

# Submission of Supplemental Projects for Inclusion in the Local Plan

# ComEd Transmission Zone M-3 Process Superconductor Pilot

**Need Number:** ComEd-2019-001

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/15/2019

**Previously Presented:**

Need Meeting 2/20/2018

Solution Meeting 3/25/2019

**Supplemental Project Driver:**

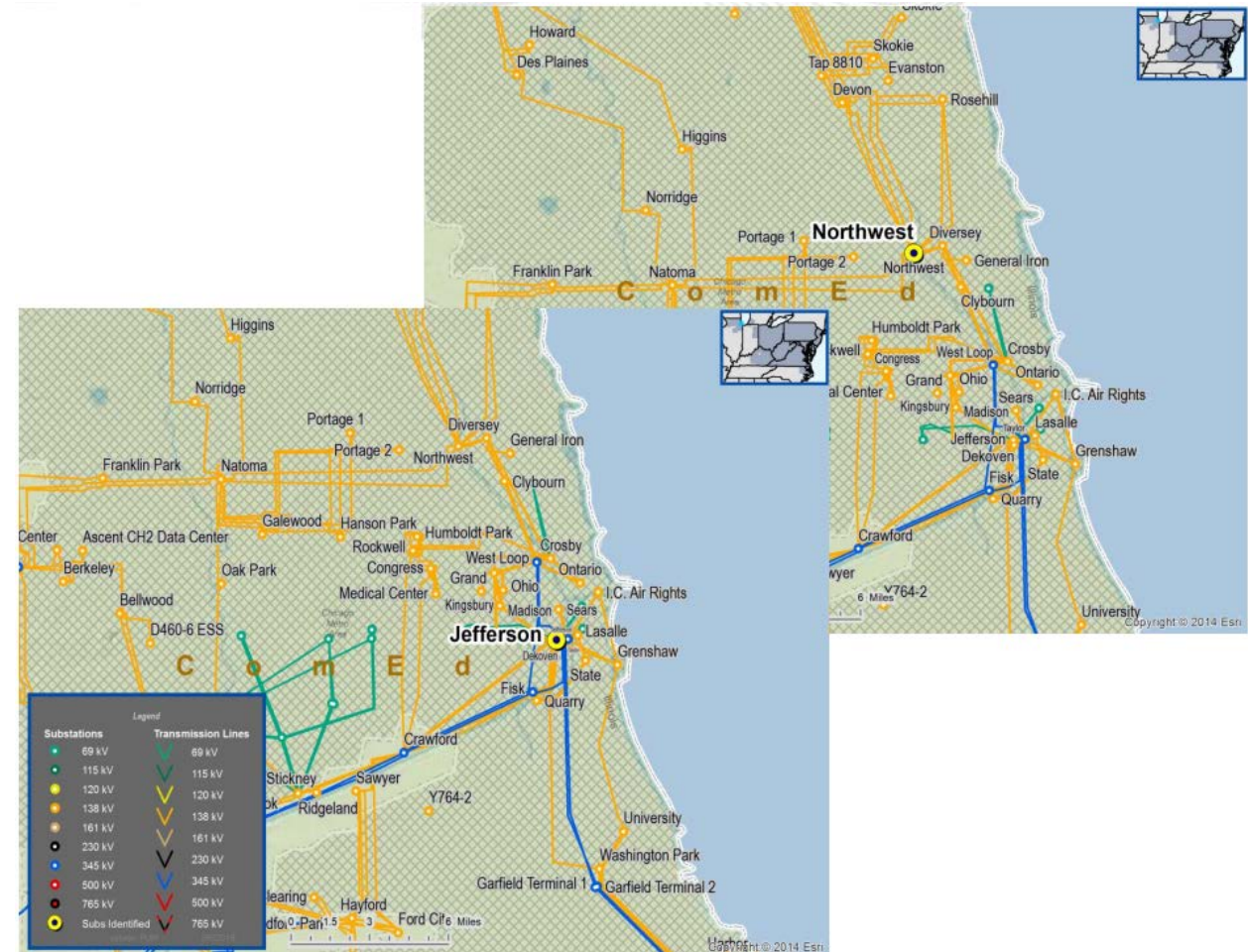
- Other – Technological Pilot Project

**Specific Assumption References:**

- December 3, 2018 ComEd Annual Assumptions
- Press release announcing the agreement between AMSC and ComEd October 31, 2018

**Problem Statement:**

- Support of the DHS sponsored Resilient Electric Grid (REG) initiative with a new technical pilot project involving superconducting cable



# ComEd Transmission Zone M-3 Process Superconductor Pilot

**Need Number:** ComEd-2019-001

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 4/15/2019

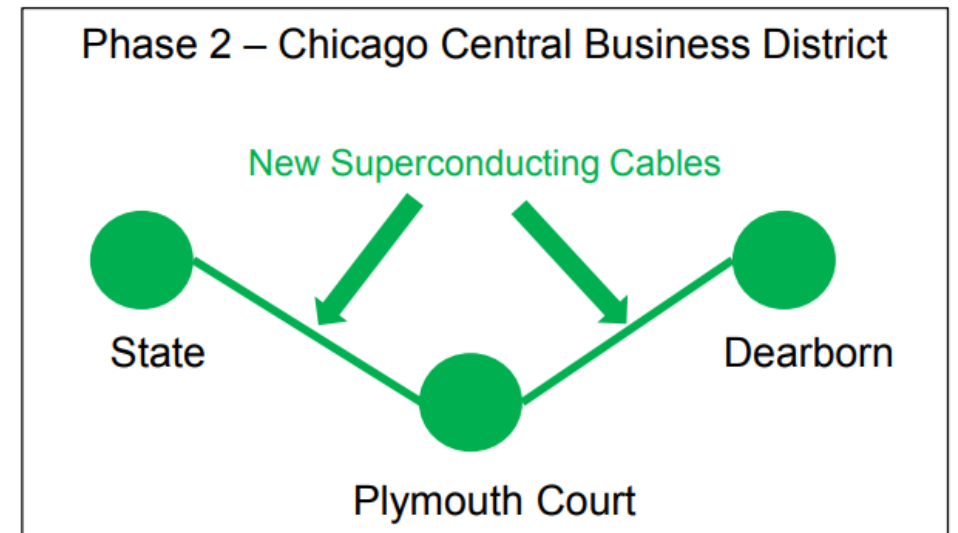
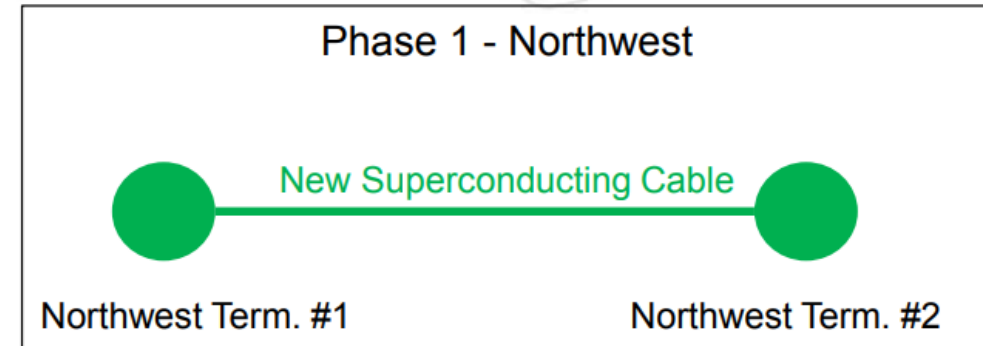
## Selected Solution:

- Support of the DHS sponsored Resilient Electric Grid (REG) initiative with the installation and operation of a new superconducting cable that utilizes the 2nd generation High Temperature Superconducting (“HTS”) wire to provide high transfer capacity between multiple 12 kV locations.
- Successful demonstration would improve resiliency and could lead to greater interest in the new technology throughout the utility industry and a reduction in cost.
- The project will be completed in two phases to gain learnings from the 1st phase about the installation and operation of the cable system that will be incorporated into the 2nd phase of the project.
  - Phase 1 in-service 2021
  - Phase 2 in-service 2026 (contingent on successful completion of Phase 1)
- **Estimated Cost:** \$67 M

## Projected In-Service:

- Phase 1 in-service 2021
- Phase 2 in-service 2026 (Contingent on successful completion of Phase 1)

**Supplemental Project ID:** S1793



# ComEd Transmission Zone M-3 Process DeKalb Area Customer

**Need Number:** ComEd-2018-001

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 6/26/2019

**Previously Presented:**

Need 10/26/2018

Solution 1/11/2019

**Project Driver:**

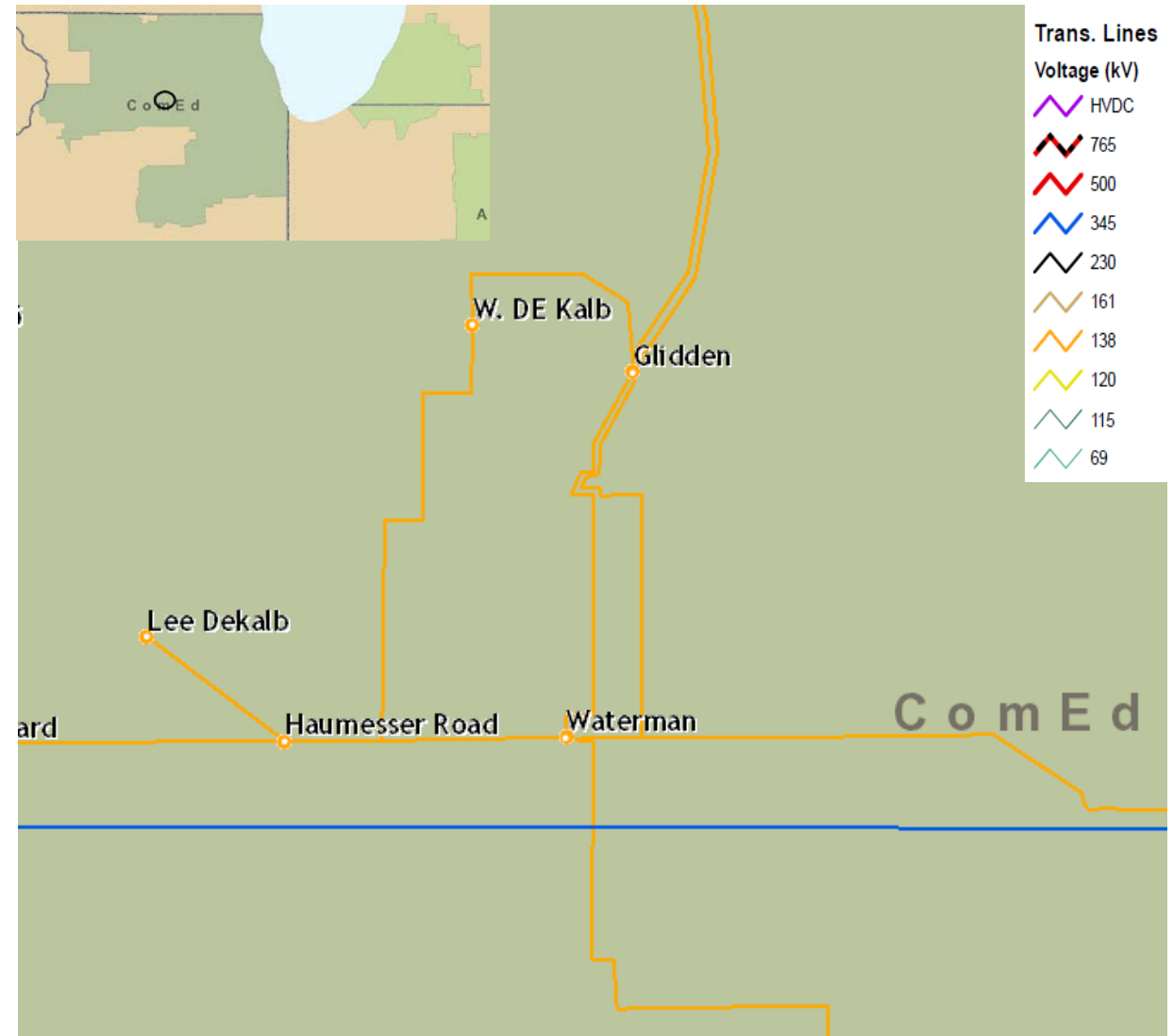
Customer Service

**Specific Assumption References:**

- January 30 2018 ComEd Annual Assumptions
  - New transmission customer connections

**Problem Statement:**

- New customer has requested transmission interconnection in the DeKalb area
- 18 MW
- Customer has large motors



# ComEd Transmission Zone M-3 Process DeKalb Area Customer

**Need Number:** ComEd-2018-001

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 6/26/2019

**Selected Solution:**

Install new 138 kV line from Waterman to customer

- 2.5 miles of new conductor on existing structures
- 1 mile of new conductor and new structures
- Four new 138kV breakers

Install backup tap on 138 kV line 11323 (Waterman-Haumesser Road-Glidden)

