# Subregional RTEP Committee – Mid-Atlantic
# FirstEnergy (Penelec) Supplemental Projects

July 16, 2020

# 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

# Penelec Transmission Zone M-3 Process

## Hooversville – Somerset HD 115 kV Line

**Need Number:** PN-2020-016

**Process Stage:** Needs Meeting 07/16/2020

**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

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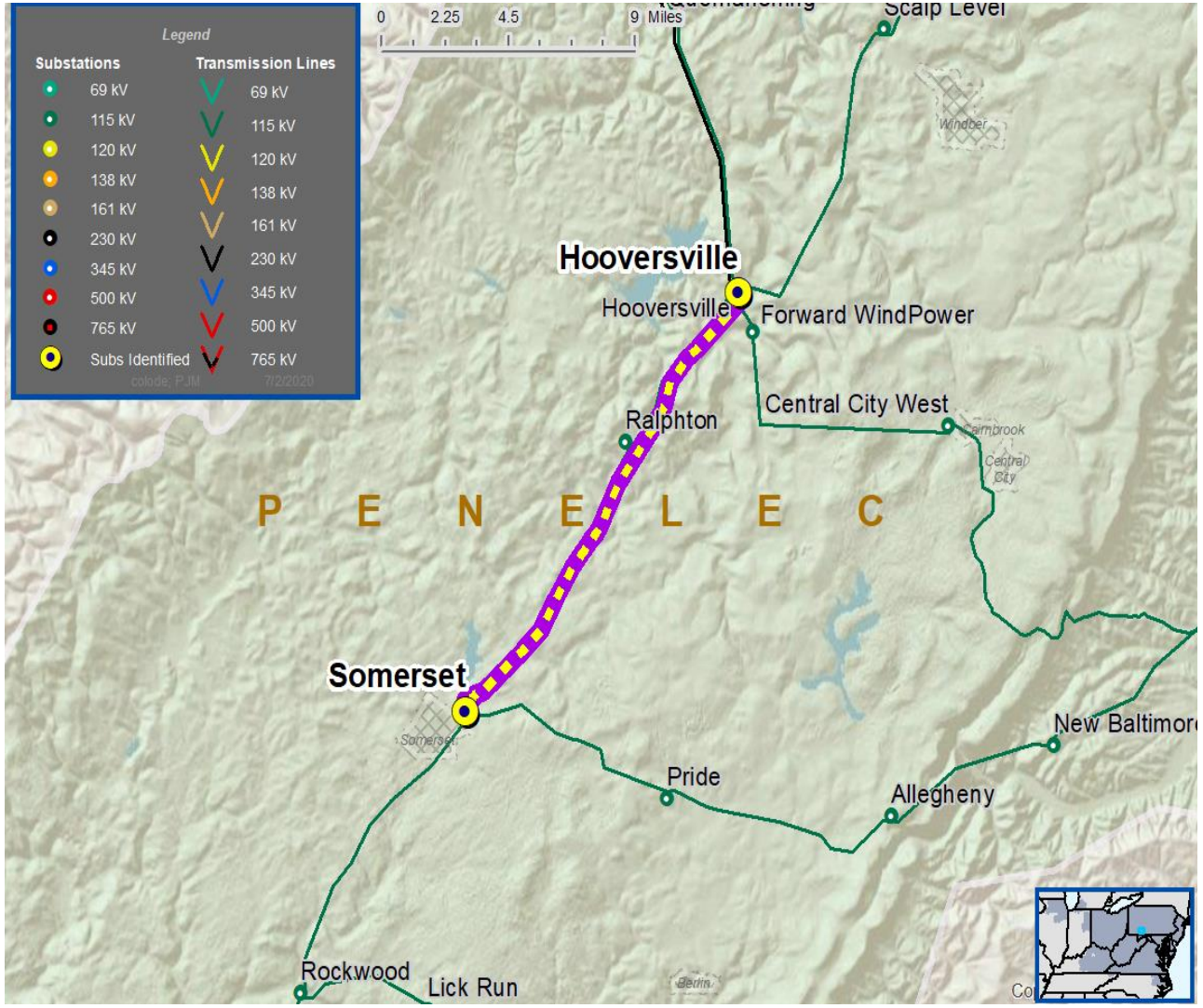


