



Sub Regional RTEP Committee PJM West

Feb 20, 2019

- The following definitions explain the basis for excluding flowgates and/or projects from the competitive planning process and designating projects to the incumbent Transmission Owner.
- Flowgates/projects excluded from competition will include the underlined language on the corresponding slide.
 - Immediate Need Exclusion: Due to the immediate need of the violation (3 years or less), the timing required for an RTEP proposal window is infeasible. As a result, the local Transmission Owner will be the Designated Entity. - Operating Agreement, Schedule 6 § 1.5.8(m)
 - Below 200kV: Due to the lower voltage level of the identified violation(s), the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(n)
 - FERC 715 (TO Criteria): Due to the violation need of this project resulting solely from FERC 715 TO Reliability Criteria, the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(o)
 - Substation Equipment: Due to identification of the limiting element(s) as substation equipment, the driver(s) for this project are excluded from the competitive proposal window process. As a result, the local Transmission Owner will be the Designated Entity - Operating Agreement, Schedule 6 § 1.5.8(p)

Immediate Needs

Baseline Reliability Projects

Problem Statement:

Elwyn Z-70 line breaker at Dravosburg 138 kV substation is overdutied. Generation deactiven driven system upgrades (b3011.1 -6) is the driver.

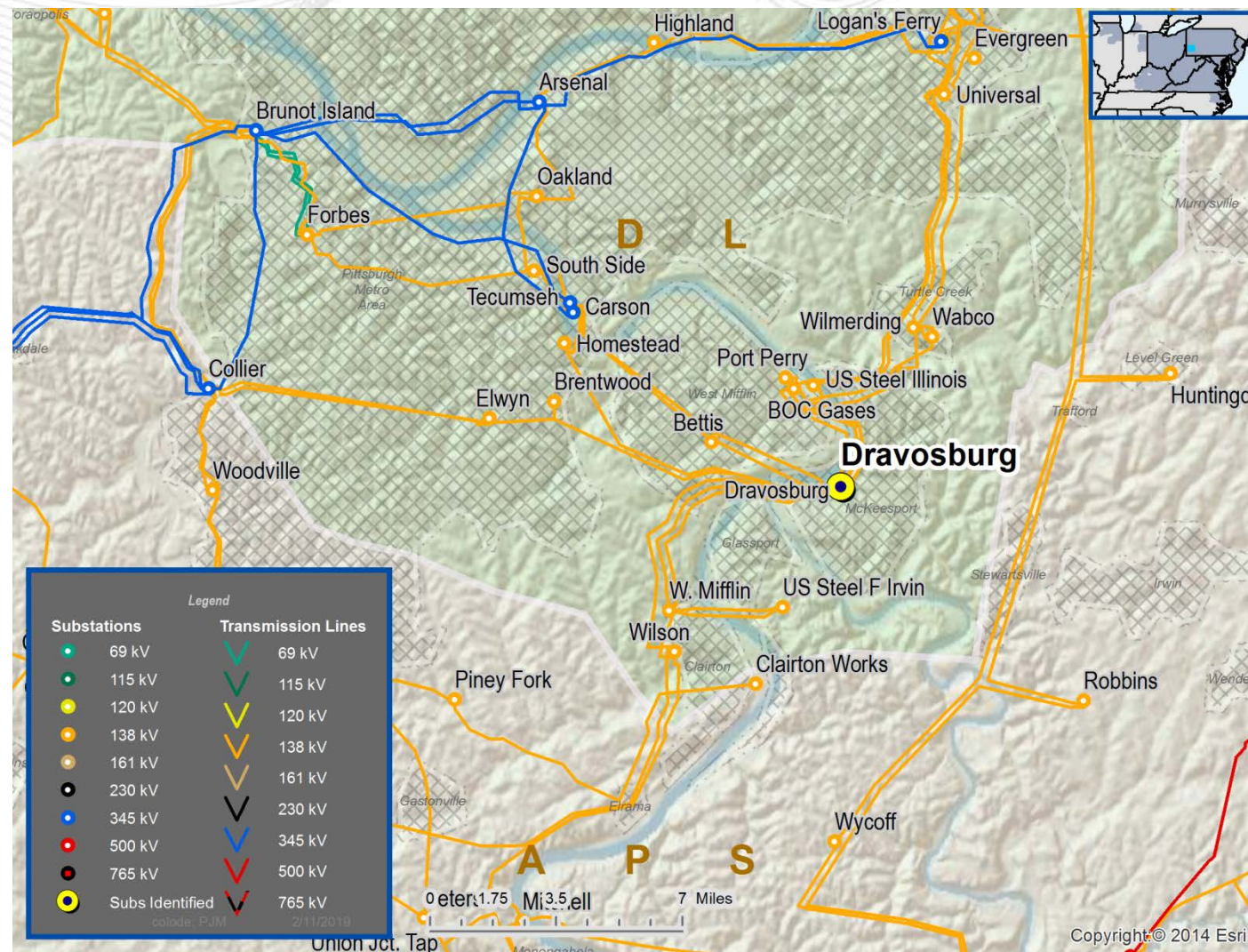
Selected Solution: Replace the line terminal equipment and line breaker #85 at Dravosburg 138 kV substation in the Elwyn Z-70 line position/bay, with the breaker duty as 63KA. (b3011.7)

Estimated Cost: \$ 0.9M

Required In-service: 6/1/2021

Projected In-service: 6/1/2021

Project Status: Planning





Basecase Analysis and N-1-1 Violation

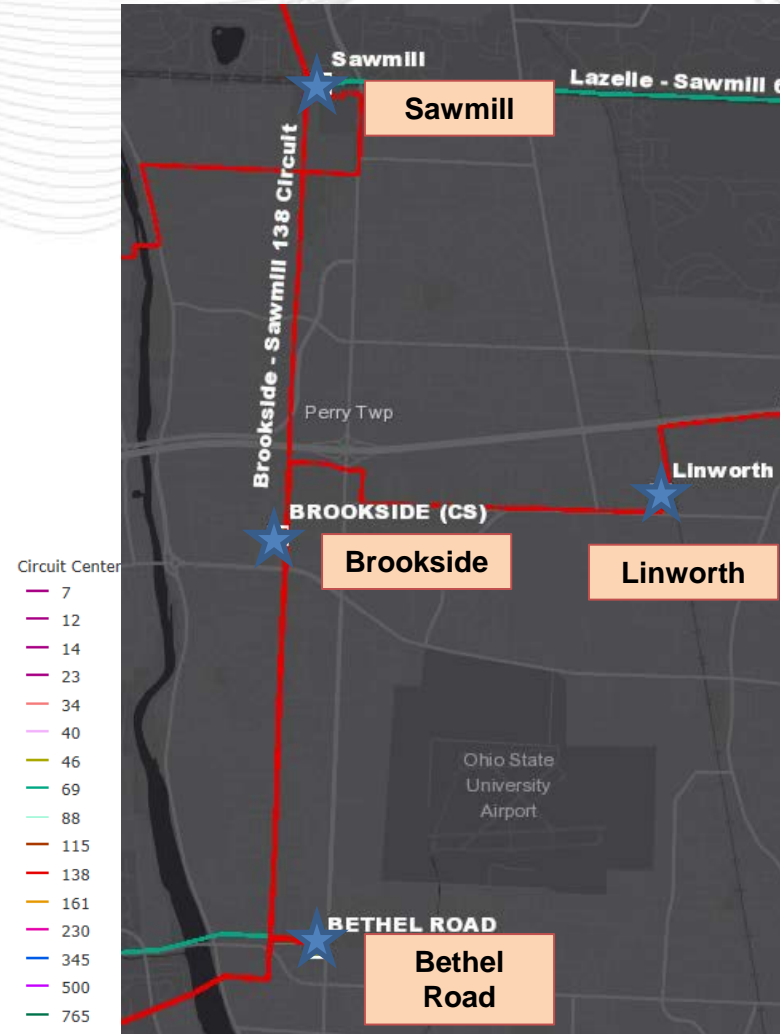
Problem Statement:

The Bethel – Brookside - Sawmill 138 kV line was derated due to the results of a sag study performed on the line, which identified existing encroachments on the line that resulted in the derate. (Summer Normal/Emergency ratings from 216/216 MVA to 151/151MVA)

The Bethel – Brookside line section is overload about 102% for the loss of the 345kV tower lines between Robert and Hayden. It is also shown overloaded in N-1-1 test.

The Brookside – Sawmill line section is overloaded up to 128% for multiple N-1 contingencies and N-1-1 pairs.

AEP has received requests for increased demand in the Dublin area. Newly connected customer loads are scheduled to ramp up, significantly contributing to area thermal concerns.



Proposed Solution:

- Rebuild 5.2 mile Bethel-Sawmill 138kV line. 1590 ACSR 54/19 Falcon conductor is recommended pending engineering verification. Include new ADSS.
- Upgrade risers and relaying at Brookside, Bethel, Sawmill, and Linworth stations.
- Mitigate any ROW encroachments found as needed.
- Upgrade Brookside 1,200A line switches to 3,000A ratings.
- Upgrade risers at Bethel station. **(b3109)**

Alternatives:

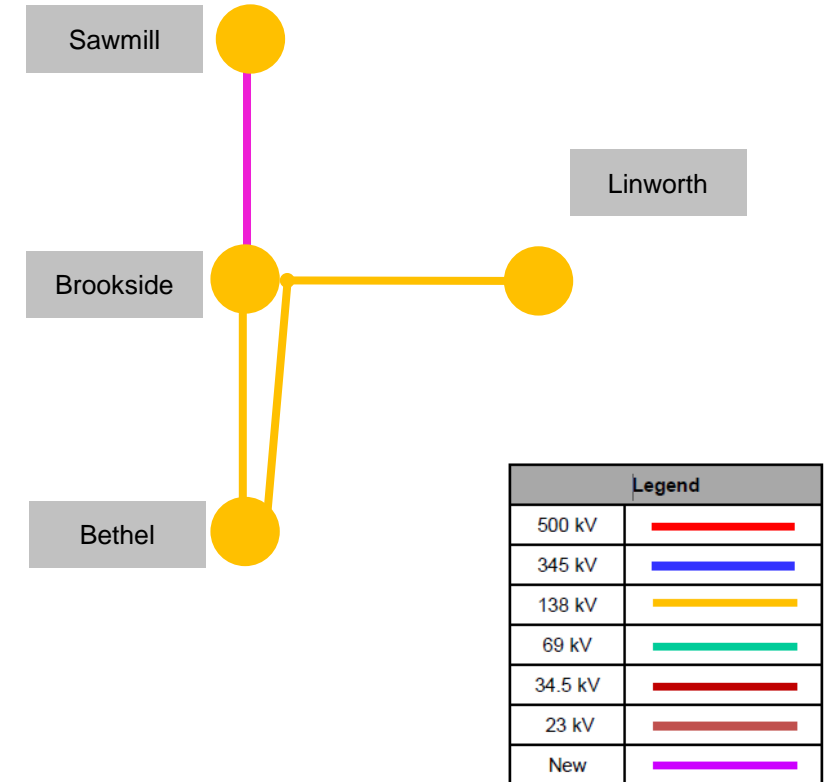
- Various alternatives were investigated but there are no viable alternatives to upgrading this line rating via rebuild.

