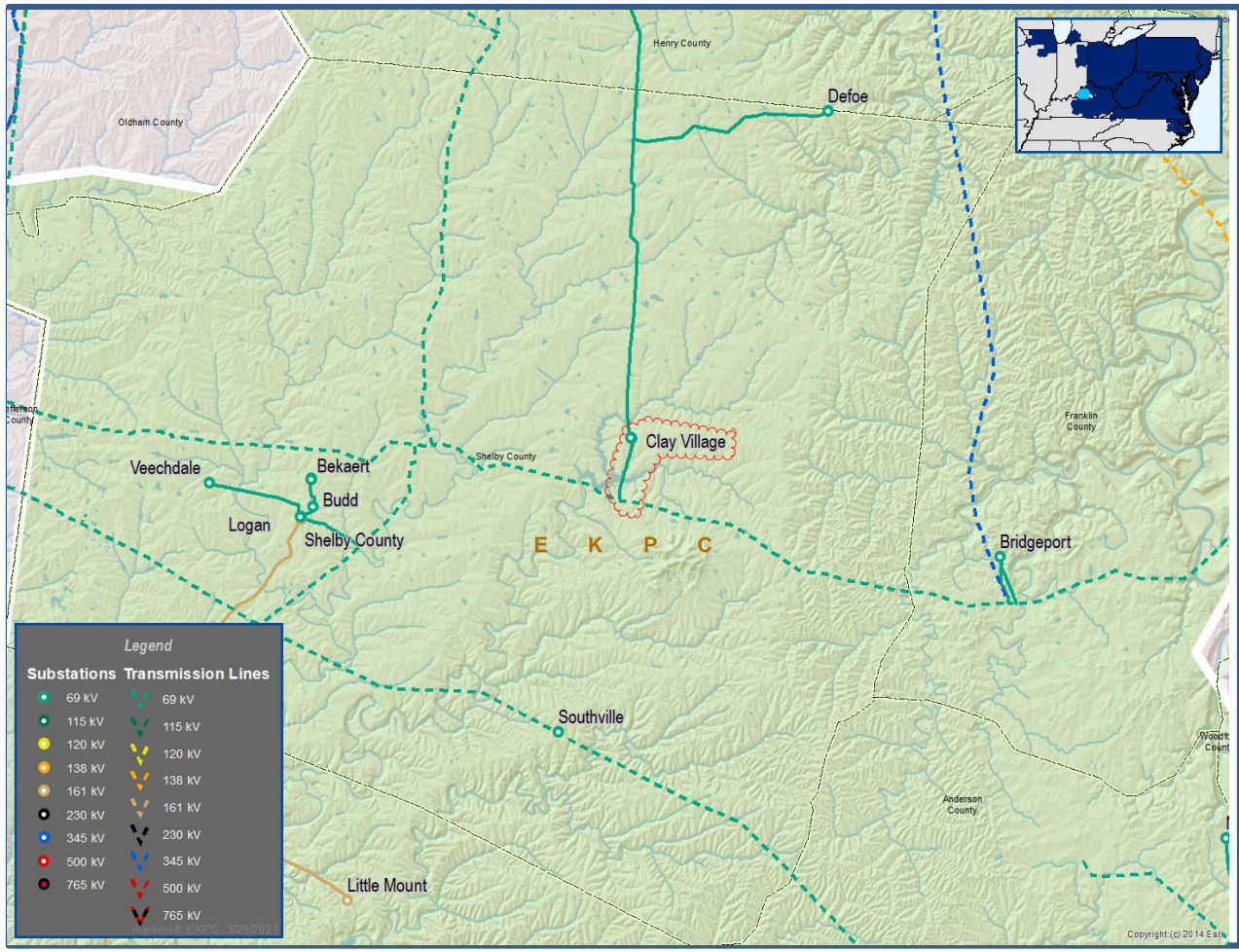
EKPC Assumptions Presentation Slide 12

Problem Statement:

The 1.61 mile, Clay Village 69 KV transmission tie line to LG&E/KU is 70 years old.

This line has condition issues such as conductor steel core and static wire deterioration, rusting, pitting and broken strands. Based on this information, the EKPC Reliability team has concluded that this line is at or near end of life and should be addressed due to the condition.

Model: N/A



EKPC Transmission Zone M-3 Process
Headquarters - Murphysville 69 KV

Need Number: EKPC-2021-013

Process Stage: Need Meeting – April 16, 2021

Supplemental Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

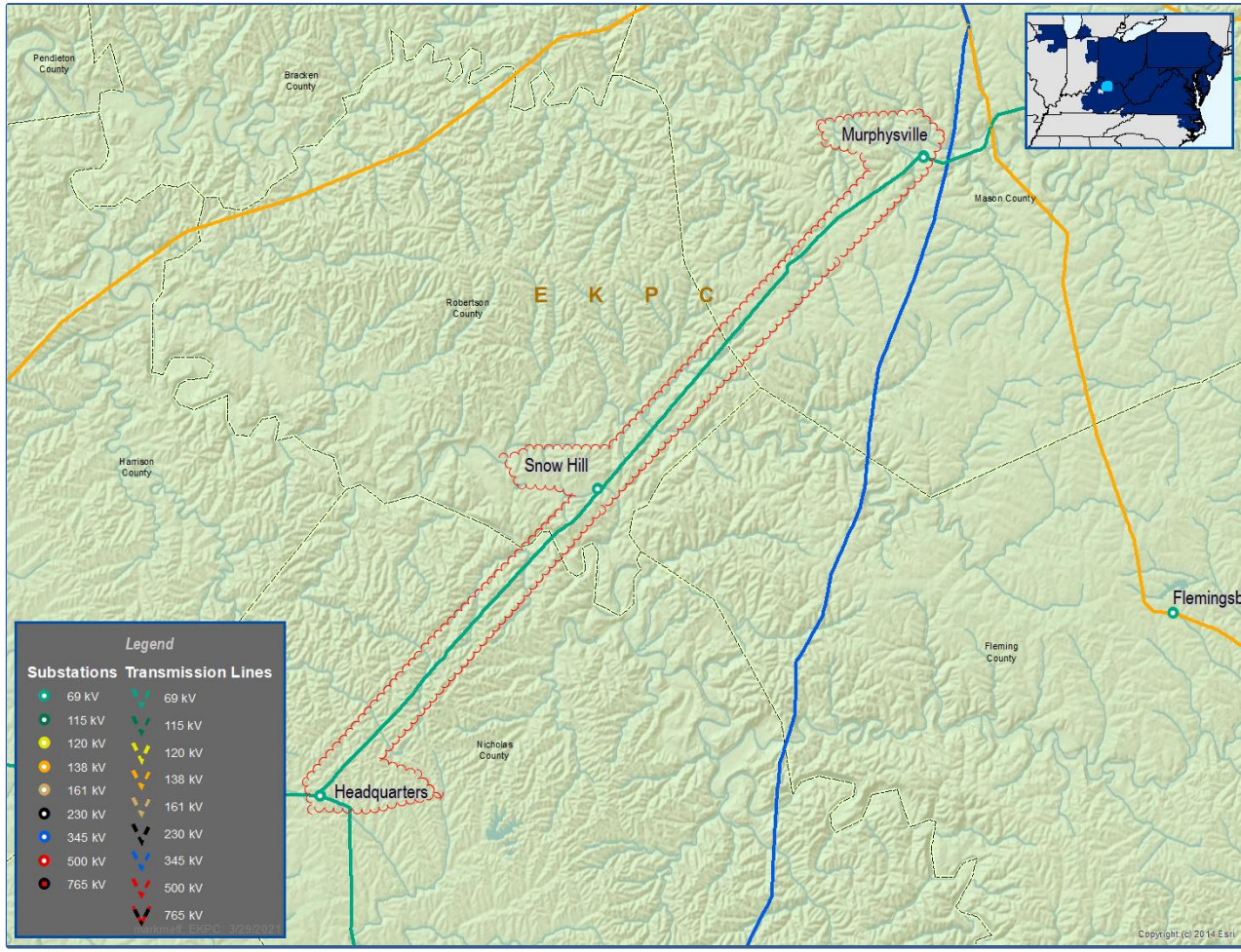
EKPC Assumptions Presentation Slide 12

Problem Statement:

The 19.9 mile, Headquarters-Murphysville 69 KV transmission line is 66 years old.

This line has condition issues such as conductor steel core and static wire deterioration, rusting, pitting and broken strands. Based on this information, the EKPC Reliability team has concluded that this line is at or near end of life and should be addressed due to the condition.