# Penelec Transmission Zone M-3 Process
## Hooversville – Somerset HD 115 kV Line

**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many cases the protection equipment cannot be repaired due to a lack of replacement part and available expertise in the outdated technology.
- Transmission line ratings are limited by terminal equipment.

| Need Number | Transmission Line / Substation Locations | Existing Line Rating (SN / SE) | Existing Conductor Rating (SN / SE) | Limiting Terminal Equipment |
|---|---|---|---|---|
| PN-2020-016 | Hooversville – Somerset HD 115 kV Line | 164 / 190 | 202 / 245 | Line Trap, Line Relaying, Substation Conductor, CTs |

# Solution

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

# Penelec Transmission Zone M-3 Process

## Hooversville - Tower 51 115 kV Line

**Need Number:** PN-2020-010

**Process Stage:** Solution Meeting 07/16/2020

**Previously Presented:** Need Meeting 5/21/2020

**Project Driver:**

*Equipment Material Condition, Performance and Risk*

*Operational Flexibility and Efficiency*

**Specific Assumption Reference:**

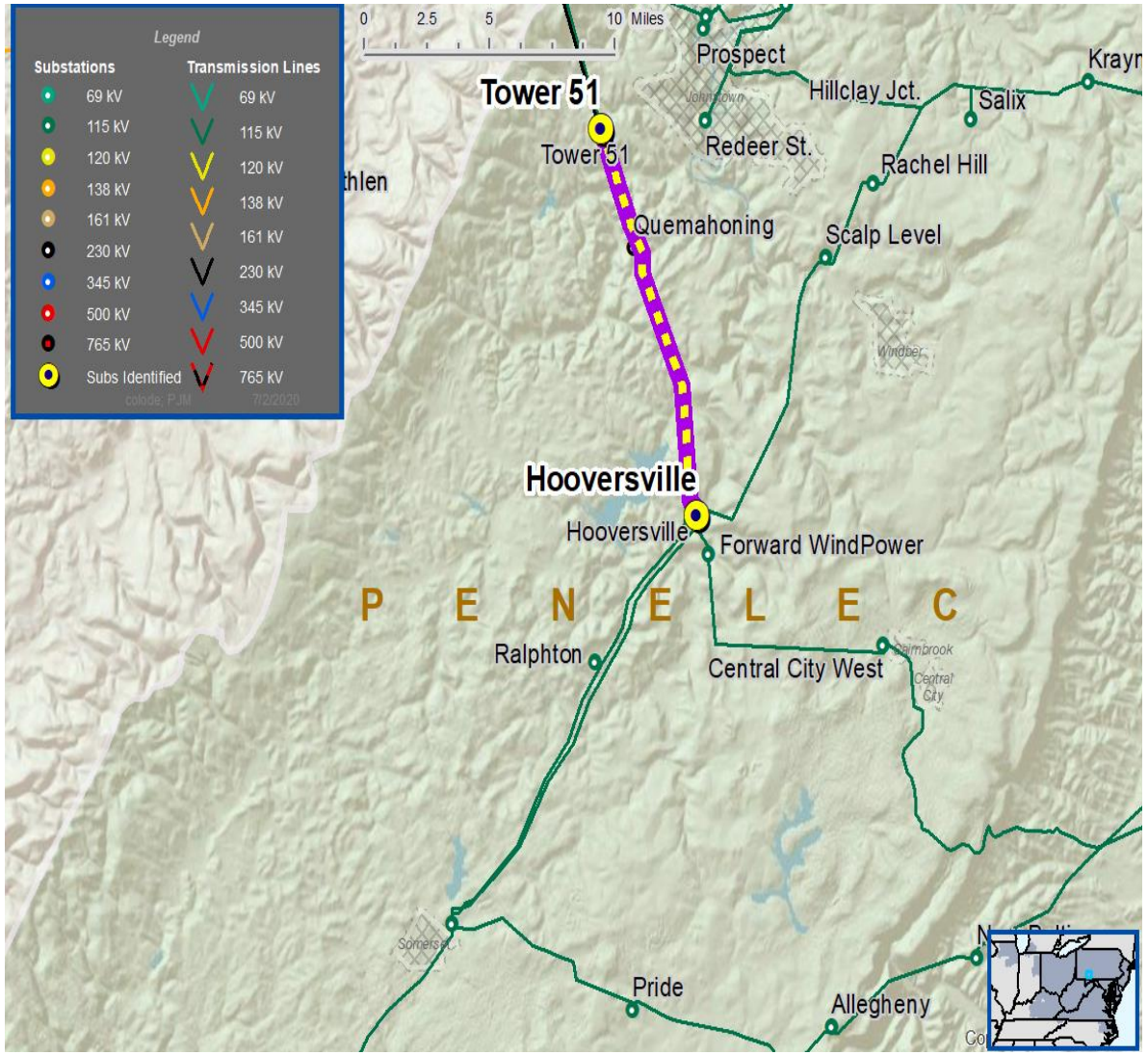
System Performance Projects Global Factors

