NC State University, CREE | Membership Level (Full)

Project Title: **Shore-to-Ship MV SiC Converters System: Application of Medium Voltage Asynchronous Micro-grid Power Conditioning System**

Objectives: To design, develop, validate and optimize the Ship to Shore Asynchronous Power Conditioning System (STS-APCS). hardware, including the two-level three-phase converter based Active Front End Converters (FECs) and Inverter, will be built and tested at grid connected full load conditions.

Major Milestones: Demonstration of medium voltage Inverter by series connection of three series connected 3.3 kV SiC MOSFETs

Deliverables: Fully functional Inverter block for STS application

XHV-7 SiC 3.3kV, 320A module

TPOC/PI: Subhashish Bhattacharya Dave Grider, CREE
Email: sbhatta4@ncsu.edu
Phone: 919-744-1428

WBG Technology Impact

- Enables SiC based Medium Voltage converters which are highly efficient compared to Si based converters
- Increases reliability of these high power density converters
- Market segments impacted: High Power density STS-APCS connectors.
- Time frame for commercialization: 3-5 years

More WBG Impact and Additional impacts

- Reduction in the weight and volume of Si based MV conditioning system using gears for compressor applications
- With large scale production, the cost will come down since the electricity saving is significant
- Potential for Job Creation, Economic impact
- Workforce Development and Education