



Methane Recovery Project in China's Brewery Industry

Captured methane from brewery wastewater is used as fuel for electricity generation. This is the first methane capture project in China's brewery industry and the first time a local enterprise has been involved in global action to tackle climate change through the Kyoto Protocol. Notably, the project is the only Gold Standard project in the Pearl River Delta.

The Location



The brewery is located at Guangzhou, to the north of the Pearl River delta. Guangzhou is an important trading center as well as a busy port and the capital city of the province of Guangdong. The city has an area of over 16,000 square kilometers and a population of 6.7 million people.

The Zhujiang Beer Company's long term efforts to improve the environmental performance of their facilities, even before the implementation of this project, has seen it gain strong recognition as a leader in the brewery industry. As early as 2005 the company won recognition as a "National Environmentally Friendly Enterprise" awarded by the then State Environmental Protection Agency.

The Project

The Pearl River brewery has a production capacity of 1.5 billion liters of beer per year. The brewing process produces up to 14 million liters of wastewater per day.

Prior to the implementation of the project activity, the brewery had a wastewater treatment plant with annual capacity of 5,000,000 tons. This system was effective at reducing the overall chemical oxygen demand (COD) concentration in the wastewater from 2,526 mg/l to less than 50 mg/l, which is below the prescribed Guangdong Province discharge value of 110 mg/l (stricter than the national standard of 150 mg/l). Anaerobic digestion was a part of the wastewater treatment process, however the system had no biogas recovery devices and the methane-rich gas, caused by the digestion, was simply released to the atmosphere.

The project activity consists of the installation of a biogas recovery system, a biogas purification device and power generators to the existing wastewater treatment facility. The project activity is expected to produce 6,720 MWh of electricity per year, which is fed directly into the South China grid. This displaces fossil fuel based electricity, largely dominated by coal fired power generation.

Methane is a very potent greenhouse gas with an effect 21 times stronger than CO₂ – the project therefore represents a significant contribution to reducing the impact of this powerful greenhouse gas





The Benefits

- **Human and institutional capacity improvement:** people involved are trained in skills for the operation of the power generation facility and knowledge of the Kyoto Protocol. This was the first time a local enterprise has been supported to work on a project under the Kyoto Protocol.
- **Generation of 18 permanent jobs**
- **Improvement of job quality:** most positions generated by the project are monitoring roles and roles associated with the operation of advanced equipment.
- **Improvement of local air quality** through the introduction of a biogas desulfurization and recovery system, preventing the release of highly toxic hydrogen sulphide.
- **Sulphur Dioxide and Nitrous Oxide emissions** of the biogas-fired power plant are significantly lower than the average (mainly coal fired) grid-connected power plants in the baseline
- **The project is an important showcase** for the brewery industry in China displaying an innovative way to use biogas from a wastewater plant for power generation.
- **Improvement of balance of payments:** import of advanced technology from abroad, which will contribute to the relief of trade surplus pressure in China.



The Details

KEY DATA

Average Emission Reductions per year: 35,780 tCO₂e

Expected Standard: GS CDM



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