Total Estimated Transmission Cost: \$34.54M

Required IS Date: 6/1/2019

Projected IS Date: 6/1/2020

Project Status: Engineering



First Review

Baseline Reliability Projects

TO Criteria Violation

Problem Statement:

Instability at TSS 946 University Park E.C. for a 3-phase-to-ground fault at the 80% of 138kV line L6603 from E. Frankfort 138kV blue bus w/ delayed clearing at E. Frankfort 138kV blue bus.

Potential Solution:

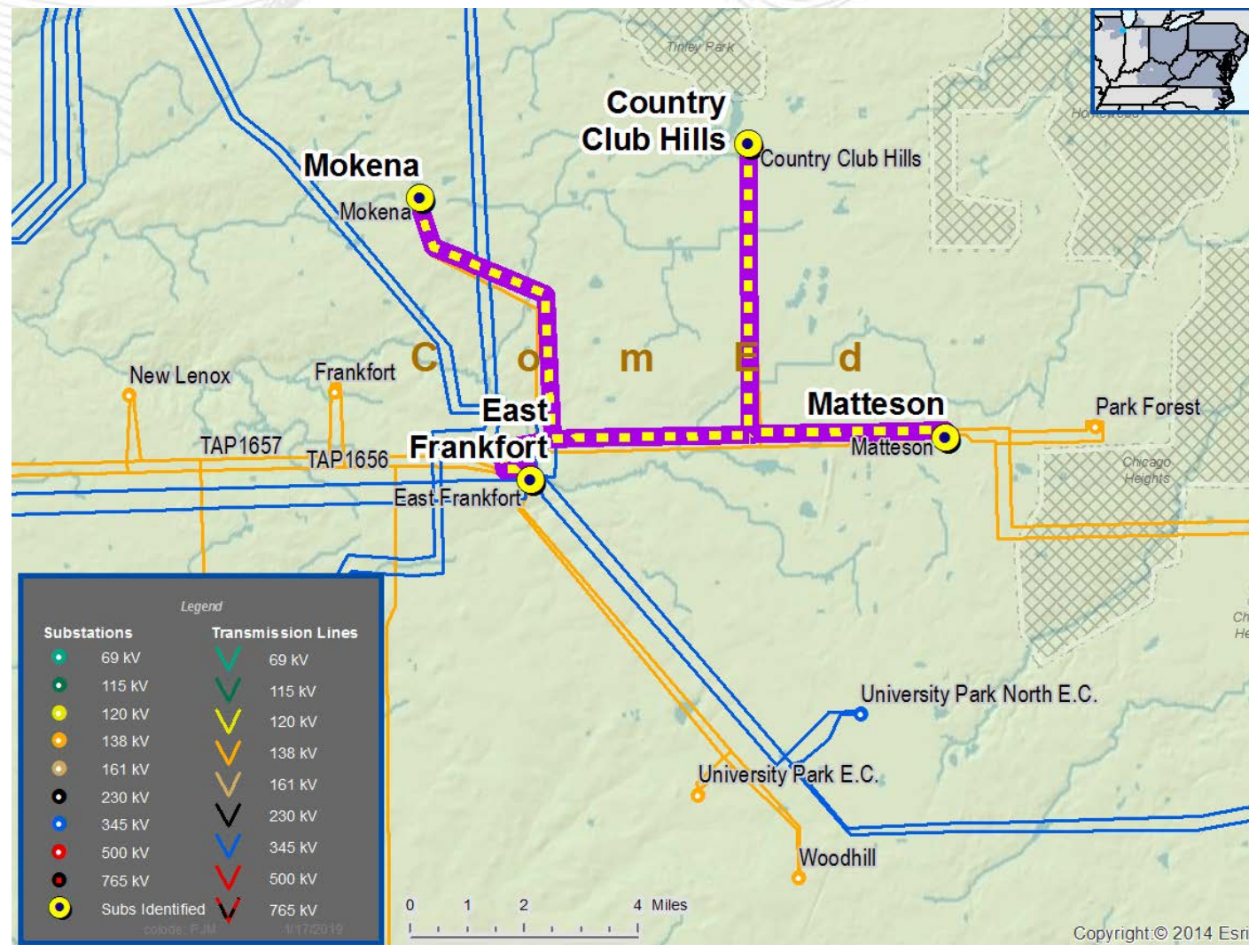
Installing high-speed backup clearing scheme on the E. Frankfort – Matteson 138kV line (L6603)

Estimated Project Cost : \$0.5M

Required IS Date: 6/1/2020

Projected IS date: 6/1/2020

Status: Planning



TO Criteria Violation

Problem Statement:

In the 2022 PJM Summer RTEP case, both thermal and voltage TO criteria violations were identified.

- The Leach – Miller S.S 69 kV line section (~0.5 mi.) will load to 113% of its summer emergency rating (75 MVA) for loss of the Big Sandy 138/69 kV transformer and Tri-State – West Huntington 138 kV circuit.
- For the loss of the 138/69 kV transformers at Chadwick and Kenova:
 - The Leach – Miller S.S 69 kV line section (~0.5 mi.) will load to 219% of its summer emergency rating (75 MVA) (127% of its largest conductor).
 - The South Neal – Miller S.S 69 kV line section (~1.5 mi.) will load to 205% of its summer emergency rating (82 MVA) (113% of its largest conductor).
 - The South Neal – West Huntington 69 kV line (~9.3 mi.) will load to 136% of its summer emergency rating (75 MVA) (100% of its largest conductor).
 - Voltage Magnitude issues at: South Neal (.91pu), Miller S.S. (.89pu), Leach (.89pu), England Hill (.88 pu), and ASFI (.88pu)
 - Voltage Deviation issues at: South Neal (8%), Miller S.S. (9%), Leach (9%), England Hill (10%), and ASFI (10%)
- Similar issues are observed for loss of the Chadwick 138/69 kV transformer followed by the loss of the Kenova – England Hill 69 kV or Tri State – South Point 138 kV circuits.

Additionally, high loading observed for the following circuits:

- The Big Sandy – Inco Burnaugh 69 kV line section (~6.6 mi.) will load to 99% of its summer emergency rating (102 MVA) (99% of its largest conductor).
- The Chadwick – England Hill 69 kV circuit loads to 97% of its summer emergency rating (148 MVA) of its largest conductor for the loss of the Kenova – England Hill 69 kV and Chadwick – Leach 69 kV circuits.
- The South Neal – Miller S.S 69 kV line section (~1.5 mi.) will load to 99.5% of its summer emergency rating (82 MVA) for loss of the Big Sandy 138/69 kV transformer and Tri-State – West Huntington 138 kV circuit.
- The Chadwick – Leach 69 kV circuit loads to 99.6% of its summer emergency rating (148 MVA) of its largest conductor for the loss of the Kenova – England Hill 69 kV and Chadwick – England Hill 69 kV circuits.

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Potential Solution:

Chadwick station:

Expand existing Chadwick station and install a second 138/69 kV transformer at a new 138 kV bus tied into the Bellefonte – Grangston 138 kV circuit. The 69 kV bus will be reconfigured into a ring bus arrangement to tie the new transformer into the existing 69 kV via installation of four 3000A 63 kA 69 kV circuit breakers.

Estimated Conceptual Trans. Cost: \$9.3M

Grangston Station:

Remote end will be required at Grangston station.

Estimated Conceptual Trans. Cost: \$0.5M

Bellefonte Station:

Remote end will be required at Bellefonte station.

Estimated Conceptual Trans. Cost: \$0.5M

Chadwick – Leach 69 kV:

Relocate the Chadwick – Leach 69 kV circuit within Chadwick station.

Estimated Conceptual Trans. Cost: \$0.5M

Bellefonte Grangston 138 kV circuit:

The Bellefonte – Grangston 138 kV circuit currently spans over top of Chadwick station, but does not terminate. Work will be completed to bring the circuit into Chadwick station at the newly established 138 kV bus.

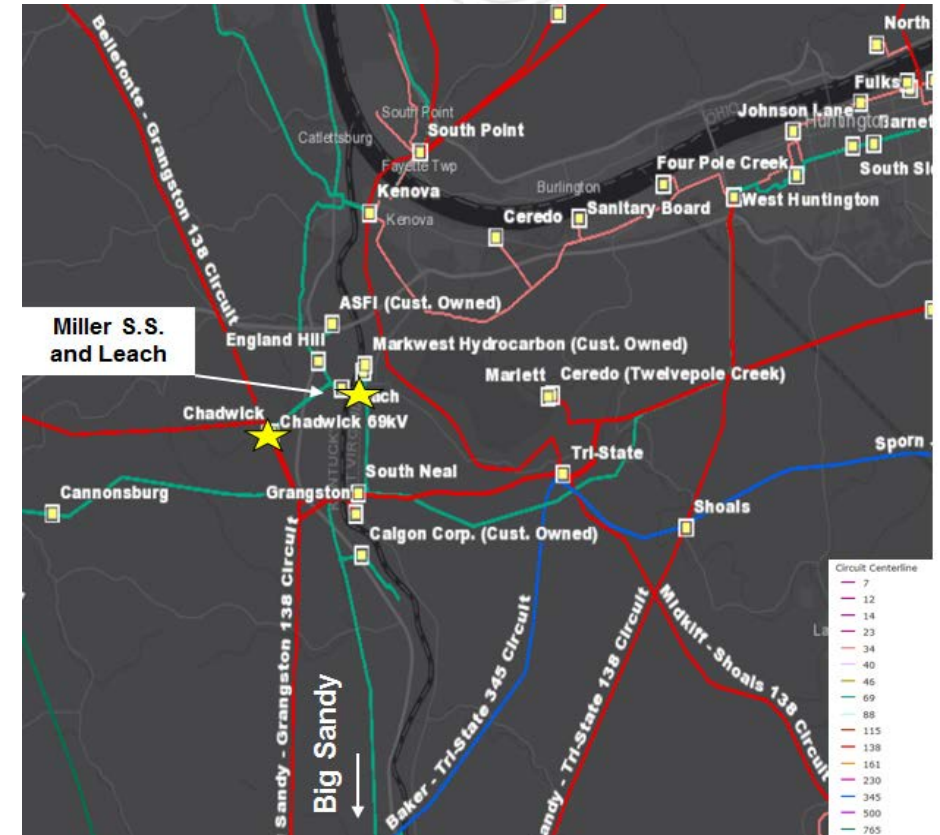
Estimated Conceptual Trans. Cost: \$1.1M

Chadwick – Tri-State #2 138 kV circuit

The existing Chadwick – Tri-State #2 138 kV circuit will be reconfigured within the station to terminate into the newly established 138 kV bus #2 at Chadwick due to constructability aspects.

