

**SUSTAINABILITY INDICATOR PROJECT WORKSHEET**

Country / State:	Denmark
Name and address of institution / organisation:	Aarhus Municipality, Environmental Division Silkeborgvej 260, 8230 Aabyhoj Denmark Email: mil@aarhus.dk

Title of project / indicator theme / issue**CO₂ emission and energy consumption**

Local Environmental Action Plan 2000 – 2003, Aarhus Municipality

Brief description of the main problems / challenges (to be approached by the initiative)

According to the UN IPCC – panel the emission of green house gasses is affecting the climate and it is feared that the present emissions rate over years will result in vital impact on the earth climate and our surrounding environment. The most essential man born emission of green house gas is CO₂. The Danish Government has through the EU agreed to the Kyoto Protocol on reduction of the CO₂ emission. In Denmark the emissions by the years 2008 – 2012 must be reduced 21 % compared to the emission in the year of 1990. To achieve this goal initiatives in all sectors and areas must be put into force.

Brief description of the causes to the problem / driving forces

The main reasons to the emission of CO₂ is the combustion of fossils as oil products, coal and gas in order to produce energy – both electrical and heat and the emission of CO₂ related to transportation based on non-renewable energy resources.

Therefore the CO₂ emission is closely related to the energy consumption in all sectors. A reduction of the CO₂ emission can in principle be achieved in two manners: 1. By reducing the energy consumption, 2. by developing and implementing less polluting systems of energy production.

Used Indicators

Total CO₂ emission in tonnes pr. year resulting from the total use of energy (electricity and heat) for the municipality of Aarhus (all activities, inhabitants, enterprises, public offices etc.). (CO₂ emission from transportation is not included – another indicator will deal with that aspect separately)

The overall indicator will be followed by more specific indicators:

Annual consumption of electricity and heating energy in different sectors: Private households, industry, service sector, public sector etc.

Annual average consumption of heat and electrical energy per capita in private households.

Annual average consumption of heat and electrical energy per capita in the public municipal sector.



Objectives in general

The Municipality of Aarhus effectively will contribute to the achievement of the Danish National reduction targets on CO₂-emission, energy efficiency and reduction on the use of energy.

Objectives in specific

Aarhus Municipality will take a leading position through a continuously and substantial reduction on the consumption of energy.

The municipality, on a long term basis, is aiming at that all energy supplies can be produced on renewable energy sources.

Investigations will be made in order to build more wind power plants at sea.

The Municipality of Aarhus (public institutions and public activities) shall reduce the total use of energy (heat and electricity) with 1 % per year for the next five years period

Efforts done or planned

Most of the energy production to heating purposes (240.000 inhabitants out of 281.955 as per 1998) are supplied by a power plant which have combined production of electricity and heating energy (86 % in 1998) based on coal combustion, and heat production from a central refuse disposal plant (12 % in 1998).

This result in a very high energy efficiency – as the heating energy form these processes always will be produced – and if not reused the heating energy would represent a loss

The supply of electrical energy goes through a national/European network and therefore there is no direct connection between the use of electrical energy in Aarhus and the way of producing the energy on power plants located in the municipality.

There will be constituted a new CO₂ – committee with a broad representation from industry, universities, organisations and the Municipality of Aarhus. The committee shall elaborate a special report pointing out new initiatives which can effectively contribute to a reduction on energy consumption.

Aarhus Municipality will elaborate an energy action plan every five years.

The statistics on energy consumption in the different sectors will be refined.

Actions will be taken in order to reduce energy consumption in public buildings owned by the municipality.

Graphical presentation of time related progress on selected indicators

DIAGRAM 05

*Consumption of district heating in all sectors, 2000
Aarhus Municipality*

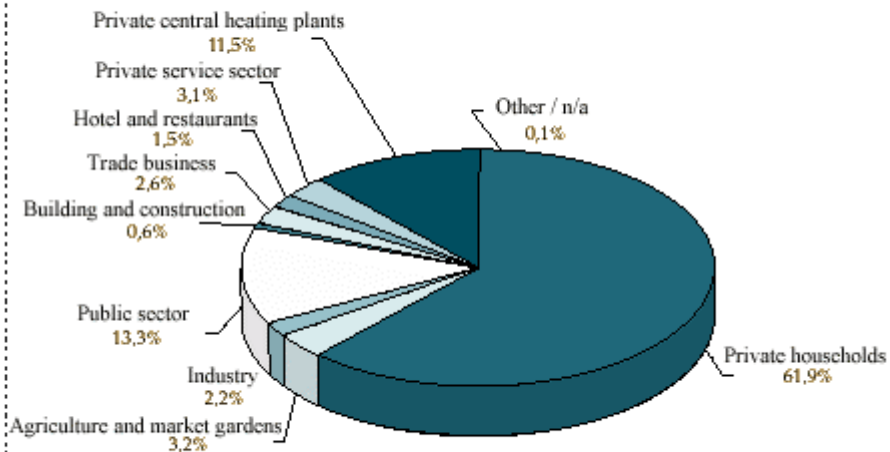
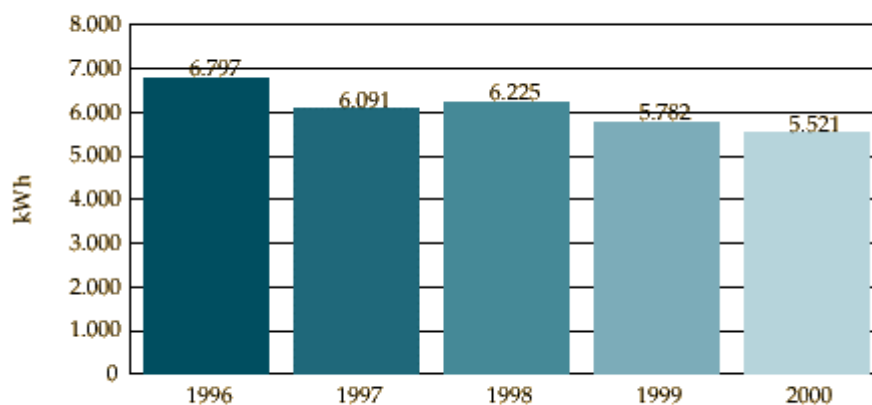


