Smart Energy Community Microgrid Project

Grid Innovation Fund Project Details

Lead Proponent: Opus One Solutions

Partners: Elexicon Energy, Marshall Homes, Ontario Ministry of Energy

Strategic Area(s):	Enabling Non-Wires Alternatives
Project Total Cost:	$3,141,000
Year Contracted:	2018
Location:	Pickering
Economic Development:	6-10 jobs

Project Objectives

This project will develop a new microgrid community in west Pickering (Altona Towns) giving new homeowners more choice and control over their electricity production and consumption.

The project is the first pre-planned smart energy community in Ontario. As the electricity system becomes increasingly decentralized, local utilities and developers have important roles to play. This project enables the developer and the local utility (Elexicon Energy) to participate in the development of the smart energy community from its inception and to develop processes and procedures as a blueprint for future smart energy communities in Ontario.

The microgrid includes a group of 27 townhouses supported by 250 kW / 500 kWh battery energy storage system, 25kW rooftop solar photovoltaics, one electric vehicle charger and an integrated distribution energy service platform to control and coordinate the components of the microgrid.

The coordinated use of solar panels, electric vehicle chargers, and energy storage will help homeowners save money and reduce emissions while demonstrating how microgrids can defer investments in traditional electricity infrastructure.

The project will also provide feeder visibility to Elexicon Energy to monitor the feeder and optimize microgrid resources according to real-time conditions to provide grid benefits.

Expected Outcomes

The project will generate valuable learnings for electricity system planners and operators, municipal planners, and developers, on the value of microgrids.

Quantifiable outcomes include:

1. Measuring customer and community resiliency capabilities through intentional islanding using the battery storage systems as the backup source of power.

2. Quantify the potential value of distributed energy resources (DERs) to reduce load, provide back up power, provide volt/VAR optimization and power factor correction.

Further details: New Microgrid Community in Pickering Demonstrates Future of Residential Neighbourhoods (ieso.ca)

Aerial view of the completed Altona Towns development in Pickering, Ontario.