

CDM Project in Sindh Province (Pakistan)

Sapphire 49.5 MW Wind Farm

Background

Sapphire group is one of the largest manufacturers and exporters of textile products in Pakistan, with over 14,000 employees and an annual turnover of US\$ 435 million. Sapphire technology originates comes from Europe, Japan and USA. By sourcing its raw materials locally, Sapphire capitalizes on the region's principal crop: cotton. It then augments its offerings by providing imported fiber. Sapphire products are marketed to the industry's biggest names in Asia, Europe, Australia, and North America. Since textile production is energy intensive and contributes to the emission of large amounts of greenhouse gases (GHG), Sapphire has decided to built and operate its own zero emissions wind farm to overcome energy supply shortages and, at the same time, seeking to avoid harmful climatic effects.

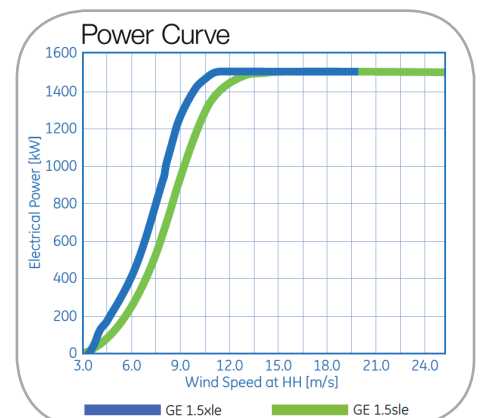
Project Description

Project owner of the Sapphire Wind Farm is Sapphire Wind Power Company Limited (SWPCL), a subsidiary of Sapphire Textile Mills Limited.

The purpose of the Sapphire 49.5 MW Wind Farm Project is to utilize wind resources for electricity generation through the construction of a wind farm with a total capacity of 49.5 MW and to deliver the electricity generated from the project to the Water and Power Development Authority (WAPDA) grid.

By replacing the electricity supplied by the WAPDA grid, which is heavily dominated by fossil fuel fired power plants, with electricity generated from wind power the proposed project activity will achieve considerable greenhouse gas (GHG) emission reductions.

The project, which is the „first of its kind“ CDM project type in Pakistan, foresees the installation and operation of newest foreign manufactured wind turbines, which will supply an average annual generation of 129,400 MWh to the WAPDA grid thereby reducing the baseline grid emissions by an annual 85,000 t CO₂e.



GE's powerful 1.5 MW wind turbine is the most widely used turbine in its class.
Source: GE Energy brochure, 1.5 MW Wind Turbine

Key Facts

Project Type
Project Owner
Project Developer
Location
Methodology

Carbon Credit Standard
Validator (DOE)
Development Status
Registration Date
Date of First Credit Issuance
Annual Credit Volume
Crediting Period

Windpower
Sapphire Wind Power Company Limited
UPM Umwelt-Projekt-Management GmbH
Pakistan, Sindh Province, Thatta District, Jhimpir
Consolidated Baseline Methodology for grid-connected electricity generation from renewable sources - ACM0002
CDM Certified Emission Reductions (CDM CERs), CDM Ref. 8163
Bureau Veritas Certification Holding SAS
registered
14/11/2012
2014 (expected)
approximately 85,000 CERs (PDD)
10 years



Sustainability Benefits

The Sapphire 49.5 MW Wind Farm Project will contribute to a local sustainable development in the project area by exerting the following effects:

- Economic benefits:** Pakistan is currently facing acute energy supply bottlenecks. The project activity is expected to generate an estimated amount of 129,400 MWh per year and thereby contributing to a reduction in the number of black-outs and brown-outs experienced by other grid users. This can help to improve the economic performance of other businesses connected to the grid.
- Social benefits:** The project will offer job opportunities for local people both during the construction phase and the operational period, thus achieving economic growth and a higher living standard in the region.
- Environmental benefits:** By reducing greenhouse gas emissions significantly, the project is expected to bring about positive environmental effects in the area and to improve Pakistan's climatic balance.
- Technological benefits:** The project activity is the first of its kind in Pakistan. By adopting foreign manufactured wind turbines, the project will initiate an important transfer of technical know-how to Pakistan, and can act as a pioneer in promoting the spread of this technology to other wind power projects in the country. It can also serve as a working example of the potential to improve energy efficiency in other ways, both in the power industry and in other sectors.

Technical data

	1.5sle	1.5xle
Operating Data		
Rated Capacity:	1,500 kW	1,500 kW
Temperature Range: Operation:	-30°C - +40°C	-30°C - +40°C
With Cold Weather Extreme Package Survival:	-40°C - +50°C	-40°C - +50°C
Cut-in Wind Speed:	3.5 m/s	3.5 m/s
Cut-out Wind Speed (10 min avg.):	25 m/s	20 m/s
Rated Wind Speed:	14 m/s	11.5 m/s
Wind Class — IEC:	IIa $V_{e50} = 55$ m/s $V_{ave} = 8.5$ m/s	IIb $V_{e50} = 52.5$ m/s $V_{ave} = 8.0$ m/s
Electrical Interface		
Frequency:	50/60 Hz	50/60 Hz
Voltage:	690V	690V
Rotor		
Rotor Diameter:	77 m	82.5 m
Swept Area:	4657 m ²	5346 m ²
Tower		
Hub Heights:	65/80 m	80 m
Power Control:	Active Blade Pitch Control	Active Blade Pitch Control

GE's 1.5 MW wind turbine provides proven performance and reliability.
Source: GE Energy brochure, 1.5 MW Wind Turbine

Project Location

The project is located in Pakistan, Sindh Province, northeast of Jhimpir City, Thatta District.

Contact

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Location of CDM Project „Sapphire 49.5 MW Wind Farm“ in southern Pakistan.

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