- 138 kV breaker will be open in the customer substation

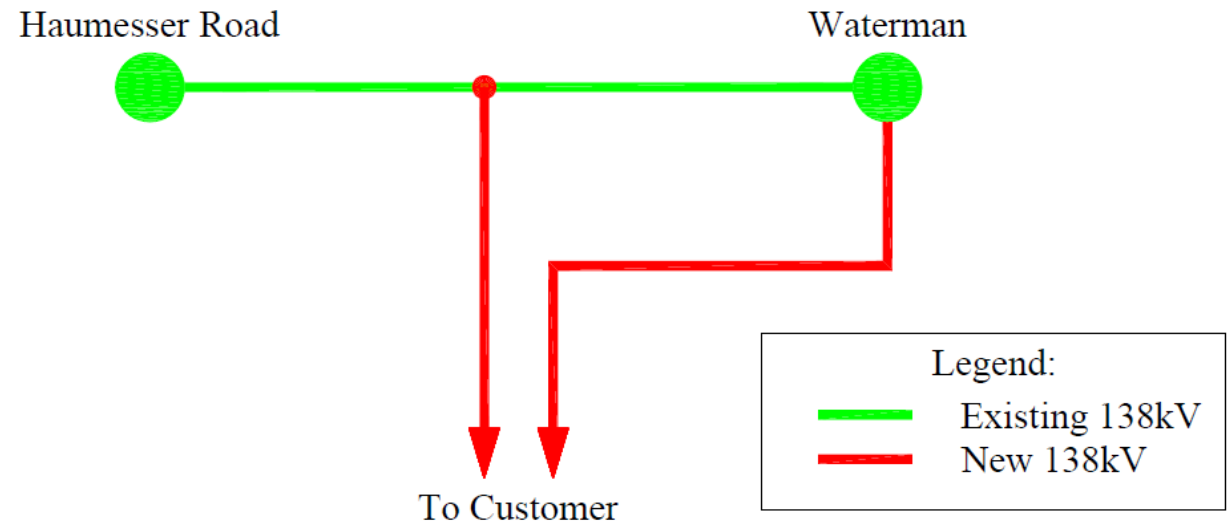
**Estimated Cost:** \$1.7 M

**Projected In-Service:** 12/31/2019

**Supplemental Project ID:** S1828

**Project Status:** Under Construction

**Model:** 2023 Summer RTEP 50/50



# ComEd Transmission Zone M-3 Process Elmhurst Relay Upgrades

**Need Number:** ComEd-2018-002

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 6/26/2019

**Previously Presented:**

Need 10/26/2018

Solution 1/11/2019

**Project Driver:**

Infrastructure Resilience

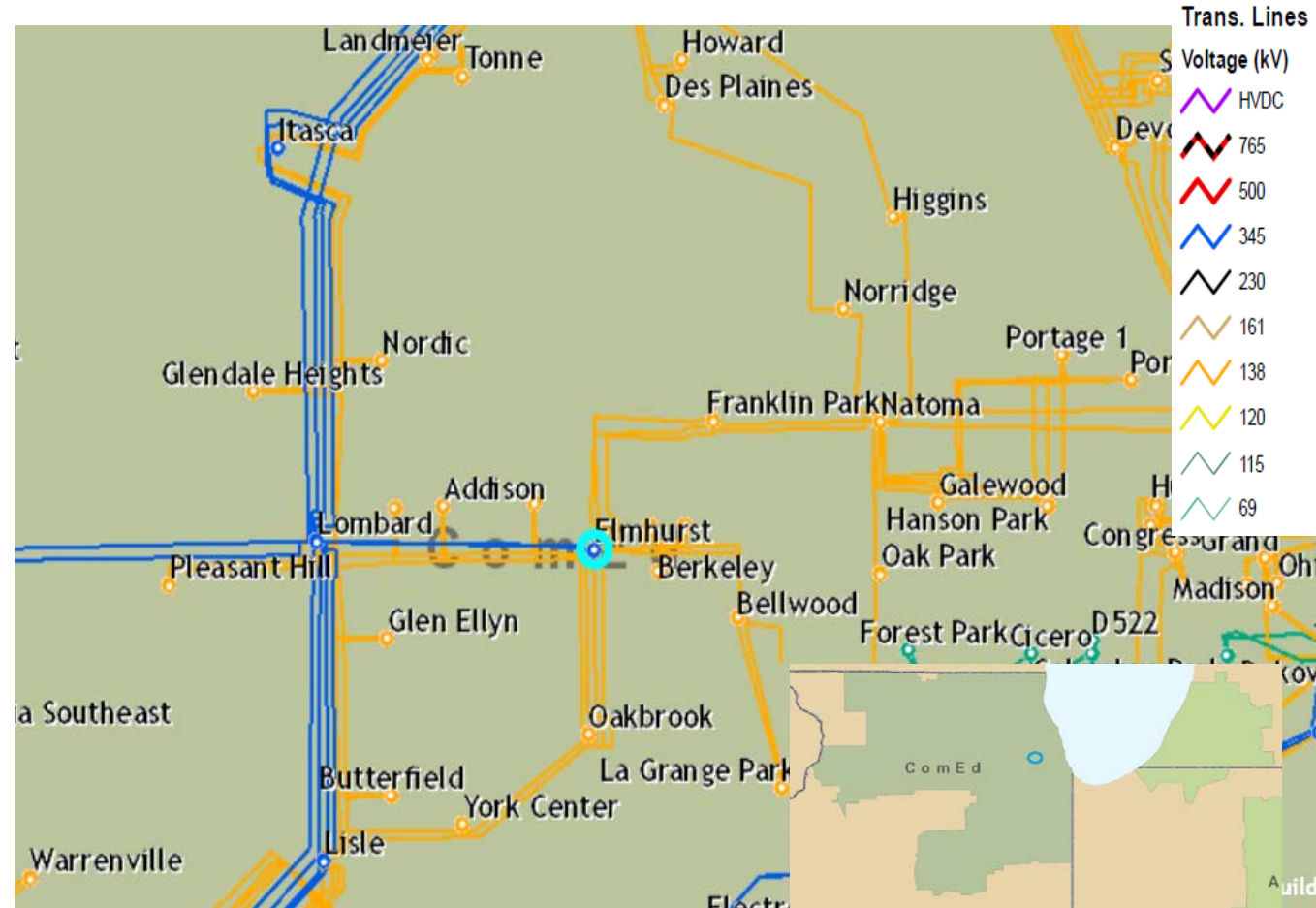
**Specific Assumption References:**

- January 30 2018 ComEd Annual Assumptions
  - Infrastructure replacement due to obsolescence resulting in increased capacity; consistent with efficient asset management decisions.