Model: N/A



EKPC Transmission Zone M-3 Process
Peyton Store – Liberty Junction 69kV

Need Number: EKPC-2021-014

Process Stage: Need Meeting – April 16, 2021

Supplemental Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

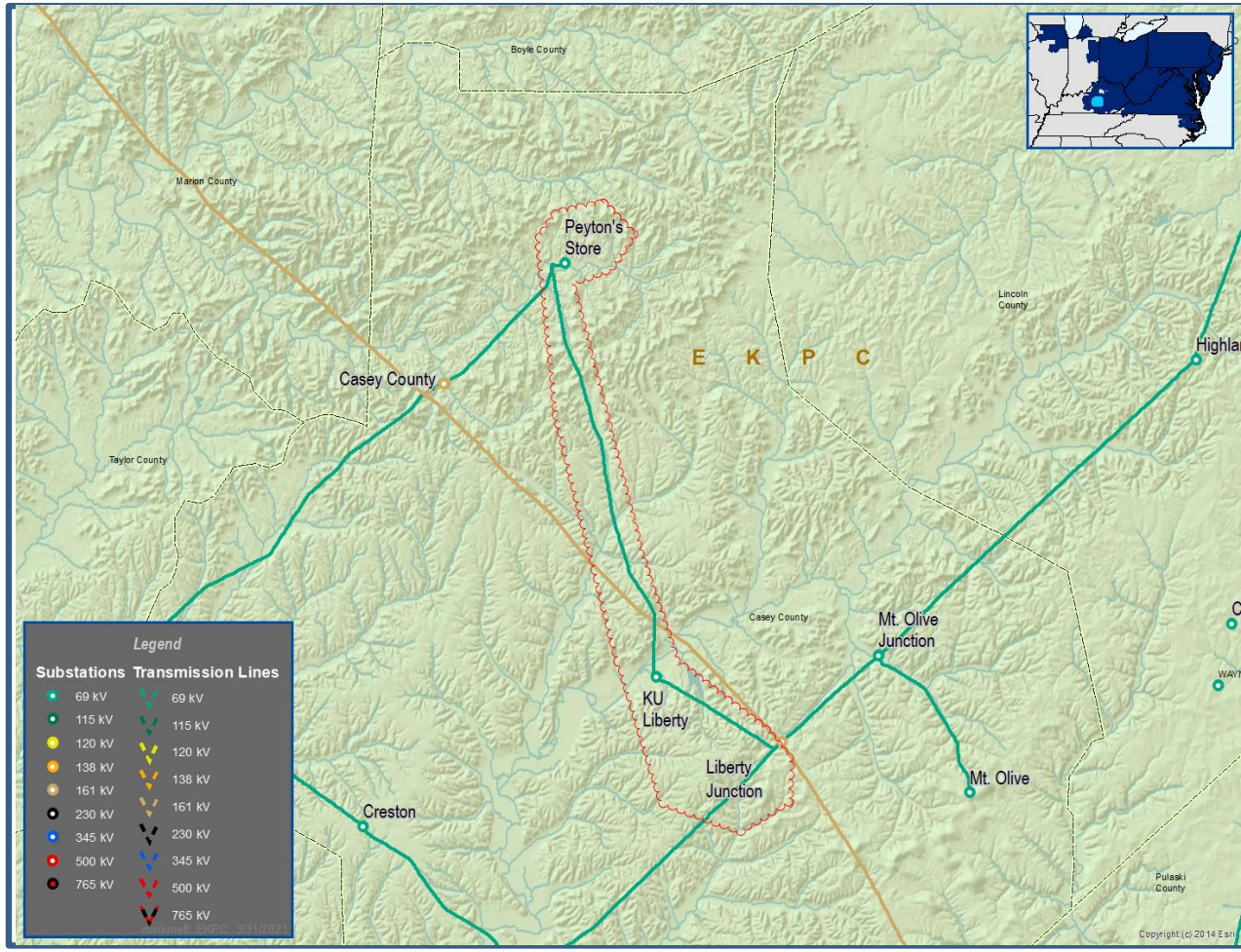
EKPC Assumptions Presentation Slide 12

Problem Statement:

The 14.2 mile, Peyton Store – Liberty Junction 69 KV transmission line is 67 years old.

Testing from the LineVue robot from Kinectrics Corporation deemed the phase and static wire condition as unacceptable. The testing identified instances of rusting, pitting, and broken strands. Based on this testing information, the EKPC Reliability team has concluded that this line is at or near end of life and should be addressed due to the condition assessment.

Model: N/A



EKPC Transmission Zone M-3 Process
Maytown Tap– Hot Mix Road Tap 69kV

Need Number: EKPC-2021-015

Process Stage: Need Meeting – April 16, 2021

Supplemental Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

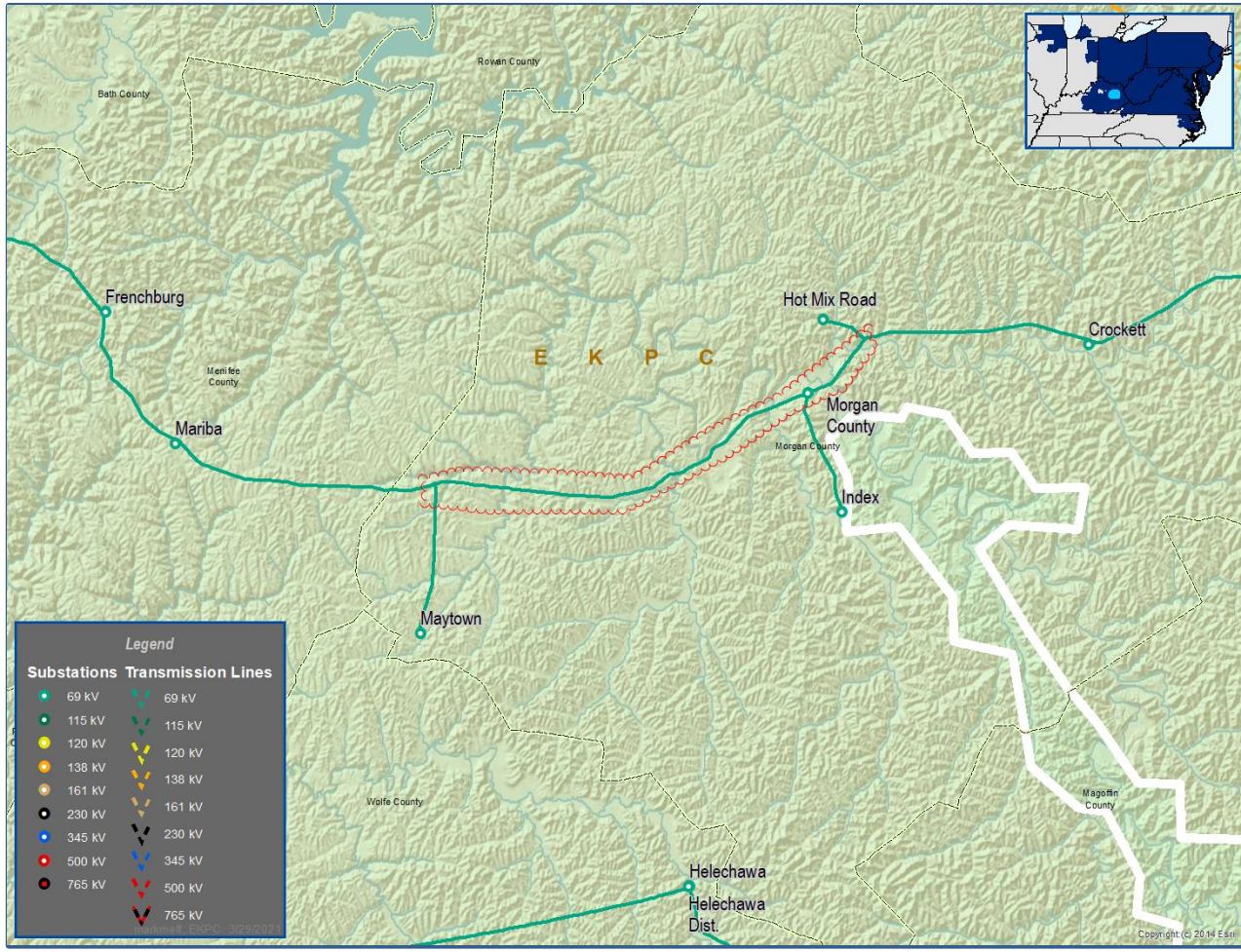
EKPC Assumptions Presentation Slide 12

Problem Statement:

The 12.3 mile, Maytown Tap-Hot Mix Road Tap 69 KV transmission line is 62 years old.

Testing from the LineVue robot from Kinectrics Corporation deemed the phase and static wire condition as unacceptable. The testing identified instances of rusting, pitting, and broken strands. Based on this testing information, the EKPC Reliability team has concluded that this line is at or near end of life and should be addressed due to the condition assessment.

