

Submission of Supplemental Projects for Inclusion in the Local Plan

EKPC Transmission Zone M-3 Process Cynthiana, KY/Renaker, KY

Need Number: EKPC-2025-002

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Previously Presented:

Need Meeting 03/14/2025

Solution Meeting SRRTEP-W - 04/11/2025

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

EKPC Assumptions Presentation Slide 13

Problem Statement:

The EKPC reliability team has been working to identify transmission lines sections, with single wood pole structures and 556.5 ACSR wire or larger that are known to have structural design issues. Most of the structures on these lines are believed to be over 100% capacity if the structure was new, based on EKPC current design standards. Many of the lines have been re-conducted with larger wire and very little structure design was performed at the time of the re-conductor.

The 9.0 mile, Renaker-Cynthiana Junction 69 KV line sections has been identified from the above to be addressed. Alternatives will be developed to address these structural loading concerns. This line was originally constructed in 1965 and was re-conducted with a larger conductor in 1992, leaving much of the 1965 vintage structures in service.



EKPC Transmission Zone M-3 Process Cynthiana, KY/Renaker, KY

Need number(s): EKPC-2025-002

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Proposed Solution:

Rebuild the Renaker-3M-Cynthiana Junction 69 kV line sections.

Transmission Cost Estimate: \$8.9 M

Alternatives Considered:

Alt 1: Retire Renaker-3M, rebuild 3M-Cynthiana J using 556.5 ACSR.

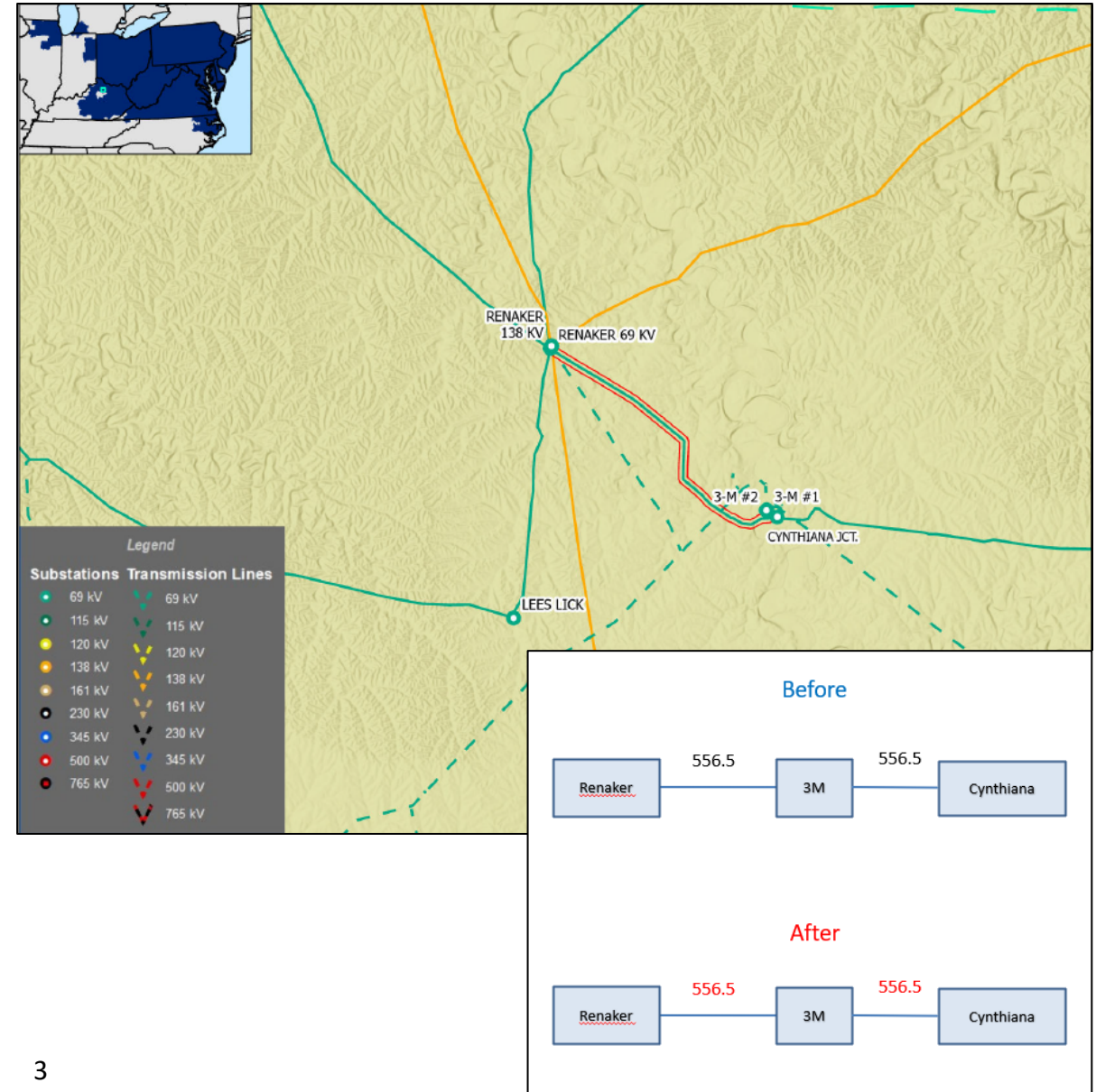
Alt 2: Retire Renaker-3M, build a KU-owned breaker station at KU's EK Cynthiana T and an EKPC-owned breaker station at Cynthiana Junction, rebuild 3M-Cynthiana J using 556.5 ACSR.

