

ASX Announcement

Tuesday, June 14, 2016

EMC Delivers First Export Revenues

ASX-listed Carnegie Wave Energy (Carnegie) is pleased to advise that its Alliance Partner Energy Made Clean (EMC), in which Carnegie owns a 35% stake, has completed construction and installation of a new Battery Energy Storage System (BESS) in Alpine Energy's Timaru Washdyke facilities in New Zealand.

The Project delivers the country's first grid connected, commercial BESS suitable for both network and consumer purposes and was launched this morning by New Zealand's Minister for Energy, the Hon. Simon Bridges. The system is part of a Project run by Alpine Energy in association with Infratec Ltd, who is a strategic partner of EMC and a regional leader in renewable generation, transmission and distribution.



New Zealand's Energy Minister the Hon. Simon Bridges (second from right) launching EMC's Battery Energy Storage System at the Alpine Energy's Timaru Washdyke facilities in New Zealand.

EMC's successful installation of the BESS and the temperature controlled container are the first step in the Company's international expansion strategy.

EMC CEO, John Davidson, said "We are excited to see our technology deployed for the first time internationally. This is a great step for EMC and we look forward to working with Infratec to further develop opportunities within New Zealand."

The Project is part of a trial to prove the financial and technical case for distributed battery storage for grid support. The overall objective of the trial is to improve power quality in New Zealand and to reduce the need to upgrade the grid infrastructure to accommodate the connection of new customers in remote or fringe of grid areas.

The trial will involve using the BESS to research the possibility of using a 1 MW (1000 kW) battery storage system for network use. The lithium ion Battery Energy Storage System can currently store up to 142 kWh of energy and provide up to 91 kVA of peak power, and has the ability to charge and discharge from the grid. At 142 kWh the BESS can supply up to 20 average sized homes for one hour during peak periods, and over two hours during off peak periods.



**EMC's Battery Energy Storage System at the
Alpine Energy's Timaru Washdyke facilities in New Zealand.**

This is the first project that follows EMC and Infratec's recently signing of a strategic alliance agreement. Under the alliance, the companies agree to share resources, skills and IP to bring a wider range of product offerings to New Zealand, Pacific Islands and potentially other international markets.

FACT FILE

Carnegie

[Carnegie Wave Energy Limited](#) is an Australian, ASX-listed (ASX: CWE) wave energy technology developer. Carnegie is the 100 per cent owner and developer of the CETO Wave Energy Technology intellectual property. Carnegie is focussed on commercial opportunities in key target markets including UK, Europe and remote islands.

Energy Made Clean

[EMC Solar](#) are one of Australia's most successful specialist Engineering Procurement Construction (EPC) cleantech businesses, with several medium and high penetration microgrids delivered, several major projects under construction and a growing pipeline of new opportunities both within Australia and internationally. EMC is focused on the expansion of its scope and capabilities to service the accelerating demand for commercially-viable cleantech products and services.

Infratec

Infratec supports a wide range of electrical, technology and asset initiatives within Alpine Energy and increasing numbers of other network customers in South Canterbury, New Zealand. This experience and expertise in energy infrastructure enables Infratec to serve a broad spectrum of clients.

More than just electrical engineers, Infratec works with clients as an energy solution provider, so their clients can focus on their core business. Infratec is also part of Netcon – established to facilitate infrastructure technology initiatives from simple to complex.

Timaru Washdyke Project

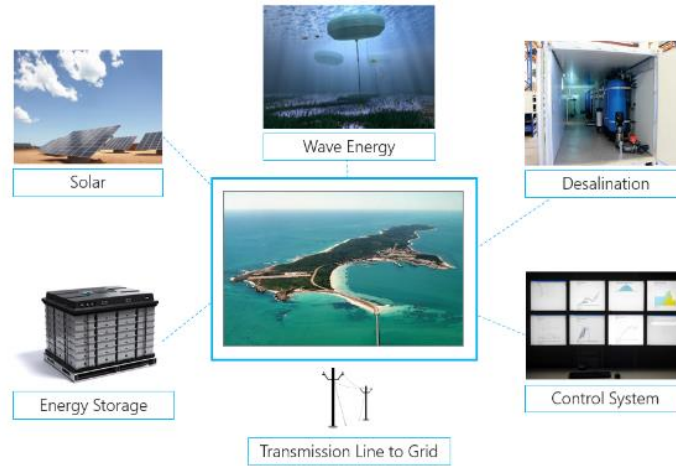
- Trial to research the possibility of using a 1 MW (1000 kW) battery storage system for network use.
- The lithium ion Battery Energy Storage System (BESS) can store up to 142 kWh of energy and provide up to 91 kVA of peak power
- BESS has the ability to charge and discharge from the grid.
- At 142 kWh the BESS can supply up to 20 average sized homes for one hour during peak periods, and over two hours during off peak periods.
- The trial duration is 5 years

Microgrids

A microgrid is a discrete energy system made up of distributed energy sources that are capable of operating independently from the main power grid.

Renewable microgrids that combine multiple renewable energy generation sources (e.g. solar, wind and wave) take advantage of different renewable energy profiles at different times of day, and with different seasonal variation, to reduce the amount of energy storage and diesel generation required.

Renewable microgrids can be used to cut costs, cut greenhouse gas emissions, and in the case of high penetration renewable microgrids, allow communities to be more energy independent and more environmentally sustainable. The precise mix of renewable sources, energy storage, fossil fuel and desalination will depend on the mix of renewable resources available locally and the needs of the customer.



For more information:

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