Estimated Conceptual Trans. Cost: \$0.1M

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Chadwick – Leach and Chadwick – England Hill 69 kV circuits (share same structures for majority of circuits): Reconductor circuits with 795 ACSS conductor. A LiDAR survey and a sag study will need to be performed to confirm that the reconducted circuits would maintain acceptable clearances.

Estimated Conceptual Trans. Cost: \$3.3M

South Neal Station:

Replace line risers towards Leach station. Replace 20 kA 69 kV circuit breaker 'F' with a new 3000A 40 kA 69 kV circuit breaker

Estimated Conceptual Trans. Cost: \$0

Leach – Miller S.S. 69 kV line section:

Rebuild 336 ACSR portion of Leach - Miller S.S 69 kV line section (~0.3 miles) with 795 ACSS conductor.

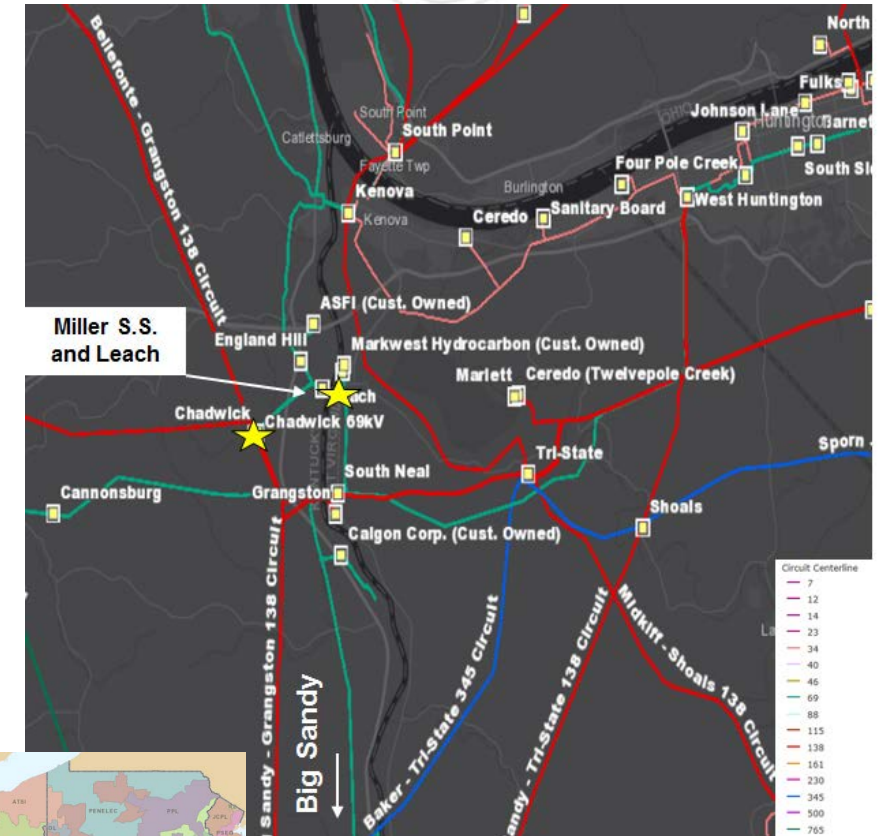
Estimated Conceptual Trans. Cost: \$1.5M

Leach Station:

Replace line risers towards Chadwick station.

Estimated Conceptual Trans. Cost: \$0.1M

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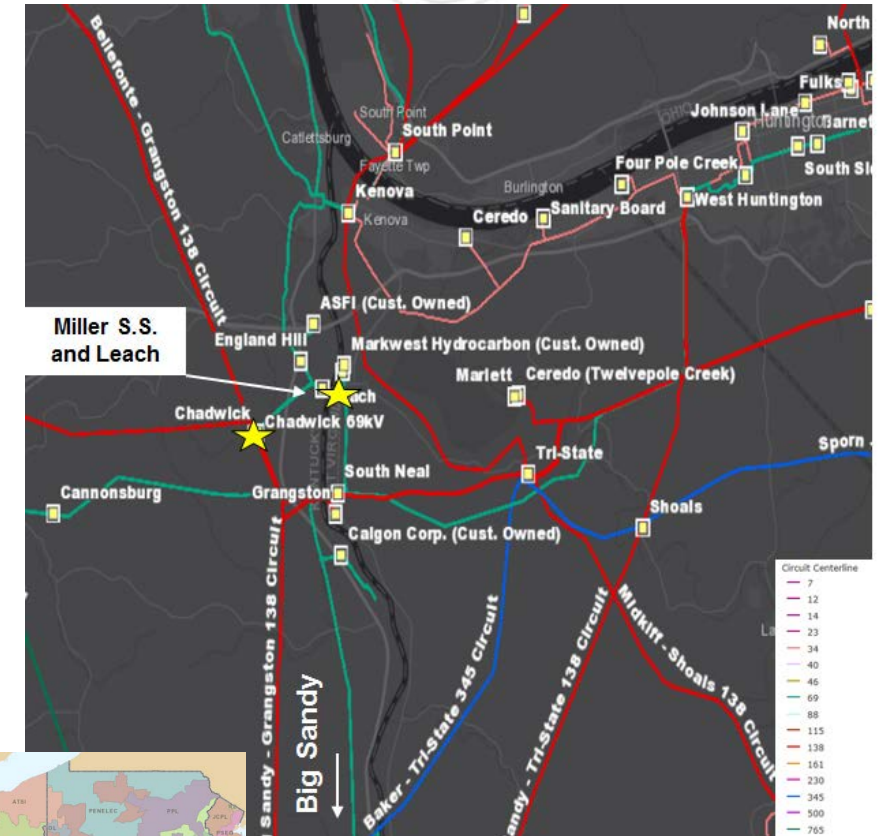


Alternate #1

Install a 138/69 kV transformer and associated breakers at South Neal station. The South Neal - Miller S.S. 69 kV line section would need to be completely reconducted or rebuilt due to increased loading from the solution. The Leach - Miller S.S. 69 kV line section would need to be rebuilt as well. The solution would also result in 69 kV circuit breaker 'F' at South Neal to exceed its interrupting capability and would need to be replaced. The existing footprint of South Neal station is not adequate to install the required 138 kV equipment. The station is bordered by US route 52 on the west, a neighborhood on the north, and significant elevation changes on the east and south. Because of this, expanding the station on the existing site isn't feasible from a constructability perspective. The station along with its four existing 69 kV and two proposed 138 kV circuits would need to be relocated to a new site. Locating a new station site close to the existing site is further complicated by the proximity of the station to the Big Sandy River and the floodplain concerns associated with it. The need to relocate the station and uncertainty of a suitable site nearby lead this alternative to be deemed not cost effective in comparison to the proposed solution.

Alternate #2

Install a 138/69 kV transformer at Grangston station. Install three new 69 kV (63 kA) breakers. Construct approximately 0.5 miles of new 69 kV line to tie into the existing Leach - South Neal circuit. Constructing the new 69 kV tie would be complicated by the need to cross two existing 138 kV circuits, a 69 kV circuit, and US Route 52. The South Neal - Miller S.S. 69 kV line section would need to be completely reconducted or rebuilt due to increased loading from the solution. The Leach - Miller S.S. 69 kV line section would need to be rebuilt as well. The solution would also result in 69 kV circuit breaker 'F' at South Neal to exceed its interrupting capability and would need to be replaced. Grangston station is currently comprised of a simple bent structure with two 138 kV breakers. The station footprint would need to be greatly expanded to accommodate a new 138/69 kV transformer, associated equipment/breakers, and two new line entrances. Expansion of the station would be difficult, if feasible at all, due to surrounding floodplains, railroads, and the IPP generation interconnected at the station. Uncertainty of a suitable site to expand the station along with the need for 69 kV lines to be constructed lead this alternative to be deemed not cost effective in comparison to the proposed solution.



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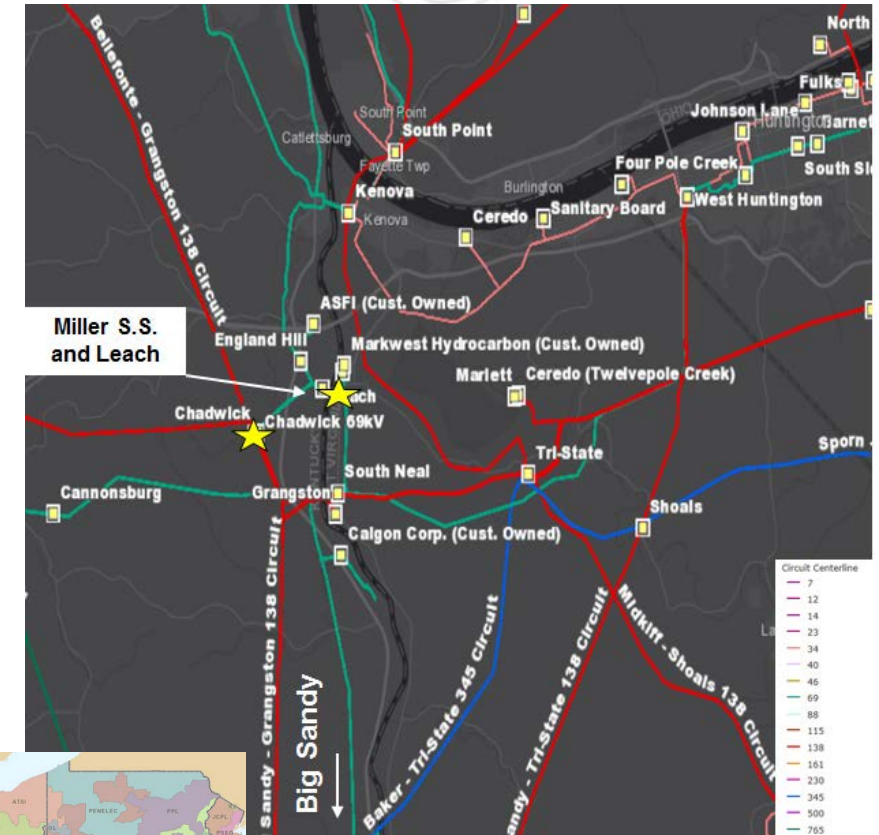
Alternate #3