Projected In-Service: 10/30/2026

Project Status: Engineering

Supplemental Project ID: s3835.1

Model: N/A



EKPC Transmission Zone M-3 Process Shelby County, KY

Need Number: EKPC-2025-003

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Previously Presented:

Need Meeting 05/16/2025

Solution Meeting SRRTEP-W - 06/13/2025

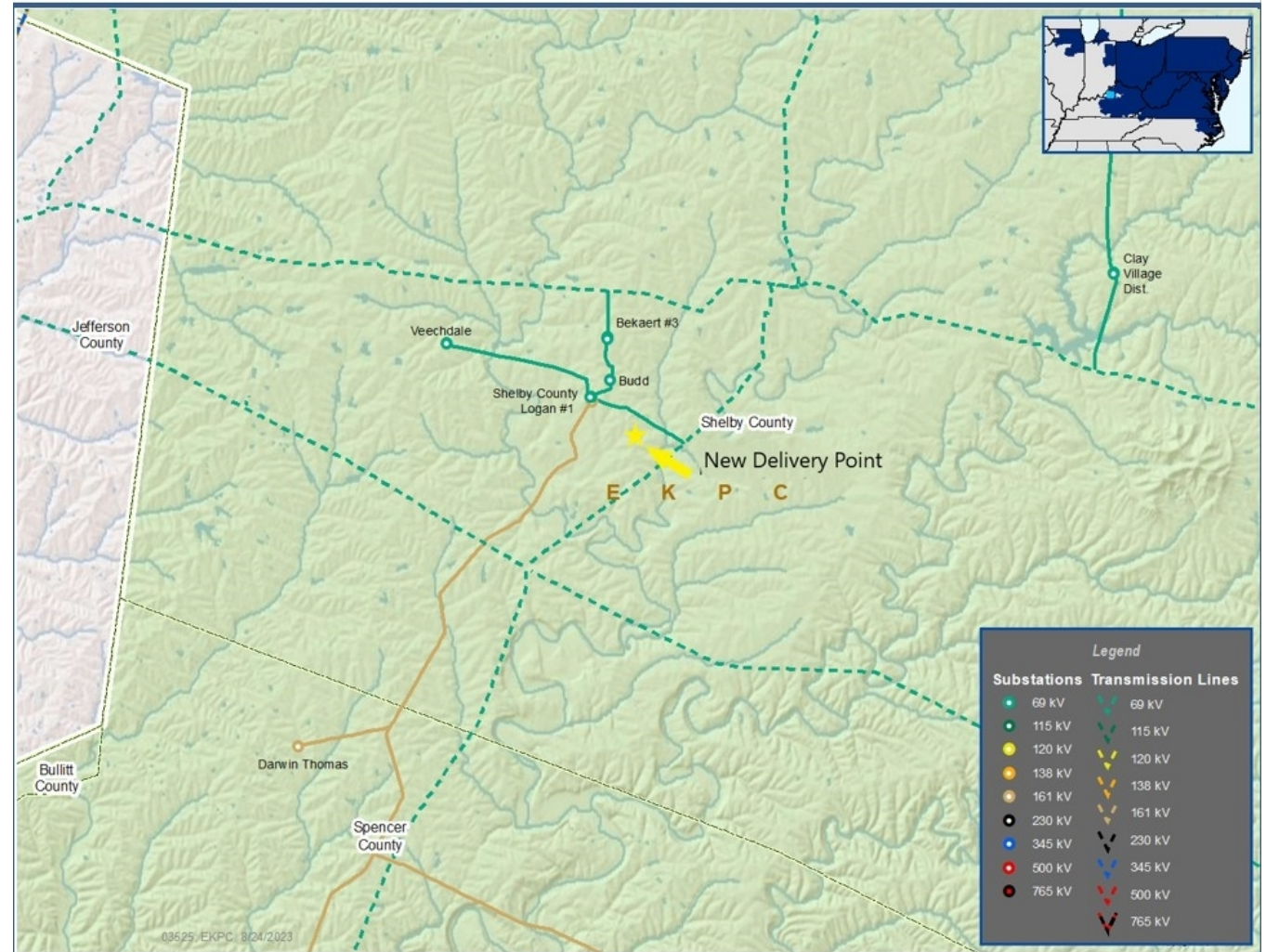
Project Driver: Customer Service

Specific Assumption References:

EKPC Assumptions Presentation Slide 15

Problem Statement:

Customer associated with solution to need number EKPC-2023-006 has increased peak demand to 57 MW by mid 2026. The existing distribution infrastructure is not capable of serving this request, as this exceeds the capacity of the 69-26.4 kV, 18/24/30 MVA distribution transformer presented in solution to need number EKPC-2023-006. This delivery point is located in Shelbyville, KY approximately 1.5 mile southeast of EKPC's Shelby County substation.



Need number(s): EKPC-2025-003

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Proposed Solution:

Logistics Dr #2: Due to new delivery point of Logistics Dr #2, a new 69-26.4 kV 18/24/30 MVA Logistics Dr #2 distribution station will be built.