DIAGRAM 06

Average consumption of district heating per capita in private households in Aarhus Municipality, 1996 - 2000



Graphical presentation of time related progress on selected indicators

DIAGRAM 16 Consumption of electricity in all sectors, 2000
Aarhus Municipality

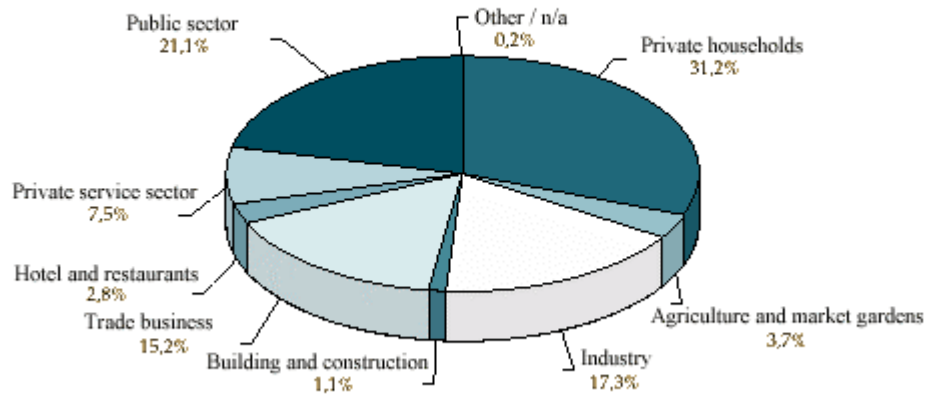
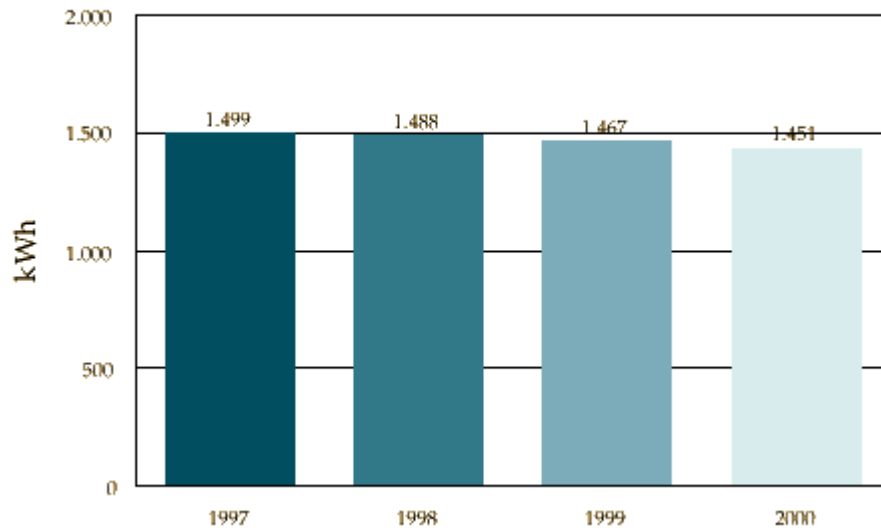


DIAGRAM 17 Consumption of electricity per capita in private households in Aarhus Municipality, 1997 - 2000



How to get further information

Further information can be found on the website of Aarhus Municipality www.aarhus.dk/kommune - unfortunately the relevant parts are only in Danish. The direct link to the Green Account 2000 is: <http://195.41.32.55/4125667F0039FEC2/WebInfoIndhold/1CFA84E81444A946C1256A5A001E68C8?OpenDocument> and the direct link to the Environmental Action plan is: <http://195.41.32.55/4125667F0039FEC2/WebInfoIndhold/D1BA19D6D06FE115412567E7002F22DC?OpenDocument>