**Problem Statement:**

Electromechanical relays on 138 kV lines 13505 and 13506 at Elmhurst:

- Thermally limiting the line
- Does not allow real time data gathering of relay events
- Replacements and spare parts are becoming scarce



**Need Number:** ComEd-2018-002

**Process Stage:** Submission of Supplemental Project for inclusion  
in the Local Plan 6/26/2019

**Selected Solution:**

Upgrade relay packages on

- 138 kV line 13505 at Elmhurst
- 138 kV line 13506 at Elmhurst

**Estimated Cost:** \$0.7 M (\$0.35 M per line)

**Projected In-Service:** 12/31/2019

**Supplemental Project ID:** S1829

**Project Status:** Engineering

**Model:** 2023 Summer RTEP 50/50

# ComEd Transmission Zone M-3 Process Devon Transformer Replacement

**Need Number:** ComEd-2018-003

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 6/26/2019

**Previously Presented:**

Need 10/26/2018

Solution 1/11/2019

**Supplemental Project Driver:**

Equipment Material Condition

**Specific Assumption References:**

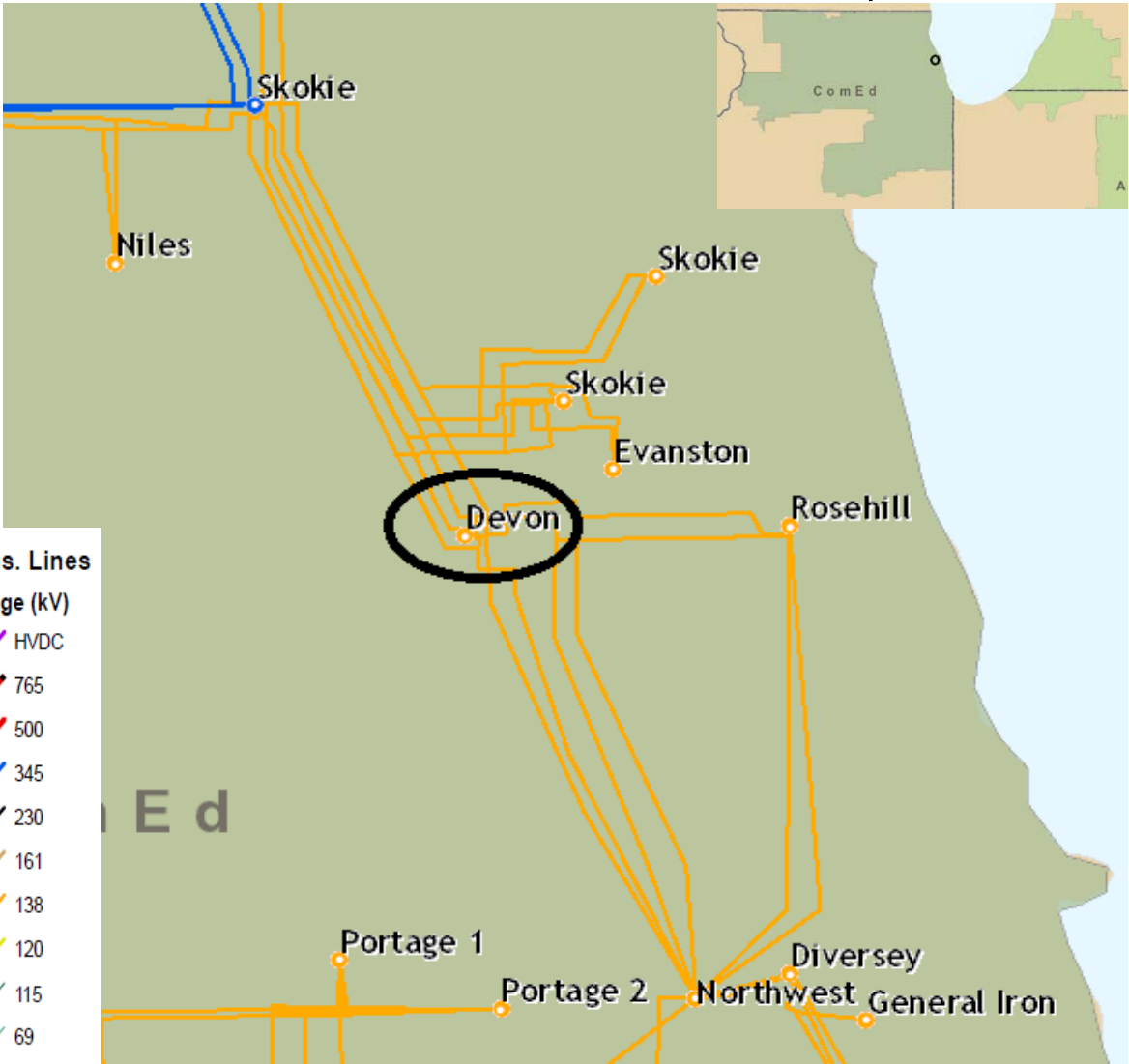
- January 30 2018 ComEd Annual Assumptions
  - Infrastructure replacement due to obsolescence resulting in increased capacity; consistent with efficient asset management decisions.

**Problem Statement:**

Devon TR72 needs to be replaced due to material condition

- Transformer has internal arcing
- Transformer is gassing
- LTC headboard is cracking and leaking oil
- Increasing maintenance costs

The failure of TR72 causes the outage of 138 kV line 8809





# ComEd Transmission Zone M-3 Process Devon Transformer Replacement

**Need Number:** ComEd-2018-003

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 6/26/2019

**Selected Solution:**

Replace 138/12 kV transformer TR72 at Devon

Install new 138 kV line breaker on 138kV line 8809 at Devon

Install new 138 kV TR72 high side breaker

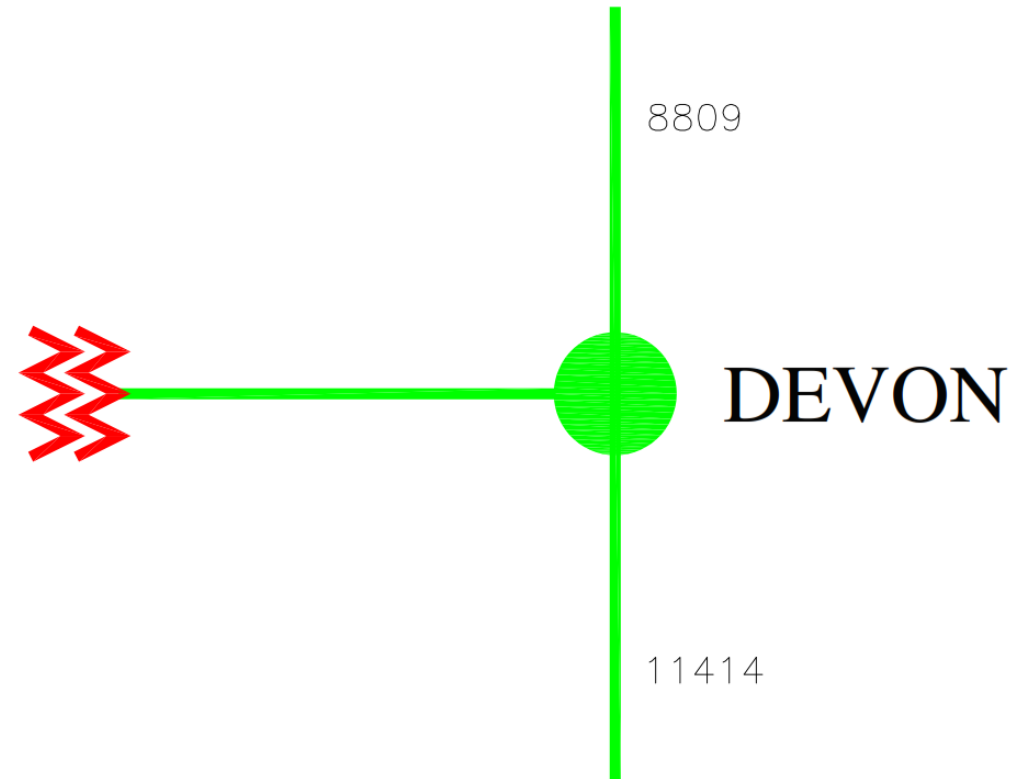
**Estimated Transmission Cost:** \$1.8 M

