



Reliability Analysis Update

Transmission Expansion Advisory
Committee

November 14, 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 Exclusion: 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)
 - Substation Equipment Exclusion: 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)

2019 RTEP Analysis Update

Retool study assumptions :

- The reinstatements of Davis Besse 1 (896MW), Perry 1 (1247MW), and Sammis 5-7 (1491MW)
- Remove B3005, B3013, B3014, B3010, B3011.6, B3012.3, B3012.4, B3017, B3061, B3062, B3063, B3065, B3065, B3066, B3067, B3068, B3069, B3070, B3071, B3072, B3073, B3074, B3075, B3076, B3077, B3078, B3079, B3080, B3081, B3082, B3083

Scope of the study :

- Summer
 - Generator Deliverability, Baseline Analysis, Load Deliverability, N-1-1
- Winter
 - Generator Deliverability, Baseline Analysis, Load Deliverability, N-1-1
- Light Load
 - Generator Deliverability, Baseline Analysis

Removed Flowgates:

- Kammer – Gorge Washington 138KV line (GD-S10, GD-S539, GD-W444)
- Haviland 138kV tie (GD-W272)
- Wilton 765/345kV transformer #94 (GD-W252, GD-W253)
- Wilton 765/345kV transformer #93 (GD-W257, GD-W258)
- Brighton – Alcoa 138 kV (GD-S544, N2-ST3, N2-ST4)
- Richland – Ridgeville 138 kV (GD-S9)
- Bartonville 138 kV (Z1-113 Area) (N2-WVD2, N2-WVD3, N2-WVD4, N2-WVD5, N2-WVD6, N2-WVD7, N2-WVD8, N2-WVD9, N2-WVD10)

New issues found in retool:

- Flowgates caused by suspended queue generation – no solution will be pursued at this time

Fr Bus	Fr Name	To Bus	To Name	CKT	kVs	Areas	Cont Name	ContType	Rating	Final DC %LD	Final AC %LD	Suspended queue
24606705	NATRIUM34	24304905	NATRIUM12	Z1	138	205	AEP_P2-2_#8897_05NATRIU 138_2	Bus	240	97.07	100.28	AA2-119, AC1-055, AC1-097
24606705	NATRIUM34	24304905	NATRIUM12	Z1	138	205	AEP_P4_#8897_05NATRIU 138_H	Breaker	240	97.07	100.28	AA2-119, AC1-055, AC1-097

- Potential Violation:
 - Hayes 345/138 kV Transformer overloaded in retooled 2024 Winter Generator Deliverability Testing for tower contingency removing two 345 kV lines in the Hayes area – review of analysis underway

First Review

Baseline Reliability Projects



ATSI Transmission Zone: Baseline Leroy Center – Pawnee Tap 138 kV

Process Stage: First Review

Criteria: Summer N-1-1 Thermal

Assumption Reference: 2024 RTEP assumption

Model Used for Analysis: 2024 RTEP summer case

Proposal Window Exclusion: 200 kV

Problem Statement: Leroy Center – Pawnee Tap 138 kV line is overloaded for N-1-1 the loss of the Juniper – Northfield 138 kV and Nash – Painesville 138 kV lines. (N2-ST5, N2-ST6)

Existing Facility Rating:

Leroy Center – Pawnee 138 kV: 115/115 (SN/SE)

