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Vancouver campus deploys new \$5.1M 'smart grid' energy storage system

THE UNIVERSITY OF
BRITISH COLUMBIA

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UBC President Stephen Toope today unveiled a new energy storage system, or prototype smart grid, created in partnership with Alpha Technologies Ltd. and Corvus Energy.

The project integrates one megawatt hour of stored energy — enough to power an average home for 1,000 hours — into a power grid that supports three major campus facilities.

Initially created in response to the university's need for emergency back-up power at UBC's Bioenergy Research and Demonstration Facility (BDRF), the energy storage system will advance research on integrating renewable-energy sources, like solar and wind, into large power grids.

The smart grid technology will allow the storage of clean power when it is generated and its use in times of peak demand. Most community power grids do not have this capacity. The technology is also a key requirement for integrating clean-energy sources into the power grid.

"This partnership is an opportunity to use the campus as a living lab, integrating research with operations and developing technologies aimed at solving local, national, and global sustainability challenges at a scalable, commercially viable level," said Prof. Toope. "Alpha and Corvus's contributions will power this work and their leadership will light the way for others to follow."

Alpha, Corvus and UBC researchers will develop the system's automated control software and study its capacity to provide back up for critical energy demand and to be integrated into the University's power grid.

Research and data generated by the project will help demonstrate and evaluate scalable clean-energy solutions for cities and communities, and assist UBC in reaching the goal of reducing greenhouse gas emissions by 100 percent from 2007 levels by 2050.

Quotes:

"Alpha has had a long history of working with local universities in supporting research into sustainable power electronics and renewable energy," said **Victor Goncalves, Director of Research & Advanced Development at Alpha**. "The Living Lab is a multimillion dollar collaboration on smart grid and energy management that will, one day, greatly benefit industry and consumers alike."



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“This micro smart grid project represents a bold step forward that serves as a blueprint for future smart grid implementation for Corvus, UBC and Alpha,” said **Corvus Energy’s CEO Brent Perry**. “It will accelerate the realization that the ‘utility of the future’ safely delivers reliable, efficient, CO₂-free energy storage solutions that not only reduce costs but also preserve our planet’s resources. We look forward to working with Alpha and UBC to implement this system locally and to use the knowledge gained to pursue larger projects globally.”

Background: The project

- The system will be deployed at three energy nodes on campus—the Kaiser Building, BRDF and the Networks of Centres of Excellence Building.
- Corvus Energy donated 154 battery modules plus interconnection hardware and battery management software.
- Alpha Technologies provided 450kVA of power supply hardware and centralized management/control software.
- Natural Resources Canada’s Clean Energy Fund, UBC Building Operations and UBC Faculty of Applied Science provided additional funding.

UBC’s sustainability leadership:

- UBC’s aims to reduce institutional greenhouse gas emissions (GHG) by 33 per cent by 2015 (below 2007 levels), by 67 per cent by 2020 and to have zero emissions by 2050.
- The energy storage project is one of five UBC projects, valued at \$150 million, that will reduce institutional GHG emissions by 33 per cent by 2015.
- UBC’s Centre for Interactive Research on Sustainability (CIRS) opened in 2011 as North America’s “greenest” building, designed to regenerate the environment and advance research, innovation and outreach on urban sustainability challenges.
- UBC’s BDRF opened in 2012 as the first demonstration of its kind in the world of a community-scale heat and power system fuelled by biomass.
- UBC is creating a sustainable residential community where more than 18,000 students, staff, faculty and other residents live, work and learn together. UBC provides more student housing than any university in Canada.
- UBC was the first Canadian university to meet the Kyoto Protocol requirements, received Canada’s first gold STARS rating, and is regularly ranked among the world’s greenest campuses.

For more information:

- www.sustain.ubc.ca
- www.alpha.ca/livinglab
- www.corvus-energy.com/project_profile_UBC_living_lab/
- www.ece.ubc.ca