



PJM Western Sub-Regional RTEP Committee DEOK Supplemental Upgrades

March 25, 2019

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

Need Number: DEOK-2019-004

Process Stage: Need Meeting 3/25/2019

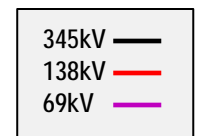
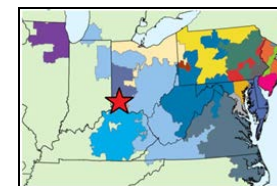
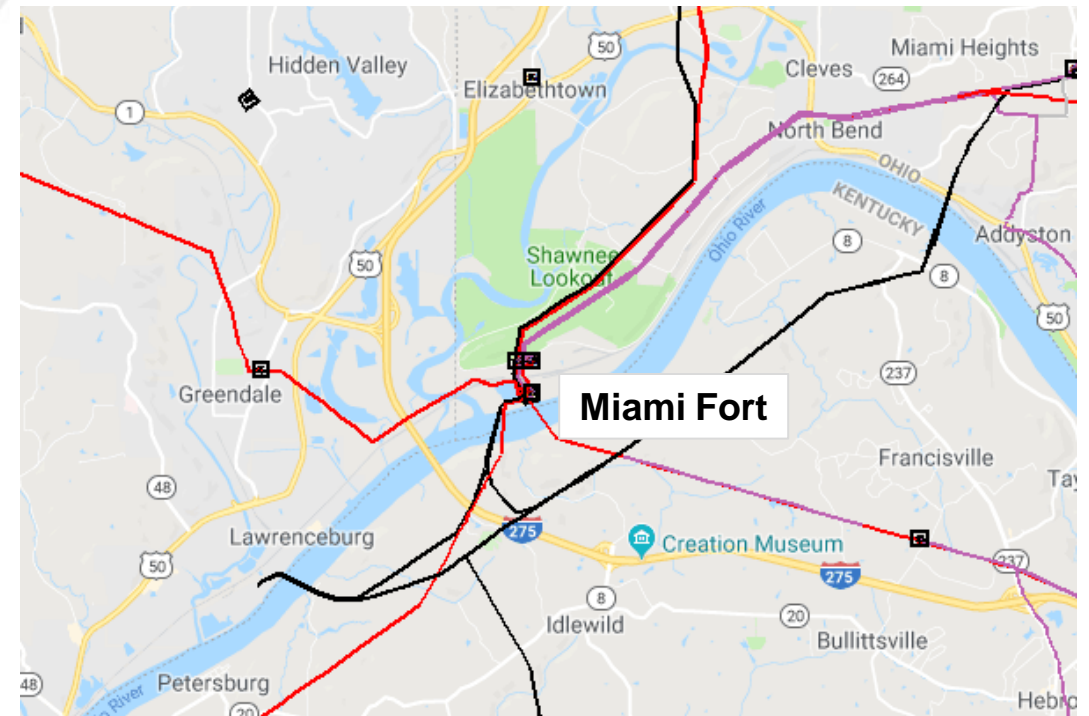
Supplemental Project Driver: Equipment Condition, Performance and Risk

Specific Assumptions Reference(s):

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 6-7

Problem Statement:

The painted lattice tower that supports the Miami Fort – Clifty Creek 138kV line has deep rust exhibiting heavy pack-out including deformed members and missing bolts. Concrete foundations are spalling causing exposure of reinforcing steel resulting in the delamination of concrete. Anchor bolts are rusting and as a result are showing significant section loss causing a reduction in tensile strength. Subsequent to this 86 year old tower's installation adjacent to Miami Fort generation station a fly ash pond was built near it. The tower now sits in/on the dike between the fly ash pond and the Ohio River. The owner of the fly ash pond considers this high risk and has asked that the tower be moved off the dike. The condition of the tower combined with its use is also a risk. This tower is one side of the Ohio River crossing.