- 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 slide 9&10…**



# Penelec Transmission Zone M-3 Process

## Morgan Street – Franklin Tap - Air Products – Geneva 115 kV

**Need Number:** PN-2020-012

**Process Stage:** Solution Meeting 07/16/2020

**Previously Presented:** Need Meeting 5/21/2020

**Project Driver:**

*Equipment Material Condition, Performance and Risk*

*Operational Flexibility and Efficiency*

**Specific Assumption Reference:**

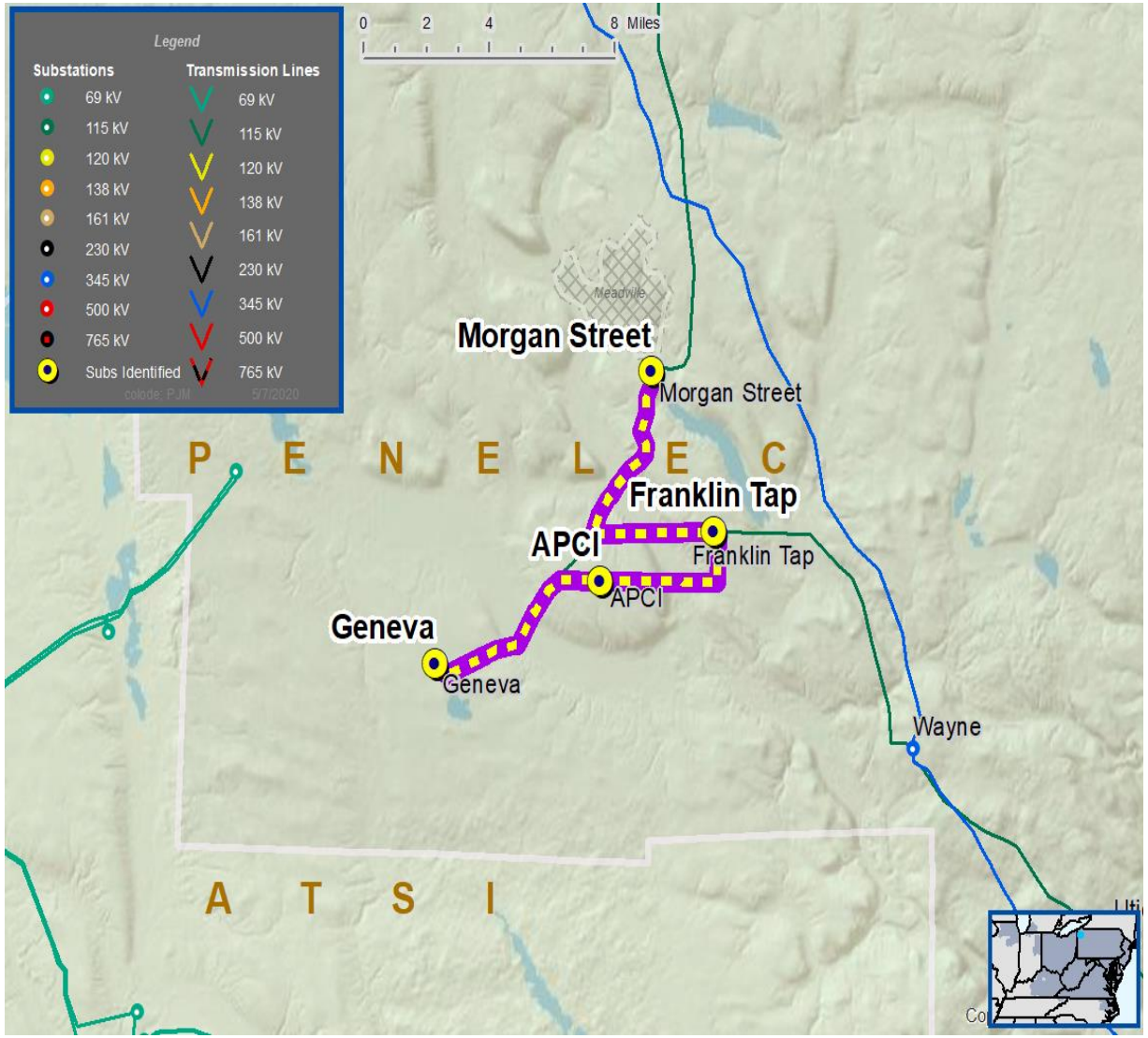
System Performance Projects Global Factors

