

India: Utilizing Wind Resources

14 wind turbines for clean electricity generation in Tamil Nadu



Certification:
Gold Standard
Climate Neutral, Sustainable Development

United Nations
Framework Convention on
Climate Change

Key Facts



Background

India has developed rapidly in recent years. Now home to 18% of the world's population, the consumption of energy has doubled since the turn of the millennium. Despite this increase, there are still an estimated 240 million Indian's left without access to electricity. The IEA predicts energy demand to increase by 5% every year until 2040, accounting for 25% of the global rise in energy demand within the same period. Most of this energy demand is currently met with fossil fuels. The country relies most heavily on coal, of which it consumed 571 billion tonnes in 2013 alone. Fossil fuel generation is one of the biggest sources of outdoor air pollution in the country. In 2012, the WHO linked 4 out of 5 of the main causes of death in India to air pollution.

The Indian government has recently pledged to push for renewables as a new source of energy for the country. This is important as rapid urbanization is putting increasing pressure on an already unreliable and unsustainable power supply.



The Project

This project involves the installation and operation of 14 wind turbines in the district of Tiruppur in Tamil Nadu state. The turbines have a hub height of 78.5 meters and a rotor diameter of 82 meters, representing a total generation capacity of 21 MW. By harnessing the favourable wind conditions at the southernmost tip of India, the wind farm is expected to produce an annual average of about 46 GWh of clean electricity. Taking into account the average electricity demand per household, the electricity output of the wind farm is sufficient to sustainably supply 54.000 homes in India with clean electricity.

Location:

Tamil Nadu, India

Project type:

Renewable Energy – Wind

Total emission reductions:

»» 42,000t CO₂e p.a. ««

Project standard:

Gold Standard & CDM

Project start date:

March 2011

Sustainable Development

By supporting this project you'll contribute to the following Sustainable Development Goals:



SUSTAINABLE DEVELOPMENT GOALS

While focusing on reducing greenhouse gas emissions, all our projects also generate multiple co-benefits. These are supportive of the United Nations Sustainable Development Goals.



Affordable and clean energy
Wind turbines generate zero carbon emissions, making them a clean source of energy. Furthermore, reducing pressure on the regional grid will help improve supply.



Decent work and economic growth
The construction and maintenance of the project will generate employment. There will be 10 permanent jobs created.



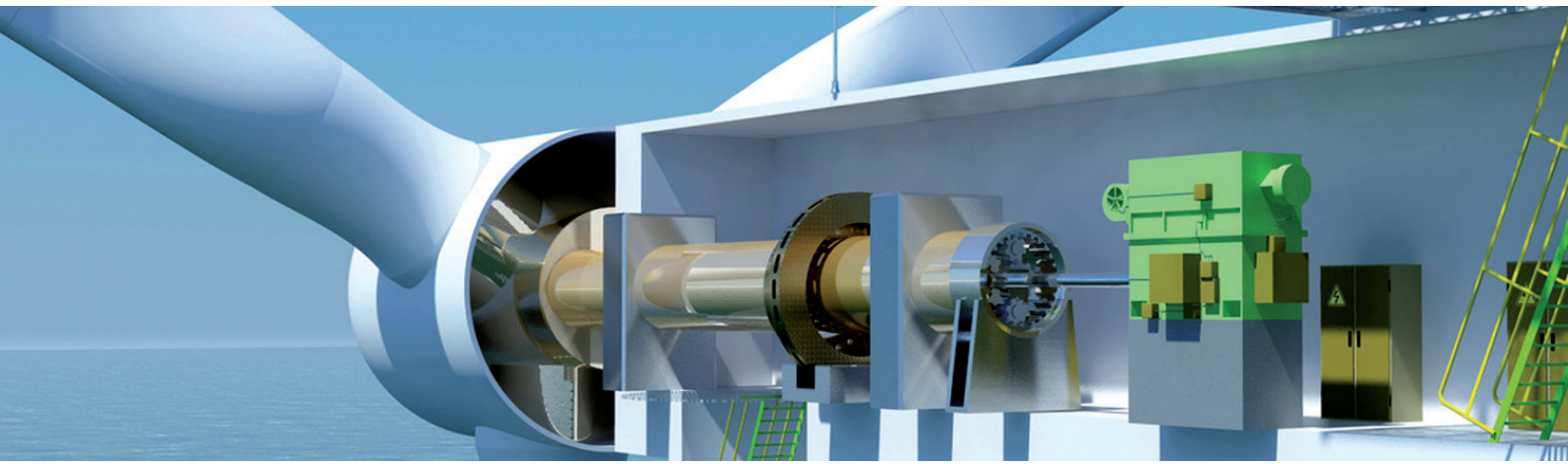
Industry, innovation and infrastructure
The construction of the project improves local infrastructure through the improvement of power supply and local transmission lines.



Climate action
By reducing carbon emissions, the project contributes to climate change mitigation. The emission reductions of this project amount to 42,000t CO₂e per annum.



Life on land
Apart from reducing greenhouse gas emissions, the project also helps to avoid the combustion of fossil fuels, thereby contributing to reduced emissions of air pollutants and soot.



Technology brief – how it works

Driven by the kinetic energy of moving air, the mechanical energy created by a rotor is fed into an attached generator to produce electricity. Output can vary depending on wind speed and this is ultimately determined by atmospheric conditions, although it is also influenced by ground characteristics. A rough surface exerts significant friction, effectively consuming energy and thereby slowing down the moving air. Smooth surfaces cause very little friction, the most obvious example being higher wind speeds in coastal areas.

It is therefore important to site wind farms carefully to maximise their potential. Over the last two decades wind power technology has rapidly improved. The size and power output have consistently increased while lowering the cost per electricity unit.



Project Standard



The Gold Standard is an award winning certification standard for results based project finance and is recognised internationally as the benchmark for quality and rigour in certifying environmental and socio-economic project outputs. Established in 2003 by the World Wide Fund For Nature (WWF), the Gold Standard today is trusted and endorsed by NGOs, governments and multinationals including United Nations agencies worldwide.



The CDM is one of the three Flexible Mechanisms defined in the Kyoto Protocol and allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂. These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.

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