**Projected In-Service:** 12/31/2019

**Supplemental Project ID:** S1830

**Project Status:** Engineering

**Model:** 2023 Summer RTEP 50/50



# ComEd Transmission Zone M-3 Process Braidwood 345kV Bus Tie 11-14

**Need Number:** COMED-2019-002

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/03/2019

**Previously Presented:**

Need 3/25/2019

Solution 4/23/2018

**Supplemental Project Driver:**

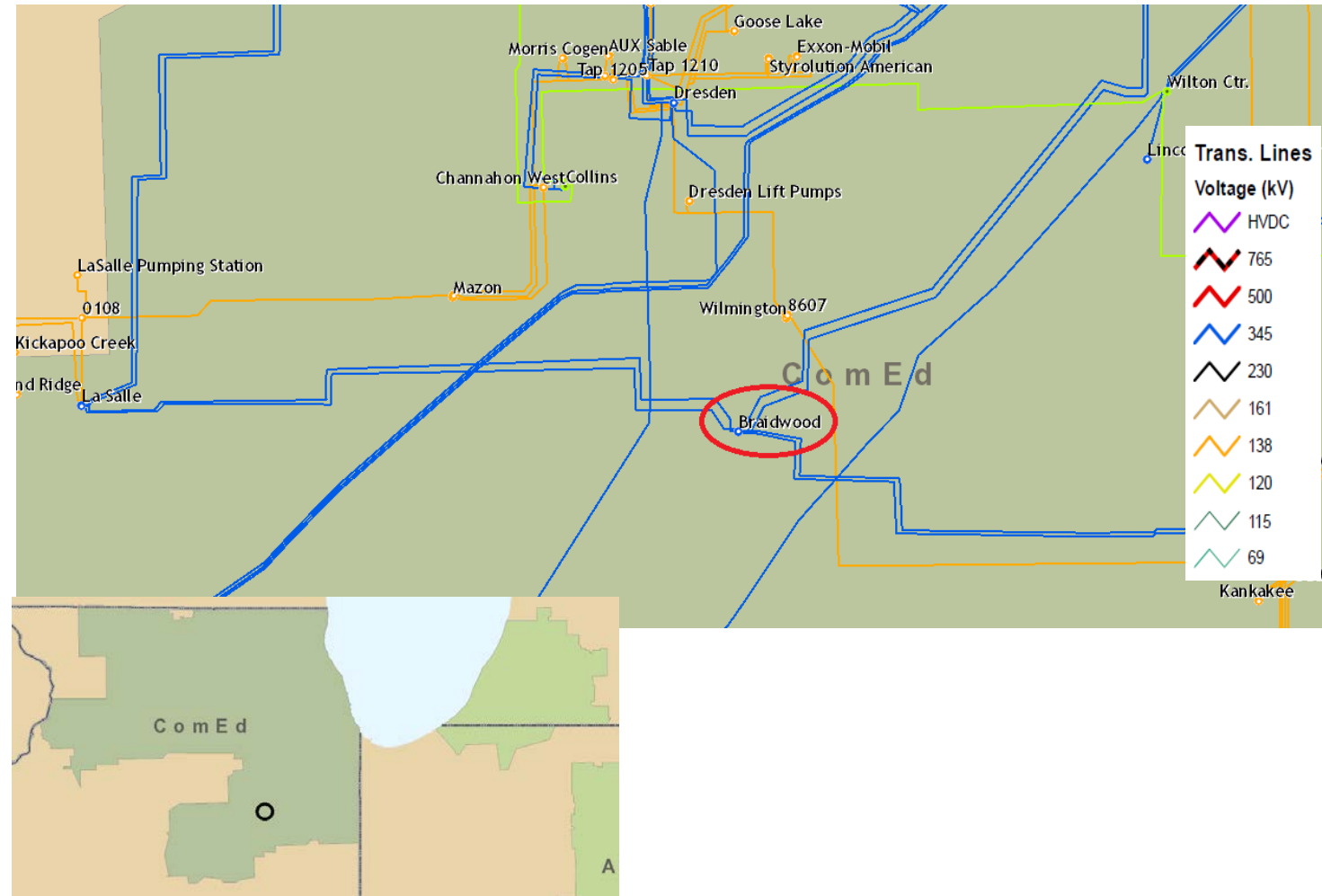
- Equipment Material Condition

**Specific Assumption References:**

- December 5, 2018 ComEd Annual Assumptions
  - Transmission infrastructure replacement (EOL/condition/obsolescence) that are consistent with the efficient asset management decisions

**Problem Statement:**

- Station 20 Braidwood 345kV bus tie 11-14
  - Replacement parts are difficult to acquire
  - Bushings are at end of life
  - Manufactured in 1978



**Need Number:** COMED-2019-002

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/03/2019

**Selected Solution:**

- Replace Station 20 Braidwood 345kV bus tie 11-14 breaker
- Estimated Cost: \$2 M