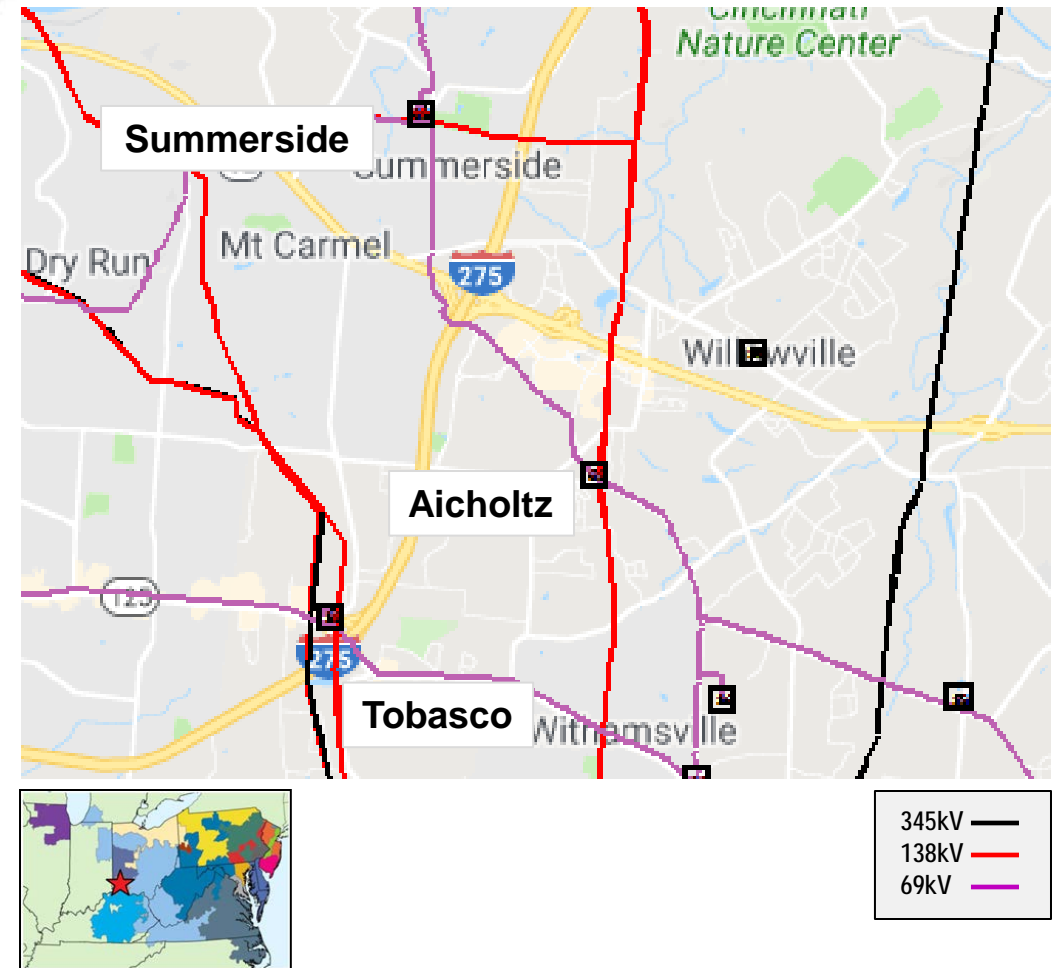


Need Number: DEOK-2019-005
 Process Stage: Need Meeting 3/25/2019

Project Driver(s):
 Customer Service

Specific Assumptions Reference(s):
 Duke Energy Ohio & Kentucky Local Planning Assumptions slide 10

Problem Statement:
 Duke Energy Distribution has requested a new delivery point at Aicholtz substation. The two 69/13kV 10.5MVA transformers at Aicholtz are currently loaded to 86%. There are plans for new subdivisions and a new Medical Center in this area. Distribution Planning projects the transformers at Aicholtz will be loaded to 95% by 2020. Subsequent commercial development is expected.