Model: N/A



EKPC Transmission Zone M-3 Process
KU Carrollton – Bedford 69kV

Need Number: EKPC-2021-016

Process Stage: Need Meeting – April 16, 2021

Supplemental Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

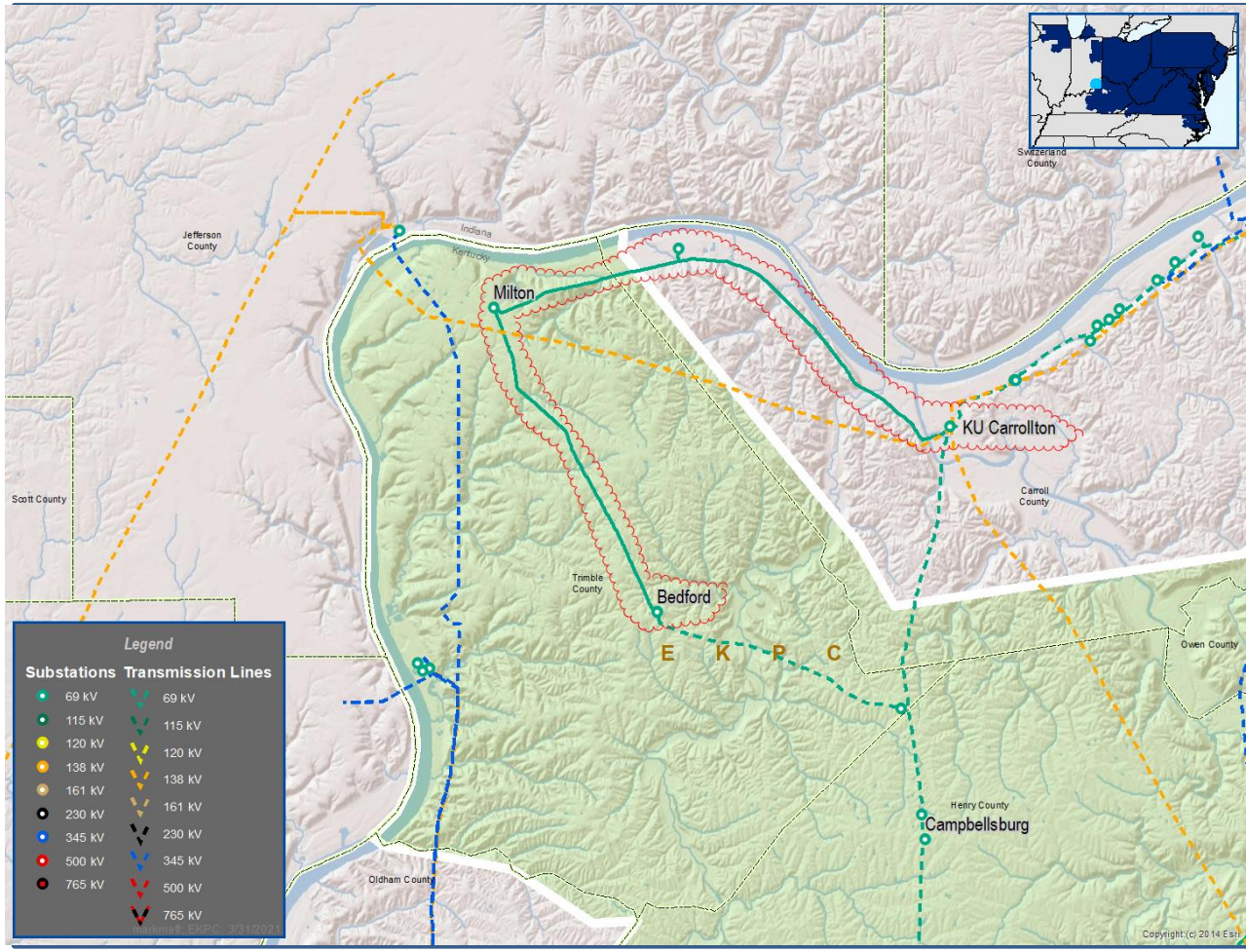
EKPC Assumptions Presentation Slide 12

Problem Statement:

The 22.09 mile, KU Carrollton - Bedford transmission line is 61 to 66 years old.

This line section has continued to show up on EKPC's list of Worst Performing Areas for several years, and it is currently the #5 worst performing line. Testing from the LineVue robot from Kinectrics Corporation deemed the phase and static wire condition as poor to marginal. The testing identified instances of rusting, pitting, and broken strands. Based on this testing information, the EKPC Reliability team has concluded that this line is near end of life and should be addressed due to the condition assessment

Model: N/A



EKPC Transmission Zone M-3 Process
South Fork distribution station

Need Number: EKPC-2021-017

Process Stage: Need Meeting – April 16, 2021

Supplemental Project Driver:
Equipment Material Condition, Performance and Risk

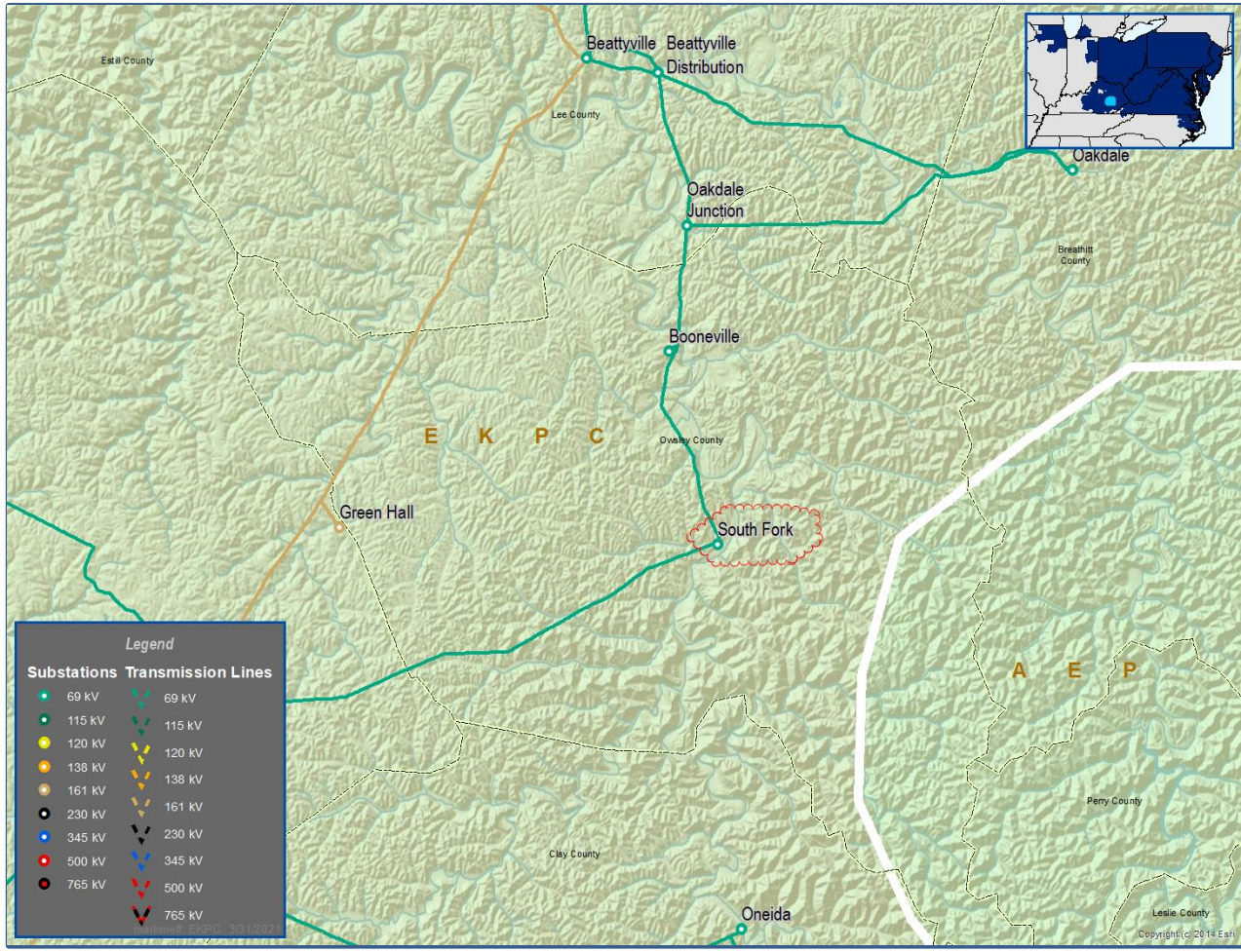
Specific Assumption Reference:
EKPC Assumptions Presentation Slide 12

Problem Statement:

The South Fork Distribution Substation is 65 years old, and does not meet current EKPC design standards.

The station has the following issues:

- limited space with no access to equipment on two sides of the station.
- Cap-and-pin insulators, which are a safety and reliability concern.
- Does not have the EKPC standard metering bypass switching or low bay transfer schemes, which causes additional outage time and creates a heightened safety risk when taking equipment out of service for maintenance activities.
- Several foundations in the station are crumbling.
- The elevation change and drainage around the station has caused multiple wash outs of gravel from the station and driveway.
- The site entrance is very steep making it difficult to navigate.