**Projected In-Service:**

- 6/30/2021

**Supplemental Project ID:** S1868

**Project Status:** Engineering/Procurement

**Model:** 2023 RTEP model

# ComEd Transmission Zone M-3 Process Devon Fourth Transformer

**Need Number:** COMED-2019-004

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/03/2019

**Previously Presented:**

Need 3/25/2019

Solution 4/23/2018

**Supplemental Project Driver:**

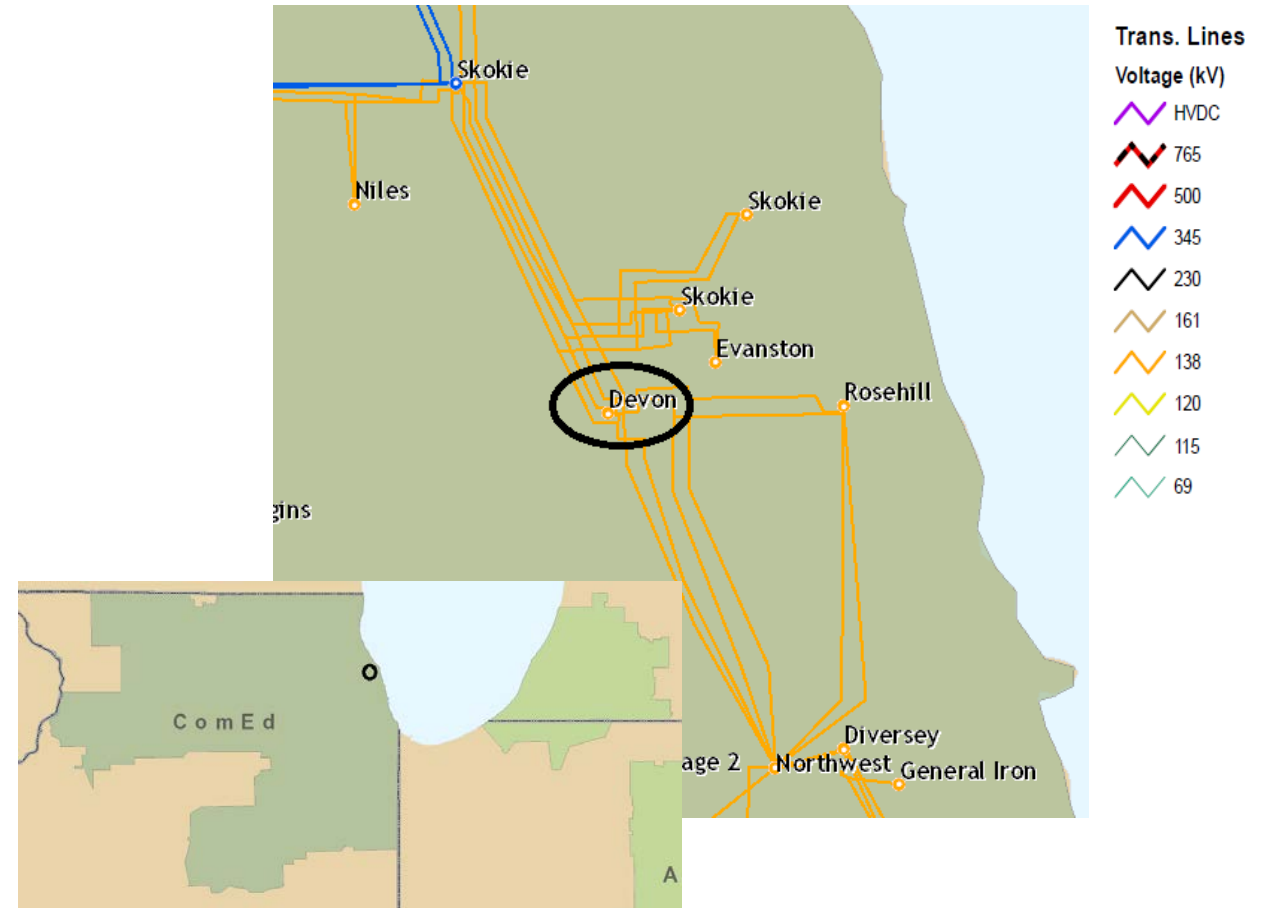
Customer Service

**Specific Assumption References:**

- December 5, 2018 ComEd Annual Assumptions
  - Transmission System configuration changes due to expansion of existing distribution substations

**Problem Statement:**

- Distribution has asked for an additional 12kV transformer connection at Devon



# ComEd Transmission Zone M-3 Process Devon Fourth Transformer

**Need Number:** COMED-2019-004

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/03/2019

**Selected Solution:**

- Install new transformer and install new line breaker on 138kV line 8803 at Devon
- **Estimated Cost:** \$1.8 M