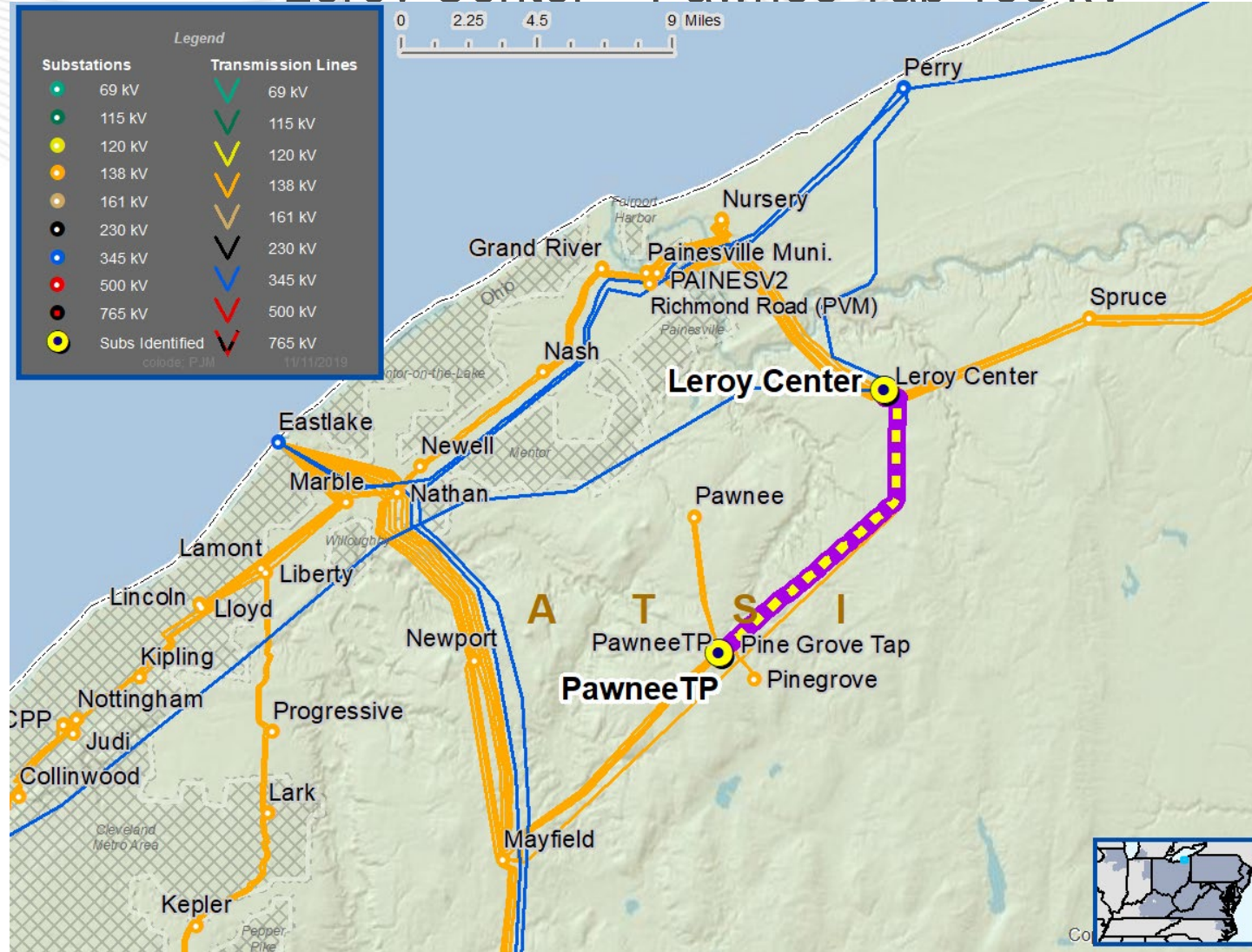
Proposed Solution:

Reconductor the 8.4 mile section of the Leroy Center - Mayfield Q1 line between Leroy Center - Pawnee Tap to achieve a rating of at least 160 MVA / 192 MVA (SN/SE).

Estimated Cost: \$14.1M

Alternatives: N/A

Required In-Service: 6/1/2024



- Complete Deactivation re-tool
- Begin presenting window violation solutions
- Continue stability studies
- Continue other studies (e.g. 15 year analysis, outage analysis, etc.)

Questions?



2019

- TEAC meetings are the following Thursdays in 2019
- 1/10, 2/7, 3/7, 4/11, 5/16, 6/13, 7/11, 8/8, 9/12, 10/17, 11/14, 12/12.

- V1 – 11/07/2019 – Original slides posted
- V2 – 11/12/2019 – Slide 8 Cost added