

Title of the Proposed Research

Research on Power Electronics and Control: Grid-Interface for Renewable, Storage and Green Micro-Grids

Related Technology Fields: The primary area of the proposed research is in the category of “Power Electronics, Power Systems, and Transmission of Electricity”. However, the impact of this research will be in all the research areas mentioned in this RFP “Renewable Energy for Minnesota’s Future:”

1. Wind Generation
2. Photovoltaic Generation (utility-scale and community-solar)
3. Electric Energy Storage in the form of battery-stacks
4. Hydropower, Biofuels and Thermal Electric, all of which will utilize variable-speed electric generators to optimize their efficiencies at various output power levels
5. Interface of green micro-grids, with significant renewables within them, with each other and with the main grid