Need Number: DEOK-2019-006

Process Stage: Need Meeting 3/25/2019

Project Driver(s):

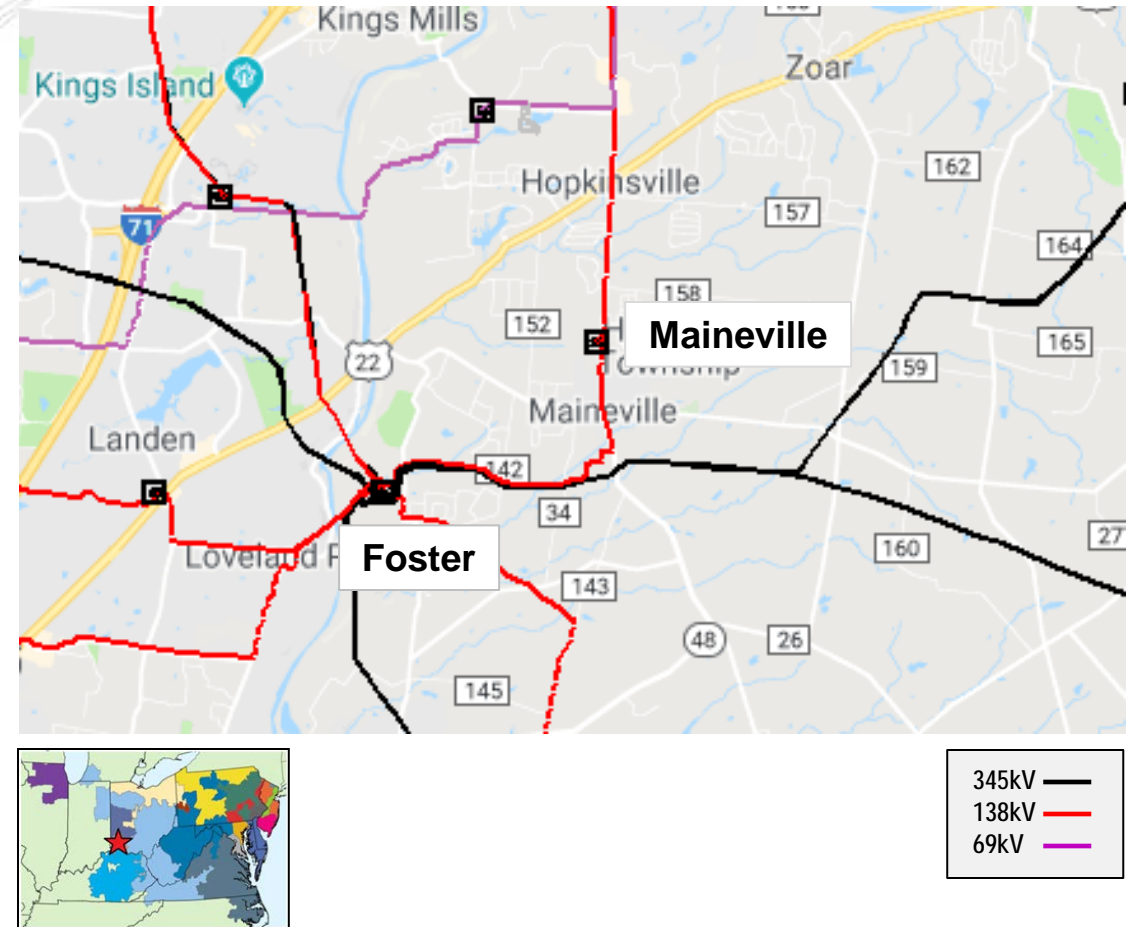
Customer Service

Specific Assumptions Reference(s):

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 10

Problem Statement:

Duke Energy Distribution has requested a new delivery point at Maineville substation. Loading on the single 138/13kV 22MVA transformer at Maineville has reached its nameplate rating.