Transmission Cost Estimate: \$0 M

Alternatives Considered:

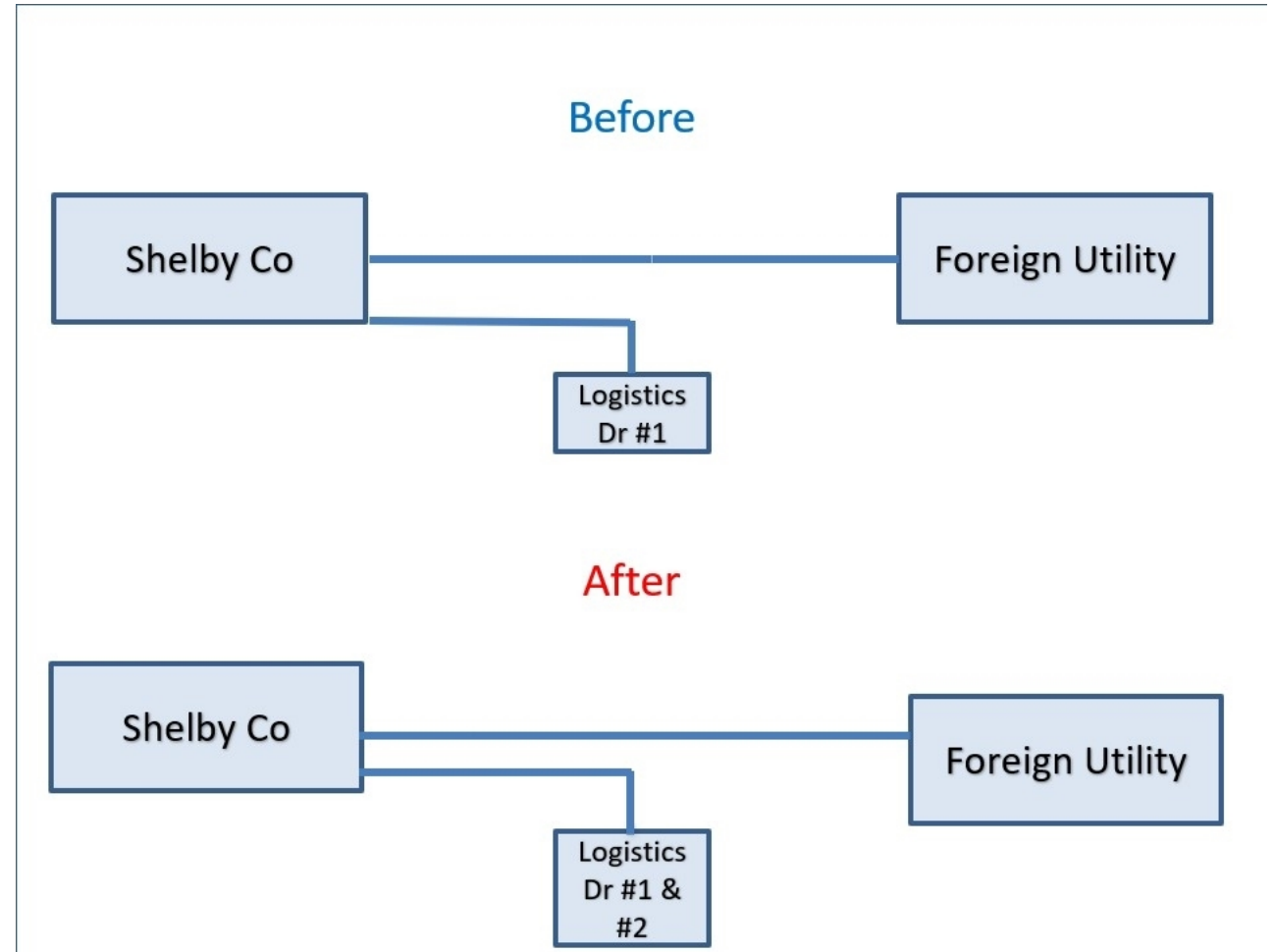
N/A

Projected In-Service: 1/31/2027

Project Status: Engineering

Supplemental Project ID: s4028.1

Model: N/A



Need Number: EKPC-2025-005

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Previously Presented:

Need Meeting 10/17/2025

Solution Meeting SRRTEP-W - 11/14/2025

Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

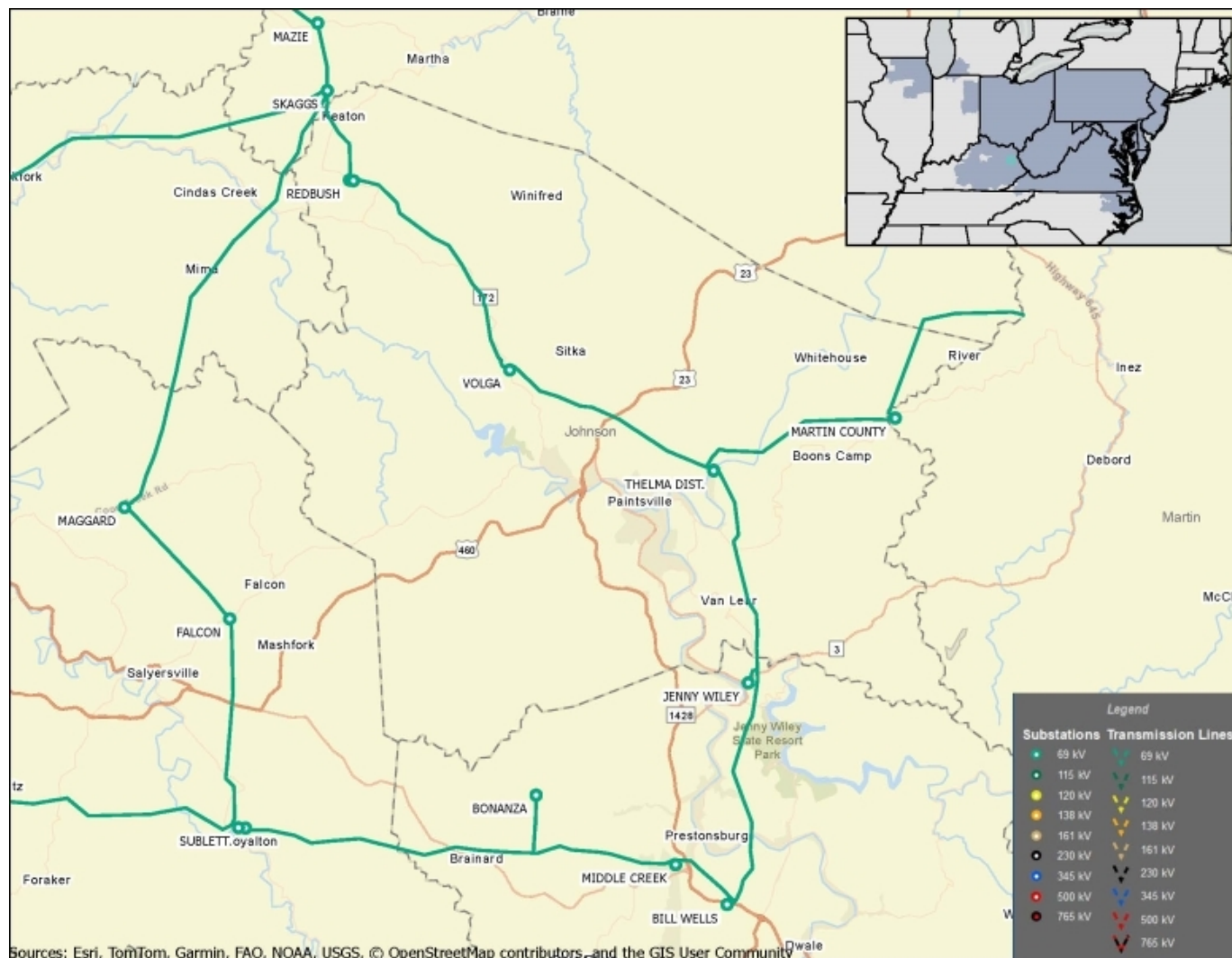
EKPC Assumptions Presentation Slide 14

Problem Statement:

From an operational perspective, the Rowan County-Skaggs 138 kV and Thelma-AEP Thelma 69 kV tie-line are the strongest sources in the area. With either of these out of service, there is a large voltage drop for loss of the other source. Maintenance outage scheduling in the area can become an issue if one 69 kV path is scheduled out for an extended period of time. Removing another 69 kV path for any work can lead to low voltage and thermal loading concerns for loss of the Skaggs 138/69 kV transformer. This area of EKPC's transmission system is also susceptible to foreign utility outages and EKPC has historically experienced manual load shed.

PJM has issued numerous Post Contingency Local Load Relief Warnings (PCLLRWs) to EKPC for potential operational violations in this area for a subsequent contingency.

EKPC Transmission Planning will be evaluating alternatives to address the operational concerns in this area.



Need number(s): EKPC-2025-005

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Proposed Solution:

Thunder Ridge 69 kV switching station: Build new 69 kV switching station called Thunder Ridge to split up existing Magoffin Co-Thelma 69 kV circuit and be able to connect the new AEP tie line to.

AEP Dewey Dam modifications to accommodate new 69 kV tie line: To accommodate new interconnection with AEP at Dewey Dam 69 kV station, AEP proposed the following solution Install one 69 kV circuit breaker, associated metering, and line exit at Dewey Station Install one 69 kV span from Dewey station to delineation pole Expand the existing control house Expand the 69 kV bus and install one new 69 kV box bay.

69 kV tie-line to AEP: New ~5 mile 795 ACSR 69 kV tie-line from EKPC Thunder Ridge 69 kV-AEP Dewey Dam 69 kV.

Thunder Ridge 69 kV distribution: New 69 kV distribution station built at Thunder Ridge site. This distribution station is being built to retire the existing Jenny Wiley distribution station and its associated tap line which are reaching end-of-life.

Transmission Cost Estimate: \$14.13 M

Alternatives Considered:

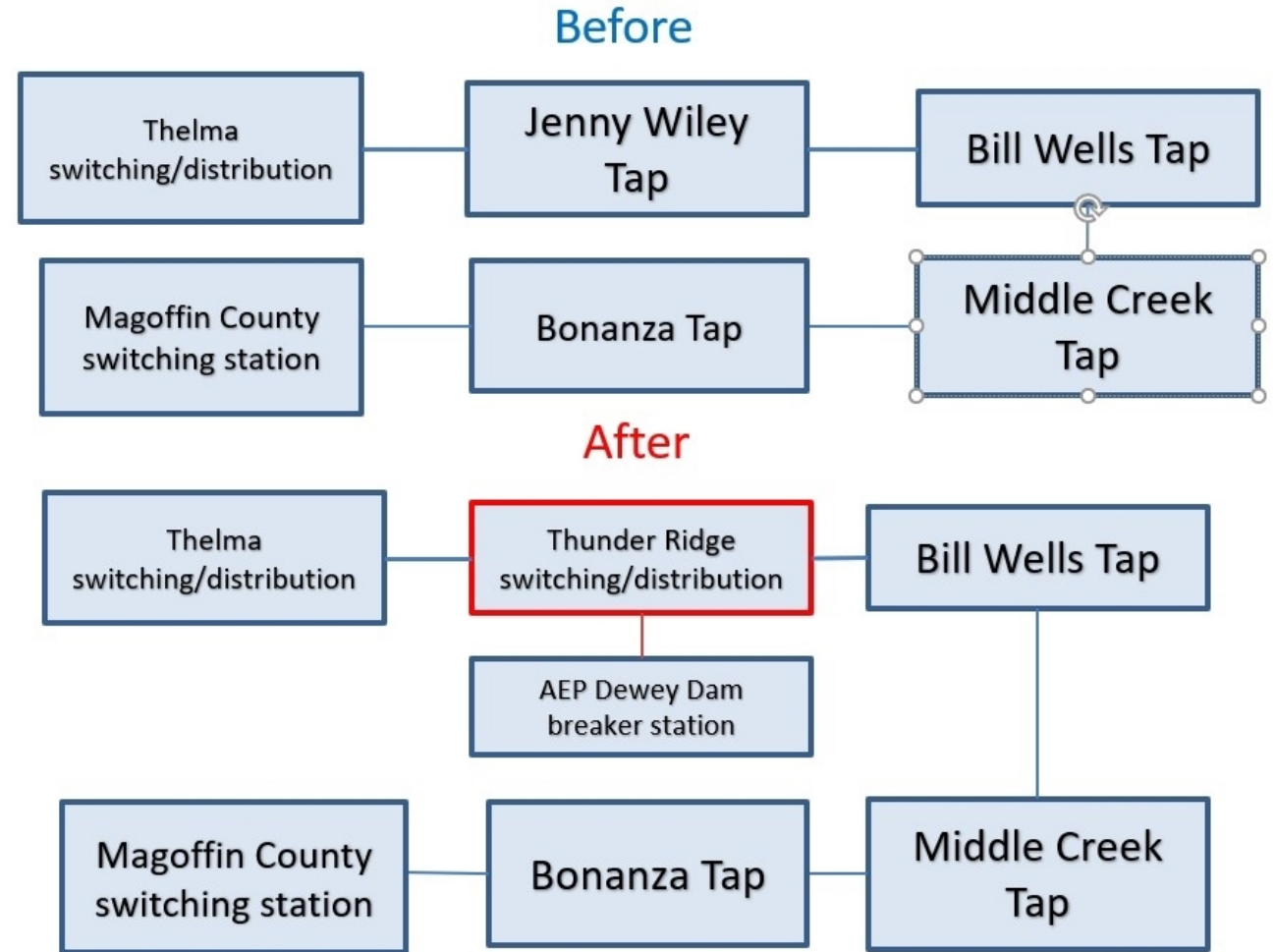
Thunder Ridge 138/69 kV breaker station with new 138 kV AEP tie

Projected In-Service: 12/30/2031

Project Status: Engineering

Supplemental Project ID: s4026.1-s4026.4

Model: N/A



Need Number: EKPC-2025-006

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Previously Presented:

Need Meeting 10/17/2025

Solution Meeting SRRTEP-W - 11/14/2025

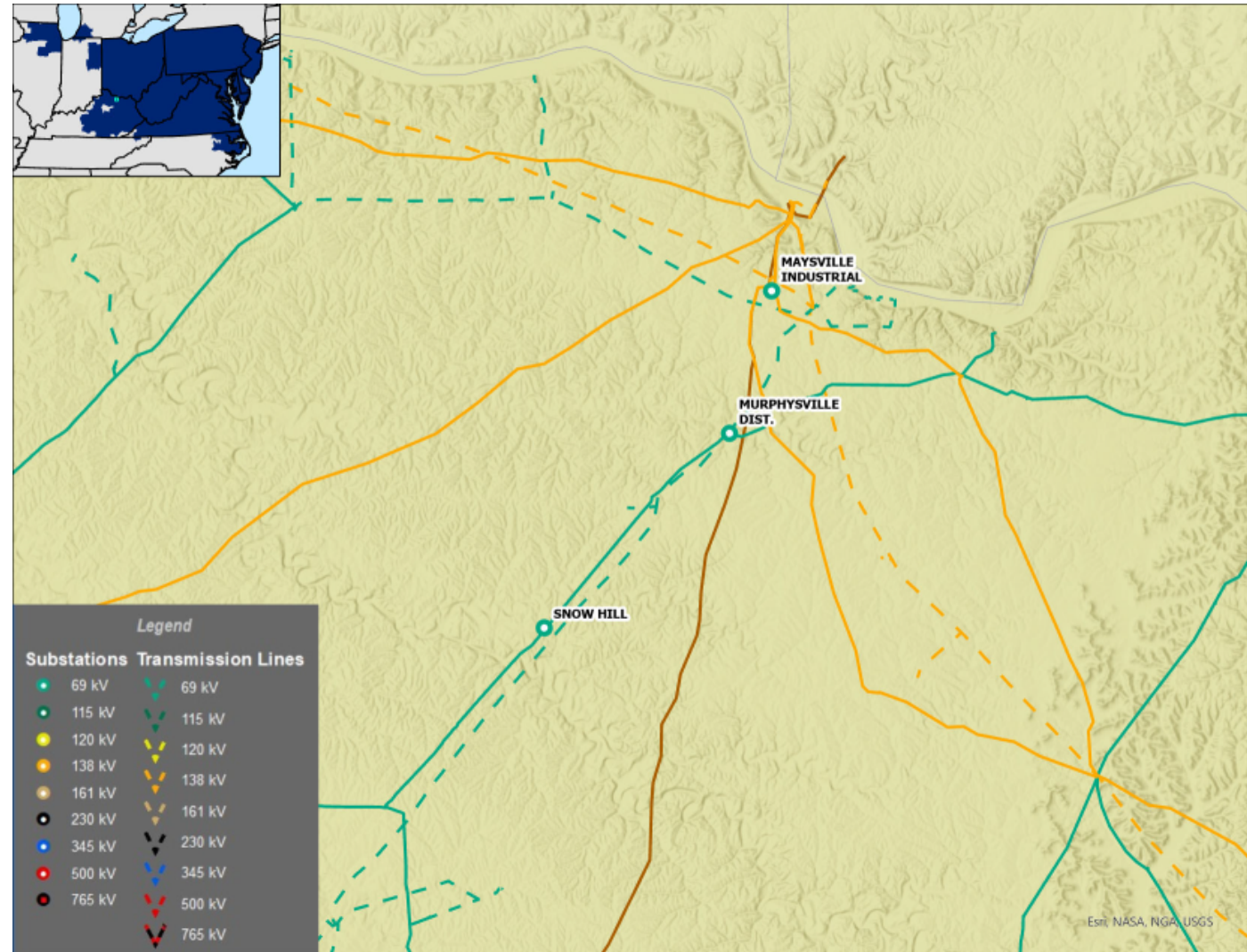
Project Driver: Customer Service

Specific Assumption References:

EKPC Assumptions Presentation Slide 15

Problem Statement:

The Murphysville substation distribution feeder currently serves ~1,800 customers and is roughly 221 miles in length. The feeder serves customers in southern Bracken County and is ~12 miles from the Murphysville substation. Approximately 50% of the feeders load is at the tail end of the circuit where load growth is expected to continue. During high loading customers near the end of the line are experiencing low voltage. Existing distribution infrastructure is not capable of addressing the issues in this area. EKPC will develop and evaluate alternatives to address all issues listed above.



Need number(s): EKPC-2025-006

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Proposed Solution:

Stonewall Distribution 138/25 kV Distribution: Construct a new 138/25 kV distribution substation near the Spurlock - Renaker 138 kV line. Tap the new substation in and out and install a new three-way switch at the tap point.

Transmission Cost Estimate: \$1.5 M

Alternatives Considered:

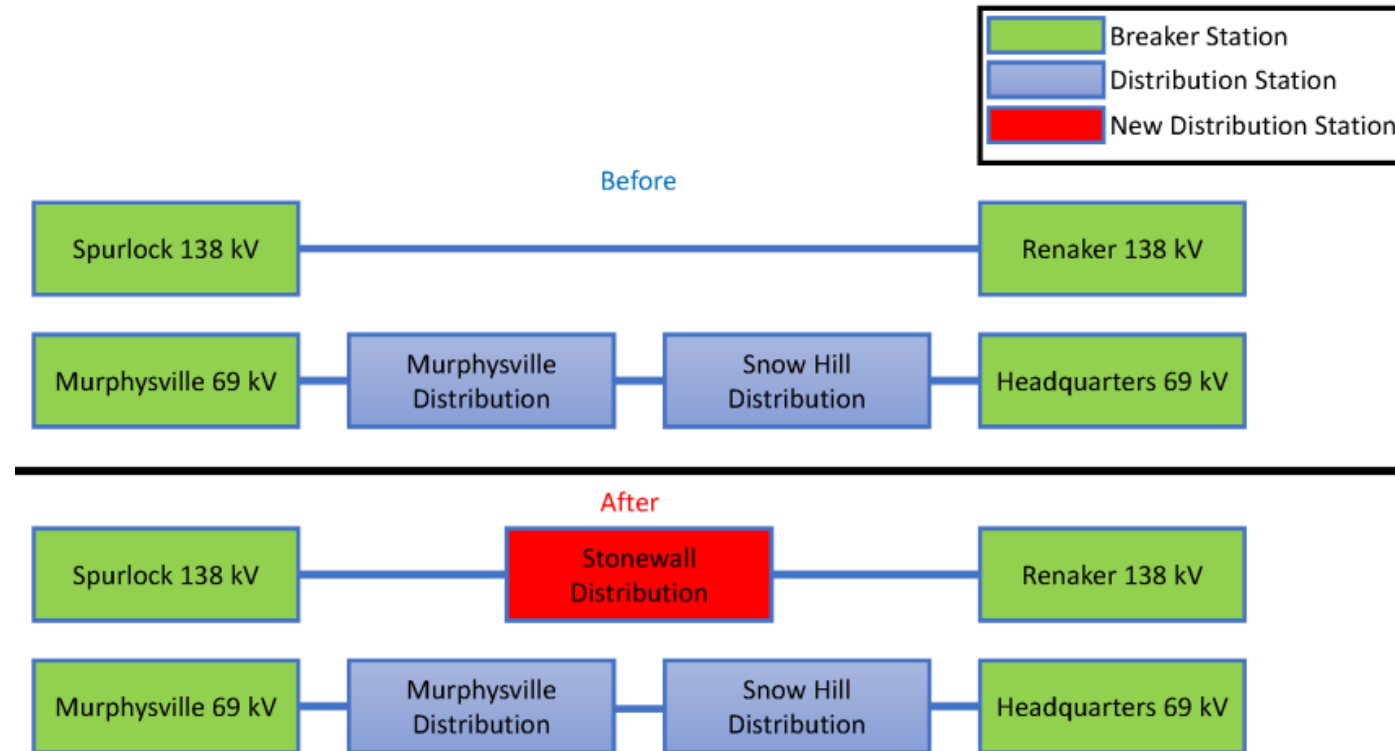
Tap the Murphysville - Headquarters 69 kV line and construct a 7.75 mile tap line for a new 69/25 kV distribution station.

