

Carbon Offset Project Profile

CHINA: FUELLING GROWTH WITH WIND POWER

China is one of the world's fastest growing economies, prompting a succession of high growth rates. The growth stems from an astounding expansion of heavy industry and urbanization that requires huge inputs of energy. At present this energy is derived mostly from coal and other fossil fuels, of which China has significant national reserves.

Unfortunately, most of the coal-fired power stations in operation are relatively old and emit large amounts of smoke, carbon dioxide and sulphur into the atmosphere making China the world's largest emitter of greenhouse gases. This has led to a tremendous level of air pollution in many Chinese cities which outweigh any benefits achieved by the economic development.

This results in long-term, harmful air quality conditions for the residents of many of China's large cities, as the WHO stated in 2010.

Over 650,000 people die prematurely from diseases related to air pollution in China every year, the most vulnerable being the elderly, pregnant women, and young children. Investments in cleaner energy are therefore crucial in order to avoid further catastrophic consequences from air pollution and climate change, while meeting the vast energy needs of its rapidly growing economy.

Investments in clean energy sources, such as wind, are therefore considered to be essential both in the interest of the environment and for public health reasons. Wind projects partially displace electricity currently generated from grid-connected conventional fossil fuel based thermal power plants, while reducing emissions.



Key Facts:

Location: China

Project type: Renewable Energy: Wind

Project standard: VCS

A world map where the country of China is highlighted in a teal color. A small red flag icon with a yellow star is placed to the left of the word "China", which is written in black text. A thin line connects the flag to the highlighted area on the map.

China

Wind Projects reduce the emission of greenhouse gases and limits local air pollution, curtailing its negative health impacts. In addition to its environmental benefits, the implementation of the project creates job opportunities for local workers, contractors and suppliers, while the operation and maintenance of the wind park generates long-term employment positions.

Moreover, it drives China towards meeting its target of 15% clean renewable energy by 2020. However, financing such projects is often a challenging task, as they are linked with investment risks, making carbon credit sales an essential path to secure the required funding.



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 which 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.

SUSTAINABILITY BENEFITS

Beyond the reduction of greenhouse gas emissions, the project contributes to sustainable development in China by:

- Reducing the emission of harmful pollutants, thereby improving the health of the local population, and therefore reducing the number of air pollution related deaths.
- Improving local environmental conditions.
- Driving China towards a cleaner form of energy mix and meeting its renewable energy targets.
- Stimulating the local economy through large-scale investment
- Generating income for local population by creating employment positions.
- Demonstrating and promoting renewable wind energy technology.

