

## Implementation of EC Directives

Country

Denmark

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
1	Law on energy savings in buildings	General law	Government	Existing

### Quotations from the measure

The EU buildings directive is implemented in law no. 585 of June 2005 on energy savings in buildings. This has been followed by three executive orders on:

1. Inspections on ventilation and cooling installations in buildings
2. Energy labelling of buildings
3. Inspections of boiler and heating installations in buildings

The energy requirements in the Danish building code has repeatedly been strengthened since the 70'ties, when they were introduced as part of energy savings measures, and they are among the most demanding. The requirements are particularly strict for new buildings, and that makes it increasingly challengingly to supply new build housing areas with low heat density with district heating.

#### Energy labelling

The directive has led to replacement of an existing system of national design, and applies to all new and existing buildings except for instance industry and agriculture. The system operates with three types of appointed energy consultants attached to the system: energy consultants for one-family houses, energy consultants for multi-family houses, and finally energy consultants for commerce/service and public buildings.

#### Inspection of boilers and heating installations

As part of the implementation, it has become statutory for the owners of buildings to have a technical expert inspect boilers and heating systems. There are four systems within the system for inspection of boilers and heating systems, based on type and fuel.

#### Inspection of ventilation and cooling installations

A system for inspection of ventilation and cooling systems has been set up, and is in operation.

The present requirements in the Danish building code, with regard to the energy performance of buildings, meets or exceed the requirements in the old directive, and implementation of a revised buildings directive will only require minor adjustments in present legislation.

### The Purpose of the measure

Energy savings in end use, particularly buildings, has been in focus since the energy crisis in the 70'ties. Regular updates to requirements are nothing new, and the national legislation has traditionally been ahead of EU legislation.

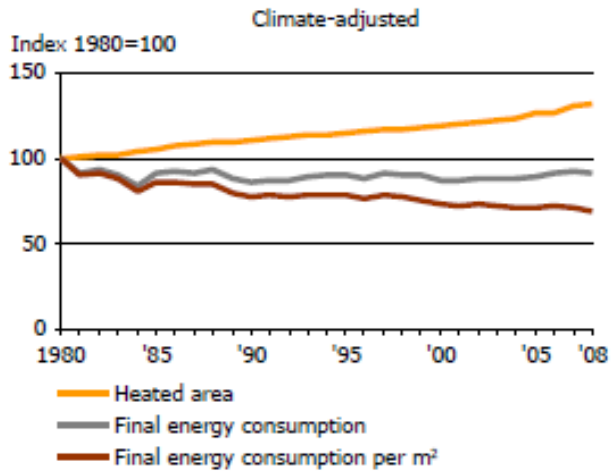
### Effectiveness of the measure

As can be seen from the graph, the heated area has increased by 30 % since 1980, but total final energy consumption for heating in homes has remained constant, thus leading to lower consumption per area

unit.

Source: Danish Energy Agency, Energy Statistics 2008.

### Energy consumption for space heating in homes



#### IV. IMPLEMENTATION OF EC DIRECTIVES

Country

Denmark

#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
2	CHP-directive	General	Government	Existing

#### Quotations from the measure

As described in section Support Measures for DHC, 5 CHP-requirement, cogeneration has been a cornerstone in Danish policy on the environment and energy.

Implementation of directive on the promotion of cogeneration based on a useful heat demand in the internal energy market therefore only required one minor adjustment of existing legislation. Specifically the requirement that cogeneration should be high efficient to eligible to receive financial support. The requirement for production to be high efficient is established by executive order no. nr 146 of 16/02/2007, that implements the system of the Guarantees of

origins as prescribed by the directive.

## The Purpose of the measure

Fulfilment of obligation to implement the cogeneration directive.

