

13. Implementation of new district heating (Model Bornholm) Denmark

Responsible partners

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Model description

Model Bornholm for implementation of new district heating is developed by Bornholms Forsyning (municipal owned Ltd. For supply of water and heat and treatment of sewage water). Bornholm is the 5.th largest island in DK. The main part of the underground is rock and that is the main reason why district heating until 2005 only was introduced in the two largest cities and two small cities. Development of twin pipes has reduced implementation costs and high oil prices (Bornholm has no natural gas) has made district heating feasible.

But Bornholm is also an island with low income, especially in the villages, so therefore a model for introduction of district heating including financing was developed.

The steps in Model Bornholm are:

Planning. A heat plan for the island was elaborated in 2007 showing that district heating with biomass was the socio economic best solution for 9 municipalities and villages and maybe also for 4 more villages (depending on problems with rock). This heat plan was integrated in a new strategic energy plan, political approved in 2009.

Project proposals. For each village a project proposal showing economy for customers, for Bornholms Forsyning, social economical surplus (the socio economical best solution has to be chosen) and environmental consequences has to be elaborated and politically approved by the municipality before it can be realised. In Model Bornholm also "Island economy" (economical consequences for Bornholm) and extra employment is calculated.

Implementation

A Local working group including representatives for local associations, business and Bornholms Forsyning follows the project and have regular meetings.

Information leaflet and preliminary agreement is sent to all households. The project will be realised if a certain % (for instance 60 %) accepts to be connected to district heating. Public meeting is announced. Information and announcement of public meeting in local newspapers.

Public meeting where it is emphasised that connection before piping is implemented costs 17,000 DKK (2,300 €) for connection pipe, heat meter with leak alert, house installation with hot water tank and removal of old oil boiler, hot water tank and emptying of oil tank.

When the certain % (60 %) has accepted to connect preliminary agreements are changed to contracts and implementation starts.

The plant including pipes is financed 100 % with loans with municipal guarantee (25 years annuity loans with low interest rate).

The results are that new district heating is implemented in 7 cities and villages since 2008. A new heat plan including another 6 villages and cities was political accepted in 2013. In 2014 four district heating plants supply 6,000 customers.

Stakeholders involved in Model Bornholm are:

- The municipality of Bornholm
- Bornholms Forsyning
- Inhabitants in the villages

Bornholm is one municipality. It takes care of heat planning, strategic energy planning and municipal guarantee for loans.

Heat planning is not a must for Danish municipalities, but Bornholms municipality has decided to elaborate heat plans because inhabitants with individual heating then can be informed about coming district heating projects and see if they have a possibility to be connected.

A Strategic Energy Plan for Bornholm was elaborated in the EU-supported project "TransPlan". The purpose is to have an island strategy for conversion to renewable energy, and to be able to estimate the business possibilities and local work places in the conversion.

Bornholms Forsyning is a non-profit Ltd. owned 100 % by the municipality. Bornholms Forsyning takes care of information leaflets, meetings and administration during the connection campaign and after that call for tenders, contracts, supervision during implementation, commissioning and operation and maintenance of the energy production and distribution system.

The inhabitants in the villages participate in the local working group (only selected and high estimated inhabitants) and participates in information meeting and information of neighbours.

Swot analysis

Strengths	Easy to connect because everything is arranged by Bornholms Forsyning. Economy for the customer is much better than for oil heating. Economy for the island is positive and new work places are created.
Weaknesses	Depending on cheap financing. Low energy houses might not connect.
Opportunities	When district heating is established solar heating and other RES technologies can easily be introduced.
Threats	Biomass prices might go up because of rising demand for biomass for production of chemicals and transport fuels. Individual solutions might be cheaper, for instance individual heat pumps (but they have to be remarkable cheaper to compete with biomass district heating in DK with the present taxes). Taxes on fuel and electricity might change.
Improvements/recommendations/lessons learned	

Links to web site and/or documents for more detailed information

www.bornholmsforsyning.dk