



FirstEnergy – FE East Yards Creek Pumping [SPS] Retirement Proposal

Presented by:

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Yards Creek Pumping [SPS]

- **Condition:**
 - Yards Creek pumped storage generation facility in pumping mode
and
 - Outage of the Portland to Greystone (S1007) 230 kV line (or) Outage of the Bushkill to Kittatinny (1019) 230 kV line
- **Previous Result:**
 - Potential overload of the Portland to Kittatinny (V1010) 230 kV line
- **Current Result:**
 - *No overload on the Portland to Kittatinny (V1010) 230 kV line*
- **Existing Procedure:**
 - When Yards Creek pumped storage generation facility is in pumping mode, the SPS is armed.
 - Once the SPS is armed if the actual flow on the V1010 230 kV line exceeds the applicable emergency rating (Winter/Summer), a Yards Creek pump will trip at 60, 120 & 180 seconds until either the V1010 230 kV line flow is below the applicable emergency rating or all pumps have been tripped.
- **System Changes**
 - *Portland - Kittatinny (V1010) 230 kV line rating increased in 2012*
 - *Susquehanna-Roseland 500 kV line constructed in 2015*
 - *Portland generation (401 MW) deactivated in 2015*
- **Proposed Procedure:**
 - *Retire Yards Creek Pumping [SPS] and remove from PJM Manual 03: Transmission Operations*

Area Major Transmission Facilities

pjm Major Transmission Facilities
as of January 2017

Generators

Voltage (kV)

- 765
- 500
- 345
- 230
- 161
- 138
- 115
- 69

Substations

Voltage (kV)

- 765
- 500
- 345
- 230
- 161
- 138
- 120
- 115
- 69

Trans. Lines

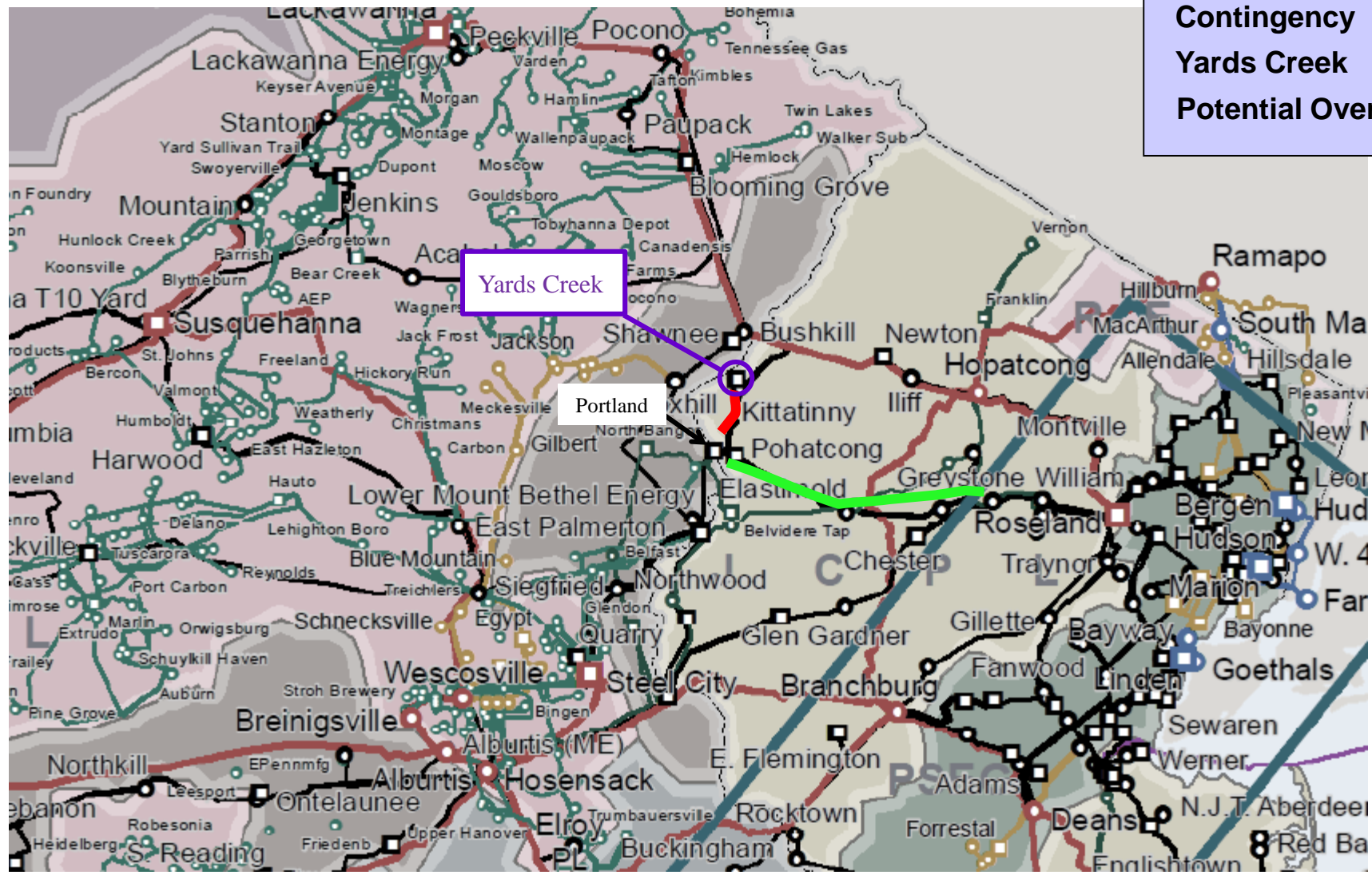
Voltage (kV)

