Reactive Interface Review

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Market Implementation Committee
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TLC Tool Overview

- Transfer Limit Calculator (TLC) simulates transfers to assess voltage violation and/or collapse conditions for reactive interfaces.
- The TLC executes in the PJM EMS approximately every 5 minutes automatically updates the transfer limits.
  - The TLC determines a collapse point for each interface.
- The PJM dispatchers continuously monitor and control the flow on each transfer interface so that the flows remain at or below the transfer limits. This ensures that no single contingency loss of generation or transmission in or outside the PJM RTO causes a voltage drop greater than the applicable criteria.

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July 2nd TLC Results

- Preliminary unrestricted peak demand: 166,236 MW (3rd highest peak)
- Reactive interfaces approached limits (West, Central, East, Bedington-Black Oak, AP South, AEP-DOM) in TLC.
- TLC reported approaching post-contingency voltage collapse conditions originating from a heavily loaded pocket in northern Virginia area.

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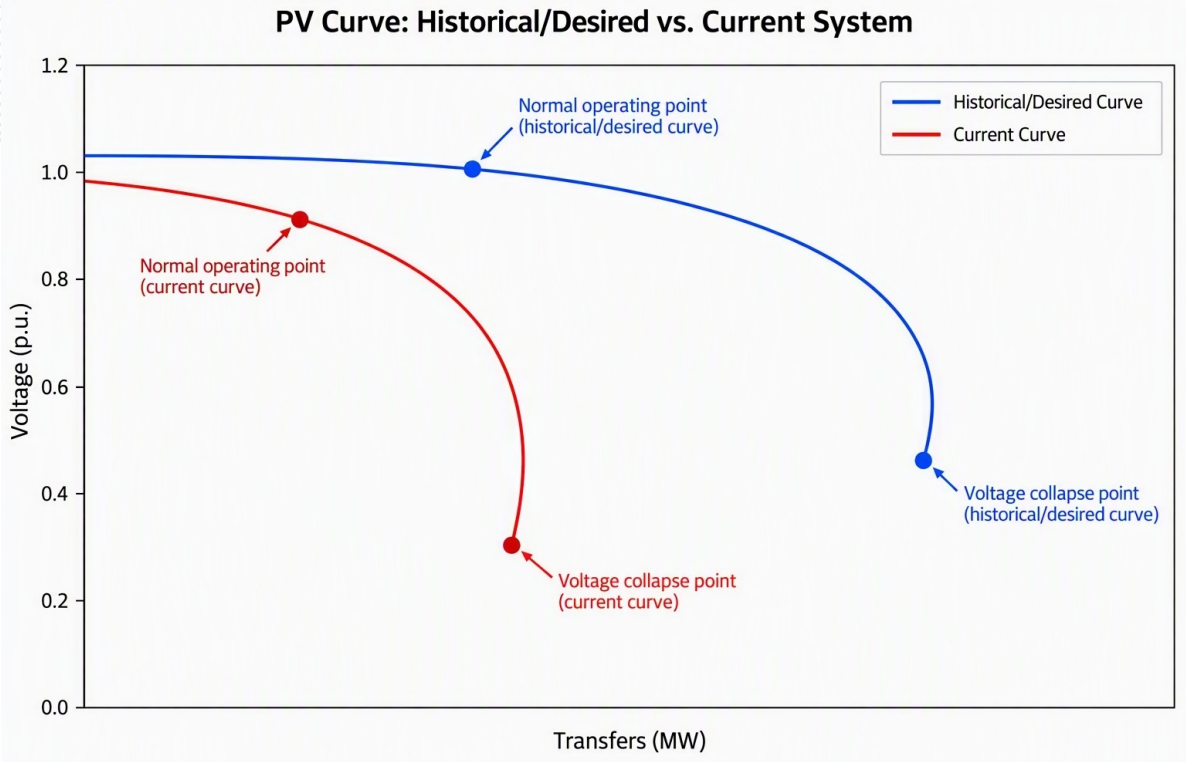
Follow Up Analysis

- Testing was conducted which verified TLC's results.
- No related post-contingency low voltages or drops were reported by Contingency Analysis.
  - This was due to the steepness of the Power-Voltage curve.