Model: N/A

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

EKPC Transmission Zone M-3 Process
Speedwell Road New Customer Load

Need Number: EKPC-2021-007

Process Stage: Solutions Meeting – April 16, 2021

Previously Presented:
Needs Meeting 3/19/2021

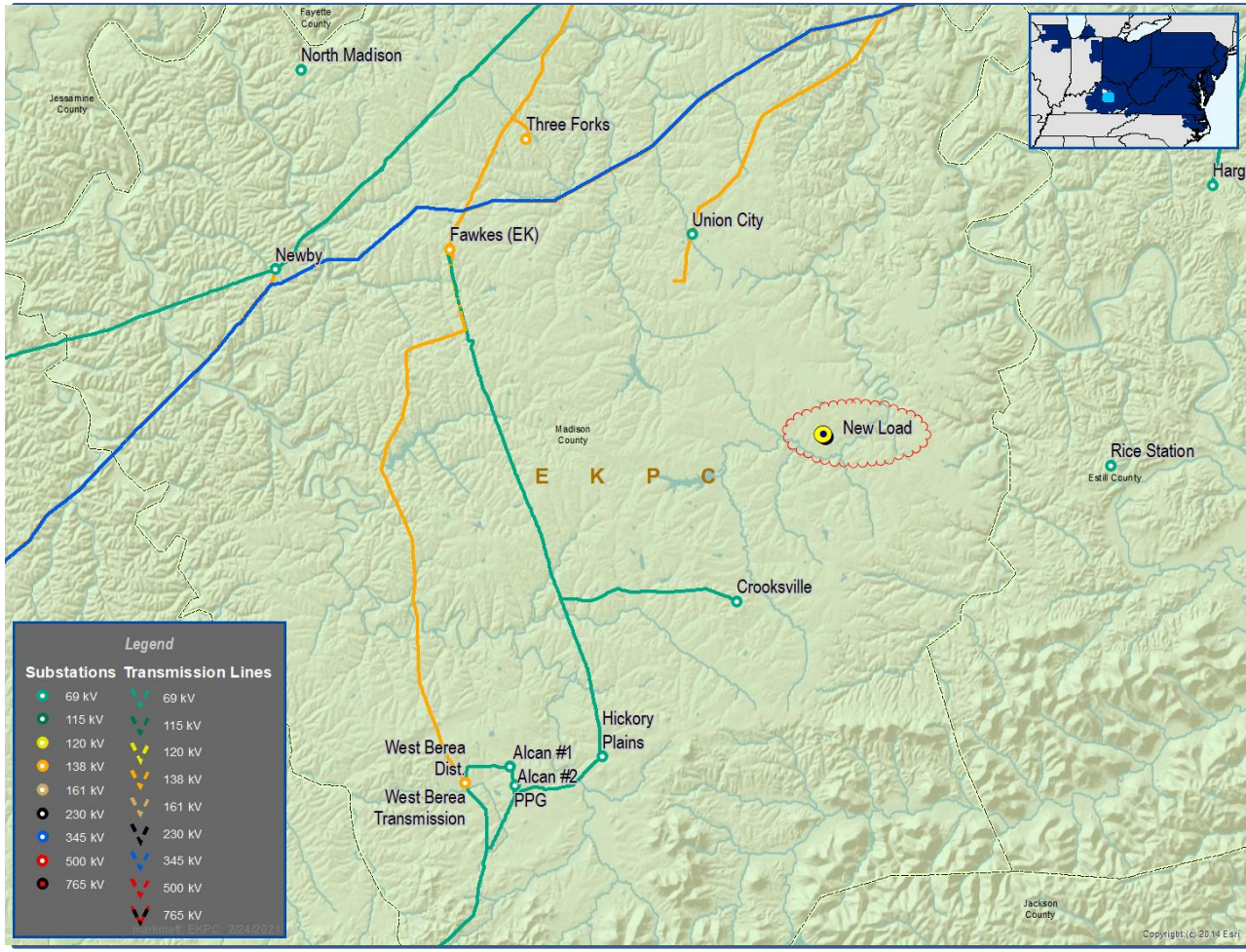
Supplemental Project Driver:
Customer Service

Specific Assumption Reference:
EKPC Assumptions Presentation Slide 14

Problem Statement:

A new customer has requested a new delivery point for a winter peak demand of 28.5 MW and 1.5 MW summer peak by 7/1/2022. The new delivery point is located in Madison Co, KY approximately 5.5 miles northeast from EKPC's Crooksville distribution substation. The existing distribution infrastructure is not capable of serving this request.

Model: N/A



EKPC Transmission Zone M-3 Process
Speedwell Road New Customer Load

Need Number: EKPC-2021-007

Process Stage: Solutions Meeting April 16, 2021

Proposed Solution:

Construct new 69kv-25kv 18/24/30 MVA distribution substation and associated 4.79 Mile Tap from the EKPC Crooksville's 69 KV tap line. Upgrade the existing West Berea 138/69 KV 100 MVA to 150 MVA. Add a 2000 A 138 KV breaker to the 138 KV tie line between the EKPC Fawkes switching station and the LG&E/KU Fawkes stations.

Distribution Cost: $7.2M
Transmission Cost: $2.4M

Ancillary Benefits:

None

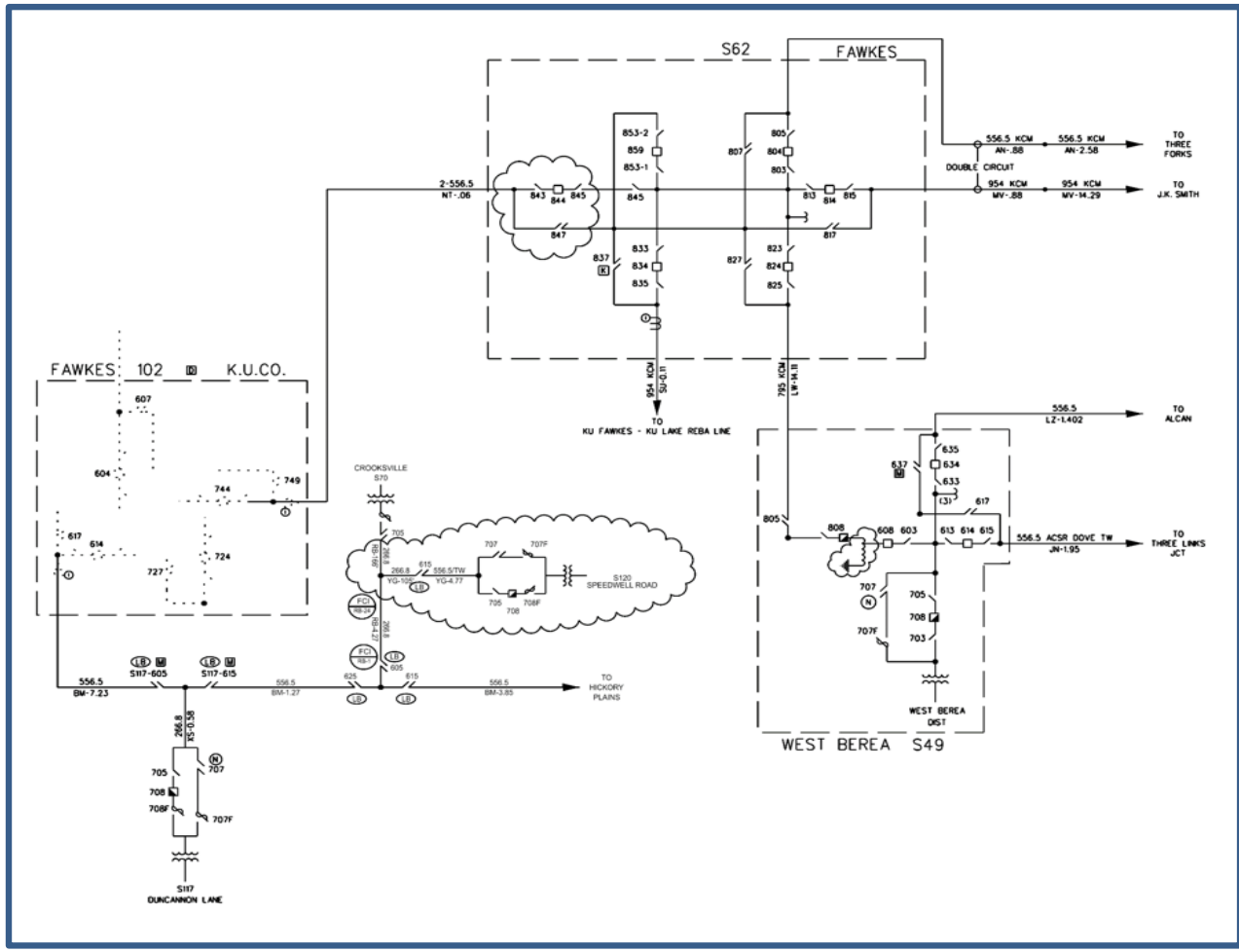
Alternatives Considered:

Serve load from nearby foreign utility.

