



## CHINA: GENERATING ELECTRICITY FROM THE POWER OF THE WIND



DEMONSTRATING CLEAN AND RENEWABLE

ENERGY IN THE ALASHANKOU DISTRICT



KEY FACTS

Driven by heavy industrialization and urbanization, China's energy industry is projected to grow by almost 7% per year until 2020. More than 70% of China's electricity is generated from coal which is a particularly heavy polluting fossil fuel. As a consequence, electricity from the grid has an average carbon intensity of one ton of CO<sub>2</sub> per megawatt hour, resulting in poor air quality, particularly in large urban centers. China urgently needs to reduce the share of carbon-intensive fuels in its energy mix in order to meet growing energy demand and prevent further deterioration of the domestic environmental situation.

### THE PROJECT

This project is a grid connected wind project. It includes the installation and operation of 33 turbines with a rated output of 1.5 MW each. The total installed capacity of the wind park is 49.5 MW and it provides 111,000 MWh of clean electricity to the Northwest China Power Grid (NCPG) every year, displacing the power generated predominantly in coal-fired plants.

Renewable energy projects such as this one are associated with investment risks, and as a result loans are difficult to come by. It is therefore unlikely that investment would have been secured for this wind farm without funding from carbon credit sales.

### SUSTAINABILITY BENEFITS

**Social well-being:** This project generates employment opportunities for professional, skilled and unskilled personnel during the construction, operation and maintenance of the solar plant. Moreover, it creates business opportunities for local stakeholders such as vendors, contractors and suppliers, further supporting the local economy. It augments regional energy supply, promotes development and enhances social wellbeing.

**Environment:** The project improves local air and water quality by reducing other pollutants such as sulphur dioxide, nitrogen oxides, soot and particles associated with the burning of fossil fuels.

**Awareness:** It demonstrates and disseminates renewable energy technology. The wind turbines used by the project are constructed domestically, therefore promoting the growth of the wind manufacturing industry. Lastly the project contributes to resource conservation and the diversification of China's energy mix.

#### Location:

Alashankou District, China

#### Project type:

Renewable Energy – Wind

#### Project standard:

VCS

#### Total emission reductions:

»» 105,000 t CO<sub>2</sub> e p.a. ««

#### Project start date:

June 2010

#### Project partner:

Guodian Xinjiang Alashankou Wind Power Development Co., Ltd.

#### Validator:

Det Norske Veritas

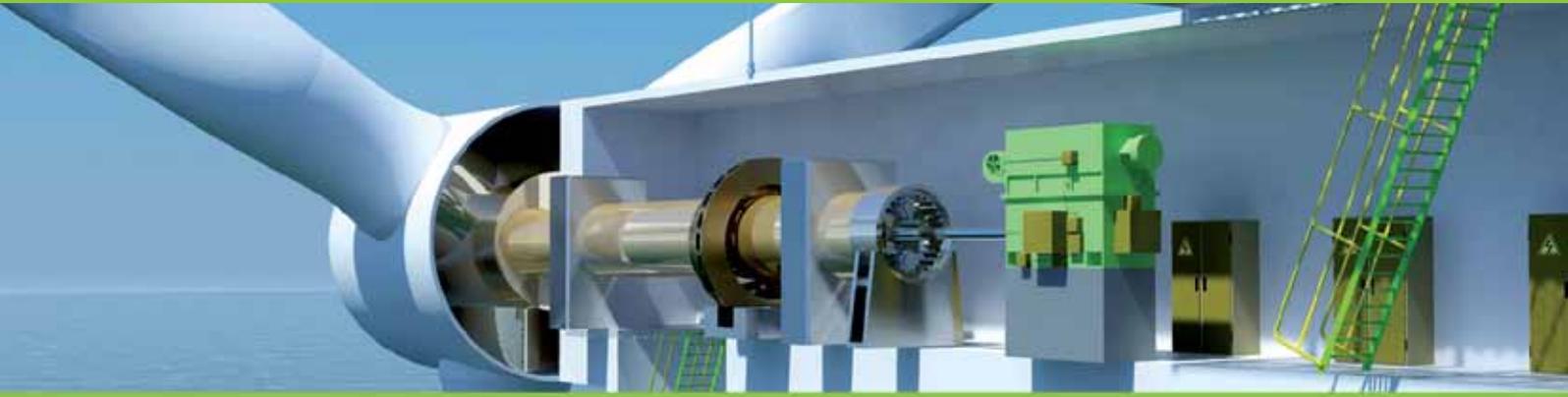
#### Verifier:

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### 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 terrain 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.



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