Install a second 138/69 kV transformer at Chadwick station. A new 138 kV bus #2 would need to be established due to space constraints on the existing 138 kV bus #1. This alternative would involve moving the Tri State – Chadwick #2 circuit to the newly established 138 kV bus #2. The 69 kV yard would still be reconfigured into ring arrangement utilizing 3000A 63 kA circuit breakers. The solution would also result in 69 kV circuit breaker ‘F’ at South Neal to exceed its interrupting capability and would need to be replaced. Relocate the Chadwick – Leach 69 kV circuit within Chadwick station. Reconductor the Chadwick – Leach and Chadwick – England Hill 69 kV circuits with 795 ACSS conductor. A LiDAR survey and a sag study will need to be performed to confirm that the reconducted circuits would maintain acceptable clearances. Replace at South Neal line risers towards Leach station. Rebuild 336 ACSR portion of Leach - Miller S.S 69 kV line section (~0.3 miles). Replace Leach line risers towards Chadwick station. Moving the Tri State – Chadwick #2 circuit to the new 138 kV bus would create an operationally ineffective arrangement.

Required In Service Date: 6/1/2022

Projected In Service Date: 10/1/2020

Project Status: Scoping



TO Criteria Violation

Problem Statement:

In the 2022 PJM Winter RTEP case, both thermal and voltage T.O. planning criteria violations were identified.

For the loss of both transformers at Scottsville (138/46 kV T#1 & T#2 in parallel and 138/46 kV T#5 or the failure of breaker T) the Clifford 138/69-46 kV T#1 tertiary exceeds its emergency rating by (209%) and the Clifford-Gladstone Tap 46 kV and Gladstone Tap-Phoenix 46 kV line sections exceed their emergency ratings by 111% and 100% respectively. In addition, all the 46 kV bus voltages served by the Clifford-Scottsville 46 kV circuit experienced extreme low voltage magnitude and drop violations resulting a voltage collapse scenario. The 46 kV bus voltages violations include Scottsville, Esmont, Rockfish, Schuyler, Shipman, Phoenix, Gladstone, Clifford and Piney River.

Also, for the loss of both transformers at Clifford (138/69-46 kV T#1 and 138/46 kV T#3) the Scottsville 138/46 kV T#5 exceeds its emergency rating by 187% and the same 46 kV bus voltages served by the Clifford-Scottsville 46 kV circuit experience extreme low voltage magnitude and drop violations resulting in per unit voltages of 0.83 p.u. and below.



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Potential Solution:

Install a 138 kV breaker at Clifford on the line side of the 138/46 kV T#3. Replace Scottsville 138/46 kV T#5 with a 75 MVA unit. Rebuild ~36 miles of the 44 mile Clifford-Scottsville 46 kV circuit (excluding taps to Gladstone and Shipman) to 69 kV standards using 795 ACSR conductor. Increase the size of the capacitor banks at Clifford from 3.6 MVAR to 9.6 MVAR and at Scottsville from 3.6 MVAR to 5.4 MVAR.

Total Estimated Transmission Cost: \$86 M

Alternative(s):

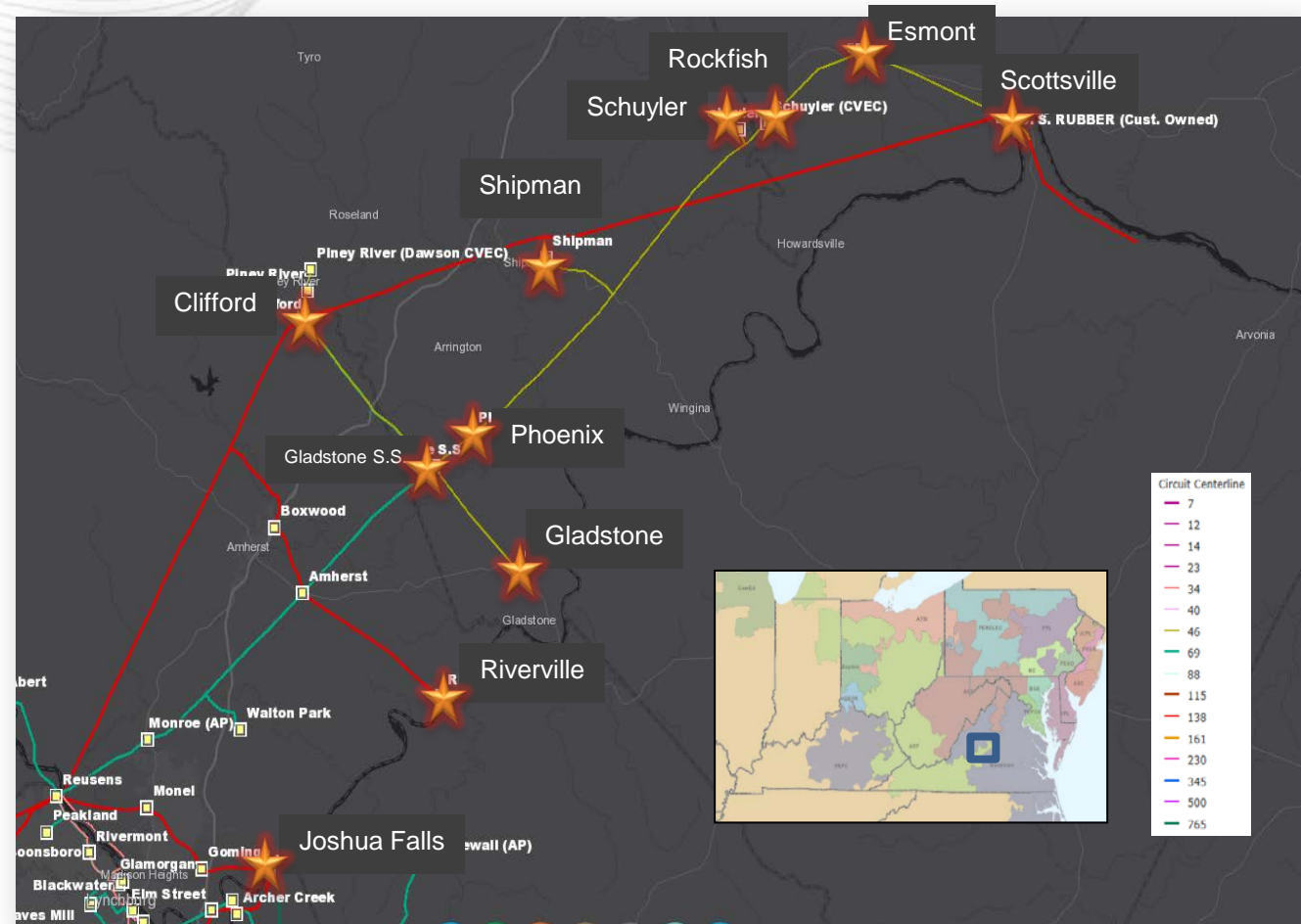
Retire approximately 38 miles of the 44 mile Clifford-Scottsville 46 kV circuit and rebuild Esmont-Scottsville (~6 mi.) to 69 kV standards and energize at 46 kV. Build new 138 kV "in and out" to two new Distribution stations to serve the load formerly served by Phoenix, Shipman, Schuyler (AEP), and Rockfish stations. Construct new 138 kV lines from Joshua Falls-Riverville (~10 mi.) and Riverville-Gladstone (~5 mi.). Install required station upgrades at Joshua Falls, Riverville and Gladstone stations to accommodate the new 138 kV circuits.

Total Estimated Transmission Cost: \$89 M

Required In-service Date: 12/1/2022

Projected In-service: 12/1/2022

Project Status: Scoping



TO Criteria Violation

Problem Statement:

In the 2022 PJM Winter RTEP, TO Criteria violation due to exceeding thermal emergency rating (105% of the 35 MVA thermal emergency rating) on Mullens 138/46 kV transformer #4 under N-1-1 contingency condition involving the loss of the Bradley – Jehu Branch 138 kV line plus the loss of the Tams Mountain – Mullens 138 kV line.

Potential Solution

Replace existing Mullens 138/46kV 30 MVA transformer #4 with a new 138/46 kV 90 MVA transformer.

Total Estimated Transmission Cost: \$3.0M

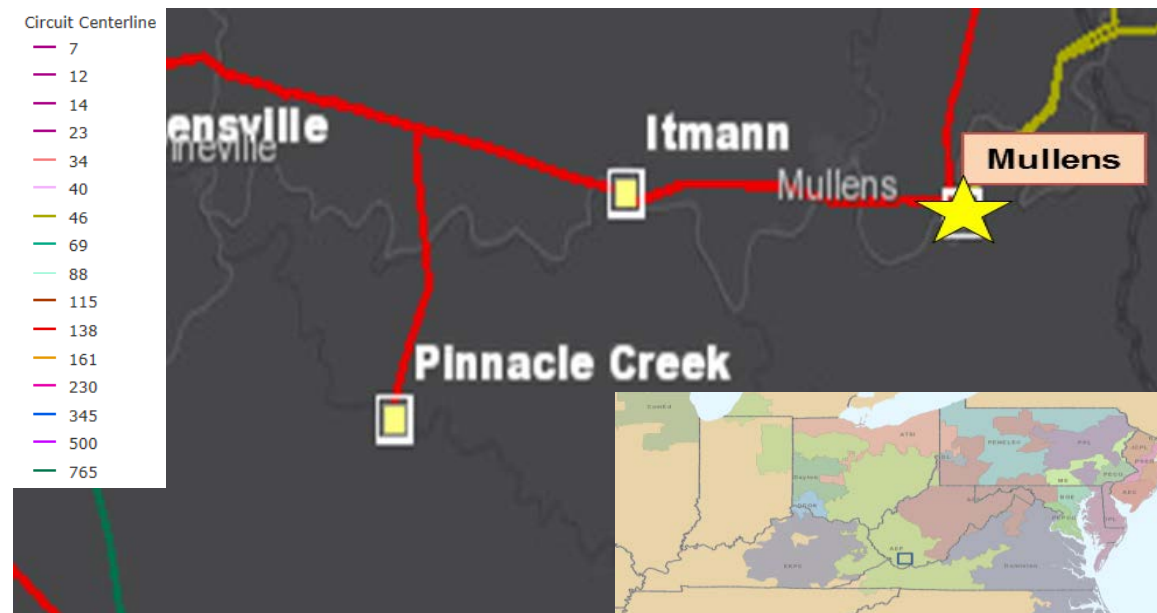
Alternatives:

No viable transmission alternative.