Projected In-Service: 7/1/2022

Project Status: Engineering

Model: N/A



EKPC Transmission Zone M-3 Process
Taylorsville Distribution Substation

Need Number: EKPC-2021-008

Process Stage: Solutions Meeting – April 16, 2021

Previously Presented:
Needs Meeting 3/19/2021

Supplemental Project Driver:
Equipment Material Condition, Performance and Risk

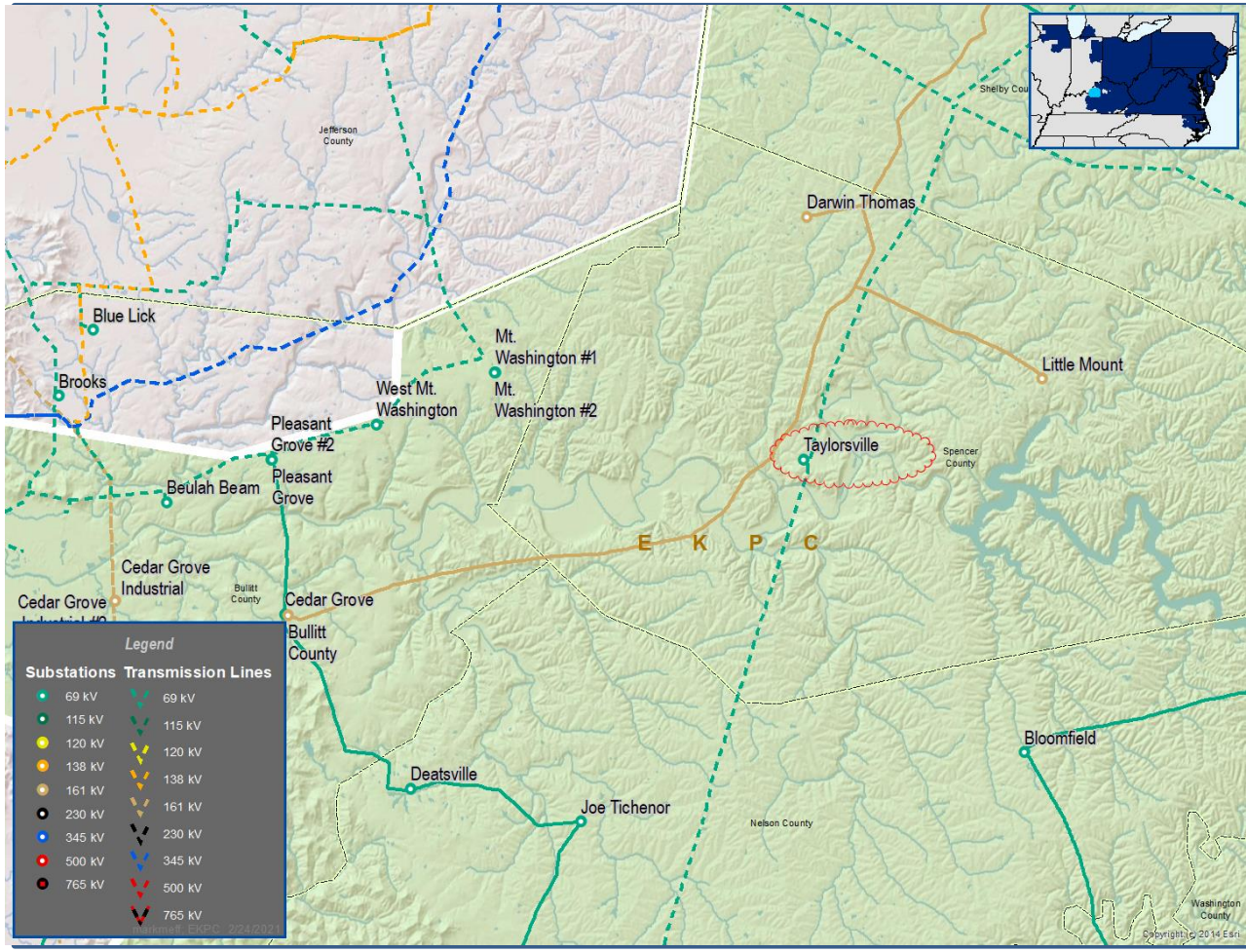
Specific Assumption Reference:
EKPC Assumptions Presentation Slide 12

Problem Statement:

The Taylorsville distribution substation was built in 1946. This station is currently served from LG&E/KU's Bardstown-Finchville 69 KV transmission circuit.

This station has numerous issues associated with aging/condition, site location, and accessibility. The station has a narrow driveway with a 90 degree turn. Extremely small station footprint with minimal space to maneuver around the equipment. High side switch and porcelain lightning arrestors are at end of life. There is no metering bypass, or bypass buss in the low bay, which prolongs restoration. The distribution transformer is inconveniently located under the high side bus which creates prolonged maintenance outage time.

Model: N/A



EKPC Transmission Zone M-3 Process
Taylorsville Distribution Substation

Need Number: EKPC-2021-008

Process Stage: Solutions Meeting April 16, 2021

Proposed Solution:

Rebuild and relocate the Taylorsville distribution substation. Build a new Taylorsville 161-25 KV distribution substation looping into the Bullitt Co-Little Mount 161 KV line section. The existing distribution substation will be retired.

Distribution Cost: $2.4M
Transmission Cost: $1.73M

Ancillary Benefits:

- Taylorsville load served from EKPC system
    - Outside entity is not involved in service restoration
- Savings in NITS

Alternatives Considered:

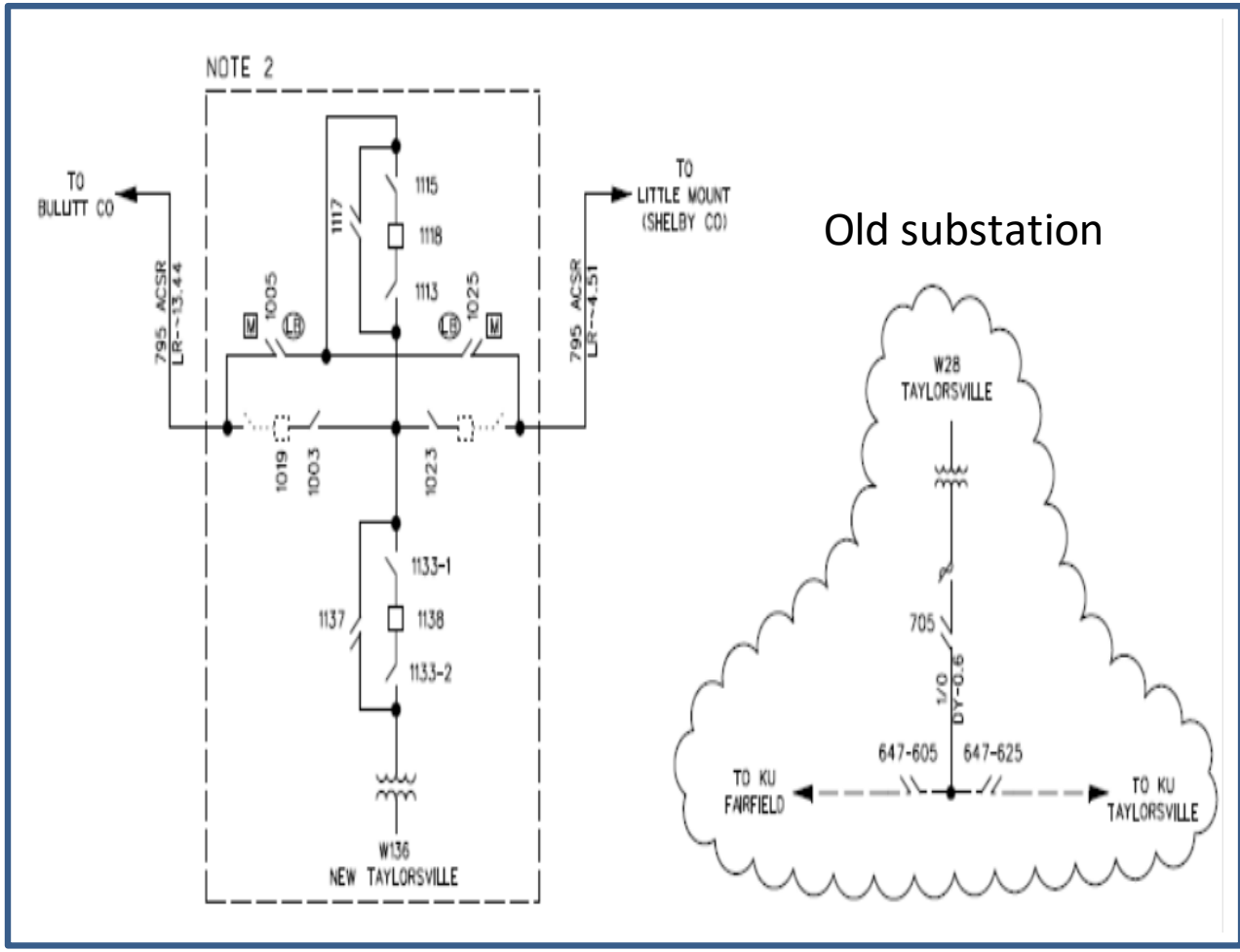
Rebuild at the existing site.

- This was not chosen due to property size and large NITS savings.

