

CONFIDENTIAL Issue Brief

April 7th, 2015 Electricity Disruption Event in the NCR

Background

On April 7th, 2015, at about 12:30 pm, a high voltage (230KV) electrical transmission line delivering power from PEPCO to the Southern Maryland Electric Cooperative's (SMECO) Ryceville power substation failed causing an electrical short and small fire at the substation, which in turn caused a voltage drop across the electric transmission and distribution network. Initial reports showed an insulator and one of the six power lines coming into the substation failed. Charles County Fire & EMS quickly extinguished the blaze at the substation. Cause of the failure is under investigation.

Clusters of customers across the region, including in SMECO's service territory and served by some PEPCO substations in the District of Columbia and Maryland were affected. Specific reports included outages at several metro stations in DC and Maryland; Union Station and Amtrak and several federal facilities (including White House, State Department, US DOE, Smithsonian Museums, US Capitol) went on backup power.

Organizations interested in or investigating the event include the Maryland Emergency Management Agency (MEMA), DC HSEMA, DC and Maryland Public Service Commissions, the North American Electric Reliability Corporation (NERC) and its regional reliability council (Reliability First), the Federal Energy Regulatory Commission (FERC), Pepco, PJM, and SMECO. Event analysis reports being developed by PJM and NERC are anticipated to be complete between the end of May and July. Given sensitivity and confidentiality concerns, it is not clear yet what level of detail will be shared.

Implications for the Region

Why did this event cause problems at facilities in the region?

- Some critical facilities had capability to detect voltage issues with the distribution system and automatically move to run on backup power systems. Others lacked backup power and lost service.

Does this incident indicate a systemic problem in the electric transmission and distribution system?

- There is no systematic problem in the electrical transmission system. However, this incident demonstrates several important considerations:
 - The interconnectedness of the electrical distribution system, and the overall reliance of critical and non-critical facilities on uninterrupted power.
 - The ability for the system to automatically and very quickly prevent damage by redirecting power flows, closing circuits, switching to backup power.

What is the likelihood of a similar event happening again?

- Electrical power outages can be caused by multiple factors. While most are familiar (falling limbs, ice, and storms) disruptions can also be caused by system anomalies caused by voltage and power flow issues on the larger system.

- It is probable that similar events will occur on the transmission and distribution system in the future; however, events such as this are not anticipated to occur with regular frequency.
- Some considerations:
 - Continued investments are needed to maintain electrical system infrastructure.
 - Regulatory oversight is needed on an on-going basis to implement policy and procedures to mitigate the chances of system disruption. Oversight is split between the FERC for the bulk transmission system and state/DC public service commissions for local distribution systems.

Questions/Discussion Framework

What risk does our region face?

- The region is reliant on a complex electrical power system. Failure of or anomalies on the system can impact public and private missions and operations. Disruptions of power can and do happen, and operations can be disrupted.
- Parts of the transmission and distribution system are aging and may require significant investment to maintain, upgrade, or modernize.
- Critical facilities need to continue to invest in and maintain capability to ensure power quality and supply.

What can be done to mitigate the risk?

- Utility investment in upgrading and modernizing the electrical system.
- Professional investigations with recommendations on new policies or procedures to address vulnerabilities.
- Maintenance and testing of on-site backup power generation systems.
- Investments in new local power generation such as advanced microgrids.

What is the role of public bodies (state and local governments) – staff and elected officials?

- States have regulatory oversight of public utilities and must work with power providers to enable cost recovery for investments in system needs.
- NERC, with oversight from FERC, has the ability to conduct investigations, determine compliance with standards, and recommend new standards to address system reliability.
- Governments and other owners/operators of critical facilities can invest in back-up power systems and on-site sources of power.