

NONGYAI WASTEWATER TREATMENT THAILAND

**Capturing and recycling harmful emissions
for a sustainable power system**



The Nongyai Wastewater Treatment Project captures methane generated at a starch, sweetener and ethanol production factory in Chonburi Province in Thailand and burns it to produce electricity and heat for internal use in the factory. The project helps to reduce Thailand's dependence on fossil fuels by providing a local source of clean, renewable energy.

The Context

Methane is a harmful greenhouse gas more powerful than carbon dioxide and is emitted as biogas from Thailand's factories when wastewater is stored in open lagoons. Under a typical system, wastewater from factories is treated in 8 cascading open anaerobic lagoons, allowing harmful greenhouse gases to enter the atmosphere.

The Project

Using an innovative recycling system, fugitive biogas from a starch factory, a sweetener plant and an ethanol plant is captured and repurposed to contribute to the powering of the factories. The biogas generated is utilised as fuel in a hot oil boiler and steam boilers to produce electricity and heat. Prior to project implementation, a fuel mix based on biomass and coal was used.

The Benefits

Not only does this project contribute to a reduction of anthropogenic greenhouse gas emissions, it also delivers a number of benefits in the form of sustainable development. New jobs and income opportunities have been provided to the region by contracting local firms for the construction, operation and maintenance of the plant. Furthermore, by capturing biogas, the odour and nuisance normally associated with open lagoon wastewater systems is avoided. The utilisation of biogas for energy generation can be regarded as a means to reduce dependency on imported energy products, which in turn improves the energy security status of Thailand.

Methane is an odorous gas and by capturing it for heat generation, surrounding communities can now enjoy a better smelling environment.



5 jobs

are created during the construction and operation phases of the biogas reactor system and of the cover lagoons



4,360 m³

of wastewater treated daily, repurposing waste to create sustainable energy alternatives



36,973 tCO₂e

reduced on average annually by providing an alternative energy source to the burning of fossil fuels

For more information on the UN Sustainable Development Goals, please visit: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

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