Need Number: DEOK-2019-007

Process Stage: Need Meeting 3/25/2019

Project Driver(s):

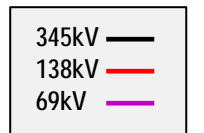
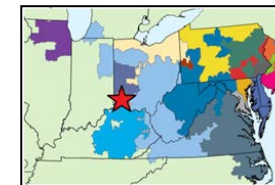
Customer Service

Specific Assumptions Reference(s):

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 10

Problem Statement:

Duke Energy Distribution has requested a new delivery point at Dry Ridge substation. Dry Ridge has one 69/13kV 10.5MVA transformer. Grant substation has two 69/13kV 10.5MVA transformers. Due to loading at Dry Ridge and Grant (60% at Dry Ridge, 33% and 36% at Grant), Grant can no longer be tied out to Dry Ridge.

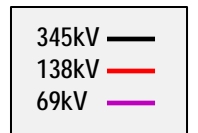
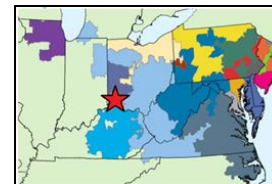


Need Number: DEOK-2019-008
Process Stage: Need Meeting 3/25/2019

Project Driver(s):
 Customer Service

Specific Assumptions Reference(s):
 Duke Energy Ohio & Kentucky Local Planning Assumptions slide 10

Problem Statement:
 Duke Energy Distribution has requested a new delivery point at Hamlet substation. Winter loading on the single 69/13kV 10.5MVA transformer at Hamlet has reached 96% of its nameplate rating. New residential subdivisions in this area are planned to be completed by 2021. Winter loading is expected to increase 10% since gas service in much of this area is not available.

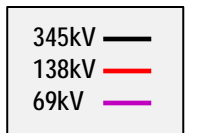
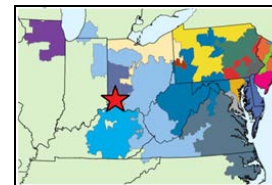
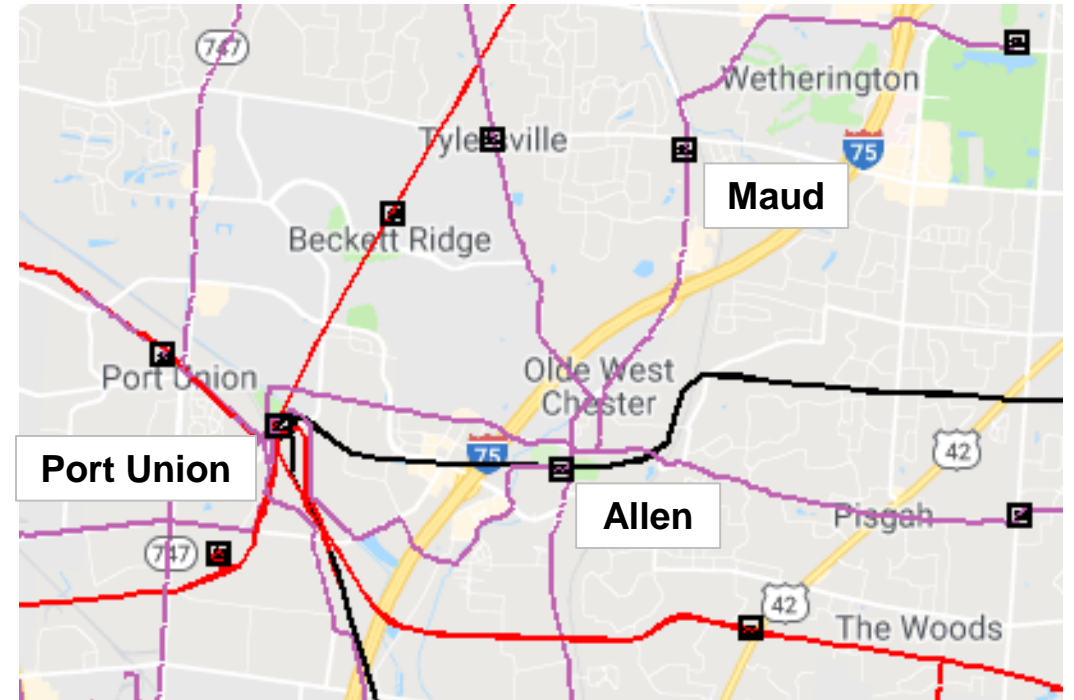