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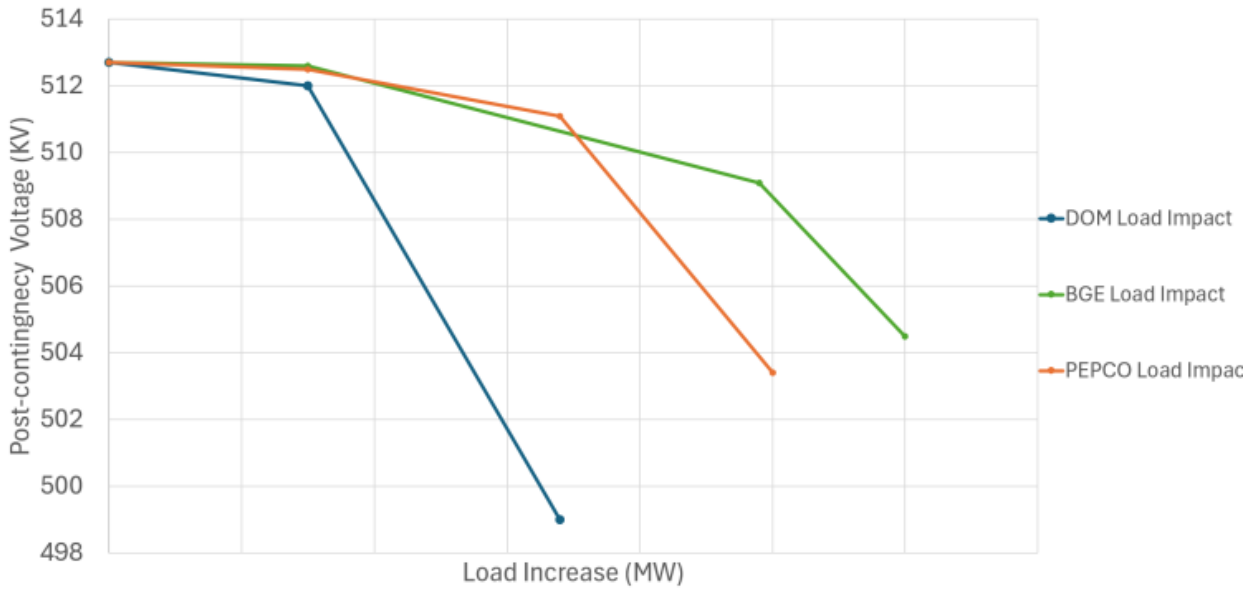
Follow Up Analysis

- Two new Reactive Interfaces are needed:
  - Due to the changing system
  - Based on voltage analysis results
  - To adequately describe and control for the impact of the load pocket
  - Not IROL interfaces



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New Dominion-North Reactive Interface

- New Dominion-North Interface Definition:

500 kV Doubs – Goose Creek
500 kV Doubs – Aspen
500 kV Meadow Brook – Loudoun
500 kV Morrisville – Loudoun
500 kV Morrisville – Bristers
500 kV Chancelor – Bristers
500 kV Burches Hill – Possum Point
500 kV Possum Point – Ladysmith
Several 230 KV lines

- Designed to capture the voltage impact of local transfers into the identified load pocket.
- Needed to screen and control for post-contingency voltage collapse due to heavy load pocket loading.

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New DOM-BC-PEPCO Reactive Interface

- New DOM-BC-PEPCO Interface Definition:

  500 kV Cloverdale – Lexington
  500 kV Mt Storm – Valley
  500 kV Front Royal – Morrisville
  500 kV Meadowbrook – Loudoun
  500 kV Doubs – Goose Creek
  500 kV Brighton – Waugh Chapel

- Designed to capture the voltage impact of regional transfers into Dominion, BGE, PEPCO.
- Needed to screen and control for post-contingency voltage collapse due to heavy transfer conditions.

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Next Steps

- Communication Steps:
  - PJM System Operations Subcommittee – November 30
  - PJM Markets Implementation Committee – December 2
  - PJM Operating Committee – December 3
  - Post New Interface Definitions – December 9

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Contact

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