BGE’s Proposed Constitution Street 115 kV Switching Station Project
MD – DC Utilities Association
October 2, 2013
Cambridge, Maryland
A switching station is an intermediate station between substations. The incoming power lines and outgoing power lines have the same level of voltage meaning there is no transformer to step down the voltage to connect the load. Switching stations are created for the purpose of controlling important parameters in a power system and control of voltage rise due to capacitive effect or voltage drop due to reactive effect or both.
Overview -

- BGE is making significant investment in Baltimore City to improve the reliability of its 115 kV system which serves Baltimore City Substations.

- The Constitution Street project is a key component for improving the reliability of BGE’s 115 kV infrastructure serving downtown Baltimore.

- This project will interconnect with other infrastructure currently in service and satisfy NERC Planning Reliability Standards allowing BGE to continue to deliver safe and reliable electric service to downtown Baltimore and meet the long term growth needs of the City.
Background – BGE Transmission Supply Rings

115 kV Ring serves Baltimore City
Proposed Site:

- The 1.2 acre site is partially within zone AE of a riverine floodplain but no reasonable land options exist for alternative locations.
- Site is fully paved in an urban environment and currently serves as a surface parking lot.
- The floodway is confined to a triple box culvert located beneath the roadbed of the nearby Jones Falls Expressway.
- The box culverts are undersized for the 100 year peak stormwater runoff from the upstream watershed.
- Excess runoff travels overland north to south to Baltimore’s Inner Harbor.
Project Area – Downtown Baltimore City

[Map of downtown Baltimore City showing various substations and streets]

- Orchard St. Substation
- Proposed Constitution St. Station
- Monument St. Substation
- Greene St. Substation
- Concord St. Substation
Project Area with Floodplain Overlay
Proposed Constitution Street Switching Station Site

Build new 115 kV Switching Station (GIS) on a portion of the Fallsway Properties LLC Parking Lot

Existing Monument Street Substation

BGE Front Street Complex & Operations Service Center
Proposed Constitution Street Switching Station Site with Floodplain Overlay
Proposed Constitution Street 115 kV Switching Station
Typical BGE Switching Station
Exterior wall will be modified to account for Flooding Conditions
Typical 115 kV Switching Station – High Voltage GIS Equipment
Typical 115 kV Switching Station - Control Room
Challenges:

- Design and construct a facility that meets Baltimore City’s rigorous hazard mitigation planning process as well as minimize flood water displacement.

- Obtain local and state permits to build “critical infrastructure” in the 100 year flood plain.