

Rupp Carriveau Bio



Dr. Rupp Carriveau is the Director of the Environmental Energy Institute and a Director of the Turbulence and Energy Lab at the University of Windsor. His research activities focus on energy systems futures. Dr. Carriveau serves on the Editorial Boards of Wind Engineering, Advances in Energy Research, and the International Journal of Sustainable Energy. He recently Guest-Edited special editions of Energies and The Journal of Energy Storage. Professor Carriveau was a recent recipient of the University Scholar Award and has acted as a Research Ambassador for the Council of Ontario Universities. Dr. Carriveau is a Founder of the Offshore Energy and Storage Society (OSES) and recently Co-Chaired OSES2018 Ningbo China, and

OSES2019 Brest France. Professor Carriveau is Chair of the IEEE Ocean Energy Technology Committee.

Speech Title

Non-Wires Power Solutions to Ontario's Rapidly Expanding Agricultural Sector

The Leamington/Kingsville area is home to the greatest concentration of greenhouses in North America. Over 2800 acres of under glass agriculture accounts for \$1B in economic activity in the Province. The sector is undergoing rapid expansion and transformation. Individual operations are increasingly integrating LED lights to extend daily and seasonal growing times. A significant portion of operations are also becoming automated, from packing processes to harvesting routines. These non-trivial load additions are being multiplied through massive expansions of the sector. Planned expansions have could increase current sector loads five-fold in just five years. To meet this demand with conventional grid supplied electricity will require the buildout of new transmission infrastructure. It is presently unrealistic to expect completion of a transmission project of this magnitude in the time frame required. Beyond this, evidence is growing to suggest that notable cost savings can be achieved through innovative and strategic transmission deferral solutions. Concerns over operational reliability and resilience are not new for these large operations, a number have onsite generation capacity, which has, to some degree, reduced their grid reliance. While a select few have even gone off-grid. Much of the sector operates individually, without coordination between organizations to optimize resources and minimize costs. This project is advancing a novel harmonized effort to establish a resource map of BTM assets across the sector. It investigates, for the first time, the potential to leverage the coordination and connection of BTM assets to help reduce short term transmission challenges. Beyond this, even greater transmission reductions will be investigated through the prospective installation and microgridding of new BTM generation and/or storage assets. Strategies for how to design and assess the most attractive Non-Wires Alternatives (NWA) to transmission buildout will be discussed.