

# Middelfart – DK



→ Good practice example

## Pilot action community: Municipality of Middelfart, Region South, Denmark

### Type of energy consumption:

heat energy  hot domestic water  electricity  water

### Use of renewable energy resources (potential or actual):

biomass  wind energy  geothermal energy  solar energy  hydroelectric power station

### Rational use of energy:

sustainable building systems, low energy housing  building thermal modernisation  modernisation and upgrading of the heating systems  modernisation of lighting  balanced/sustainable transport

The general working assumption is; “There is a lot of money in energy saving” and “Investments and efforts made in energy saving activities and tools will be paid back by the energy savings”. It is just a matter of payback time, amount and type of buildings, expectation to energy reductions and financial setup.

In the municipality of Middelfart there is an ongoing work with the concept “Energy Performance Contracting” and “Energy Service Company” (ESCO). With local concept modification the municipality is reducing energy consumption in all its buildings with 21%. The project partner (ESCO) provide guaranty for the reduction and at the same arrange the investment.

## → Community

### Short description containing:

<b>Geographical position</b>	Island of Funen, Denmark
<b>Main profile of activity in the region</b>	Main activities are related to service branch (public and private) as well as some agriculture and industry. Middelfart Municipality was awarded the “Entrepreneur of the year” prize in 2008 for the progress that has been done the last years.

**Number of inhabitants** 37,274

### Energy data:

**Energy supply** The municipality buildings = 100

**Energy consumption** 26,4 GW hours pr. year

**Total heated flat area [m<sup>2</sup>]** 184,000

**Type of fuel (for heat energy in municipality buildings)** District heating (85.418m<sup>2</sup>: 56,3%), natural gas (54.896m<sup>2</sup>: 36,2%), electricity (841m<sup>2</sup>: 0,6%), Oil (9.369m<sup>2</sup>: 6,2%)

Regarding project in private buildings; Data of around 65 houses is at the moment being gathered and analysed.

### Climatic data: (selected data important for the described case)

**Average yearly temperature** 7.7 °C (period 1961–1990)

**Hours of sunshine per year** 1,495 (period 1961–1990)

**Annual mean temperature, day** 10.9 °C (period 1961–1990)

**Mean wind speed** 5.8 m/sec

## → Context

The municipality council has a vision and a strategy of “Green Growth”. This means enhanced focus on development that provides welfare and growth in the municipality – in a sustainable way. Sustainable development has been addressed for some decades, but “green growth” tries to develop and extend use of technologies and methods where energy consumption is reduced – in general by improving the professional level of conducting energy services in the municipality’s public and private sector.

It has been a tradition in Denmark, that the public institutions provide planning for district heating and energy. In general the public institutions have delivered planning of heat deliverance to the consumers. In the attempt to materialize “Green growth” and improve the

professional level of conducting energy services, the discipline of energy saving is now regarded as a new view on heating planning. So now the task is to deliver heating to the consumers and keeping it there (for instance by stimulating building thermal modernisation). The focus is on one hand the demand for energy reduction and on the other hand an attempt to combine this with the establishment of alternative markets for Energy Service Companies (ESCO) and Energy Performance Contracting (EPC). The concept is that the ESCO guarantees energy saving and provides investment in energy reducing technology. The task is materialized by ESCO projects in all municipality buildings and the pilot project in the private buildings.

## → Experience of the city

### Partnership process

The key players in the public building project are:

- Municipality of Middelfart ([www.middelfart.dk](http://www.middelfart.dk))
- TAC – the ESCO – [www.tac.com](http://www.tac.com)
- TRE-FOR – local energy supplier – [www.TRE-FOR.dk](http://www.TRE-FOR.dk)

The key players in the private building project are:

- Municipality of Middelfart
- TRE-FOR – local energy supplier – [www.TRE-FOR.dk](http://www.TRE-FOR.dk)
- Rockwool – thermal isolation company – [www.rockwool.dk](http://www.rockwool.dk)
- Middelfart Sparekasse – local bank – [www.midspar.dk](http://www.midspar.dk)
- Energitjenesten – independent energy adviser – [www.energitjenesten.dk](http://www.energitjenesten.dk)
- Middelfart Fjernvarme – local district heating company – [www.middelfartfjernvarme.dk](http://www.middelfartfjernvarme.dk)
- Private households in pilot area



Hyllehøjhallen – 24 year old boiler at sport facility – to be upgraded



Hyllehøjskole – 22 year old boiler at school – to be upgraded

The project is expecting co-financing from the region of Southdenmark and the European regional fund.

The project commenced September 2008 and has so far achieved great interest from private people. [www.minklimaplan.dk](http://www.minklimaplan.dk)

### Technical data

Technical aspects in focus in the public project: 1) Gathering of energy information for all buildings one place and systematic monitoring of consumption, 2) Ventilationsystems, 3) Heating supply, 4) Light, 5) Implementation of CTS system, 6) Thermal building modernisation, 7) Waterconsumption, 8) Education of municipality staff, 9) Quality benchmarking og buildings.

In the private project most of the mentioned technical aspects mentioned above will also be addressed in the private project.

## → Cost and benefits

### Economical

In the public project payback period is 7 years, and the investment is 6 mio. Euro. Financing is by bank loan, but guaranteed by ESCO (TAC company). If annual savings do not correspond with the contract, TAC must compensate the municipality.

In the private project financing is by private households. The saving potential in houses built before 1970 is between 30–70% (corresponding to energy costs of 7 billion euro/year). The houses in the private project are all from 1970 or before, of which the majority are heated by natural gas.

### Environmental

In the public project energy saving is 21% pr. year. It corresponds to a reduction of 1,000 tons of CO<sub>2</sub> emissions. Better indoor climate is also a positive outcome of the project. In the private project data is not available at the moment.

## → Evaluation and Outlook

The public project is mainly monitoring the consumed energy in the municipality's buildings. A monthly review of energy consumption is being prepared as part of the contract with ESCO. The evaluation of the private project is being prepared.

## Further information

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