



Sustainability action · Project Renewable Energy and Energy Efficiency

Kamphaeng Saen West and East landfill gas projects, Thailand

These two projects capture methane emissions from a large municipal landfill site to prevent them from entering the atmosphere and contributing to climate change.

Project

The landfill accepts approximately 5,000 tonnes of waste per day. The first phase of the project captures the gas generated by landfill in the eastern area of the site which deals with approximately 2,000 tonnes of waste a day.

The project is the first in Thailand to utilise a proprietary biogas collection technology, meaning it is able to collect more gas than similar projects in the region. The extracted LFG is then filtered and treated prior to delivering to electric engines, subsequently generating renewable electricity which is exported to the Thailand grid. The number of installed gas engine and generator units (each with a 1.06 MW capacity) will vary depending on the status of the project and quantity of gas available. The volume of the gas

is expected to be higher in later years as the site still collects new waste. In general, the entire landfill has a total capacity of 16MW from 15 installed generators; however, at the time of verification the project had 4 units installed for a total capacity of 4MW delivering approximately 25,000 MWh of renewable electricity to the grid per year.

Prior to the project, the uncovered landfill allowed the LFG it produces to vent directly into the atmosphere. This gas is approximately 50% methane, which has approximately 21 times the global warming potential of CO₂. In addition to keeping the methane from leaking into the atmosphere, the project achieves further emissions reductions by exporting electricity to the grid and therefore displacing electricity that would have otherwise been generated from a fossil fuel dominated power supply. The project began operating in March 2010 and generated approximately 180,000 tonnes of emissions reductions in the first year; the landfill as a whole is expected to prevent the equivalent of 550,000 tonnes of carbon dioxide emissions annually.

Checklist	Additionality and permanence	3 rd party verified	Transparency	Annual CO ₂ -reduction	Social and environmental benefits	Marketing material
Project 301 864	According to the rules of the Gold Standard	By TÜV NORD	Provided by Markit Environmental Registry	660,000 tCO ₂ e	As documented in our database	Pictures available



Location

The project is located at the main landfill site serving Bangkok in Kamphaeng Saen City in Thailand – approximately 75 km west of Bangkok in Nakhon Pathom Province.

Project achievements

Socio-economic impact

- Prior to the project, solid waste was left untreated and there was no management system to prevent the water draining through the waste (known as leachate) from contaminating the local soil and groundwater.
- With the implementation of the project the leachate is now captured and treated, preventing further contamination of the water supply and associated health risks.
- The project created long term employment through approximately 30 full time operational roles.
- The implementation of the project and prevention of gas emissions has therefore greatly improved the local air quality, and the health and wellbeing of workers at the site and people living nearby.
- All site employees have health insurance, as well as other benefits provided by the operating company.
- As part of the agreement between the landfill site operator and the city of Bangkok, a share of revenues from sales of the carbon credits generated by the project will be transferred to the municipality and used for the improvement of local infrastructure.
- The projects, with the cooperation of local universities, have initiated an internship programme for local university students.
- Donations given to the flood victims of 2012.

Environmental impact

- The project significantly improves local air, water and soil conditions, as described above.
- The project and its pioneering holistic approach have served as a model for clean development throughout Latin America.

Gold Standard