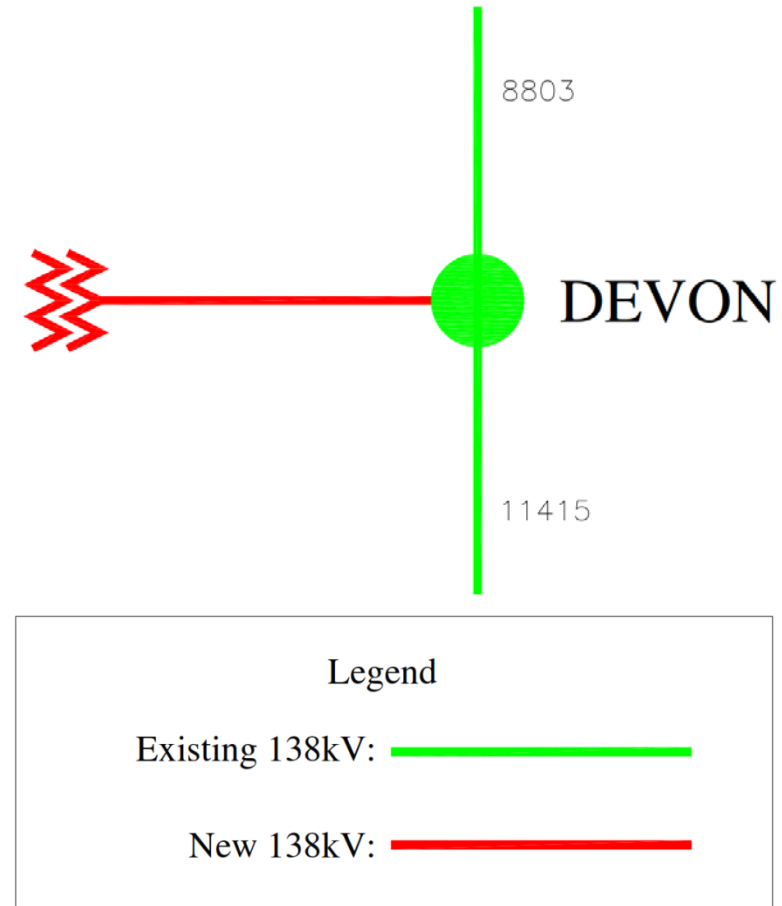
**Projected In-Service:**

- 12/31/2020

**Supplemental Project ID:** S1869

**Project Status:** Engineering/Procurement

**Model:** 2023 RTEP model



# ComEd Transmission Zone M-3 Process

## Three Terminal line 4605

**Need Number:** COMED-2019-005

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/03/2019

**Previously Presented:**

Need 3/25/2019

Solution 4/23/2018

**Supplemental Project Driver:**

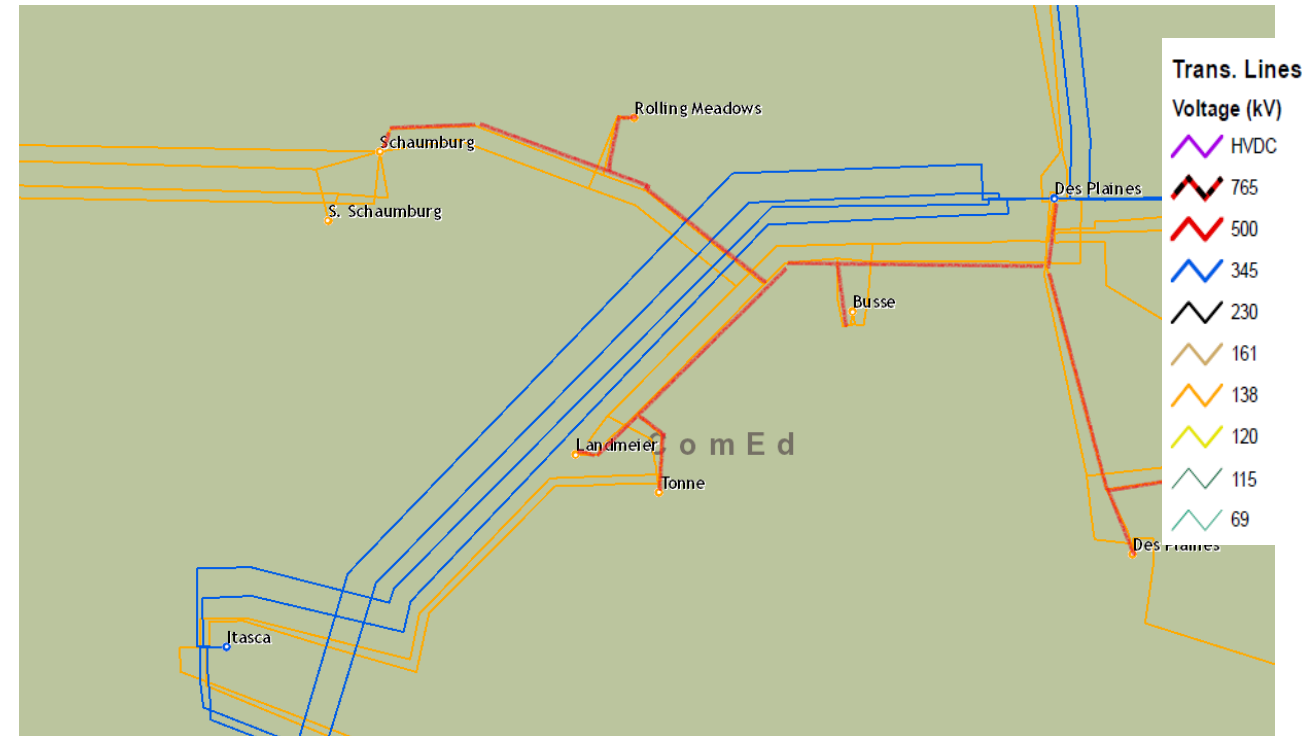
Operational Flexibility and Efficiency

**Specific Assumption References:**

- December 5, 2018 ComEd Annual Assumptions
  - Enhancing system functionality, flexibility, or operability

**Problem Statement:**

- 138kV line 4605 is a three-terminal line
  - TSS 46 Des Plaines
  - TSS 198 Des Plaines
  - TDC 207 Tonne (future Elk Grove)
- Elk Grove project b2941 will cut into the line
- The current configuration is very difficult to relay properly due to unequal lengths of the three legs



# ComEd Transmission Zone M-3 Process Three Terminal line 4605

**Need Number:** COMED-2019-005

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/03/2019

**Selected Solution:**

- Connect Des Plaines 198 tap directly into Des Plaines 46
- Replace 138 kV Line 4611 CB at Des Plaines 46
- Estimated Cost: \$4.2 M

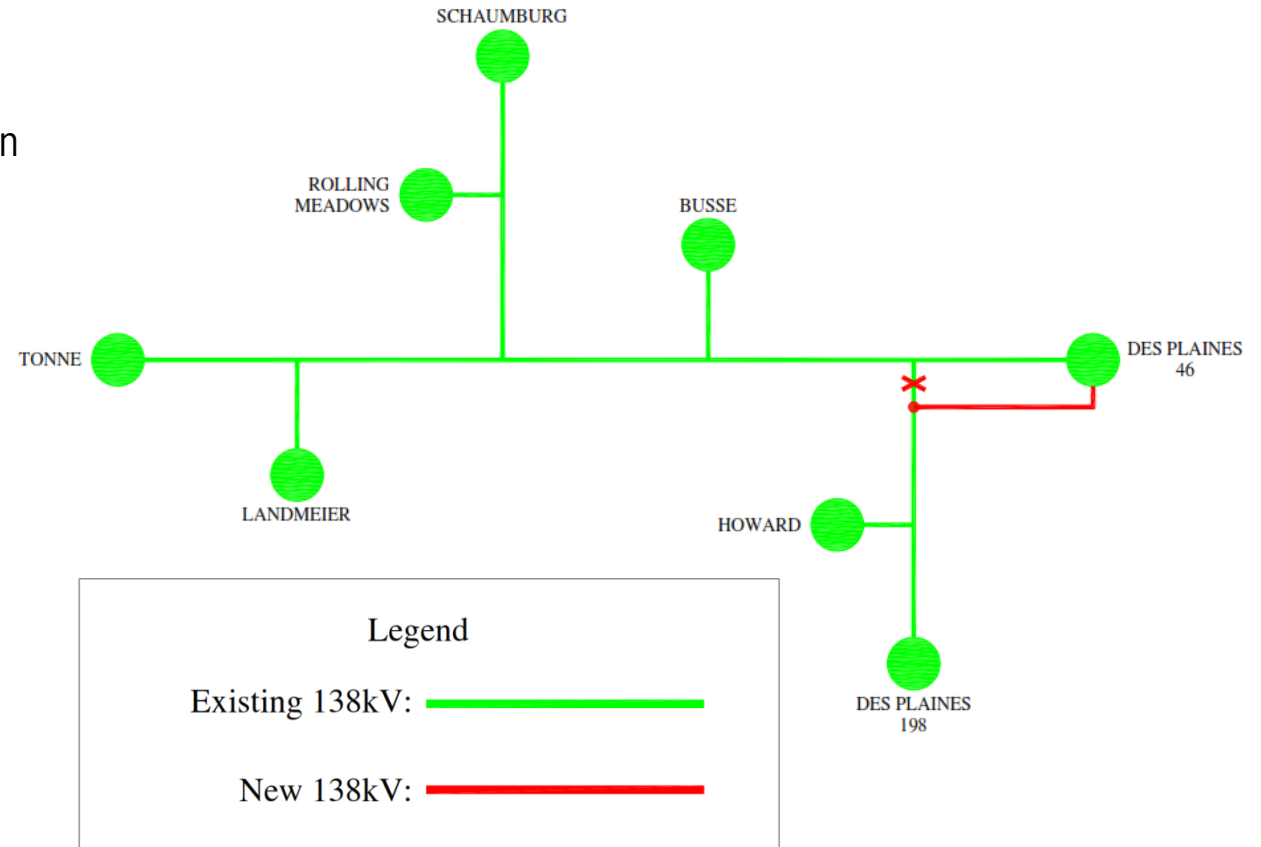
**Projected In-Service:**

- 12/31/2020

**Supplemental Project ID:** S1870

**Project Status:** Engineering/Procurement

**Model:** 2023 RTEP model





# ComEd Transmission Zone: M-3 Process New Customer in Bradley Area

Need Number: COMED-2019-0003

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 9/16/2019

Previously presented :

