



# Sub Regional RTEP Committee Mid-Atlantic

January 26, 2018

# First Review

## Baseline Reliability and Supplemental Projects

# BGE Transmission Zone: Supplemental Project Transmission Supply to new Loch Raven Distribution Substation

## Problem Statement:

- A 115kV transmission supply is needed for the new Loch Raven distribution substation. The new Loch Raven distribution substation replaces an existing Hillen Road distribution substation that is at end of life due to both aging infrastructure and capacity limitations.
- The existing transmission supply to the area is via 115kV Hazelwood – Hillen Road underground (UG) Self Contained Fluid Filled (SCFF) transmission cables which require replacement and should not to be used to re-supply the new Loch Raven Substation
  - 445kcm CU hollow conductor (2.4” OD) Medium Pressure Fluid Filled (MPFF) cable pair originally built in 1968
  - Cables are the only two transmission cables supplying this area and are connected to Windy Edge – Erdman circuits in a simple tap configuration
  - Cables have experienced 12 leaks over the past 20 years with most recent in November 2017 and January 2018.
  - Outages associated with leak repairs generally last at least 2-3 days and require significant operating steps to secure distribution load during repairs
  - One of the four stop-joints failed in the late 1990s, requiring a 3 month repair time
  - Cable duct manhole end walls are cracking and are not BGE’s to be able to consider repairs
  - Spare materials for this cable type are becoming obsolete
  - Specialized contractors to support cable repairs are not widely available and cannot always provide immediate support



# BGE Transmission Zone: Supplemental Project Transmission Supply to new Loch Raven Distribution Substation

## Potential Solution:

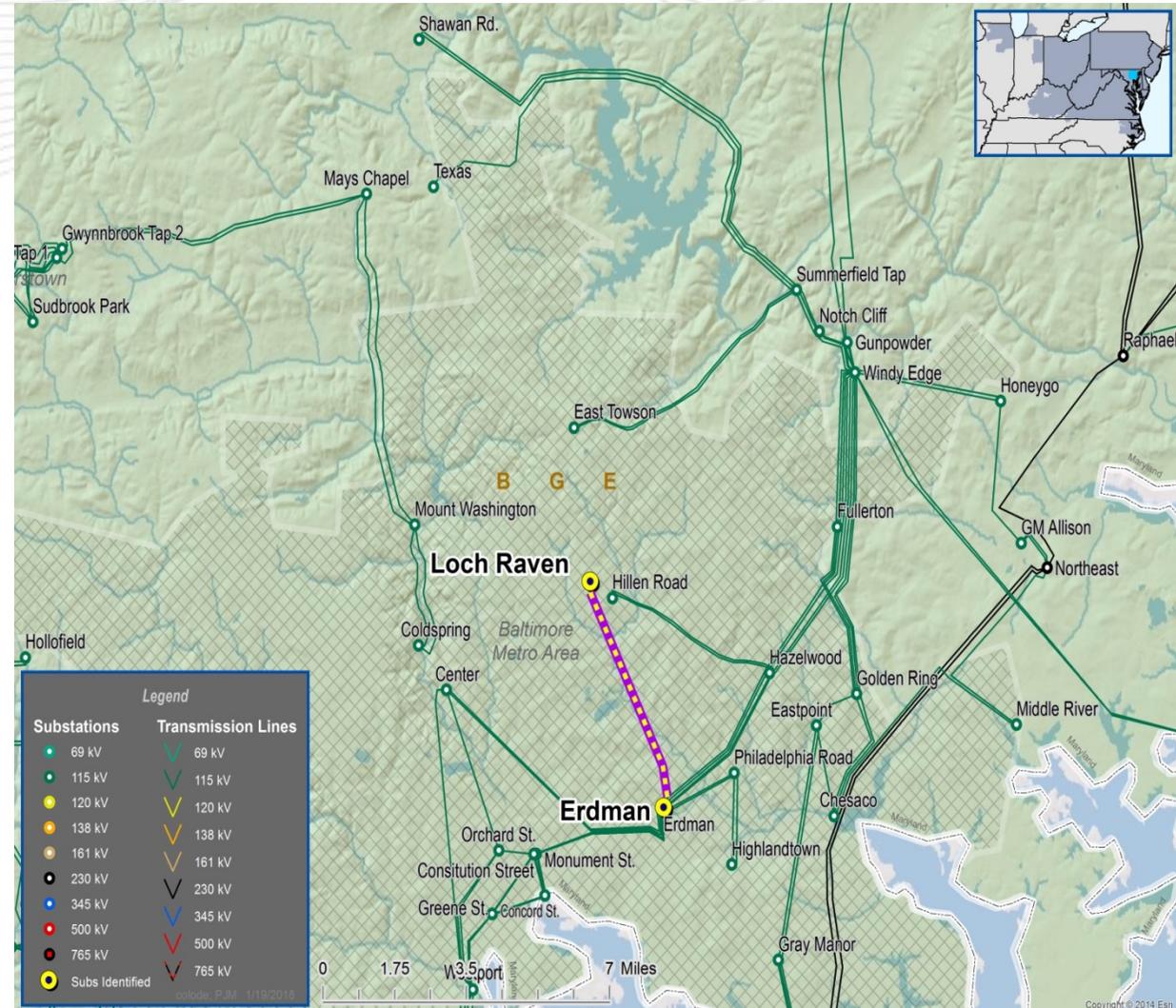
- Supply new Loch Raven Substation with UG XLPE 115kV cables from Erdman Substation
- At new Loch Raven Substation, install 115kV breakers and high side bus work to supply the distribution station
- At Erdman 115kV Substation, expand the 115kV station to a GIS breaker and half configuration to connect new circuits to supply the new Loch Raven substation.
- Estimated Cost: \$130M

