

High Efficiency Multiport Power Conversion for an Hybrid-Electric Propulsion System

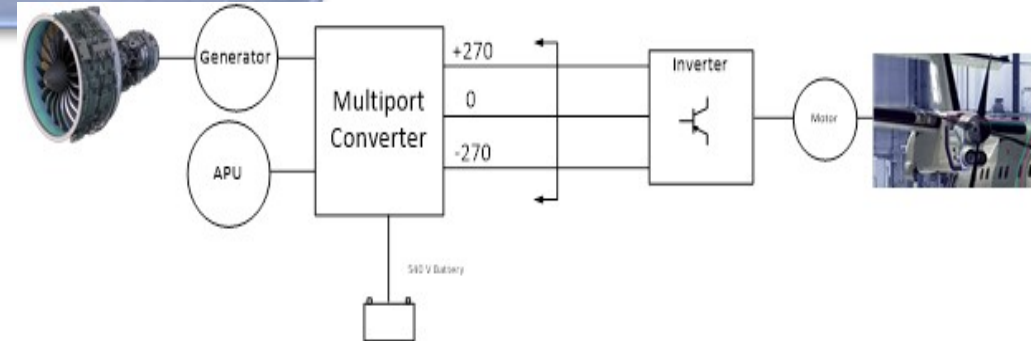
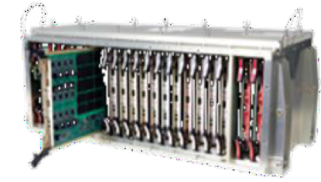
Objectives: Develop High efficiency WBG based modular multiport converter unit to interface simultaneously source , loads and energy storage for more electric and all electric aircraft applications

Task No. **BP5-4.23A**

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WBG Technology Impact

1. The proposed WBG Multi-port converter will meet system requirements needed for the intended applications (power density, efficiency, reliability). It is not possible to simultaneously meet power density and efficiency requirements with existing silicon technology.
2. Market segments impacted: Aerospace electric equipment, Grid tie converters , Solar PV, Motor drives,
3. Timeframe for commercialization: Field Trials TRL8 by 2022-23 and customer installation in 2025
4. Relevant metrics: Efficiency $\geq 98\%$ at full load and $\geq 97\%$ at part load
Power density $\geq 2\text{kW/liter}$

Additional impacts

1. Upon full commercialization it is expected that this application will accelerate and broaden adoption of WBG technology in aerospace and industrial converter/drives applications
2. UTC Collins Aerospace has manufacturing facilities in U.S. and around the world - potential for Job Creation & Economic impact.
3. This project will help industry validate the benefits of WBG technology and remove the risk associated with adoption of this technology for commercial products.
4. This project will help improve U.S. competitiveness by taking the lead in the commercialization of technologies that help reduce energy consumption and reduce the impact on climate.