

Title

Assessing the benefits of district energy grids in high penetration renewable energy systems

Abstract

District energy grids have been used for over a century as a means for supplying energy to the masses. A district energy grid is a centralized energy management system built around a network of buried pipes that permits the distribution of thermal energy from sources to loads. In this talk, the benefits of using district energy grids for accommodating high shares of excess renewable energy from non-dispatchable sources such as wind, wave, and solar are presented. A case study of a remote community located on the West Coast of Vancouver Island will be discussed, in which both large scale wave energy integration and a district energy grid are considered. Finally, applications of district energy grids in urban environments will be presented and the importance of such systems for sustainable community development will be highlighted.

Biography

Jean completed his Masters degree in Materials Engineering at McMaster University in 2003. His research focused on the design and fabrication of solid oxide fuel cells stacks. Following his Masters, he worked as a research engineer focusing on novel membrane deposition techniques for solid oxide fuel cells.

In 2007, Jean left Canada to pursue a Masters degree of Renewable Energy in Europe. He studied both at Zaragoza University in Spain and Kassel University in Germany. His research focused on the design and sizing of hybrid renewable power systems. Afterwards, Jean worked as a research engineer at the Hydraulics and Maritime Research Centre in Cork, Ireland, on the assessment of wave energy integration strategies for the European electrical grid.

In 2011, Jean moved back to Canada and joined the Institute for Integrated Energy Systems at the University of Victoria to begin his PhD. His current research interests include renewable energy integration in on/off grid systems, modeling and simulation of district energy grids, combined heat and power, energy from waste, low energy buildings, and sustainable water purification systems.