## Alternative Solution:

- Utilize the existing aging Hazelwood to Hillen Road 115kV SCFF cables and extend them to supply the new Loch Raven Substation.

**Expected In-Service:** 6/1/2024

**Status:** Conceptual





# BGE Transmission Zone: Supplemental Project East Towson-Loch Raven Transmission Network

## Problem Statement:

- Current East Towson and Hillen Road distribution stations are each radially fed by 115 kV fluid filled cable pairs
- Single cable outages expose distribution stations to risks requiring significant operational steps to ensure continued customer service
- N-2 contingencies create undesirable conditions which have significant customer impacts to numerous major customers, such as hospitals, universities, government facilities, etc.
  - Operating procedures including distribution load transfers are no longer a feasible option to maintain customer load
  - Time to repair cable problems and associated equipment failures can be significant
  - Distribution recovery plans are difficult to implement, require significant construction and material, and take a long time

## Potential Solution:

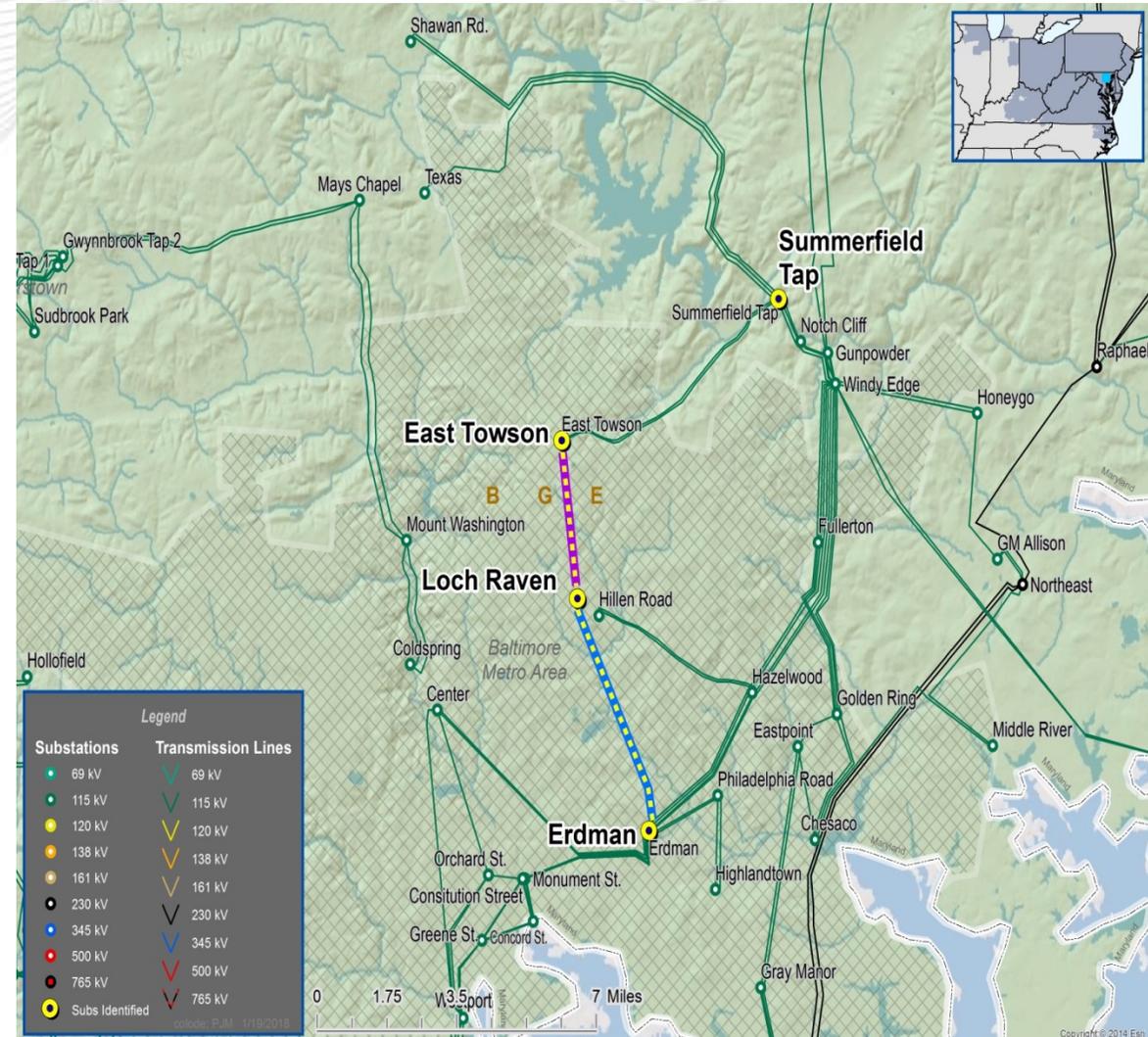
- Network East Towson substation to new Loch Raven Distribution Substation with UG 115kV XLPE cables
- Install East Towson and Summerfield substation breakers and equipment to accommodate transmission network
- Estimated Cost: \$93 M

## Alternative Solution:

- Do Nothing

**Expected In-Service:** 6/1/2024

**Status:** Conceptual



# BGE Transmission Zone: Supplemental Project Northeast, Howard and Pumphrey Breaker Replacement

## Problem Statement:

- Five 115 kV oil circuit breakers at Northeast and two 115 kV oil circuit breakers at Pumphrey are at risk of poor performance, environmental concerns, and parts availability issues