Required In-service Date: 12/1/2022

Projected In-service Date: 6/1/2022

Project Status: Scoping

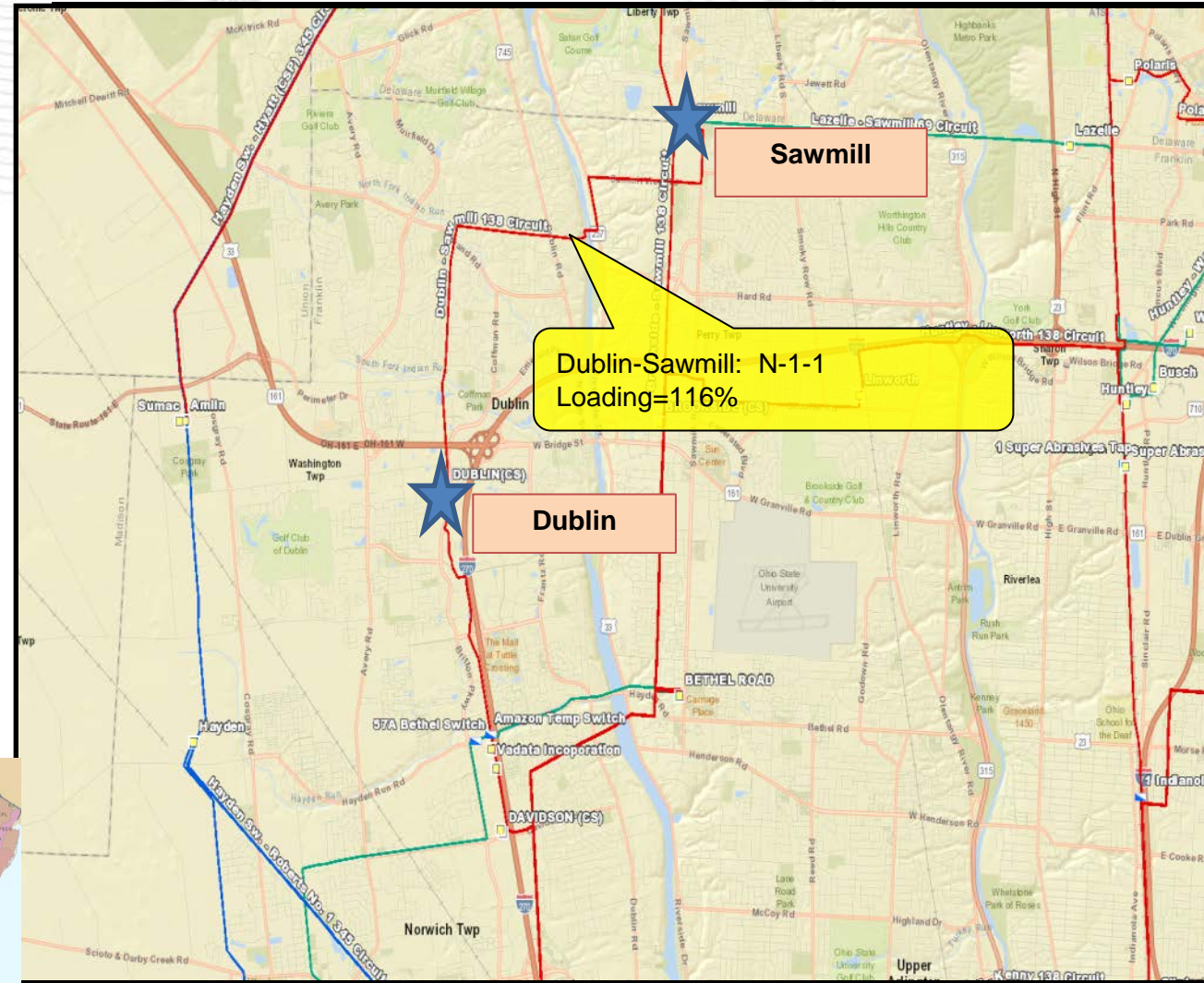


TO Criteria Violation

Problem Statement:

Due to load increase in the area (Jug Street, Sumac, and Britton), the Dublin-Sawmill 138kV circuit will be overloaded to 116% under N-1-1 conditions involving the loss of Bethel-Davidson 138kV & Davidson-Roberts 138kV circuits starting in 2022.

Additionally, AEP-Ohio has requested a third 138kV source to Dublin station to maintain acceptable reliability levels for the load at risk. Dublin Station serves 75 MVA of peak demand with minimal load transfer capability. Dublin station serves some critical loads.



Proposed Solution:

Construct a single circuit line (~3.5 miles) from Amlin to Dublin using 1033 ACSR Curlew (296 MVA SN), convert Dublin Station into a ring configuration, and re-terminating the Britton UG cable to Dublin Station. The Dublin-Sawmill 138kV line will remain in service.

Alternatives:

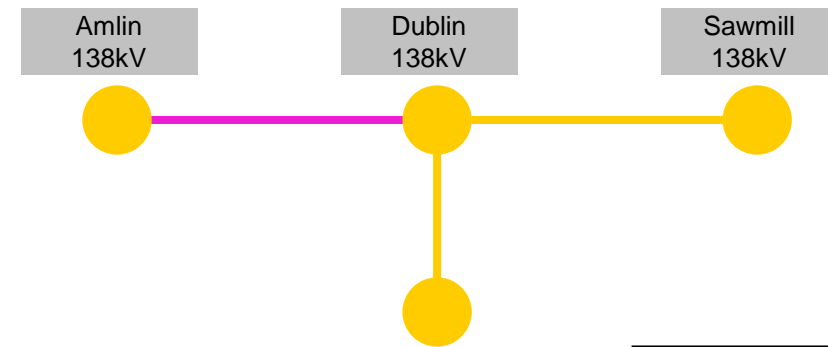
- Rebuild Dublin-Sawmill as double circuit overhead with larger conductor, not cost effective due to too many houses in the right of way. (Estimated Cost: \$63.72M)
- Construct Amlin-Dublin as double circuit, second circuit entering Sumac station and retire Dublin-Sawmill, not cost effective either. (Estimated Cost: \$44.3M - \$60.6M)








Total Estimated Transmission Cost: \$39.29M

Required IS Date: 6/1/2022

Projected IS Date: 6/1/2020

Project Status: Scoping/Engineering



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

Second Review

Baseline Reliability Projects

TO Planning Criteria Violation(Previously Presented: 1/11/2019 SRRTEP)

Problem Statement:

In the 2022 PJM Winter RTEP, a TO Criteria violation was identified due to exceeding the thermal emergency rating (106% of the 66 MVA thermal emergency rating) on Chemical transformer #2 under a N-1-1 contingency condition involving the loss of the Chemical transformer #6 (which includes the loss of XFR #4, Chemical – Turner 138 kV line and Chemical – Ortin 138 kV, due to the loss of 138 kV bus #1) paired with the loss of the Capitol Hill – Chemical 138 kV line (which includes the loss of XFR #1, due to it's existing configuration on the line).

Potential Solution:

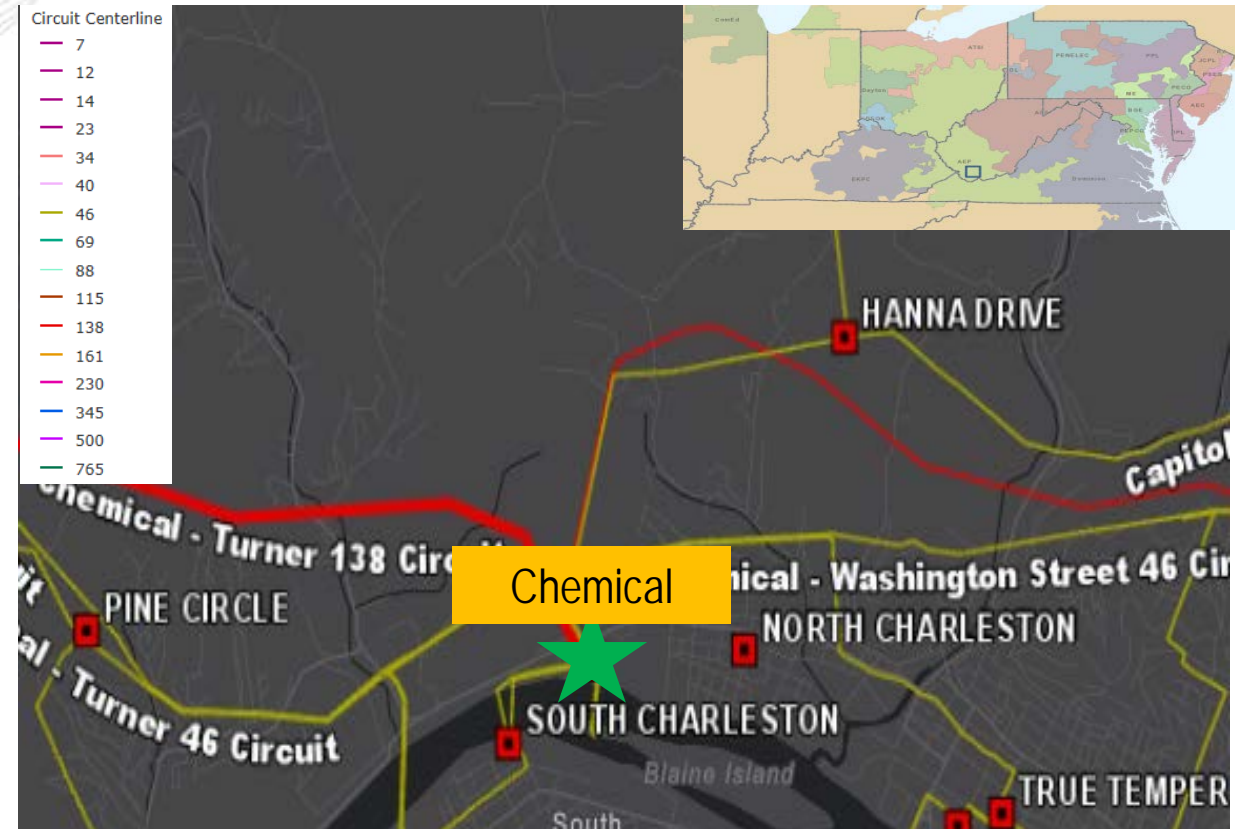
Replace 138kV MOAB switch "YY" with a new 138kV circuit switcher on the high side of Chemical XFR #6. (B3100)