Projected In-Service: 3/28/2029

Project Status: Engineering

Supplemental Project ID: s4034.1

Model: N/A



Need Number: EKPC-2025-007

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Previously Presented:

Need Meeting 10/17/2025

Solution Meeting SRRTEP-W - 11/14/2025

Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

EKPC Assumptions Presentation Slide 14

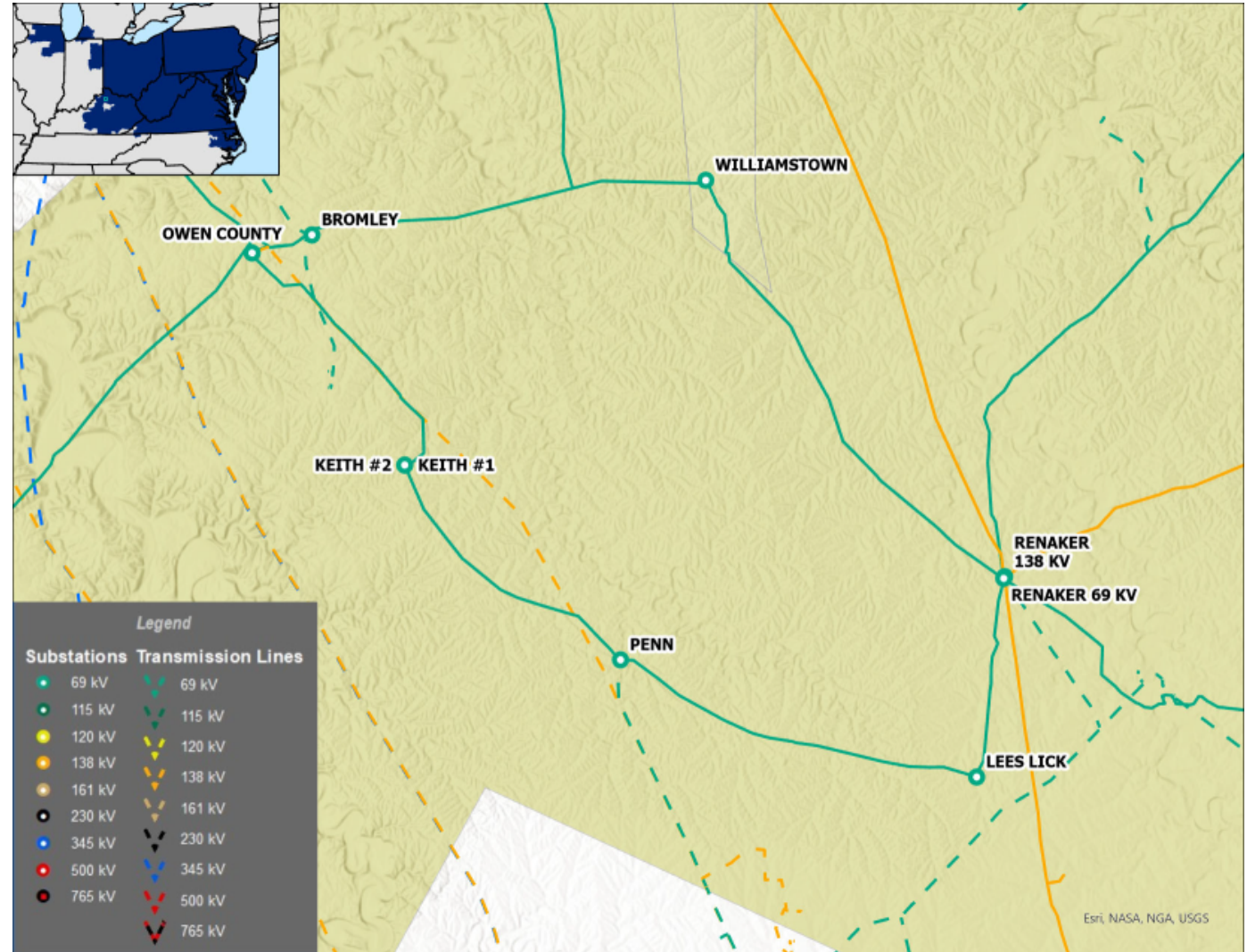
Problem Statement:

The Owen County load pockets is served by four sources:

- Penn - Owen County 69kV line
- Clay Village - Owen County 69kV line
- Boone County - Owen 69kV line
- Owen 138/69kV transformer

With one of the 69kV sources out, the loss of the Owen County transformer can cause low voltage in the area. This scenario also, can cause thermal loading issues on the Clay Village 69kV tie line with neighboring TO. EKPC system operations routinely performs pre-contingent switching (for voltage support) or coordinates with neighboring TO to open the Clay Village-West Frankfort 69kV line (to mitigate thermal loading on the Clay Village tie line).

