



Sustainability action · Project Renewable Energy and Energy Efficiency

Lan Dokmai Biogas

Turning starch into energy in Thailand

This project is engaged with mitigating global warming and local air pollution at a Thai starch plant by capturing methane and generating sustainable energy and social benefits for local communities.

Project

Only a few years ago, the inhabitants of the surrounding villages could smell the open lagoons used for clearing the starch wastewater. Today, not only the local air and water quality has improved significantly, at the same time the starch plant managed to reduce its fossil fuel use by up to 4700 litres per day. In addition, the project and the resulting carbon revenues generated jobs for locals and support social and educational activities in the community to enable sustainable development.

Technically, the project activity involves the installation of two closed anaerobic wastewater treatment facility (Upflow Anaerobic Sludge Blanket technology) at a starch manufacturing plant with a large output of waste water. Before the installation of the project the wastewater in the plant was treated through cascading open lagoons with a retention time of more than a year. The mix of the lagoon size, atmospheric and water temperature, resulted in an anaerobic environment in the ponds. These conditions led to methane generation from the organic content of the wastewater which was steadily released into the atmosphere. Methane is a greenhouse gas 21 times stronger than CO₂. The captured methane is used for clean energy production on the plant site. Part of the methane is fed into a gas engine for electric power generation, that is then supplied to the local grid. The remaining methane is directed into a thermal boiler to generate sustainable heat energy, which is utilised in the starch drying process.



Location

The wastewater cycle was installed in a starch plant 250 km North of Bangkok, in a rural region with mostly agricultural background. Starch production forms the region's main industry.

Project achievements

Socio-economic impact

- **17 new jobs have been created** both for the operation of the wastewater cycle.
- New qualified jobs for locals have **increased the general income** level which benefits all the community.
- The cleaned water from the new wastewater cycle allows for fish farming and irrigation of nearby fields, thus **enabling locals to increase their income**.
- The plant workers receive training on modern technologies and can **increase their knowledge and skills**.
- **Technology transfer supports the workers' understanding** of modern and sustainable applications.

Environmental impact

- With the now covered lagoons and the UASB reactor in operation, air pollution and strong odour from the wastewater have been reduced significantly.
- All water from the wastewater cycle can be re-used in the plant which reduces water consumption.
- No solid waste is generated but sludge that is given to local farmers as fertilizer.



Checklist Project 300392

Commercial Operation Date

14 January 2011

Total capacity

985 kW

Estimated Annual Electricity Generation

3'807 MWh

Quality Assurance and Verification

Annual audit provided by third-party auditor: Rina Services

Transparency

RECs listed in GoldPower Register (<http://goldpower.net/goldpowerregister>)
Underpinning carbon credits retired in the Swiss National Registry

Marketing material

High-resolution pictures available

Reportability

Meets GHG Protocol Scope 2 Guidance criteria

GoldPower credentials projects certified by



GoldPower credentials reportable under



<http://thesouthpolegroup.com/sustainability-solutions/renewable-energy>

Natalia Gorina
Sales Director Carbon & Renewables

Phone +41 43 501 35 50
sales@thesouthpolegroup.com