## Potential Solution:

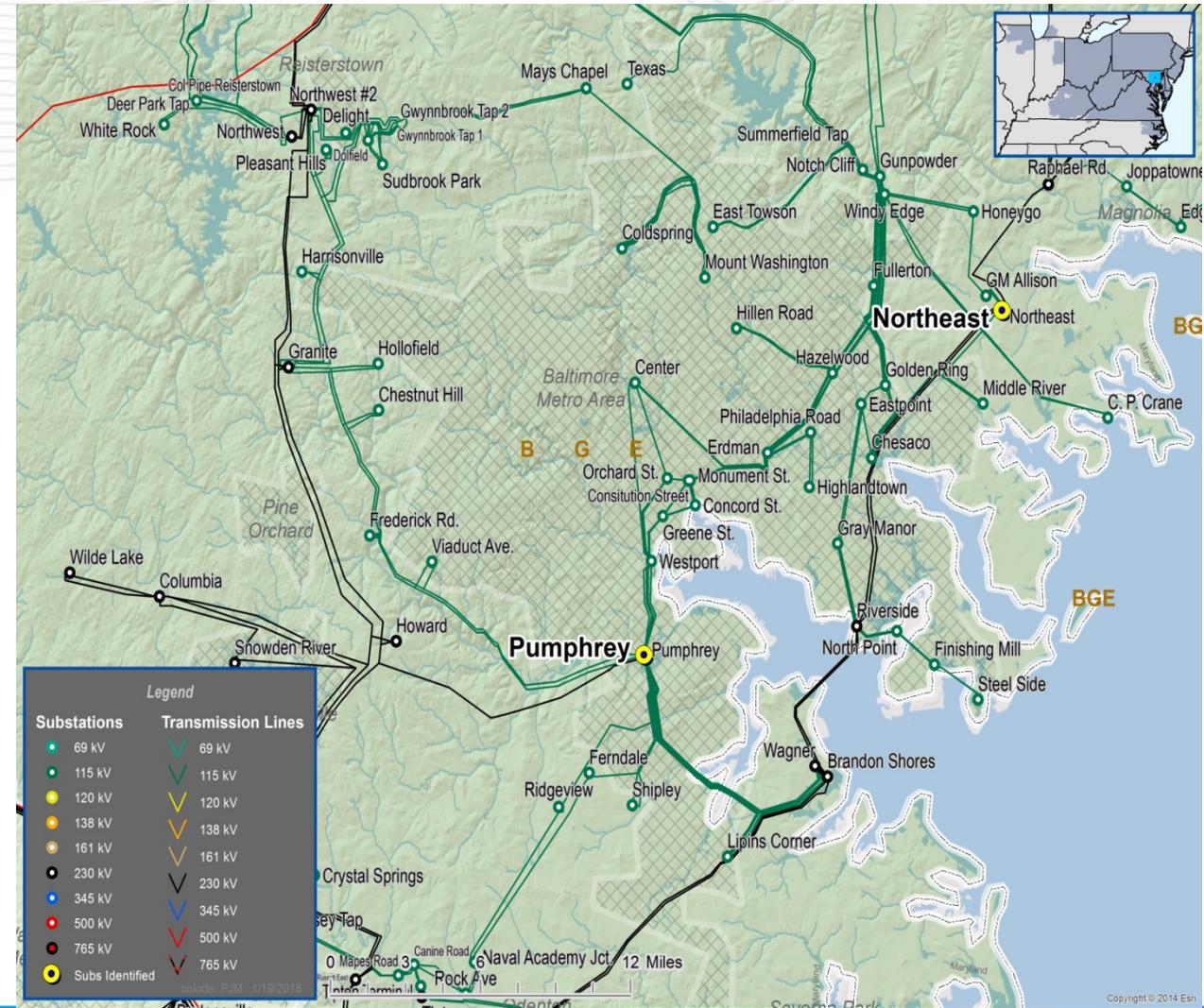
- Replace five breakers at Northeast with new 63 kA rated gas circuit breakers
- Replace two breakers at Pumphrey with new 80 kA rated gas circuit breakers
- Estimated Cost: \$2.389 M

## Alternative Solution:

- Do Nothing

**Expected In-Service:** 12/1/2018

**Status:** Engineering



# Second Review

## Baseline Reliability and Supplemental Projects

**Previously Presented:** 12/19/2017

**Problem Statement:**

**Load Deliverability DPL South (Summer):**

- Low voltage violation at Lank 69 kV station during the Delmarva South LDA load deliverability analysis.

