



**In this issue:**

Dry digester pilot arriving in Sweden

Piloting at VAFAB Västerås, Sweden

ABOWE project in short

Activities while piloting in Västerås

Investigating possible business models

Pilot B dry digester

Comparing technologies

Introducing the Ostfalia garage fermenter

# Dry digester pilot arriving in Sweden

Wednesday the 9<sup>th</sup> of April the dry digester pilot plant arrived at VAFAB, the municipal waste company in Västerås, Sweden.

The Swedish project team, together with project members from Germany and Lithuania received the long awaited plant.



# Piloting at VAFAB Västerås, Sweden

The dry digester will be operated at VAFAB for six months. The substrate that is being tested is the fine fraction of the residual waste. The fine fraction is obtained by crushing and screening the residual waste (size <40 mm). The residual waste is currently being incinerated but contains organic matter with a high biogas potential that decreases the heating



value during incineration. This waste is complex, containing a mix of hard and soft plastic, paper, metal, glass, and a varying amount of organic material. The purpose of the testing is to determine if it is technically and economically viable to produce biogas from this waste.

## ABOWE project in short

ABOWE stands for 'Implementing advanced concepts for biological utilization of waste'. The project is piloting two technologies: a bio-refinery and dry digestion.

Technologies are tested in two mobile pilot plants

with waste materials handled by partner companies in the waste sector in Finland, Estonia, Lithuania and Sweden. The overall objective of ABOWE is, based on the outcomes of the pilot tests and stakeholder consultations, to:

1. Provide evidence that the technologies are viable, and
2. Generate information that can form the basis for investment decisions towards full-scale implementation of either of the two technologies.

## Contact

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Events

13-06-2014: Stakeholder workshop  
 Where: VAFAB, Västerås  
 When: 08:30-12:00

# Activities while piloting the dry digester at VAFAB

The Biogas potential of the domestic waste will be investigated. Various variables related to loading and retention time will be tested to find the most optimal process, for this challenging but potentially valuable waste stream.

While carrying out the technical tests, key stakeholders in the waste sector in Västmanland

County will be informed about the project and results from the piloting.

The 13<sup>th</sup> of June key stakeholders will be invited to a half day workshop where the dry digester will be discussed and demonstrated. The purpose of the meeting is to inform stakeholders and to discuss how dry digestion can be a solution to current and

future waste management needs in the region and beyond.

In preparation for this event the project team will contact stakeholders and conduct an informal interview to learn more about challenges and opportunities in the waste sector in Västmanland County.

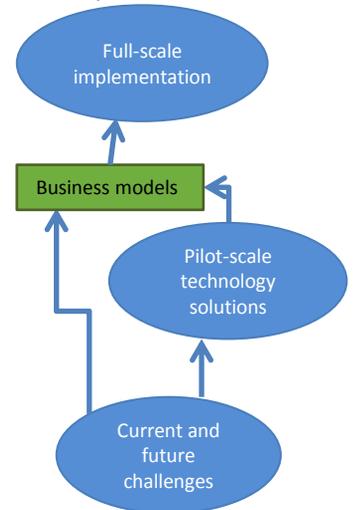
## Investigating possible business models

One component of the Above project is to develop possible business models that could be used to up-scale the technology that is being piloted to full-scale installations.

Information required for the development of business models will be collected through the

interviews with representatives from the energy and waste sectors in Västmanland County.

**Results will be presented at the stakeholder event at VAFAB the 13<sup>th</sup> of June.**



## Pilot B dry digester

The pilot B dry digester has a volume of 600 litres and is a downscaled version of an existing biogas plant for dry digestion. It has a maximum biogas production rate of 2 m<sup>3</sup>/day. The pilot plant has previously been successfully tested in Lithuania and in Estonia. In Lithuania the tested substrates were cattle manure, algae, cantina food waste and waste from a bioethanol distillery. In Estonia manure was used as substrate.



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**Partners**

**Lead partner:**

Savonia University of Applied Sciences, Finland

**Partners:**

Ostfalia University of Applied Sciences, Germany (Pilot B leader)

Marshal Office of Lower Silesia, Poland

Klaipeda University, Lithuania

Mälardalen University, Sweden

Estonian Regional and Local Development Agency, Estonia

University of Eastern Finland, Finland

External service provider for microbiological and bioprocess consultancy for Pilot A investment and testing:

Finnoflag Oy, Finland

Six testing sites in five countries:

Farm of Rima

Dauksiene, Lithuania

Savon Sellu Oy, Finland

OÜ Kaarli Farm, Estonia

ZGO Gać Ltd, Poland

Vafab Miljö AB, Sweden

Hagby Gårdsfågel AB, Sweden

**Other associated partners:**

Telemark University, Norway

North Savo Centre for Economic Development, Transport and the Environment, Finland

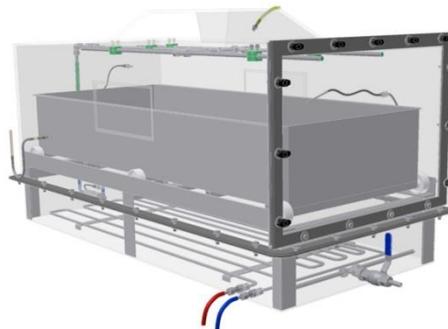
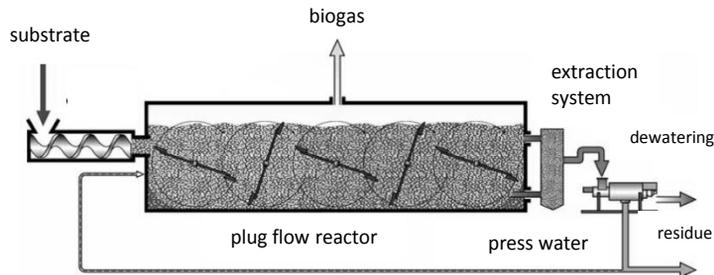
Jätekuikko Oy, Finland

Berndt Schalin Board Advisors Oy, Finland

**Comparing technologies**

Experimental data from the continuous pilot plant will be compared to a batch system, the garage fermenter, treating the same waste material at Ostfalia University of Applied Sciences in Germany. In the batch system the garage fermenter is loaded with

new waste material every 20-30 days resulting in discontinuous biogas production, but lowered treatment effort. The comparative study enables the possibility to evaluate benefits and challenges of both systems regarding the biogas productivity, waste degradability and process operability.



**Cross section of the Ostfalia garage fermenter**

**Introducing the Ostfalia garage fermentation system**

A garage fermentation system being piloted at Ostfalia University, in which the substrate is stored in a removable container. Percolation liquid is being sprinkled over the substrate. The system has two packed columns to support permanent colonization of microorganisms to ensure a faster restart of new batches. The fermenter is equipped with several sensors that record process relevant data.

