



TRANSACTION TAKEAWAY

KENNEDY ENERGY PARK

With the support of an AUS\$94 million senior secured loan from Australia’s Clean Energy Finance Corporation, construction has started at Australia’s first fully integrated wind, solar, and battery project at the central north Queensland Kennedy Energy Park.

The AUS\$160 million project, developed by Windlab Limited and Eurus Energy Holdings Corporation, just outside Hughenden in Central Queensland, integrates 43 MW of wind, 15 MW (AC) of solar, and 2 MW of lithium-ion battery storage. It will be capable of generating enough power for more than 30,000 average homes and will provide electricity to remote outback communities from Julia Creek to Charters Towers more than 500 kilometers away.

Windlab identified the location in 2013 and completed much of the early-stage development before selecting its joint venture partner, Eurus Energy Holdings Corporation, in 2015. The project received all necessary development approvals in 2017.

Kennedy Energy Park will take 12 months to construct and is expected to be fully operational before the end of 2018.

Location, location, location. It was challenging to find a site that would accommodate both the solar and wind projects. The requirements included plenty of sunlight during the day and ample wind with a nighttime bias. But Windlab, which identified the site, believes that it is worth seeking such sites for future projects. The cost efficiencies include common infrastructure for connection to the grid as well as shared roads, electrical equipment, and site amenities.

Connections matter. The main complexity in developing the project resulted not from the technology but from grid connection and associated regulatory issues. The regulatory authorities are scrambling to adapt to changes in technology and energy mix, particularly the impact of renewables on power quality. The developers had to invest in equipment to help the grid operator deal with power quality issues (e.g., inertia, voltage ride through, frequency control). Challenges included coordinating with other projects connecting to the grid and being on a weak line with not many interconnections to other parts of the grid.

<p>PROJECT NAME: Kennedy Energy Park Technologies: Wind, solar, battery storage</p> <p>YEAR: 2017 construction started, expected completion late 2018</p>	<p>SIZE: 43 MW of wind, 15 MW of solar panels, 2 MW of battery storage (power for about 30,000 average homes)</p> <p>DEVELOPERS: Windlab and Eurus Energy Green bank financing: AUS\$94 million loan from CEFC (100% of debt financing)</p>	<p>OTHER PUBLIC FINANCING: AUS\$18 million grant from ARENA for capital costs and studies relating to battery and connection equipment</p> <p>REVENUE STREAM: 10-year offtake agreement with CS Energy for energy and green attributes; some merchant risk retained</p>	<p>REASONS FOR GB INVOLVEMENT: First project combining 3 technologies in Australia that allows generation for a greater portion of the day; aim to build industry knowledge and demonstrate viability to private sector financiers</p> <p>LESSONS FOR THE MARKET: Treat wind, solar and battery cash flows as a single project in a single contracting structure. Merchant risk is manageable</p>
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Batteries included. The Australian Renewable Energy Agency (ARENA) is contributing AUS\$18 million of recoupable grant funding to fund the battery and integration of technologies within the project. Initially, the batteries will be charged from the excess solar energy generated in the morning and will discharge electricity later in the day when the sunlight is less intense and the wind is not up to full strength yet. This will enable the facility to generate a relatively flat block of electricity throughout the day and night. The grant will also be used for additional research on battery use (e.g., to determine ability to provide grid services), and the results of this research will be shared.

Surprisingly, the current strategy with the battery is not to use it to release power when the sun is not shining. Because the project is on the same line as another solar project, in the morning when both projects are generating, there's just too much energy to export (think of trying to drink from a fire hose), so Kennedy will have to reduce or "curtail" its output, for which it won't be paid. The battery will allow that would-be-wasted energy to be stored and released when the other solar plant is generating less.

Let's make a deal. The Kennedy Energy Park has a 10-year offtake agreement with CS Energy for the supply of renewable electricity and large-scale generation certificates.

The offtake agreement does not take 100 percent of the output from the project; that is, some merchant risk was retained. Although the power cannot quite be considered "dispatchable" (available on demand), the relatively flat block of power was a good selling point in negotiating the offtake agreement.

Lending a hand. The CEFC is the sole lender and is providing AUS\$94 million of senior secured debt financing to the project on a long-tenure basis that will be nonrecourse to Windlab and Eurus Energy. The CEFC's Wind Sector Lead Andrew Gardner said that as sole debt financier for the project, the CEFC was looking to demonstrate the bankability of large-scale integrated hybrid renewable energy projects.

"Financing three separate technologies on one site was a complex undertaking that had not previously been achieved in Australia," Gardner said. "We expect such projects to become an increasingly important part of Australia's electricity system, with complementary battery storage addressing the intermittency of wind and solar generation to better support grid stability."

The CEFC, through its role as a specialist investor, has acted to address financing barriers and build investment momentum for the clean energy sector, supporting Australia's development and deployment of innovative technologies while contributing to the resilience and competitiveness of the broader economy as it transitions to a low carbon future.

The CEFC's financing of Kennedy Energy Park exemplifies the green bank model. By financing groundbreaking projects like the Kennedy Energy Park, the CEFC is looking to build industry knowledge and expertise. By investing with commercial rigor, the CEFC signals to other financiers the potential for investment in further projects of a similar nature. Thus, the CEFC is using its public capital both to improve the state of the art of these integrated renewable energy projects and to catalyze private investment into this type of project.

GREEN BANK NETWORK

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The Green Bank Network (GBN) is a membership organization managed by NRDC and the Coalition for Green Capital that was founded in December 2015 to foster collaboration and knowledge exchange among existing Green Banks, enabling them to share best practices and lessons learned. The GBN also aims to serve as a source of knowledge and a network for jurisdictions that seek to establish a Green Bank. The GBN founding members are the Clean Energy Finance Corporation (Australia), Connecticut Green Bank (U.S.), Green Finance Organisation (Japan), GreenTech Malaysia, NY Green Bank (U.S.), and Green Investment Group (UK). Visit us at greenbanknetwork.org/about-gbn.



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