PJM TEAC Committee
FirstEnergy Supplemental Projects
APS/Penelec/Met-Ed

July 11, 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:** PN-2019-026, PN-2019-034, and APS-2019-010  
**Process Stage:** Need Meeting 7/11/2019  
**Project Driver:**  
*Equipment Material Condition, Performance and Risk*  
*Operational Flexibility and Efficiency*  
**Specific Assumption Reference:**  
System Performance Projects Global Factors  
- System reliability and performance  
- Substation/line equipment limits  
Upgrade Relay Schemes  
- Relay schemes that have a history of misoperation  
- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)  
- Communication technology upgrades  
- Bus protection schemes  

**Continued on next slide...**
Problem Statement:

- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform adequately during a fault.
- In many cases the protection equipment cannot be repaired due to a lack of replacement part and available expertise in the outdated technology.

<table>
<thead>
<tr>
<th>Need Number</th>
<th>Transmission Line / Substation Locations</th>
<th>Existing Line Rating (SN / SE)</th>
<th>Existing Conductor Rating (SN / SE)</th>
<th>Limiting Terminal Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS-2019-010</td>
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</table>
**Need Number:** PN-2019-032  
**Process Stage:** Need Meeting 7/11/2019  
**Project Driver:**  
*Equipment Material Condition, Performance and Risk*  
**Specific Assumption Reference:**  
Substation Condition Rebuild/Replacement  
- Power transformers and load tap changers (LTCs)  
- Station system protection and controls  

**Problem Statement:**  
Homer City North 345/230-23 kV Transformer  
- Transformer has increased failure probability due to:  
  - Type “U” bushings  
  - High level heating gases and moisture  
  - Deteriorated control cabinet components  
  - Obsolete parts  
  - Leaks  
  - Transformer is 51 years old.  

Transformer circuit rating is the existing transformer rating of 653/697 MVA (SN/SE).
Need Number: PN-2019-033

Process State: Need Meeting 7/11/2019

Project Driver:

*Equipment Material Condition, Performance and Risk*

Specific Assumption Reference:

Line Condition Rebuild/Replacement

- Age/condition of wood pole transmission line structures

Problem Statement:

The Armstrong – Homer City 345 kV line is exhibiting deterioration resulting in increased maintenance. The structures are approaching end of life. The line was originally constructed in 1967.

- Total line distance is approximately 34.5 miles
- 167 out of 204 structures failed inspection (82% failure rate)
- Failure reasons include age, woodpecker damage, top rot, bayonet top, and weatherization.
Need Number: ME-2019-030

Process State: Need Meeting 7/11/2019

Project Driver: Customer Service

Specific Assumption Reference:
Customer request will be evaluated per FirstEnergy’s “Requirements for Transmission Connected Facilities” document and “Transmission Planning Criteria” document.

Problem Statement:
New Customer Connection – A customer requested 230 kV service; anticipated load of approximately 27 MVA; location is near the PPL Martins Creek – Siegfried #2 230 kV line.

Requested in-service date is 6/1/2021
Appendix
### High level M-3 Meeting Schedule

#### Assumptions

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posting of TO Assumptions Meeting information</td>
<td>20 days before Assumptions Meeting</td>
</tr>
<tr>
<td>Stakeholder comments</td>
<td>10 days after Assumptions Meeting</td>
</tr>
</tbody>
</table>

#### Needs

<table>
<thead>
<tr>
<th>Activity</th>
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</tr>
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<tbody>
<tr>
<td>TOs and Stakeholders Post Needs Meeting slides</td>
<td>10 days before Needs Meeting</td>
</tr>
<tr>
<td>Stakeholder comments</td>
<td>10 days after Needs Meeting</td>
</tr>
</tbody>
</table>

#### Solutions

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>TOs and Stakeholders Post Solutions Meeting slides</td>
<td>10 days before Solutions Meeting</td>
</tr>
<tr>
<td>Stakeholder comments</td>
<td>10 days after Solutions Meeting</td>
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</tbody>
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#### Submission of Supplemental Projects & Local Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timing</th>
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</thead>
<tbody>
<tr>
<td>Do No Harm (DNH) analysis for selected solution</td>
<td>Prior to posting selected solution</td>
</tr>
<tr>
<td>Post selected solution(s)</td>
<td>Following completion of DNH analysis</td>
</tr>
<tr>
<td>Stakeholder comments</td>
<td>10 days prior to Local Plan Submission for integration into RTEP</td>
</tr>
<tr>
<td>Local Plan submitted to PJM for integration into RTEP</td>
<td>Following review and consideration of comments received after posting of selected solutions</td>
</tr>
</tbody>
</table>
Revision History

07/01/2019 – V1 – Original version posted to pjm.com
07/11/2019 – V2 – Corrected Project Driver for ME-2019-030 (Slide #7)