Projected In-Service: 12/31/2023

Project Status: Engineering

Model: N/A



EKPC Transmission Zone M-3 Process
Three Links Jct. – Three Links 69kV

Need Number: EKPC-2021-009

Process Stage: Solutions Meeting – April 16, 2021

Previously Presented:

Needs Meeting 3/19/2021

Supplemental Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

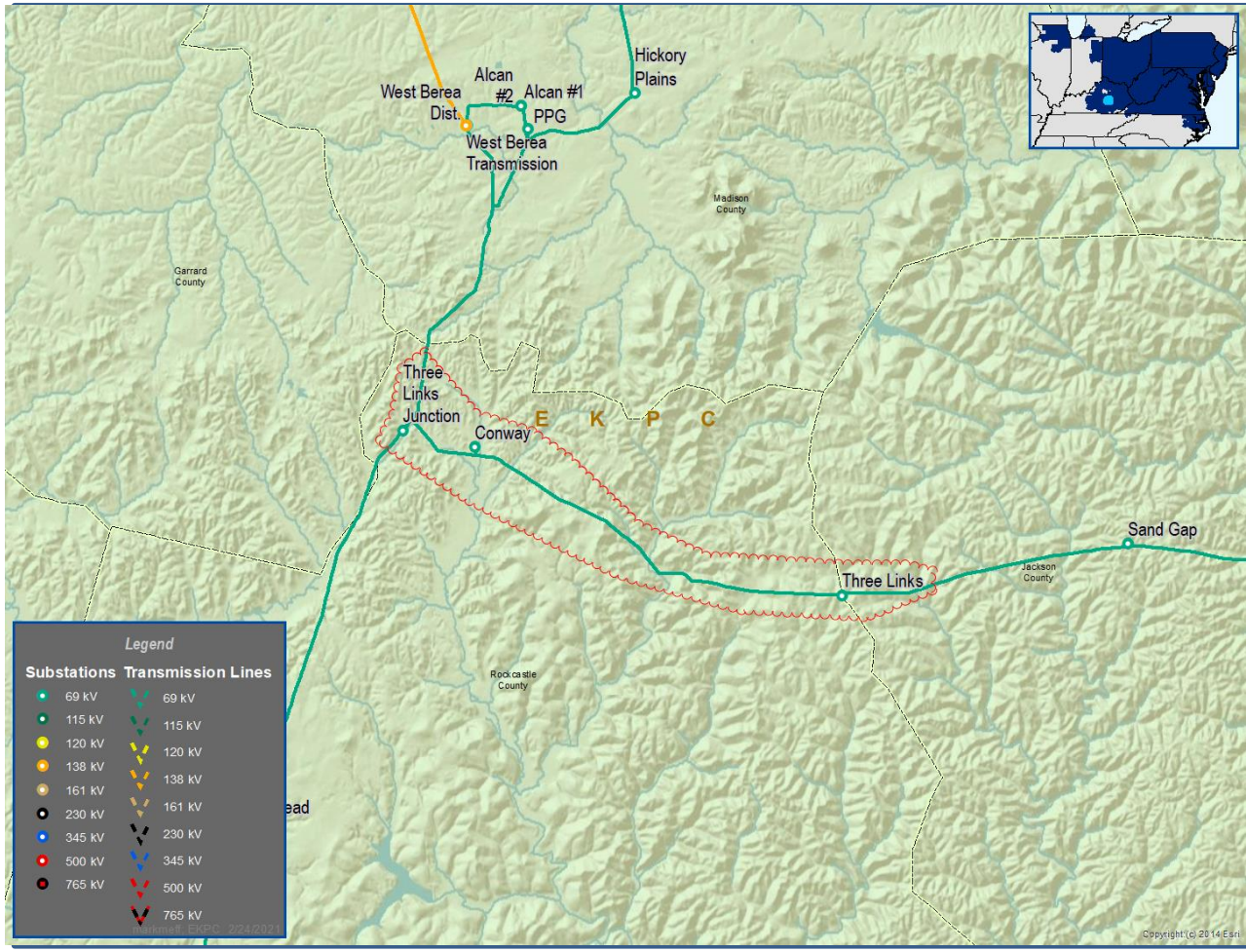
EKPC Assumptions Presentation Slide 12

Problem Statement:

The 9.61 mile, Three Links Jct.-Three Links 69 KV transmission line is 63 years old.

This line has condition issues such as conductor steel core and static wire deterioration, rusting, pitting and broken strands. Based on this information, the EKPC Reliability team has concluded that this line is at or near end of life and should be addressed due to the condition.

Model: N/A



EKPC Transmission Zone M-3 Process
Three Links Jct. – Three Links 69kV

Need Number: EKPC-2021-009

Process Stage: Solutions Meeting April 16, 2021

Proposed Solution:

Rebuild the 9.3 miles, Three Links Jct. – Three Links 69 KV transmission line using 556.5 ACSR/TW conductor. Single pole tangent, angle & deadend structures to be replaced, H-frame tangent will be evaluated on structure by structure basis.

Transmission Cost: $6.16M

Ancillary Benefits:

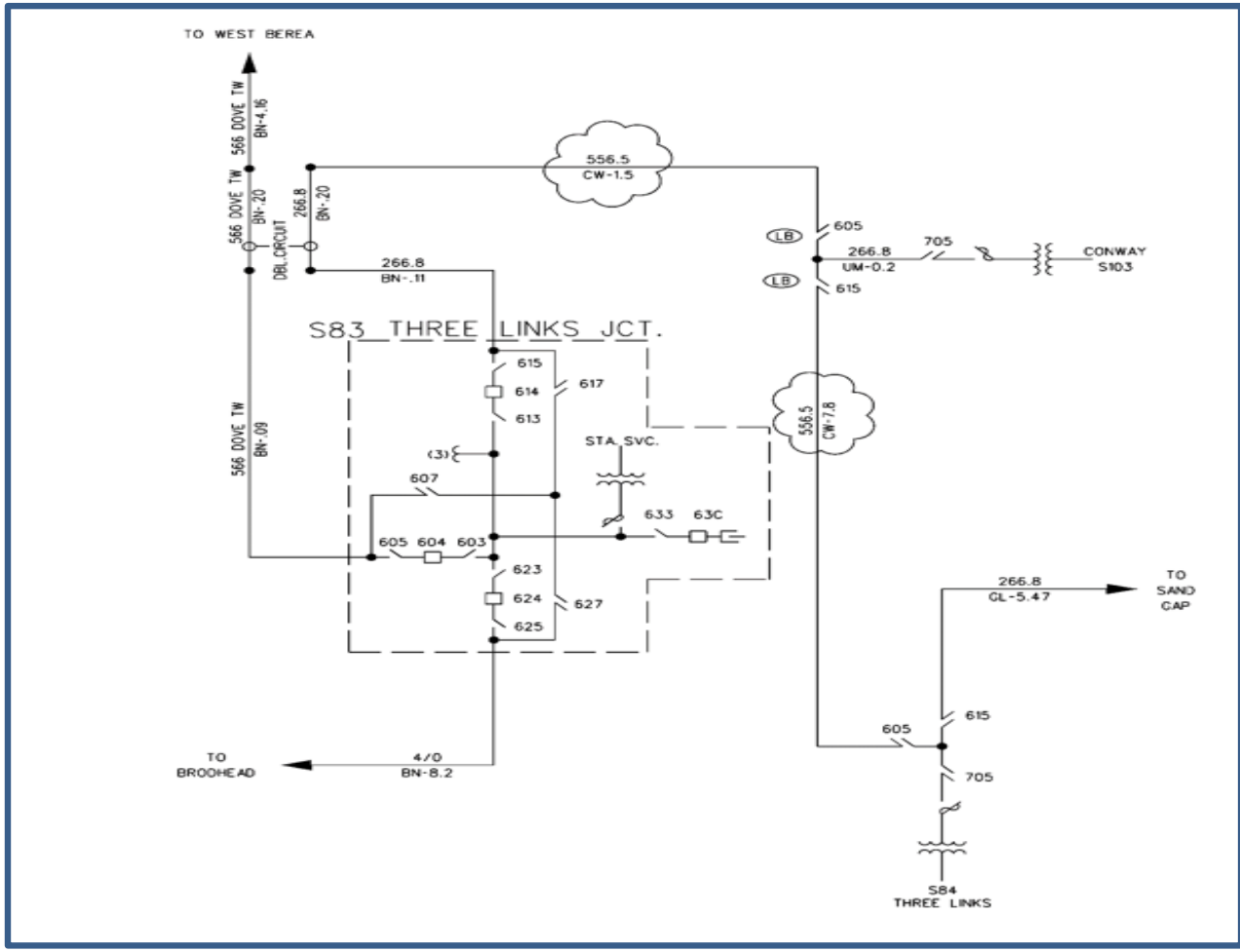
Alternatives Considered:

No feasible alternatives

Projected In-Service: 7/31/2024

Project Status: Engineering

Model: N/A



EKPC Transmission Zone M-3 Process
Goddard - Charters 69 KV

Need Number: EKPC-2021-010

Process Stage: Solutions Meeting – April 16, 2021

Previously Presented:
Needs Meeting 3/19/2021

Supplemental Project Driver:
Equipment Material Condition, Performance and Risk

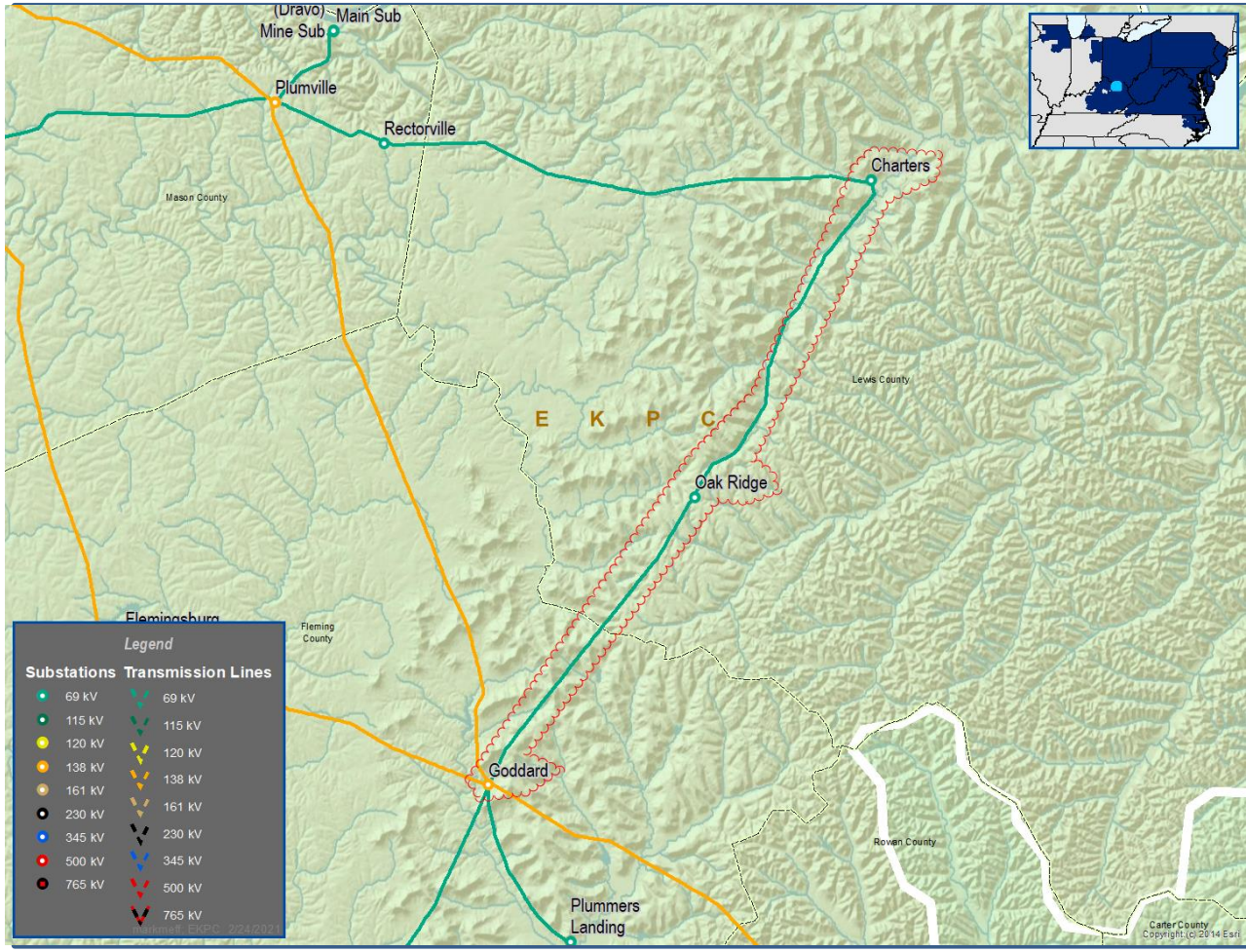
Specific Assumption Reference:
EKPC Assumptions Presentation Slide 12

Problem Statement:

The 17 mile, Goddard - Charters transmission line is 69 years old.

Testing from the LineVue robot from Kinectrics Corporation deemed the phase and static wire condition as marginal. The testing identified instances of rusting, pitting, and broken strands. Based on this testing information, the EKPC Reliability team has concluded that this line should be addressed due to the condition assessment.

Model: N/A



EKPC Transmission Zone M-3 Process
Goddard – Charters 69kV

Need Number: EKPC-2021-0010

Process Stage: Solutions Meeting April 16, 2021

Proposed Solution:

Rebuild the 16.99 miles, Goddard – Charters 69 KV transmission line using 556.5 ACSR/TW conductor.

7.87 mile of single structures will be replaced.

9.12 miles of H-Frame tangent structures will be evaluated on structure by structure basis

Transmission Cost: $9.73M

Ancillary Benefits:

None

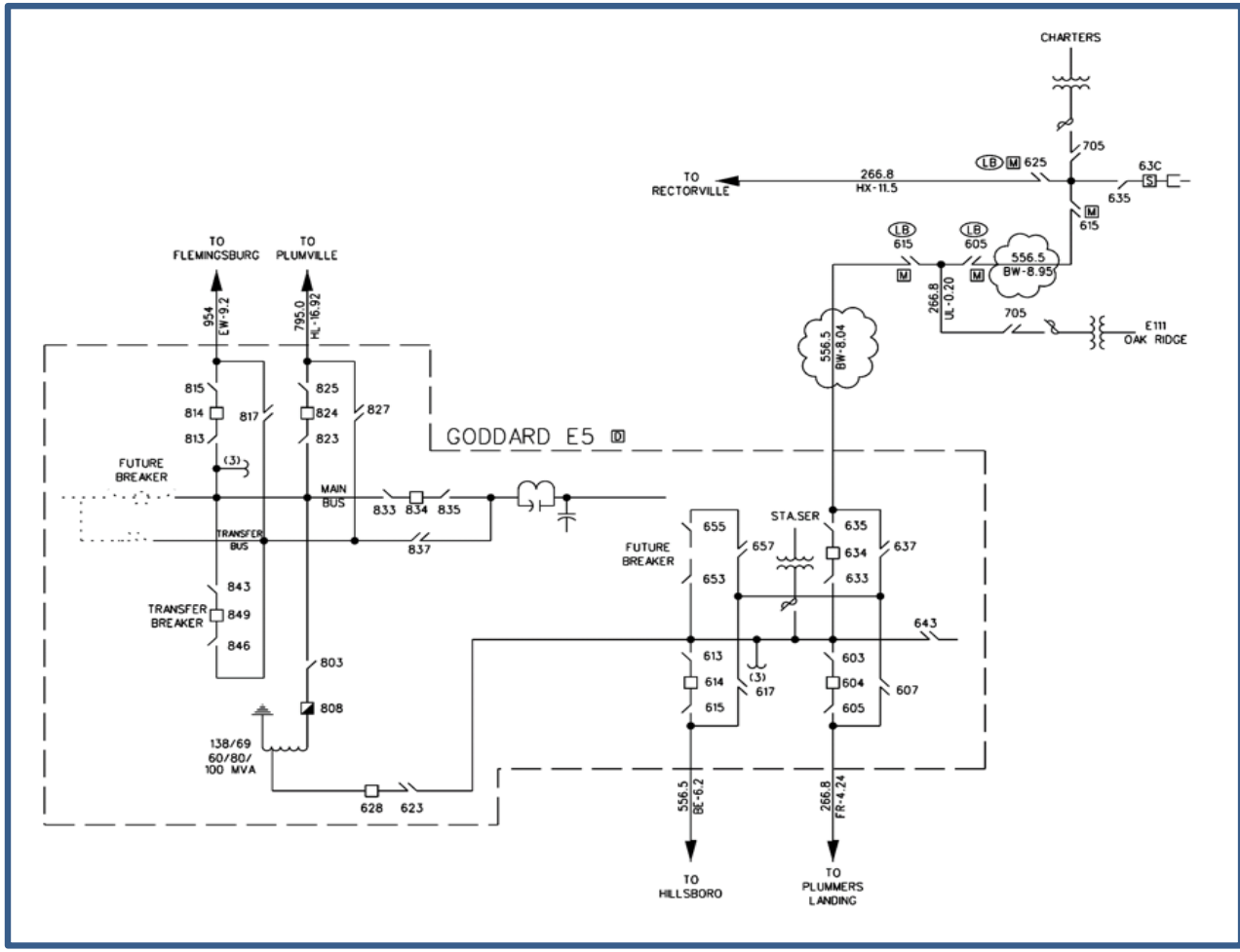
Alternatives Considered:

