



TEXAS A&M UNIVERSITY

Department of Electrical
& Computer Engineering

TRANSFORMING ENGINEERING EDUCATION

ENERGY & POWER GROUP SEMINAR

Estimating the Electric Field From Geomagnetically Induced Currents

Abstract

This paper presents a weighted least squares algorithm to find the electric field during geomagnetic disturbances (GMDs) using geomagnetically induced current (GIC) measurements. Estimation of the electric field requires familiarity with the grid's layout, including but not limited to, transformer types, conductances, and line orientations. The algorithm is tested using the 2000 bus synthetic Texas case. The results show that not only can the electric field be accurately estimated using only GIC neutral measurements, but that only eight GIC neutral measurements are required.



Nicole LoGiudice
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Friday, April 12
11:30 am
241 ZACH

Biography

Nicole received her BS degrees in electrical engineering from Texas A&M University, College Station, TX in May 2023. She is currently pursuing her PhD in electrical engineering at Texas A&M University in College Station, TX. Research interests include GMD modeling, effects, and mitigation pertaining to the electrical grid, extreme weather events modeling with electrical grid simulation, resiliency, renewable energy integration with the power grid, and optimization.