

Hybrid Switched Capacitor Circuit Development for Use of GaN Diodes in High Gain Step-Up Converters (Hy-GaN)

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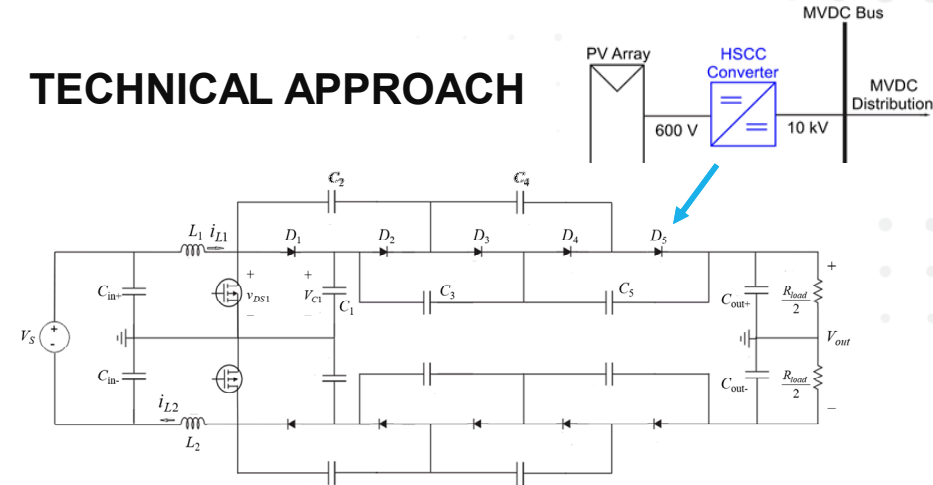
PROJECT OBJECTIVES

- To greatly accelerate the adoption of photovoltaics into the grid by enabling cheaper and more efficient DC distribution networks
- Project will develop compact ($>100 \text{ W/in}^3$), Efficient ($>95\%$ CEC equivalent), Medium Voltage capable ($>10 \text{ kV}$) converters
- Project combines the use of Wide Band Gap based devices with novel converter topologies

PROPOSED TASKING

- Develop new Hybrid Switched Capacitor Circuit (HSCC) based power converters that use SiC and GaN components
- Optimize the parameter selection and develop new packaging schemes to achieve power density and efficiency targets
- Demonstrate converter at 10 kV and 10 kW in laboratory and relevant operating environments

TECHNICAL APPROACH



Demonstrated full 10 kV conversion; recently achieved 3.6 kW at 97% efficiency