Need 3/25/2019

Solution 7/24/2019

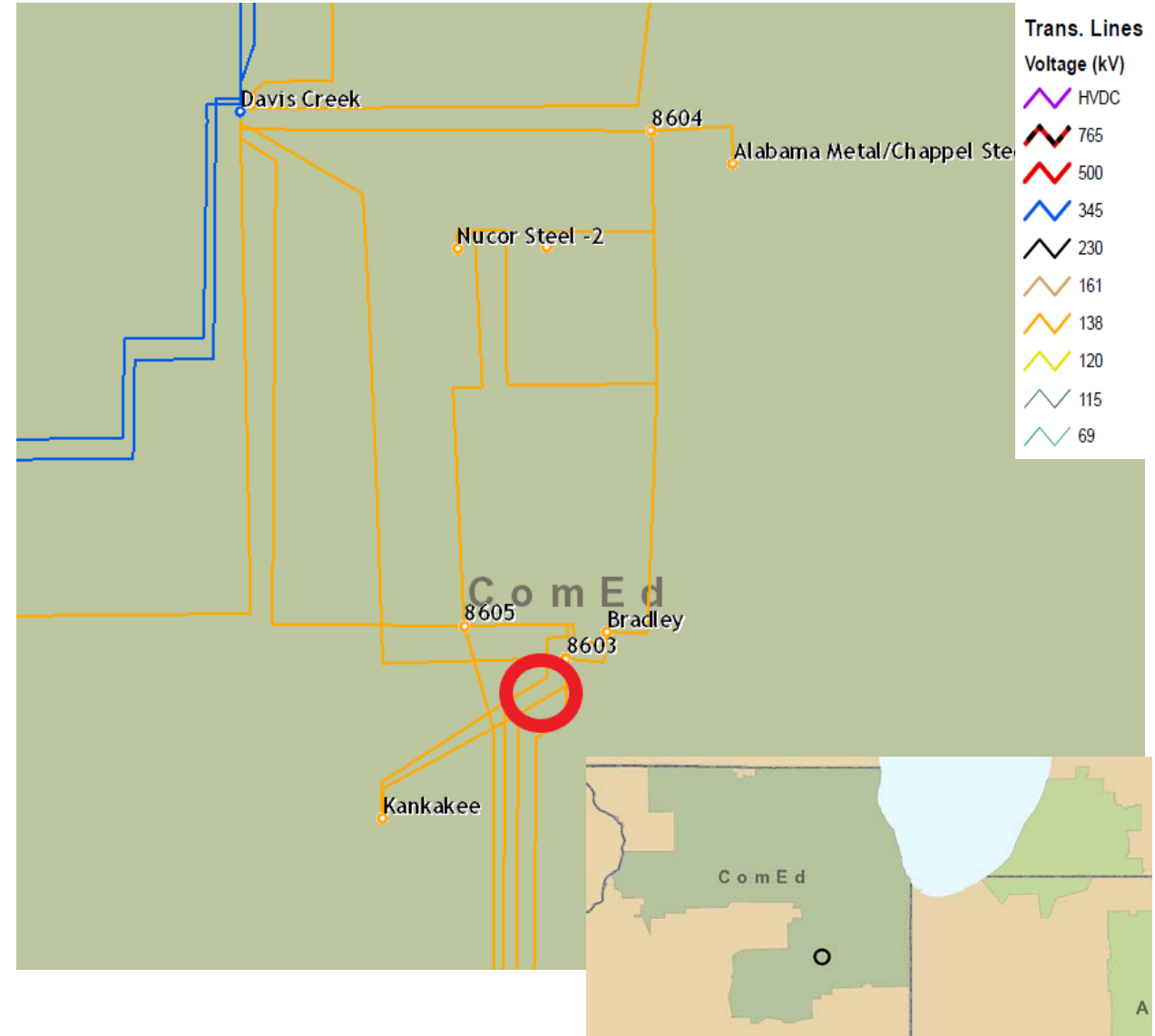
Project Driver: Customer Service, Infrastructure Resilience

Specific Assumption References:

- December 5, 2018 ComEd Annual Assumptions
  - New transmission customer interconnection

Problem Statement:

- New customer has requested new 138 kV service in the Bradley area
  - 11 MW in 2020, up to 45 MW by 2024







# ComEd Transmission Zone: M-3 Process New Customer in Bradley Area

**Need Number:** COMED-2019-0003

**Process Stage:** Submission of Supplemental Project for inclusion in the Local Plan 9/16/2019

**Selected Solution:**

Cut into existing 138 kV lines 8603 and 8605

Install double ring configuration substation

Install two 138-12 kV transformers

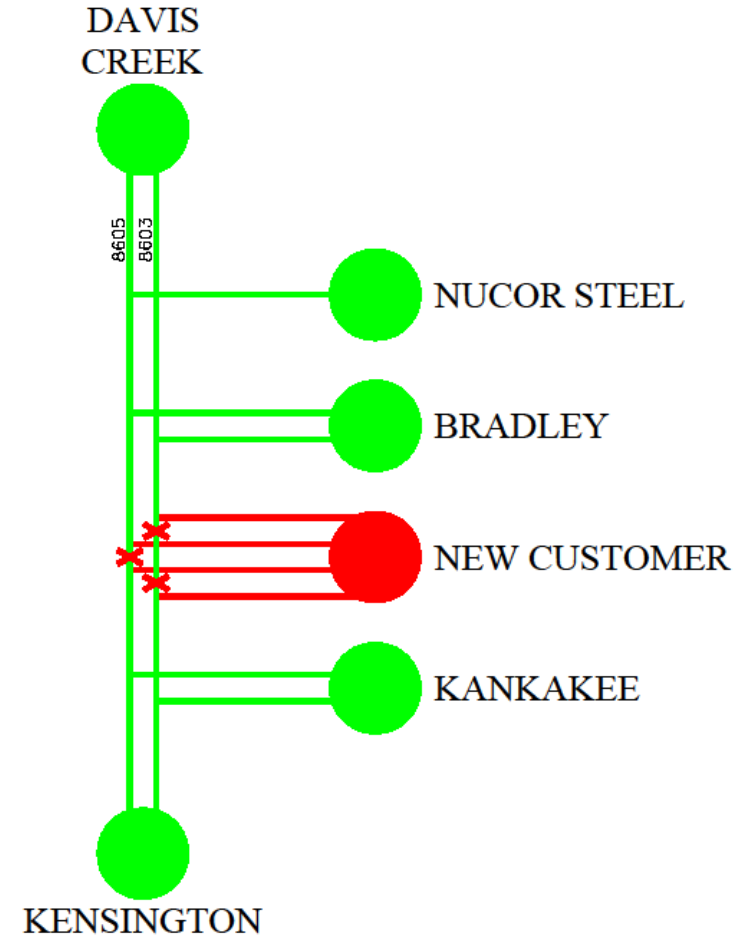
**Estimated Cost:** \$16 M

**Projected In-Service:** 5/31/2021

**Supplemental Project ID:** S1944

**Project Status:** Engineering

**Model:** PJM 2023 RTEP



# Revision History

4/15/2019 – V1 – Added s1793

6/27/2019 – V2 – Added s1828 – s1830

9/03/2019 – V3 – Added s1868 – s1870

9/16/2019 – V3 – Added s1944