Need Number: DEOK-2019-009
Process Stage: Need Meeting 3/25/2019

Project Driver(s):
 Customer Service

Specific Assumptions Reference(s):
 Duke Energy Ohio & Kentucky Local Planning Assumptions slide 10

Problem Statement:
 Duke Energy Distribution has requested a new delivery point at Allen substation. Loading on Allen's single 69/13kV 22MVA transformer has reached the nameplate rating.

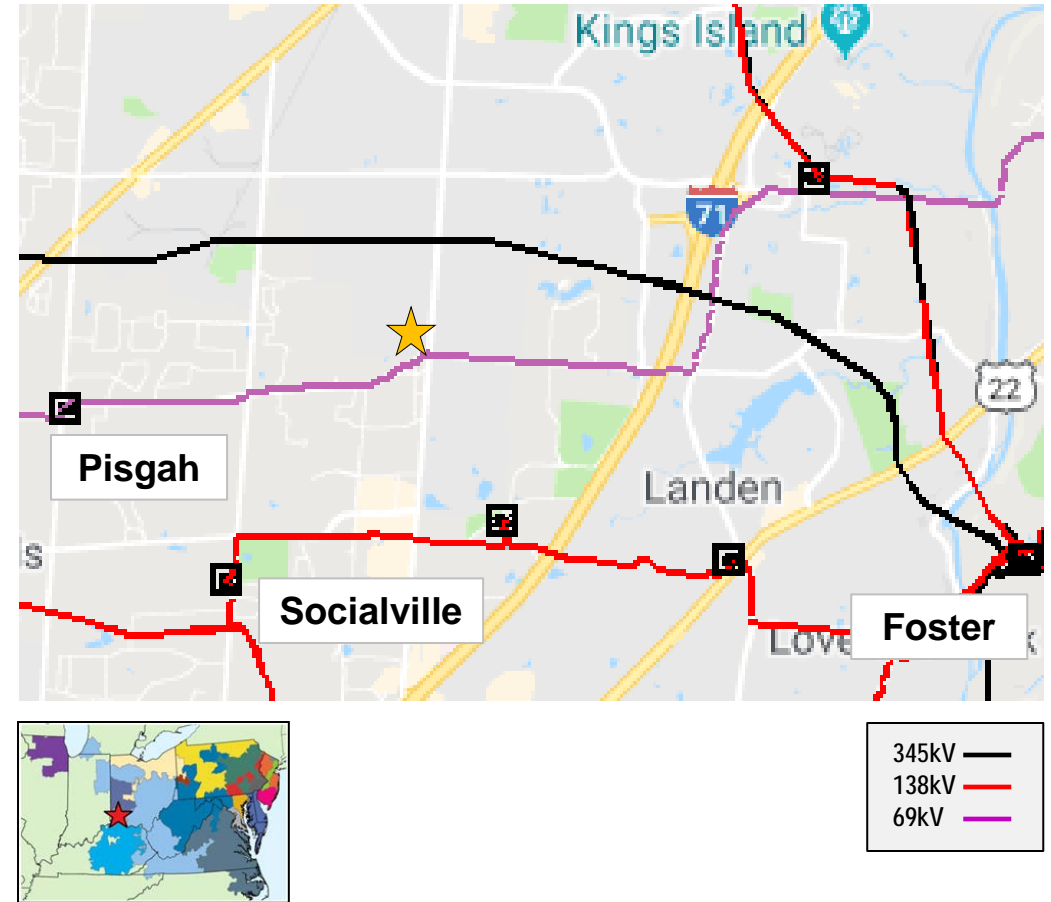


Need Number: DEOK-2019-010
Process Stage: Need Meeting 3/25/2019

Project Driver(s):
 Customer Service

Specific Assumptions Reference(s):
 Duke Energy Ohio & Kentucky Local Planning Assumptions slide 10

Problem Statement:
 Duke Energy Distribution has requested a new delivery point in the Mason Ohio area. New light industrial load growth requires 7MW of service by 2021 with an additional 15MW expected by 2022.



