

CASE STUDY

REAL PROJECT

04

WIND ENERGY PROJECT

GRID-CONNECTED WINDFARM / ANDHRA PRADESH, INDIA

RETScreen®
Customer Support

 www.retscreen.net
rets@nrcan.gc.ca
+1-450-652-5177
+1-450-652-4621

*Cette publication est aussi
disponible en français.*

CANMET Energy Technology
Centre - Varennes (CETC)

In collaboration with:



Disclaimer

This publication is distributed for informational purposes only and does not necessarily reflect the views of the Government of Canada nor constitute an endorsement of any commercial product or person. Neither Canada, nor its ministers, officers, employees, and agents make any warranty in respect to this publication nor assume any liability arising out of this publication.

RESULTS

The 20-MW Kadavakallu Windfarm in Andhra Pradesh, India was constructed by RCI Power (an Independent Power Producer) with the help of the Non-Conventional Energy Development Corporation of Andhra Pradesh Ltd (NEDCAP). It was completed in 2001 and is the largest windfarm at Kadavakallu in the Ananthapur region of Andhra Pradesh. The windfarm has benefited from the Andhra Pradesh government's favourable policies for wind power development, particularly the wind estate scheme of NEDCAP. The windfarm sells power to the Andhra Pradesh Transmission Company (AP Transco) at a remunerative power purchase price that will be escalated by 5% every year. Debt financing for the project was made available by the Indian Renewable Energy Development Agency (IREDA).

RCI Power maintains staff on location at Kadavakallu and at the nearby town of Thadpatri to provide operation and maintenance services to ensure high levels of turbine availability (95% so far).

SYSTEM DESCRIPTION

The windfarm consists of 80 LW30/250 wind turbines of 250 kW capacity manufactured by Lagerwey Windturbine BV of the Netherlands. The nacelle assemblies of the two-bladed machines are mounted on 36-m high lattice towers. The windfarm is spread over a length of 20 km over the Kadavakallu ridge in the north-south direction. Power from the windfarm is delivered to the AP Transco central grid. Since the windfarm is located in a relatively remote location, the operator has developed wireless SCADA control systems that are used to optimize operations and maintenance scheduling at the windfarm.

LESSONS LEARNED

- The project was built at a location with a reasonably good wind resource and good financial and fiscal incentives for windfarm development. This enhances the project's financial viability.
- A large number of turbines, concentrated at one windfarm site, allows for favourable economies of scale in regard to planning, development, construction, operation and maintenance costs.
- The project breaks even shortly after the repayment of its debt and continues to generate profits over the remainder of its life. A longer debt term would lead to an even earlier break-even.



THE BIG PICTURE

Wind power development in India totalled over 1,500 MW of capacity at the end of 2001 and illustrates that large windfarms can also be implemented successfully in non-industrialised regions. Some of the factors which have contributed to the success of wind energy in India are the favourable policies promoted by the Ministry of Non-Conventional Energy Sources (MNES), the policy support of several Indian states, the strength of the Indian wind energy industry and the facilitating role of financiers such as the Indian Renewable Energy Development Agency (IREDA) in financing windfarms.



THE KADAVAKALLU WINDFARM
PHOTO CREDIT: BINU PARTHAN, IT POWER INDIA

REFERENCES

- Mohan, Ram, "Personal communication," NEDCAP, Wind Energy Division-Ananthapur, India, 2002.
Parthan, Binu K., "Personal communication," IT Power India, 2002.