



Local biofuel for district heating and transportation

Gotland Municipality, Sweden - 58 595 inhabitants

Biofuel - heating & cooling – RES mobility

The island of Gotland, 3140 km², located in the middle of the Baltic Sea, with its medieval cultural heritage, rich natural assets and charming little town Visby, is a popular Swedish summer destination; but also a place where the transition to renewable energy for the heating, transport and electricity supply for the around 60 000 permanent residents as well as visitors is well underway.

Project in a Nutshell

The local energy company which operates the district heating system since over 40 years has contributed to make the heating of Visby cleaner: all heat in its district heating comes from a mix of renewable energy sources. Municipal buildings are also connected to the district heating system, which accounts for about 80% of all heating in the area. Visby's district heating's energy sources are biofuels from local forestry, an 11 MWh-sea water heat pump, biogas from a former landfill site and from a wastewater treatment plant. The island counts other local district heating networks that functions mainly with biofuel from the forests.

The surrounding sea also contributes to the sustainable energy system in Visby. Both the public library and the congress centre as well as the hospital have seaside locations where, as complement to or instead of district heating, intelligent and energy effective seawater based heat pumps provide both heating and cooling to the buildings, depending on seasonal demands.

Local biofuel also supplies the transportation sector: the first biogas-filling station for cars and buses was built in 2010; now there are four stations on the island. The city buses, the waste collection trucks and most of the municipality's cars operate on biogas, thanks to municipal public procurement. Furthermore, a public-filling station for HVO was opened in 2017, and there are several loading stations for electric vehicles, thanks to private initiatives.

The local university campus; Uppsala University Campus Gotland, provide knowledge, research and education both on wind power development, sustainable energy systems and energy effective measures in historical buildings.

Impact & Next steps

Since 1995 direct CO₂ emissions from the municipality's operations have been reduced by 75%, mainly thanks to reduced emissions from heating, and supply of 100 % eco-labelled electricity. District heating, supplied by 100% from local renewable energy sources, enabled to reduce sulphur emissions from heating by 95% (compared to 1980 level).



Local wind energy supplies 45-50% of the island's total electricity demands, but as further expansion of wind power was put on hold, due to a sudden decision last year to stop the plans for a new sea cable to the mainland, the outlined plans for 100 % renewable were also negatively impacted. The Swedish government though, has pin-pointed Gotland as a possible pilot case for the national target of 100 % fossil-fuel free energy supply. The findings of the feasibility study will be revealed in April, which will hopefully lead to get back on track on the journey toward 100 % renewable energy supply.

Replicability: Challenges & Success Factors

Long-term political decisions need to be taken in order to embark in a journey towards 100% renewable. A strategy need to be adopted, with clearly defined goals. Additionally, beside ensuring the necessary national government's support, it's important to dialogue with the local stakeholders as their support will be needed to ensure the success of the initiative.

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helena.andersson@gotland.se

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