Need Number: DEOK-2019-011

Process Stage: Need Meeting 3/25/2019

Project Driver(s):

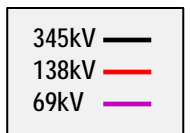
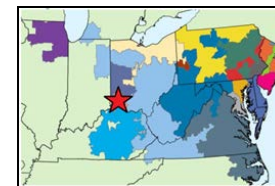
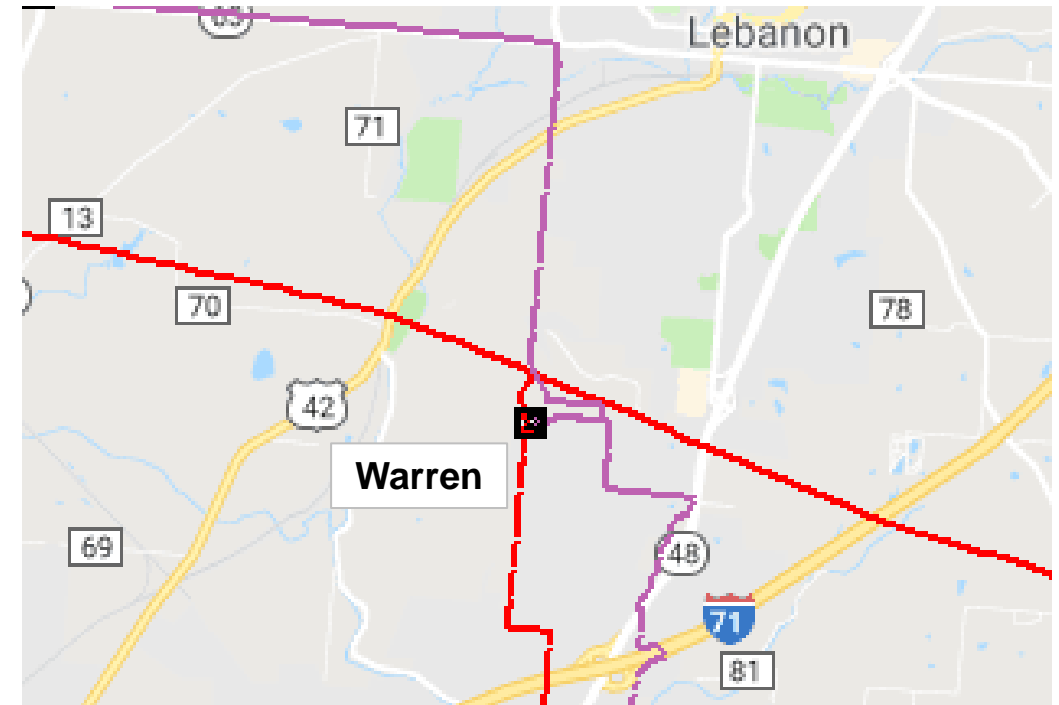
Equipment Condition, Performance and Risk

Specific Assumptions Reference(s):

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 6-7

Problem Statement:

Warren 138/69kV 100MVA TB1 showed a sharp increase in gassing in 2016. Over the past three years the gas levels continue to increase. The main gasses of concern are ethane and ethylene, indicating a potential deterioration of insulation. Indications are trending towards a possible failure. There has also been an increase in power factor during routine testing indicating the transformer trending towards the end of its useful life. This 62 year old transformer is FOA rated. The capacity of the original cooling equipment has degraded with age. In the event of a failure, it would take an extended amount of time to replace this transformer with a spare (3-4 months). It would require foundation modifications, physical bus modifications, new conduits and control cables. This transformer supplies 69kV service to The City of Lebanon Electric Department.