No feasible alternatives

Projected In-Service: 9/30/2024

Project Status: Engineering

Model: N/A



EKPC Transmission Zone M-3 Process
Beattyville - Tyner 69 KV

Need Number: EKPC-2021-011

Process Stage: Solutions Meeting – April 16, 2021

Previously Presented:
Needs Meeting 3/19/2021

Supplemental Project Driver:
Equipment Material Condition, Performance and Risk

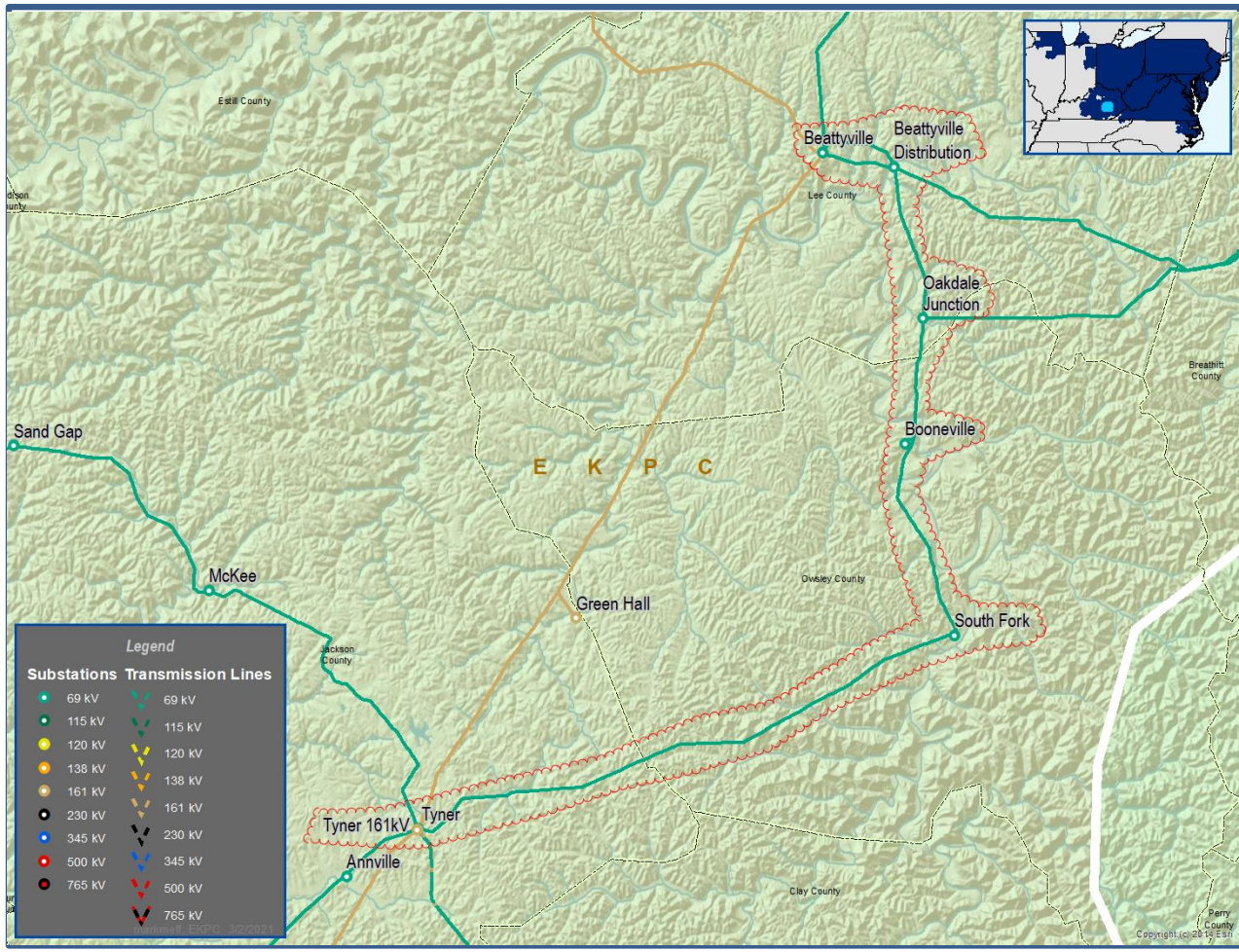
Specific Assumption Reference:
EKPC Assumptions Presentation Slide 12

Problem Statement:

The 29.29 mile, Beattyville-Tyner transmission line is 65 to 66 years old.

Testing from the LineVue robot from Kinectrics Corporation deemed the phase and static wire condition as poor. The testing identified instances of rusting, pitting, and broken strands. Based on this testing information, the EKPC Reliability team has concluded that this line should be addressed due to the condition assessment.

Model: N/A



EKPC Transmission Zone M-3 Process
Beattyville – Tyner 69kV

Need Number: EKPC-2021-0011

Process Stage: Solutions Meeting April 16, 2021

Proposed Solution:

Rebuild the 29.29 miles, Beattyville – Tyner 69 KV transmission line using 556.5 ACSR/TW conductor.

1.7 mile of single structures will be replaced.

27.6 miles of H-Frame tangent structures will be evaluated on structure by structure basis

Transmission Cost: $22.0M

Ancillary Benefits:

None

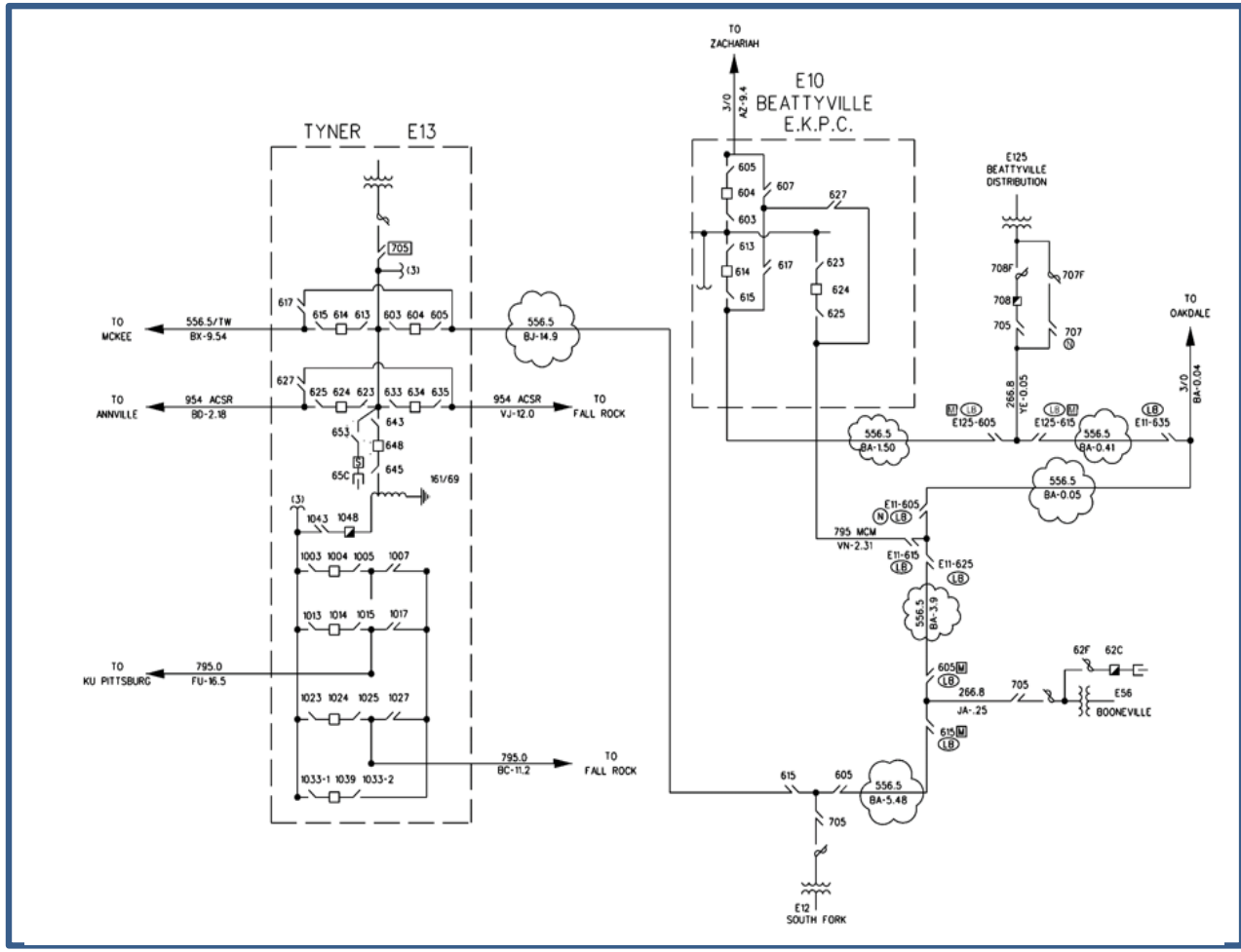
Alternatives Considered:

No feasible alternatives

Projected In-Service: 12/31/2028

Project Status: Engineering

Model: N/A



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

4/6/2021 – V1 – Original version posted to pjm.com

4/19/2021 – V2 – Slide 13, Updated to reflect correct transmission and distribution cost breakdown