- 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 slide 9&10…**



# Penelec Transmission Zone M-3 Process

## Blairsville East – Social Hall 138 kV

**Need Number:** PN-2020-015, and APS-2020-008

**Process Stage:** Solution Meeting 07/16/2020

**Previously Presented:** Need Meeting 5/21/2020

**Project Driver:**

*Equipment Material Condition, Performance and Risk*

*Operational Flexibility and Efficiency*

**Specific Assumption Reference:**

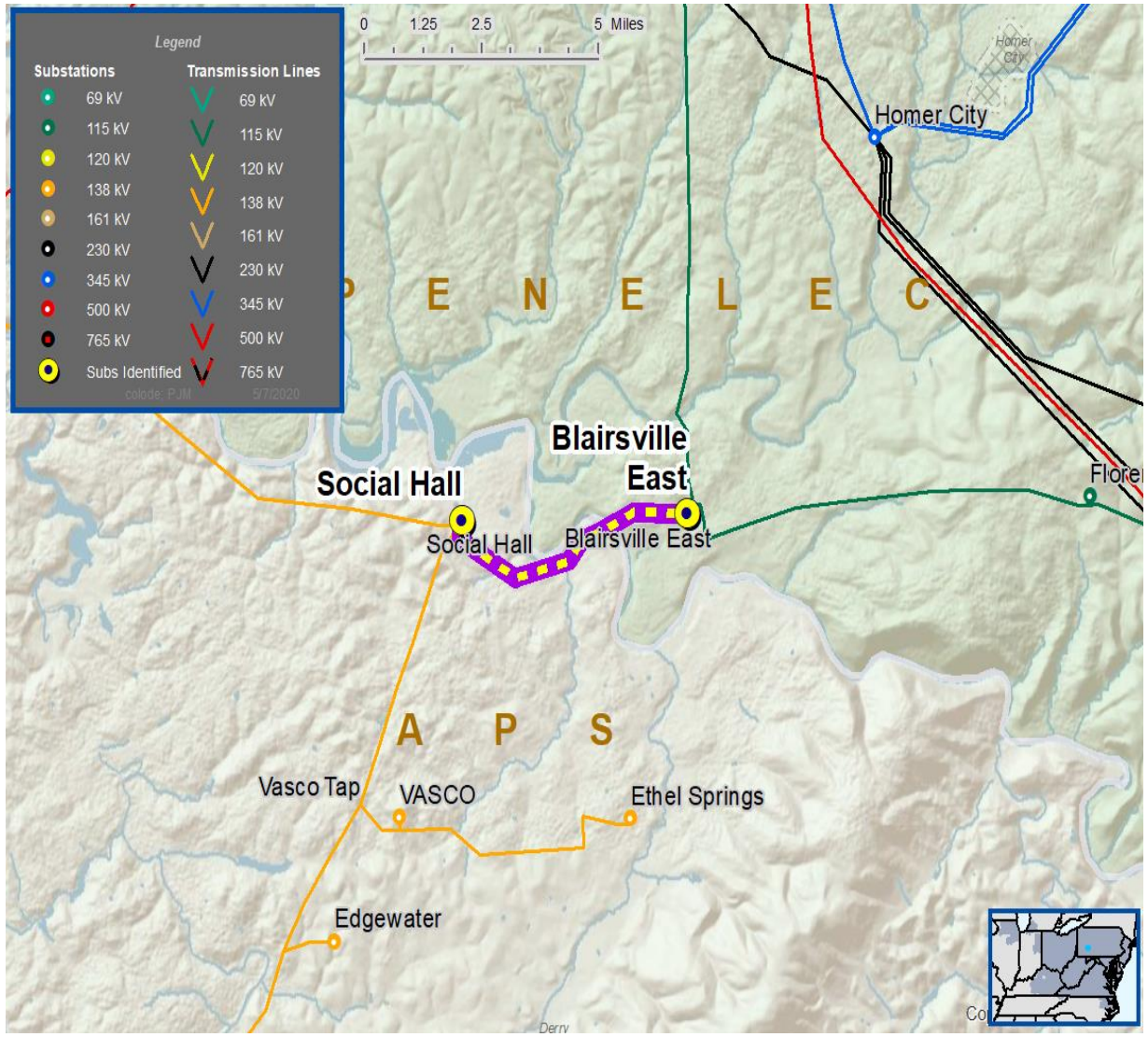
System Performance Projects Global Factors