Solutions

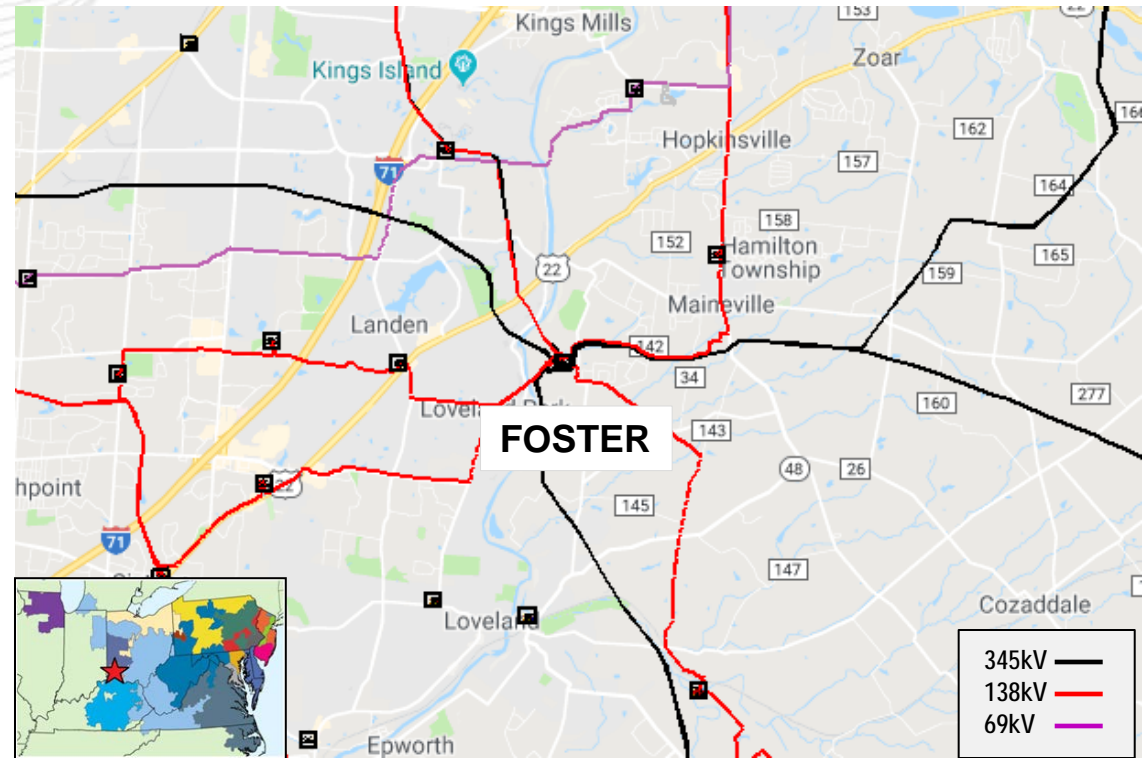
Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

Need Number: DEOK-2019-003
Process Stage: Solutions Meeting 3/25/2019
Process Chronology:
Need Meeting: 2/20/2019

Supplemental Project Driver:
Equipment Condition, Performance and Risk

Specific Assumptions Reference(s):
Duke Energy Ohio & Kentucky Assumptions Presentation Slides 7, 8

Problem Statement:
Technical Services continues to have problems with the mechanisms on three 345kV breakers at Foster. The manufacturer no longer makes the mechanism for these 1990 vintage breakers. The breakers also have an on-going problem leaking SF6 gas.