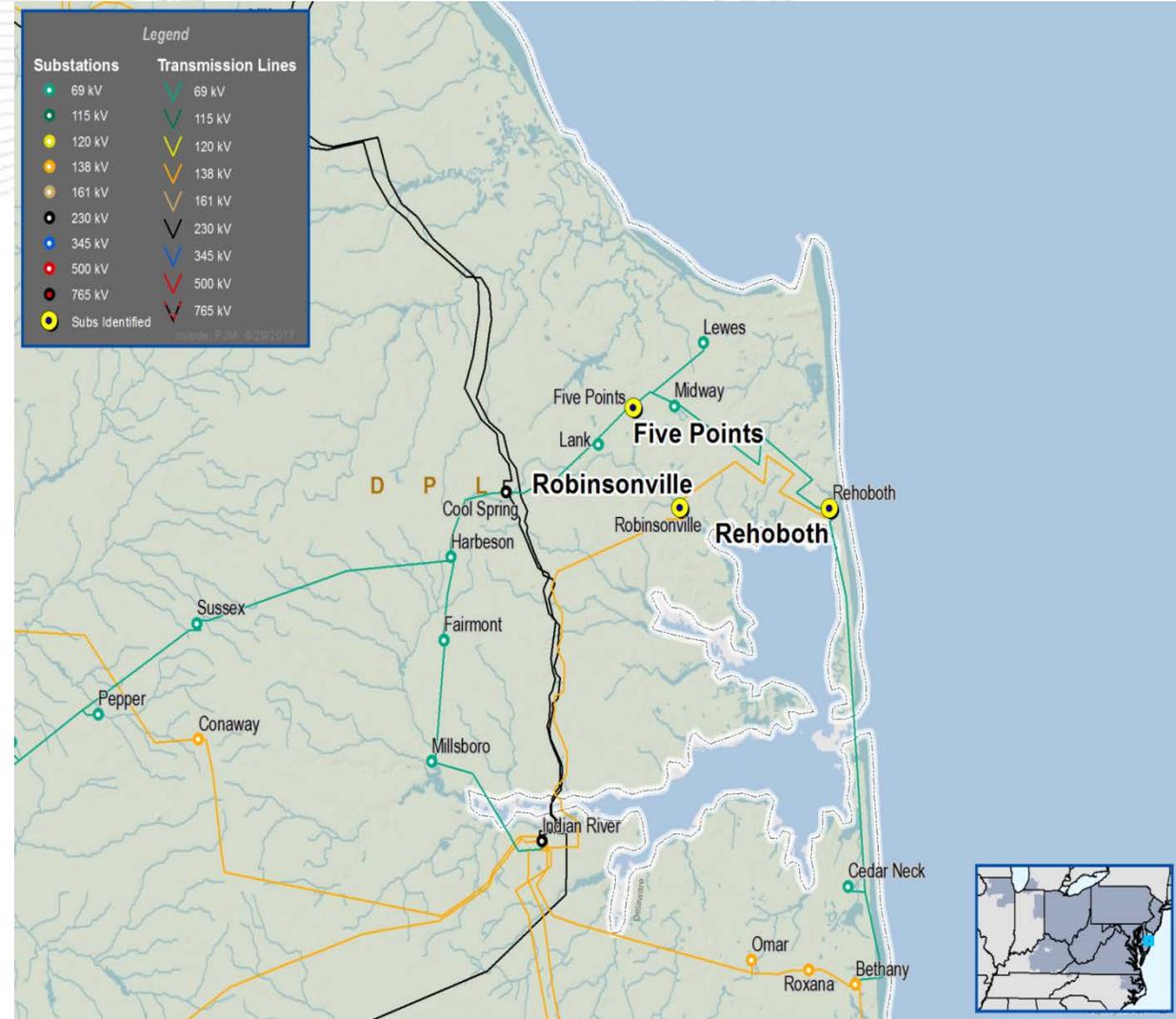
**Recommended Solution:**

- Install a 30 MVAR capacitor bank at DPL's Cool Springs 69 kV Substation. The capacitor bank would be installed in two separate 15 MVAR stages allowing DPL operational flexibility. (B2987)

**Estimated Cost: \$1.75 M**

**Required In-Service: 6/1/2022**

**Status: Conceptual**



# Next Steps



# Upcoming SRRTEP-Mid-Atlantic Meetings

Mid-Atlantic	Start	End
1/26/2018	8:30	12:30
3/23/2018	8:30	12:30
5/25/2018	8:30	12:30
7/20/2018	8:30	12:30
9/21/2018	8:30	12:30
11/28/2018	8:30	12:30

Questions?





# Revision History

1/25/2018 – V2 – Added upcoming SRRTEP Mid-Atlantic Meetings

1/19/2018 – V1 – Original version posted to [pjm.com](http://pjm.com)