Estimated Transmission Cost: \$0.7M

Required In-service: 12/1/2022

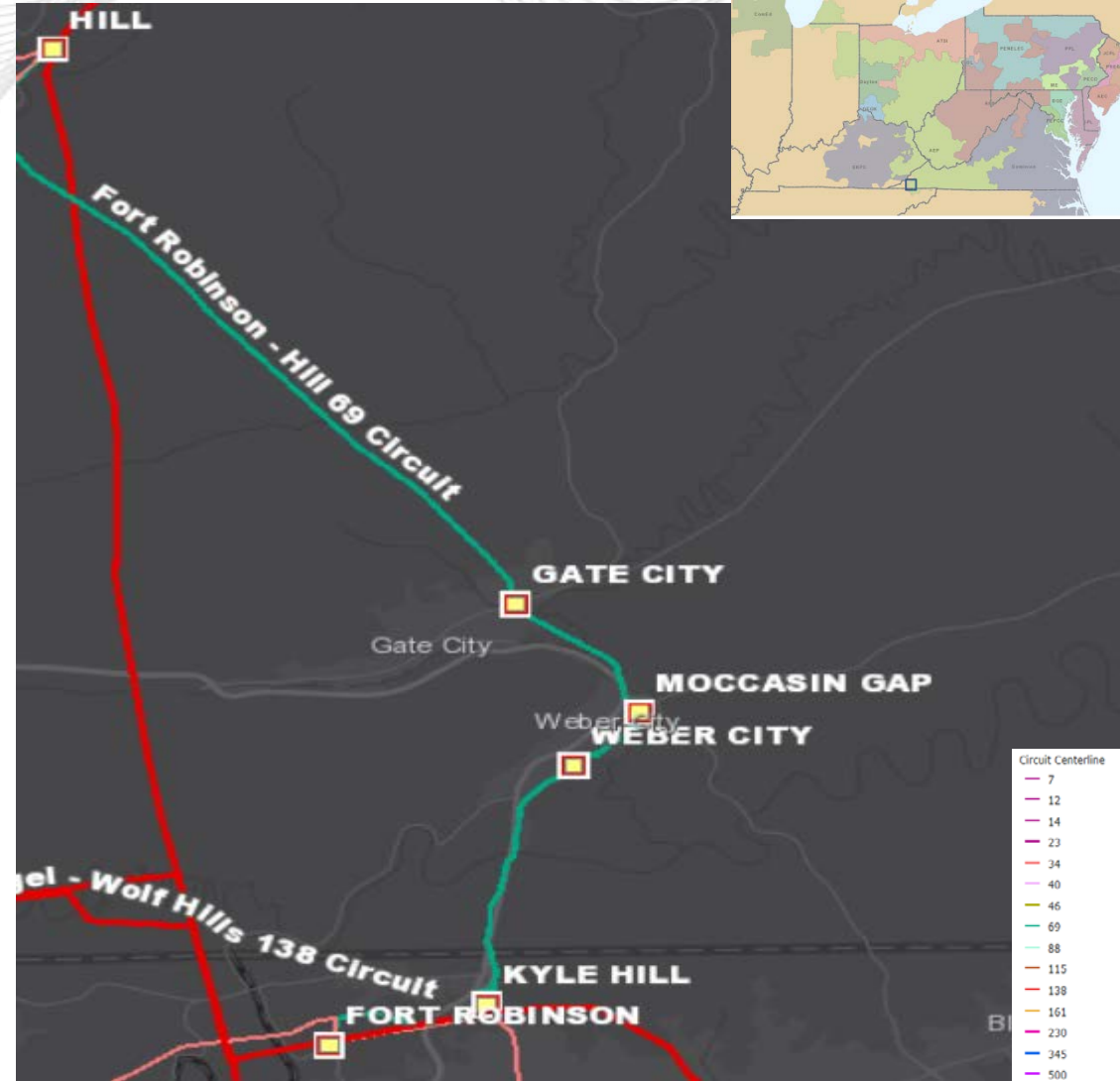
Projected In-service: 12/1/2022

Project Status: Scoping





AEP Transmission Zone: Baseline Fort Robinson – Moccasin Gap 69 kV Line Section Replacements



TO Planning Criteria Violation(Previously Presented: 1/11/2019 SRRTEP)

Problem Statement:

The Fort Robinson – Moccasin Gap 69 kV line section (~5 miles) will load to 105% (2023 RTEP) of its winter emergency rating (48 MVA) for the loss of the Hill – Gate City 69 kV line section.

The line will also overload for loss of the Hill 138/69/34.5 kV transformer or the Clinch River – Nagel 138 kV circuit

Selected Solution:

Rebuild the 1/0 Cu. conductor sections (~1.5 miles) of the Fort Robinson - Moccasin Gap 69 kV line section (~5 miles) utilizing 556 ACSR conductor and upgrade existing relay trip limit (WN/WE: 63 MVA , line limited by remaining conductor sections). (B3101)

Estimated Cost: \$3.0 M

Required IS Date: 12/1/2023

Projected In-service: 9/1/2022

Project Status: Scoping



AEP Transmission Zone: Baseline Fremont Station Transformer Replacements

TO Planning Criteria Violation(Previously Presented: 1/11/2019 SR RTEP)

Problem Statement:

The existing Fremont 138/69 kV transformers #1 and #2 (both 1957 vintage) will overload to ~120% (2022 RTEP) of their winter emergency rating (70 MVA) for loss of the Garden Creek – Clinch River 138 kV circuit paired with a loss of one of the aforementioned 138/69 kV transformers at Fremont.

The existing Fremont 138/69 kV transformers #1 and #2 (both 1957 vintage) will overload to ~111% (2022 RTEP) of their winter emergency rating (70 MVA) for loss of the Clinchfield 138/69 kV transformer paired with a loss of one of the aforementioned 138/69 kV transformers at Fremont.

Selected Solution:

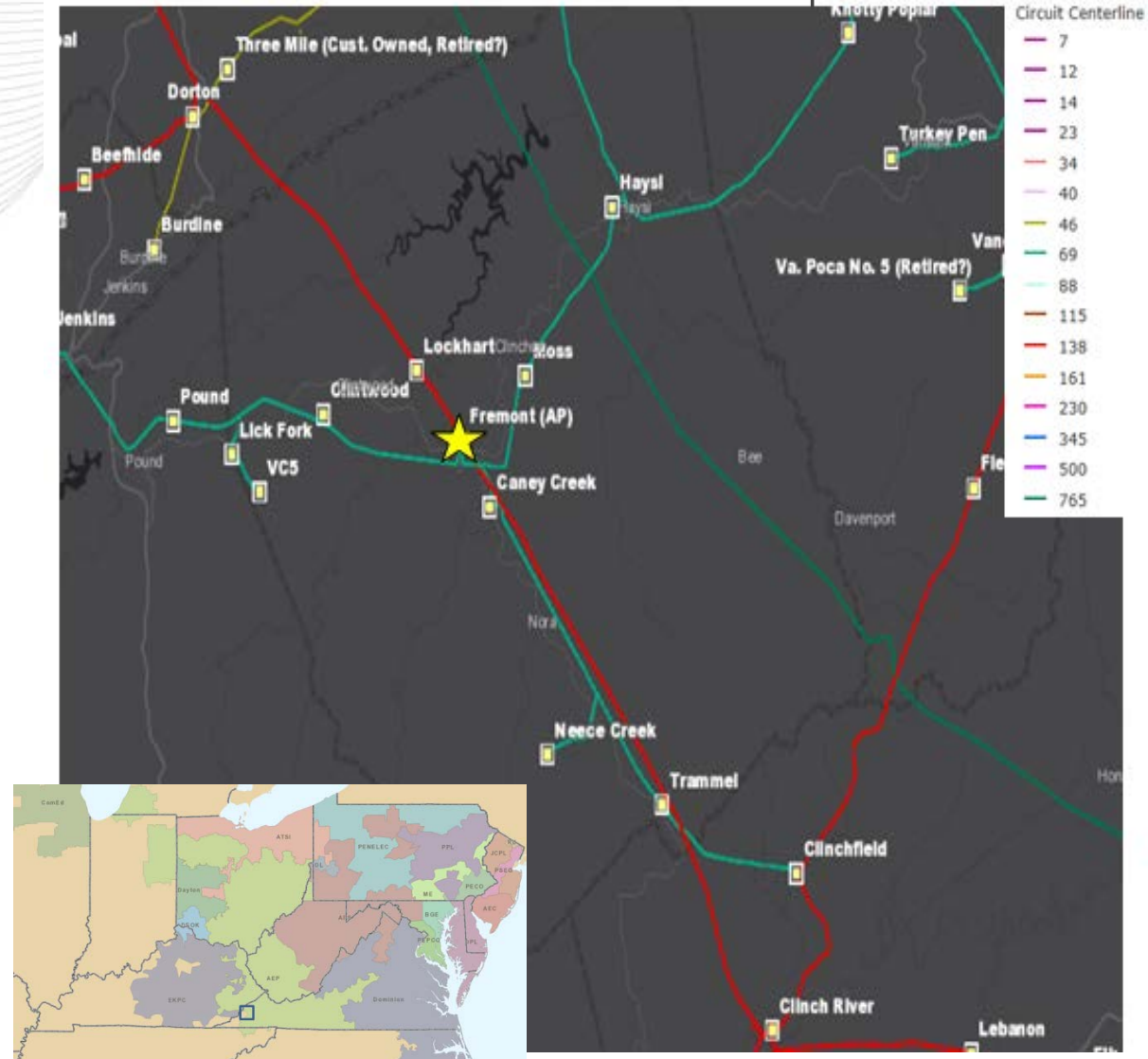
Replace existing 50 MVA 138/69 kV transformers #1 and #2 (both 1957 vintage) at Fremont station with new 130 MVA 138/69 kV transformers. (B3102)

