CLEAN ENERGY FUND

Ressources naturelle Canada | Natural Resources Canada

10 MW WIND TECHNOLOGY RESEARCH & DEVELOPMENT PARK AND STORAGE SYSTEM

Project Manager: Rob Brandon, OERD, NRCan - Ottawa
Lead Proponent: Wind Energy Institute of Canada (Institute)
Strategic Area: Wind/Storage
Location: Prince Edward Island

PROJECT BACKGROUND:

With federal funding through the Clean Energy Fund and a loan from the PEI government, the Institute has developed a 10 MW Wind R&D Park with an energy storage system. As the percent of wind energy increases in Canada and around the globe, penetration on electrical grids is becoming a more important and complex issue. This research project will look at how energy storage can be utilized to maximize renewable energy production and stabilize the electrical grid. This project investigates approaches to grid integration and demonstrates the effect of a storage technology. Support, through this project will also further the Institute's research, development, and demonstration in the small wind sector. This demonstration involves a number of collaborators from the provincial utility, the regional system operator and academic researchers.

BENEFITS TO CANADA:

This demonstration will build new R&D capacity and infrastructure in the wind energy industry for the benefit of Canadians. The project will help support national competitiveness with the added benefits of stimulating the economy and enhancing rural development. The Institute's priority will be to demonstrate the integration of a wind park on a weak distribution system utilizing a storage system. The project was designed in close collaboration with the local utility, Maritime Electric.

PROJECT DESCRIPTION / TASKS:

The development of the Institute's Wind R&D Park and Storage System has been broken into 6 Tasks. Each Task has specific outputs that define the completion of the task:

1. Planning and Environmental Assessment,
2. Selection and placing of a purchase order for wind turbines,
3. Selection and placing of a purchase order for an electricity storage system,
4. Design and construction of the wind park,
5. Design, Installation and commissioning of the electricity storage system, and;
6. Demonstration of advanced concepts in wind turbine systems.

Lessons learned during this project are the same as most large construction projects; 1. solid contracts and good relations with all suppliers to mitigate risks, 2. be sure to allow enough time to get through all the permitting, environmental studies and public meetings, 3. working with wind turbines installs during fall and winter months will add significant time to the project to deal with high wind periods, 5. engage expected stakeholders through out the project, 6. engage experts in the field for review of tasks, and 7. the difficult achieving efficient communication between all components of the Wind R&D Park .

The Institute's Wind R&D Park in Prince Edward Island, Canada

PROJECT OBJECTIVES/FUTURE:

This new asset base will allow the Institute to expand its research mandate and provide sector enabling support helping manufacturers, governments, and academia evaluate and improve their technologies. This project will offer system operators and utilities a test bench environment for wind and storage systems that currently doesn't exist. It is exciting to think of the future research opportunities this infrastructure allows, enabling the Institute to expand its research role into:

- Optimization of wind forecasting and forecasting methodologies using real time data collected,
- Grid integration issues,
- Continued testing, research, development, and demonstration of small wind technologies,
- Storage facilities to mitigate energy intermittency, and;
- Storage performance with respect to reliability and economics.

Storage installation at the Institute's Wind R&D Park

CEF FUNDING AND CONTRIBUTORS:

Wind Energy Institute of Canada	$13.0 M
Natural Resources Canada	$12.0 M
Total Project	$25.0 M

More information on the project is available at: www.weican.ca

Canada

Information on projects selected for the Clean Energy Fund is available on-line at: http://www.nrcan.gc.ca/eneene/science/renren-eng.php