



SVANEM BIOGAS

AUTHOR

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HIGHLIGHTS

- *Svanem Biogas is a medium-sized biogas plant located in a rural region in Trøndelag, Norway.*
- *Svanem Biogas is circular in the way it utilises waste and side-streams from both agriculture and aquaculture sectors to produce biogas and bio-fertiliser.*
- *The bio-fertiliser is being used in the local region by the same farmers originally providing the biogas plant with animal manure.*

ABOUT THE CIRCULAR PRACTICE

Svanem Biogas is a medium-sized biogas plant located in a rural region in Trøndelag, Norway. Svanem Biogas is circular in the way it utilises waste and side-streams from both agriculture and aquaculture sectors to produce biogas and bio-fertiliser. The bio-fertiliser is being used in the local region by the same farmers that provide the biogas plant with animal manure.

The plant is reactor-based, with methane as the main gas product. Svanem bases its production on two main sources: animal manure from local dairy farms and sludge from regional hatchery fish facilities. Since Svanem is located close to the coast, sludge from hatcheries is relatively easily accessible. The core circular element is the circulation of locally sourced biomass (manure) from dairy animals that is returned to local grass fields as an alternative to chemical fertilizer after methane has been extracted in the biogas factory.

Svanem source the manure and fish sludge within the local village area, which is a circle of approximately 6 kilometres. The local farmers receive state subsidies for delivering manure to a biogas plant, while the local fish hatcheries save money on delivering sludge to Svanem instead of paying for its disposal.

Since the animal manure is mixed with fish sludge before entering the production reactors, the substance that comes out of the biogas reactors and is turned into fertilizer, has higher nutrient values than ordinary untreated and non-mixed animal manure.

BUSINESS MODEL

Svanem captures and creates value in several ways, both at the local community and business level. The entrepreneur is himself a farmer, so providing added value for the local farming community as well as himself has been a motivator and a goal. The main elements in the business model are valorisation of bio-residuals (manure and sludge from fisheries), added value from utilising biomass in a new way, and managing costs, particularly for the providers of the sludge. Regarding income, the business model describes a 50-50 share of sales of bio-fertilisers and biogas to the private market. The fertilisers have a relatively fixed price through formalised contracts with the local farmers, while the value of biogas depends on more volatile energy markets.



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ABOUT CIRCLE

The CIRCLE project aims to develop an interdisciplinary perspective on the circular economy in the Baltic-Nordic region by integrating insights from sociology, economics, philosophy, political science, and environmental science. The emphasis is placed on the use of by-products (bio-resources) generated as part of primary production in agriculture, forestry, and aquaculture and across the sectoral boundaries to explore the underlying models of socially- and commercially-driven collaborations, and the factors facilitating and hindering the development and wider use of circular practices and collaborative arrangements thereof.

More about CIRCLE:
<https://circle-eea.eu>

OPPORTUNITIES AND CHALLENGES

Opportunities for Svanem Biogas are (i) increased demand for both circular and green production solutions in society as a whole and (ii) changing energy awareness and preference for biogas over other fossil energy sources such as natural gas and oil. Easier access to and reduced prices of production technology and financial and knowledge support from both private and public actors have been enabling factors.

According to Svanem, major challenges and barriers are linked to local scepticism about a factory that might involve smell and some noise, farmer scepticism about using bio-fertiliser from the biogas plant on their grass fields instead of their own manure, and the high investment cost for equipment and technology to purify the biogas so it is suitable for transportation fuel. Although biogas production from animal manure is considered an important climate mitigation measure by the Norwegian government, there is a general lack of financial support for biogas plants and supporting infrastructure.