Estimated Cost: \$4.1 M

Required In-service: 12/1/2022

Projected In-service: 12/1/2020

Project Status: Scoping



TO Planning Criteria Violation (Previously Presented: 1/11/2019 SRRTEP)

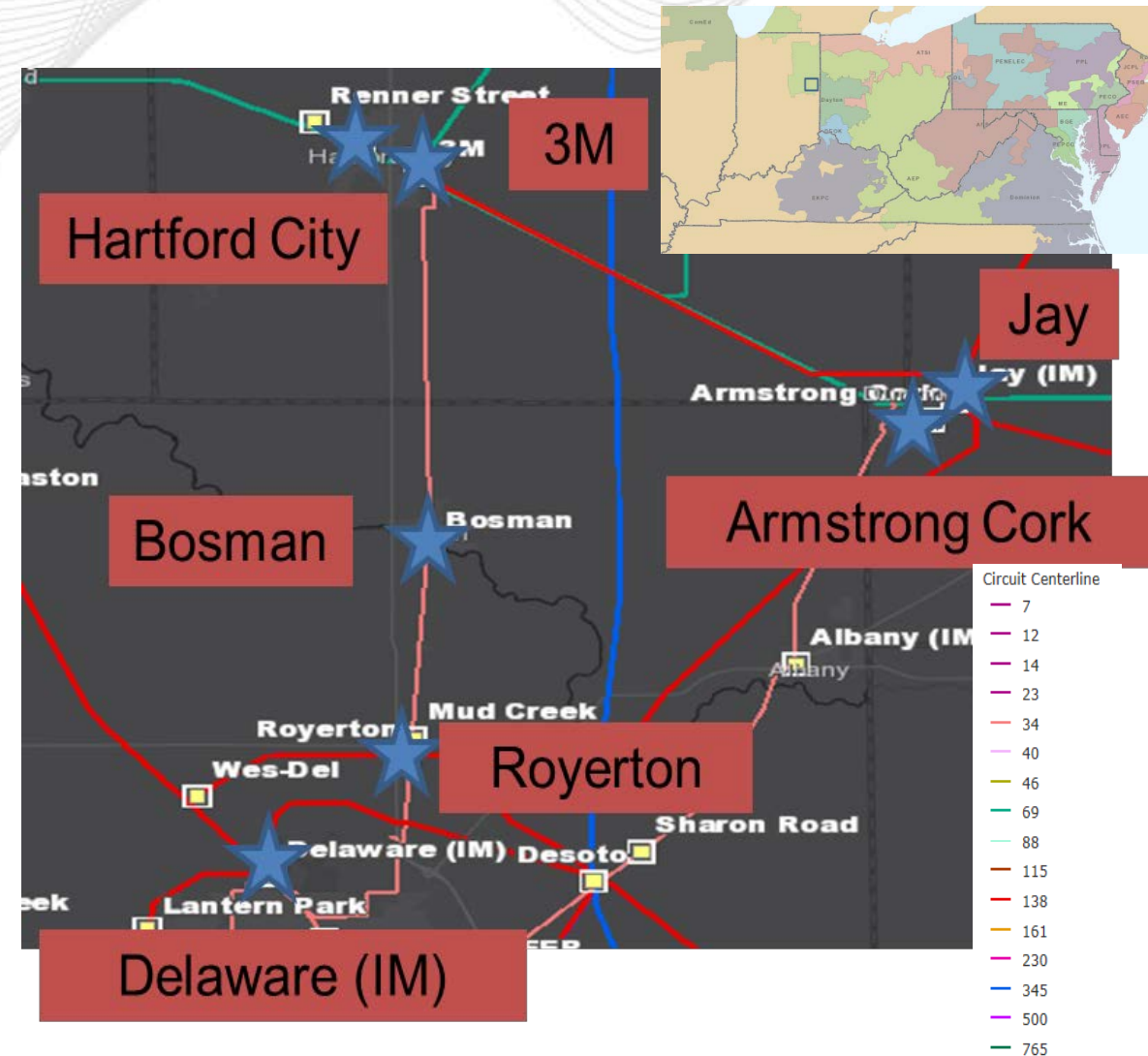
Problem Statement

The following overloads were identified in the 2022 and 2023 RTEP Summer case with corrected Armstrong Cork load model (about 10MW more).

For loss of the Jay and Deer Creek 138/69/34.5kV banks, the following overloads occur.

- Delaware – Bosman 34.5kV: 147% overload of the 23MVA 3/0 CU conductor and 125% overload of the 27MVA 4/0 CU conductor
- Bosman – Hartford 34.5kV: 105% overload of the 23MVA 3/0 CU conductor.
- Upon loss of Deer Creek 138/69/34.5kV transformer and Bosman – Delaware 34.5kV line, the following overloads occur:
 - Armstrong Cork – Fulkerson 69kV line overloads 113% past it's 46MVA 3/0 CU and 103% past its 50MVA 4/0 ACSR ratings.
 - Fulkerson – 3M 104% past its 46MVA 3/0 CU rating
- This issue has been verified by the high amount of PCLLRW's in the area. This area has received PCLLRW's on 2/26/2018 (2 different instances this day due to Deer Creek 138/69/34.5kV transformer being out.), 2/6/2018, 1/9/2018, 7/24/17, 7/14/17 for loss of Jay transformer with several of these PCLLRW's lasting multiple days.

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Selected Solution :

Royerton : Install a 138/69kV transformer. Install a 69kV bus with one 69kV breaker toward Bosman station. Rebuild the 138kV portion into a ring bus configuration built for future breaker and a half with 4 138kV breakers **(B3103.1) Estimated Trans Cost: \$10.251M**

Bosman/Strawboard: Rebuild this station in the clear across the road to move it out of the flood plain and bring it up to 69kV standards. **(B3103.2) Estimated Trans Cost: \$4.474M**

Delaware: Retire Breaker L and re-purpose M for the Jay line. **(B3103.3) Estimated Trans Cost: \$0.176M**

Hartford City: Retire all 34.5kV equipment. Re-purpose breaker M for the Bosman line 69kV exit. **(B3103.4) Estimated Trans Cost: \$0.875 M**

Jay: Rebuild the 138kV portion of this station as a 6 breaker, breaker and a half station re-using the existing breakers "A", "B" and "G". Rebuild the 69kV portion of this station as a 6 breaker ring bus re-using the 2 existing 69kV breakers. Install a new 138/69kV transformer. **(B3103.5) Estimated Trans Cost: \$18.732 M**

Hartford City – Jay: Rebuild the 69kV Hartford City – Armstrong Cork line but instead of terminating it into Armstrong Cork, terminate it into Jay station. **(B3103.6) Estimated Trans Cost: \$21.12M**

Armstrong Cork – Jay #2: Build a new 69kV line from Armstrong Cork – Jay station. **(B3103.7) Estimated Trans Cost: \$2.347M**

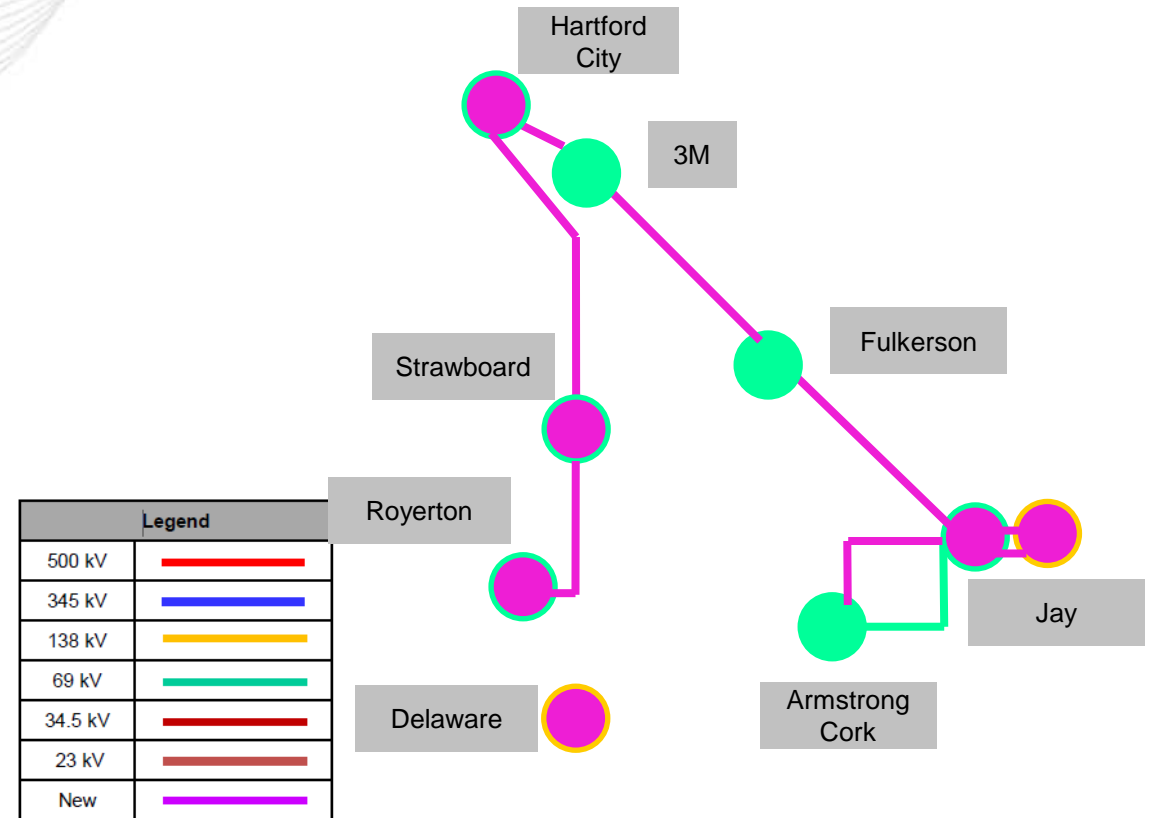
Delaware – Bosman: Rebuild the 34.5kV Delaware – Bosman line as the 69kV Royerton – Strawboard line. Retire from Royerton – Delaware station. **(B3103.8) Estimated Trans Cost: \$12.78 M**

Total Estimated Transmission Cost: \$70.75M

Required IS Date: 6/1/2022

Projected IS Date: 6/1/2022

Project Status: Scoping





AEP Transmission Zone: Baseline Holston Circuit Switcher Installation

TO Planning Criteria Violation (Previously Presented: 1/11/2019 SRRTPEP)