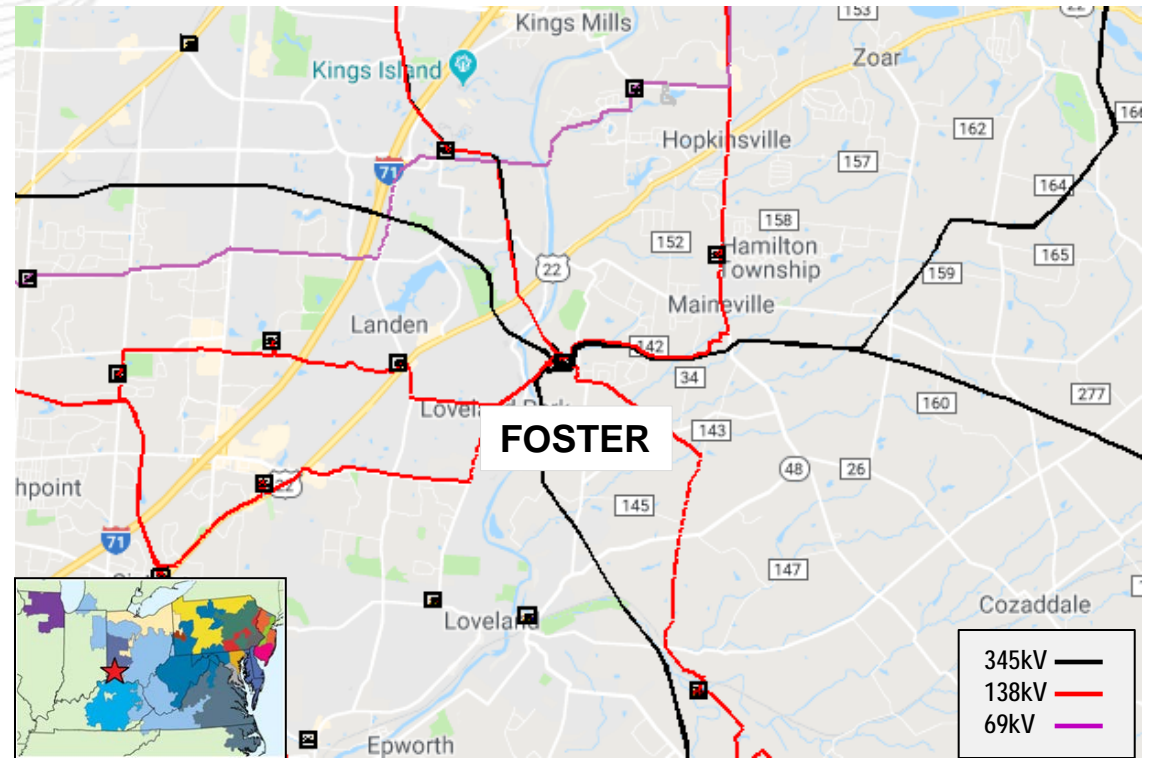


Need Number: DEOK-2019-003
Process Stage: Solutions Meeting 3/25/2019

Proposed Solution: Replace the three 2000A breakers with 3000A breakers.

Alternatives: none

Estimated Transmission Cost: \$ 2,716,629
Projected In-Service: 12-31-2019





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

3/14/2019 – V1 – Original version posted to pjm.com

3/19/2019 – V2

- Slides #3, Change to DEOK-2019-0004 to DEOK-2019-004
- Slides #4, Change to DEOK-2019-0005 to DEOK-2019-005
- Slides #5, Change to DEOK-2019-0006 to DEOK-2019-006
- Slides #6, Change to DEOK-2019-0007 to DEOK-2019-007
- Slides #7, Change to DEOK-2019-0008 to DEOK-2019-008
- Slides #8, Change to DEOK-2019-0009 to DEOK-2019-009
- Slides #9, Change to DEOK-2019-0010 to DEOK-2019-010
- Slides #10, Change to DEOK-2019-0011 to DEOK-2019-011
- Slides #12, 13, Change to DEOK-2019-0003 to DEOK-2019-003

5/16/2019 – V3

- Slides #4-#9, Change “Slide 8” to “Slide 10” under Specific Assumptions Reference(s)