

EKPC POWELL TAYLOR AREA & BROUGHTONTOWN AREA VOLTAGE VIOLATIONS

EKPC's 2020 series 2022/2023 winter peak conditions were used for EKPC's annual system screening analysis for 2021 planning cycle. Based on EKPC's FERC 715 transmission planning reliability criteria, voltage violations were identified in the Powell Taylor and the Broughtontown areas in the 2022/2023 winter case.

In the Powell Taylor area, the case includes the outage of Browns unit No. 3, with replacement generation imported from north of the EKPC system. These conditions result in low voltage issues at Powell Taylor, Van Arsdell, Sinai and Clary Lick 69 kV buses for an N-1 outage. In the 2019 series models, the LG&E/KU's Southville-Finchville 69 kV line was incorrectly modeled as normally closed. The status of this line was corrected in the 2020 series models to be normally open, which led to low voltage in the area.

In the Broughtontown area, the case includes the outage of Cooper units No. 1 and No. 2, with replacement generation imported from north of the EKPC system. These conditions result in low voltage issues at Broughtontown, Tommy Gooch and Highland 69 kV buses for an N-1 outage. Load shifts in the area associated with the addition of the Broughtontown distribution substation that offloads a nearby substation is causing low voltage in the area.

As a result, these projects will be designated immediate need to address the near term low voltage violations in the 2022/2023 winter timeframe. Because these facilities are wholly located inside existing 69 kV substations owned by EKPC, EKPC will be the designated entity to perform the work to address the low voltage conditions.