- 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 slide 9&10…**



# Penelec Transmission Zone M-3 Process
# Misoperation Relay Projects

**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.
- Transmission line ratings are limited by terminal equipment.

| Need Number | Transmission Line / Substation Locations | Existing Line Rating (SN / SE) | Existing Conductor Rating (SN / SE) | Limiting Terminal Equipment |
|---|---|---|---|---|
| PN-2020-010 | Hooversville – Tower 51 115 kV Line | 137 / 172 | 178 / 214 | Disconnect Switches, CTs, Substation Conductor, Line Trap, Line Relaying |
| PN-2020-012 | Morgan Street – Franklin Tap 115 kV Line | 221 / 239 | 232 / 282 | Substation Conductor, Line Relaying, Line Trap |
| | Franklin Tap – Air Products 115 kV Line | 202 / 245 | 202 / 245 | N/A |
| | Air Products – Geneva 115 kV Line | 202 / 239 | 202 / 245 | Line Relaying |
| PN-2020-015<br>APS-2020-008 | Blairsville East – Social Hall 138 kV Line | 225 / 287 | 243 / 294 | Substation Conductor, CTs, Line Relaying, Line Trap |

# Penelec Transmission Zone M-3 Process Misoperation Relay Projects

**Proposed Solution:**

| Need Number | Transmission Line / Substation Locations | New MVA Line Rating (SN / SE) | Scope of Work | Estimated Cost ($ M) | Target ISD |
|---|---|---|---|---|---|
| PN-2020-010 | Hooversville – Tower 51 115 kV Line | 178 / 214 | • Hooversville 115 kV Substation – Replace line trap, line relaying, and substation conductor<br>• Tower 51 115 kV Substation – Replace line trap line relaying, substation conductor, disconnect switches, circuit breaker, and CTs | $1.1M | 03/31/2022 |
| PN-2020-012 | Morgan Street – Franklin Tap 115 kV Line | 232 / 282 | • Morgan Street 115 kV Substation – Replace line trap, line relaying, substation conductor, breaker and bus disconnect switches, and circuit breaker | $2.5M | 05/27/2022 |
| | Franklin Tap – Air Products 115 kV Line | 202 / 245 | N/A | | |
| | Air Products – Geneva 115 kV Line | 202 / 245 | • Geneva 115 kV Substation – Replace line trap, line relaying, breaker and bus disconnect switches, and circuit breakers | | |
| PN-2020-015<br>APS-2020-008 | Blairsville East – Social Hall 138 kV Line | 243 / 294 | • Blairsville East 138 kV Substation – Replace line trap and line relaying<br>• Social Hall 138 kV Substation – Replace line trap, line relaying, substation conductor, circuit breaker, and CTs | $0.8M | 06/01/2021 |

**Alternatives Considered:** Maintain existing condition

**Project Status:** Conceptual

**Model:** 2020 RTEP model for 2025 Summer (50/50)

# Questions?

# 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

7/6/2020 – V1 – Original version posted to pjm.com