Introduction of WBG devices for Solid-State Circuit Breaking at the Medium Voltage Level

Objectives:
Demonstrate a medium voltage (3.3kV) SiC Solid State Circuit breaker.

Major Milestones:
Test a functioning prototype.

Significant Equipment Acquisition:
Medium Voltage SiC Mosfets and packaging from CREE.

Deliverables:
Validated design with a precommercial prototype.

WBG Technology Impact
1. Fast turn off capability in the microsecond range or better, and superior efficiency compared to silicon.
3. Timeframe for commercialization: One year after end of project
4. Project competes against traditional mechanical breakers and reclosers

Additional impacts
1. Value added through device intelligence compared to traditional protection devices.
2. Transformational technology for the current grid infrastructure.
3. Foster ties between UNCC as a Power Engineering educational center and the power industry.
4. US will be the first in demonstrating this technology, starting from the grid-edge and upwards.