Problem Statement:

In the 2022 PJM Summer Case, TO criteria thermal violations exist in the Kingsport 34.5 kV sub-transmission network for the outage of the 138/34.5 kV transformer #5 at Holston paired with the loss of the Nagel – Reedy Creek 138 kV circuit:

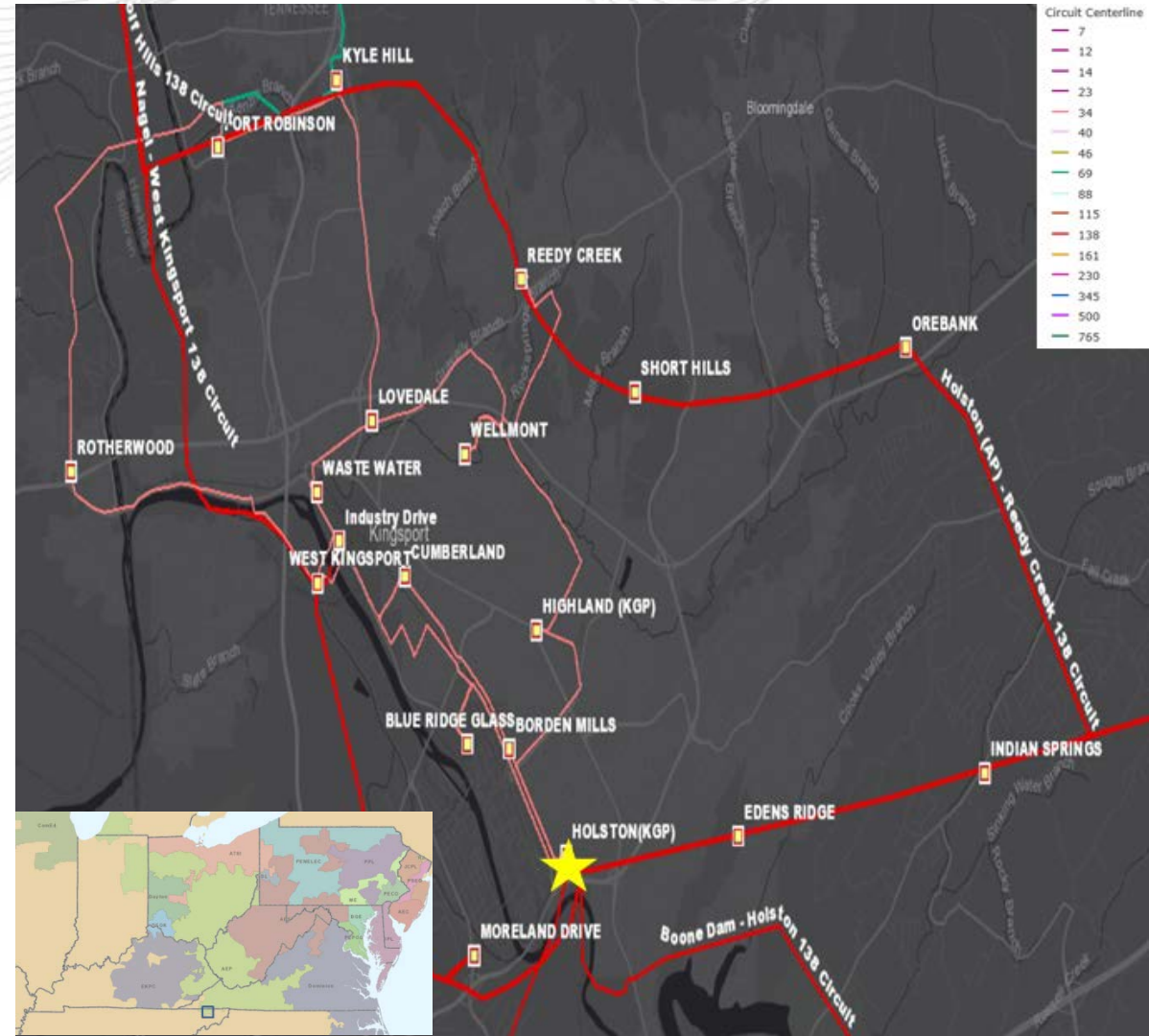
- The Holston – Highland 34.5 kV line section (~2.5 mi.) will load to 130% of its summer emergency rating (27 MVA).
- The Lovedale – Arbutus S.S. 34.5 kV line section (~1.8 mi.) will load to 154% of its summer emergency rating (35 MVA).
- The Lovedale – Waste Water 34.5 kV line section (~1.0 mi.) will load to 115% of its summer emergency rating (30 MVA).
- The Lovedale – Kyle Hills Sw. 34.5 kV line section (~2.2 mi.) will load to 106% of its summer emergency rating (35 MVA).
- The Reedy Creek – Arbutus S.S. 34.5 kV line section (~1.6 mi.) will load to 177% of its summer emergency rating (37 MVA).
- The West Kingsport – Waste Water 34.5 kV line section (~ 0.7mi.) will load to 116% of its summer emergency rating (30 MVA).
- The West Kingsport 138/34.5 kV transformer #1 will load to 106% of its summer emergency rating (60 MVA).
- The Reedy Creek 138/69/34.5 kV transformer #1 will load to 106% of its summer emergency rating (39 MVA).

Voltage Magnitude issues are also observed for the same contingency pair at the following stations in the area: Orebank (0.63 pu), Short Hills (0.63 pu), and Reedy Creek 69 kV (0.71 pu)

Voltage Deviation issues are also observed for the same contingency pair at the following stations in the area: Orebank (44%), Short Hills (44%), Reedy Creek 69 kV (40%), Highland (13%), Wellmont (16%), Lovedale (11%), and Waste Water (10%)

The contingency pair listed above resulted in a non-convergence scenario within the 2022 Winter Case.

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Selected Solution:

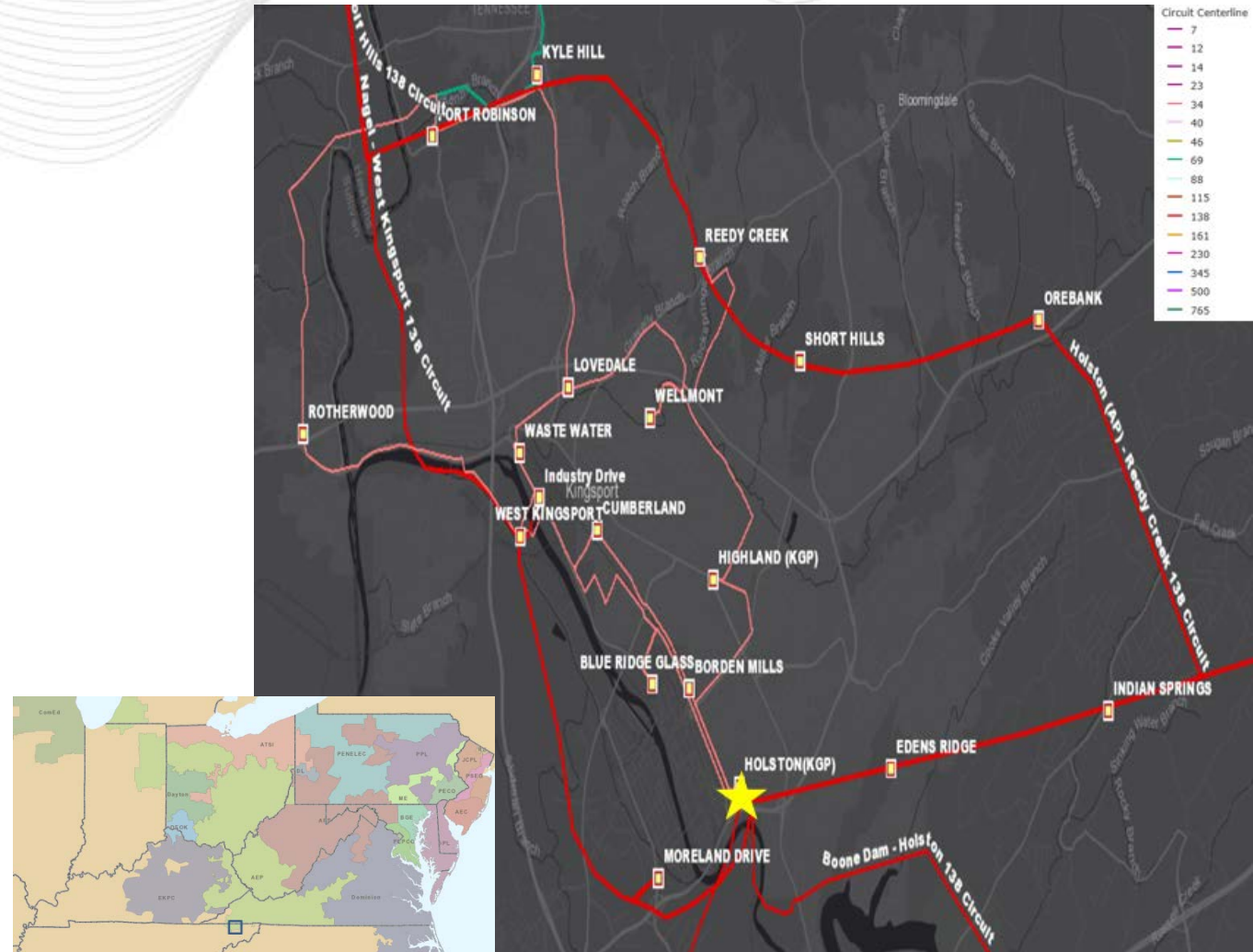
Install a 138 kV 3000A 40 kA circuit switcher on the high side of the existing 138/34.5 kV transformer #5 at Holston station. (B3099)

Estimated Cost: \$0.7 M

Required In-service: 6/1/2022

Projected In-service: 6/1/2022

Project Status: Scoping



Next Steps

Upcoming Western SRRTEP Dates

West	Start	End
3/28/2019	12:00	4:00
4/23/2019	12:00	4:00
5/20/2019	12:00	4:00
6/17/2019	12:00	4:00

Questions?



Revision History

2/13/2019 – V1 – Original version posted to pjm.com

3/6/2019 – V2 – Slide #18, Add estimated costs for alternatives
– Slide #17, Change to TO Criteria Violation

3/14/2019 – V3 – Slide #6, Change B3104 to B3019