TEAC: AEP Supplemental Projects

January 1, 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



Need Number: AEP-2021-AP001

Process Stage: Needs Meeting 1/6/2021

Supplemental Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference: AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

Problem Statement: Cloverdale Station:

- Transformer 11A was manufactured in 1972 with identified upward trending insulation power factor which indicates increased
 particles in the oil as well as elevated levels of ethylene indicating increased decomposition of the insulating paper materials,
 decreasing the units ability to withstand electrical faults
- Unit leaks oil

345/138 kV Transformer #11A

 Connected in parallel with transformer 11B; high-side connected directly to 345 kV bus #1 exposing it to faults and scheduled maintenance outages

345/138 kV Transformer #11B

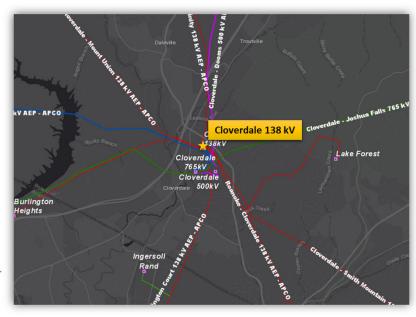
- Transformer 11B was manufactured in 1997 with increased tertiary bushing power factor indicating capacitive layer deterioration. The change in bushing dielectric data indicates the tertiary bushings are at greater risk of failure or loss of service of the transformer. Also, observed elevated levels of carbon monoxide and carbon dioxide indicates decomposition of the paper insulation that impairs the units ability to withstand future short circuit or through fault events
- Unit leaks oi
- Connected in parallel with transformer 11A; high-side connected directly to 345 kV bus #1 exposing it to faults and scheduled maintenance outages

345/138 kV Transformer #3

- High-side connected to 345 kV bus #2 via Motor Operated Air-Break Switch (MOAB) exposing the bus to momentary transformer fault events
- 31 of the 94 microprocessor relays in the Cloverdale 138 kV Station utilize obsolete firmware
- 69 kV hook-stick circuit breaker and switcher disconnect switches identified in need of replacement with Gang Operated Air-Breaker Switches (GOAB)

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AEP Transmission Zone M-3 Process Troutville, VA Area





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 | Activity | Timing |
| Supplemental Projects & Local Plan | 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

12/23/2020 – V1 – Original version posted to pjm.com