



The Challenge of Operating District Heating Networks with a Consumer Interest of Minimizing Energy Costs

Erik Christiansen, Chief Executive and Assistant Professor,
e-mail: erik.christiansen@ebo.dk

EBO (Energy, Building and Organisation) Consult Ltd.,
Hvidovrevej 137, 2650 Hvidovre, Denmark, www.ebo.dk

Foreword

Renewable energy sources make a major contribution to sustainable development and through using locally available resources to security of energy supply. Renewable energy deployment is part of the solution to many economic and environmental problems by contributing to secure jobs and income, avoiding environmental damage and therefore providing for a valid means to fight against climate change.

Question:

Do we need independently working small local district heating systems based on renewable energy sources as an alternative to our conventional district heating systems, and do the interest in Renewable energy district heating systems shown by the end-users have an important role?

Challenges

Modern societies are seeking to implement integrated development models and infrastructure that will accommodate social and economic requirements and expectations, respect the environment and that will be sustainable. The integration of all these, sometimes conflicting, elements is a complex issue and calls for the guidance provided by successful examples of a manageable size, and that can point the way forward for larger units.

Local energy communities can pioneer the application of the integrated measures which are required to attain our global commitment and, as a result, become excellence-models for the dissemination of such concepts around Europe. An increasing number of communities in Europe are committed to reach renewable energy shares which go far beyond the EU global objectives.

In Denmark district heating co-operatives try to solve the complexity mentioned above. In a Danish co-operative the end-users own the district heating system, and that's why the end-users' opinions and experi-

ences concerning renewable energy district heating systems play an important role, when you make analysis of the different ways of establishing district heating systems.

These analysis often focus on the following challenges:

- expensive energy costs – how is the “Value for Money”-analysis concerning renewable energy district heating systems in comparison with conventional district heating?
- energy loss in the district heating system
- better insulation standards in housing – EU-directive
- operation and maintenance
- benchmarking – transparency when analysing energy costs
- wanted by the end-users: professional service, optimised operation, protection of the environment (reduction of CO²-emissions) and minimal administrative and technical costs.

Statement:

When you have established an efficient district heating system with optimum assets and end-user satisfaction, you're in the best position to meet the challenge of establishing renewable energy district heating systems.

5 reasons:

1. Normally investments in renewable energy systems demand a good economy. Since the basic economy of renewable energy systems is poor, you have to combine these systems with conventional and professional heating systems.
2. Optimised operation and technical qualities are combined. Conventional systems have proven their qualities, and at the same time renewable energy systems have had many problems. Due to the problems end-users mistrust the technique of renewable energy systems.
3. All end-users have to be informed of different types of heating and Best Practice – including proper economical information. Proper information automatically creates end-user acceptance. Conventional and professional district heating co-operatives have made information concepts and know how to fulfil the information tasks.
4. Transparent energy costs are important issues for the end-users. In Denmark conventional district heating co-operatives have to benchmark and compare different costs. There is no obligatory comparison of energy renewable systems.
5. Operation and maintenance are some of the key issues of energy utilities. End-users will always focus on price and quality.