PJM has issues numerous Post Contingency Local Load Relief Warnings (PCLLRWs) to EKPC for potential operational violations in this area for a subsequent contingency.



EKPC Transmission Zone M-3 Process Owen County, KY

Need number(s): EKPC-2025-007

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan Sep. 30, 2026

Proposed Solution:

Renaker - Williamstown 69kV Line Rebuild: Rebuild a total of 18.46 miles of 69kV transmission line between Renaker and Williamstown. Replacing 16.94 miles of 1/0 conductor and 1.52 miles of 4/0 conductor with 556.5 ACSR conductor.. Estimated Cost: \$14.815 M

Munk Jct 69kV Breaker Station: Construct a three breaker 69kV switching station to accommodate three 69kV exits and allow for the Renaker-Williamstown 69kV line to be operated normally closed and not create a three-terminal line. Cut-in the existing 69kV lines into the new Munk Jct 69kV switching station.. Estimated Cost: \$7.2 M

Transmission Cost Estimate: \$22.015 M

Alternatives Considered:

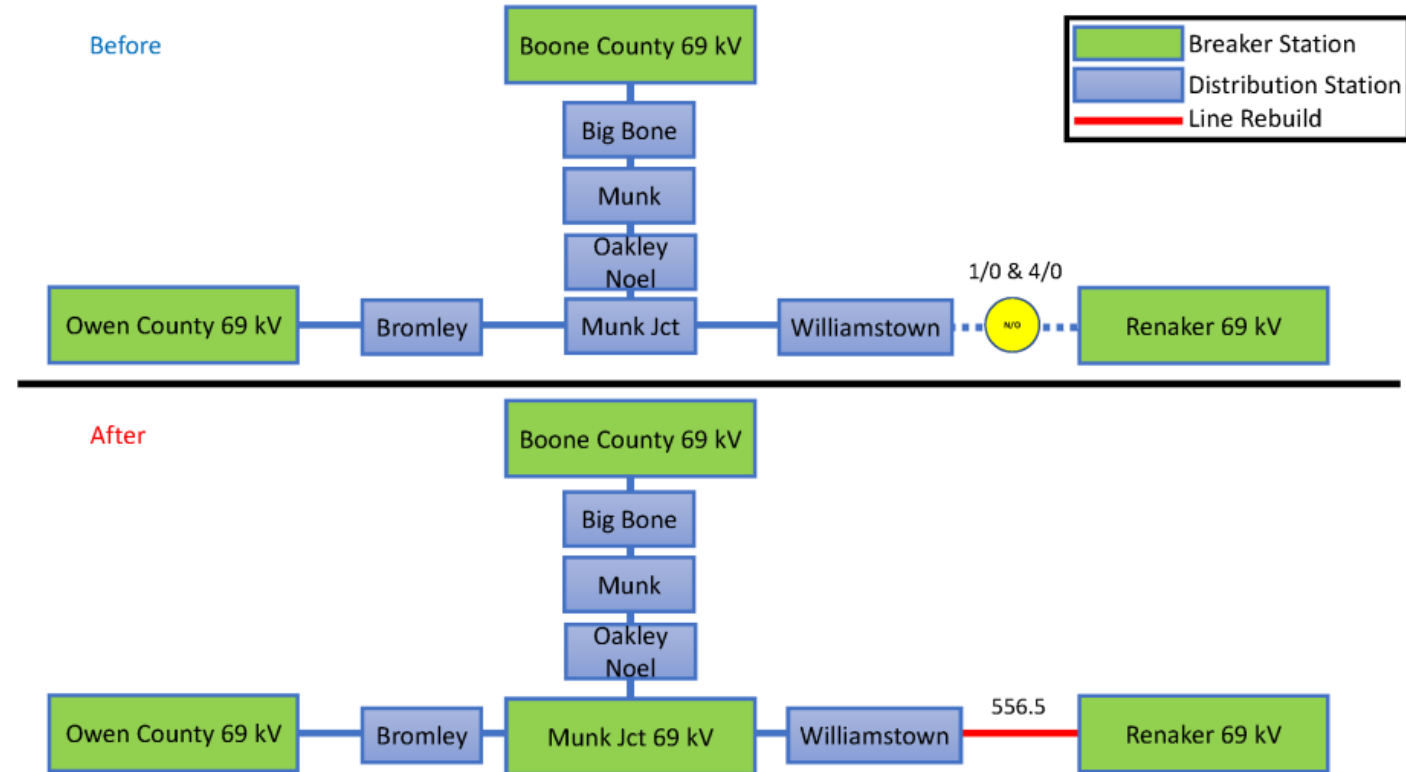
Tap the Renaker-Bavarian 138kV line near Williamstown and construct a new 138/69kV switching station and construct a new 5.75 mile 69kV line to Williamstown. Construct a 69kV switching station at Munk Jct. Retire the 18.5 mile Renaker-Williamstown 69kV line.

Projected In-Service: 12/31/2030

Project Status: Engineering

Supplemental Project ID: s4027.1, s4027.2

Model: N/A



Revision History

9/30/2026 – V1 – Added s3835, s4026-s4028, and s4034