

Methane Capture Project



Tieling Coal Mine Methane Capture

This project captures coal mine methane (CMM) and uses it as an energy source to supply gas to homes and local industry.

Standard

Voluntary Carbon Standard (VCS)

Country

China

About your project

Located across six coal mines in the Northwestern Province of Liaoning in China, this project prevents the potent greenhouse gas, methane, from being released into the atmosphere. Methane is a by-product of coal formation which is released during mining. At each of the project sites, technology has been installed to capture the CMM and blend it to a concentration suitable for use as a fuel source. This is a unique initiative as it is currently the only project in China to use CMM as fuel for gas supply.

Over half of China's energy is derived from coal, making it the world's largest global consumer of this fossil fuel. As a result, approximately 10.6 billion metres³ of CMM is released annually and less than 10% of this is currently piped as gas or used to generate electricity.

The Tieling project improves on earlier technology which was funded by the United Nations Development Programme along with the Japanese and Chinese governments to demonstrate methane extraction in China. These improvements have enabled the extracted CMM to be blended to a concentration high enough to supply two gas distribution companies.

Alongside the environmental benefits, the project enhances the local economy with the creation of 260 permanent engineering, construction and maintenance jobs and 291 temporary positions. The availability of gas for both industrial and domestic use displaces conventional fuel sources and increases energy sustainability in the local area.



These images have been provided by individuals working with the project partners

About coal mine methane

Coal mine methane (CMM) is released from coal and surrounding rock strata through mining practices, including surface and underground mining. Methane is an explosive gas which is hazardous to coal miners at certain concentrations in underground mines, so is usually extracted and released into the atmosphere before or during mining activities to protect miners. However, methane is also a potent greenhouse gas (GHG) so preventing its release into the atmosphere presents an important opportunity to lower global emissions. CMM is primarily released from drainage systems that employ vertical or horizontal wells to extract methane before mining; ventilation systems that circulate fresh air to dilute in-mine concentrations to below explosive levels; closed/abandoned mines from where CMM escapes over many years through open shafts and cracks. Installing wells which extract CMM to the surface for capture and combustion prevents it from being vented into the atmosphere. During combustion, methane is converted into carbon dioxide, significantly reducing its global warming potential. In some instances, this waste gas is also captured and utilised to produce power and heat, through the installation of generators. This displaces energy produced from fossil fuel power stations, further lowering GHG emissions.



How carbon offsetting helps the project

It is expensive to develop and operate methane capture technologies and that is where carbon finance can play an important role. Coal mine projects like this one are not required by law to capture methane and often have to overcome financial and technological barriers to realise implementation. Carbon finance provides an additional revenue stream, helping to make these projects an attractive and viable option. In this case, the incentives from carbon finance are enabling the capture and piping of coal mine methane rather than allowing it to escape into the atmosphere.

The reductions in CO₂ emissions achieved by this project are incremental to business-as-usual and measured by an independent verifier to internationally recognised standards. These are bought as carbon credits by clients of The CarbonNeutral Company to neutralise their own emissions.

Verification:

This project is registered with the Clean Development Mechanism (CDM) and the emissions reductions generated prior to CDM registration have been delivered to The CarbonNeutral Company, verified to the Voluntary Carbon Standard (VCS).



Project area co-ordinates:

Tieling City is situated in the North of the provincial capital, Shenyang City, and has geographical co-ordinates of latitude 42°15' North and longitude 123°15' East.