Solid-State Transformers for Microgrids and Battery Charging

Solid-state transformers (SSTs) are poised for widespread use in connecting renewable energy sources to the utility grid, replacing traditional 50 Hz transformers in the distribution and higher voltage grid, microgrids and battery-changing installations.

Competitive advantage

- Demonstrated capability in the design converters and controllers for SSTs with 20 kHz transformer
- Modular design capability to cater to higher power
- Supervision to completion of a PhD student who investigated, built and tested a 2kW SST at UNSW in 2018

Impact

- The world-wide market for SSTs at present is estimated at $100b, and rising fast. This is because of their inherent ability for fast protection and control of power-flow in both directions, high efficiency and much smaller footprint (implying high power density).

More Information

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Successful outcomes

- SST development is currently undergoing intense research in several universities in Europe, USA and Japan, in conjunction with industries

Our partners

- Ultima Capital Partners
- Defence Innovations, Melbourne