- HVDC
- 765
- 500
- 345
- 230
- 161
- 138
- 120
- 115
- 69

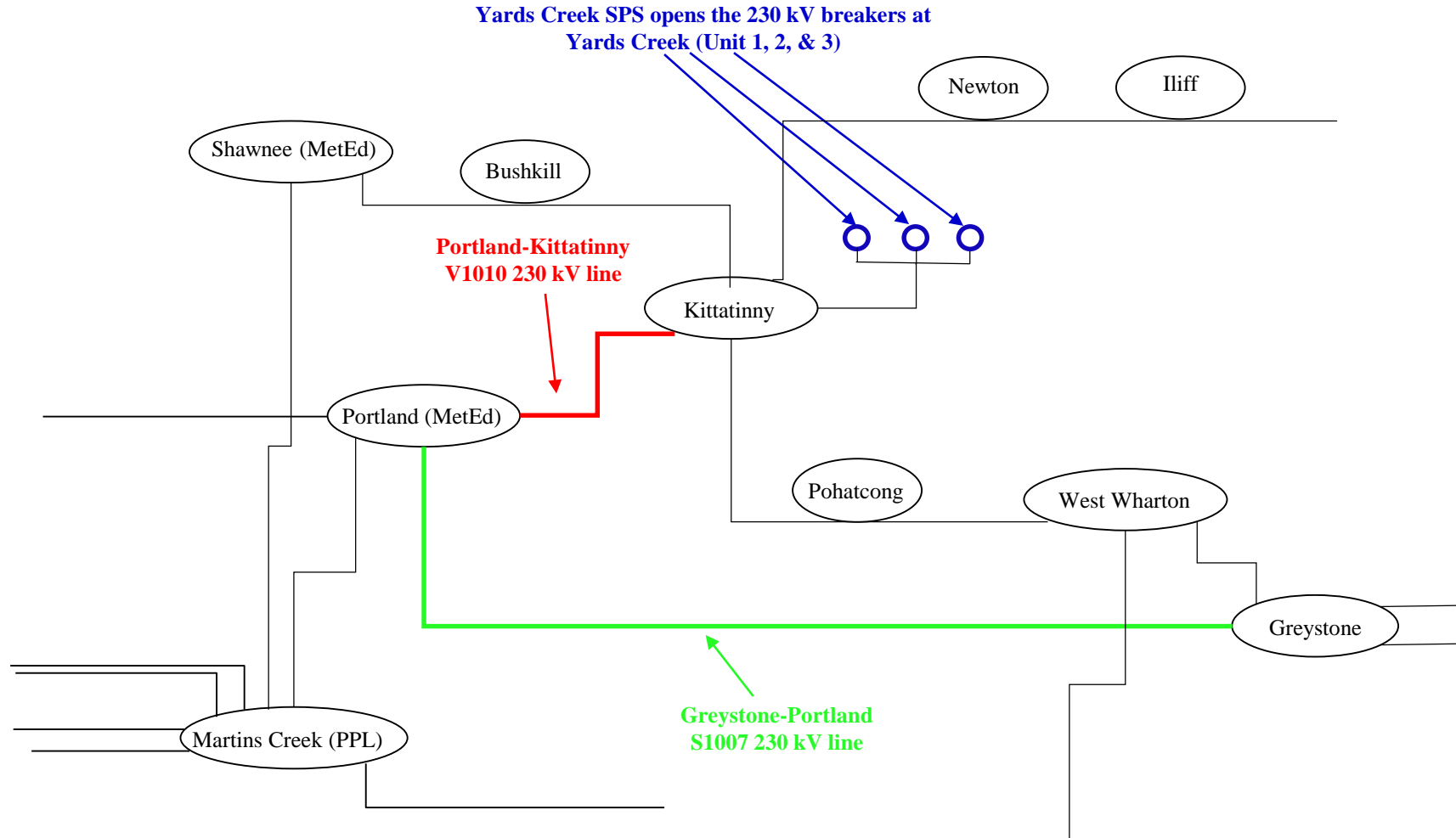
Contingency —

Yards Creek —

Potential Overload —



Yards Creek



PJM Operating Procedure Description

Excerpt from the PJM Manual 3 : Transmission Operations Yards Creek Pumping

To mitigate overload concerns on the Portland – Kittatinny ‘V1010’ 230 kV line during times of Yards Creek hydro in pumping mode, when armed and the actual flow on the ‘V1010’ line exceeds emergency ratings (Winter/Summer) a Yards Creek pump will trip at 60, 120 & 180 second intervals until either the line flow is below the emergency rating or all pumps have been tripped.

Last Activation date – None in last 5 years

Retire Yards Creek Pumping excerpt from the PJM Manual 3

Proposed SPS Retirement

- Based on present and future system conditions the retirement of the Yards Creek Pumping SPS is being recommended.
- Primary drivers of proposal to retire SPS
 - Portland - Kittatinny (V1010) 230 kV line rating increased in 2012
 - Susquehanna-Roseland 500 kV line constructed in 2015
 - Portland generation deactivated in 2015
 - 401 MW of Generation

Questions?