## Effectiveness of the measure

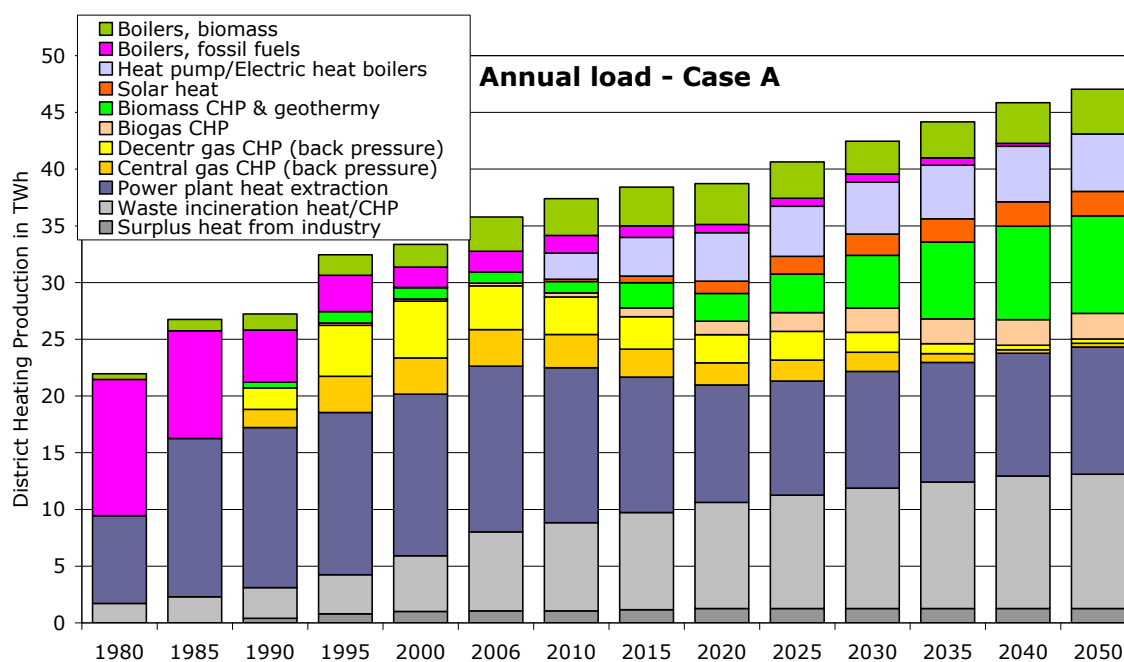
The share of cogeneration is already high, and few, if any, cogeneration plants do not fulfil the requirement to be high efficient.

IV. IMPLEMENTATION OF EC RES DIRECTIVE				
Country		Denmark		
#	Name and reference of measure	Type of measure	Responsible organ	Existing or planned?
1	RES-directive		Government	Planned
<h3>Background</h3> <p>The directive on the promotion of the use of energy from renewable sources sets a target for Denmark of 30 % renewable energy in 2020. The share was 17 % in 2005.</p> <p>The government stated in its long term energy strategy from 2007, that it aimed at decreasing the use of fossil fuels with 15 % in 2025, and that the share of renewable should be 30 % in 2025. And stated, that Denmark in the long term should be free of fossil fuels, without specifying what long term means.</p> <p>However, a political agreement between the government and the opposition from 2008 sets a target for the share of renewables at 20 % already in 2011. A target which is to be reached mainly by expansion of electricity production from wind and with increased use of biomass in large cogeneration plants.</p> <p>A National Renewable Energy Action Plan is under development.</p> <p><b>Biomass or not</b></p> <p>There is an ongoing debate about the feasibility of a major expansion of the use of biomass in the Danish energy system. Being small and relatively densely populated, and despite a large agricultural sector, Denmark will not have enough biomass to cover a huge share of its energy requirements without imports. The only abundant renewable source of renewable energy in Denmark is wind, and it is therefore expected that a huge share of the total energy consumption will be based on wind, with electricity as an energy carrier.</p> <p>Further contributions can be had from geothermal, solar and wave energy.</p>				
<h3>Assessment of the need for new DHC infrastructure</h3> <p>District heating already covers around half the demand for space heating. 62 % of households get their heat for space heating and warm tap water from district heating.</p> <p>Expectations are that district heating will expand into areas today supplied with natural gas for heating purposes. Government policy is supporting this development, by encouraging municipalities to use the heat planning procedure to facilitate conversion from natural gas to district heating. This may expand the district heating share of demand for space heating to maybe 60 %. This huge infrastructure is viewed as a strategic asset in the future energy policy in Denmark. Not only as a way to increase the share of renewables in the total heating supply (46 % today), but also as a way to enable a greater interaction between the wind based electricity production and the heat supply.</p>				
<h3>Monitoring of and input to national renewable Energy Action Plan</h3> <p>The government is at the moment working on its proposal for a Renewable Energy National</p>				

Action Plan, and input has arrived from many sources. All point to the increased use of wind, biomass, geothermal and solar, with varying emphasis on each. Most point to district heating as a facilitator for future developments.

Danish District Heating Association has provided Heat Plan Denmark, which points to the possibility of both enlarging the district heating networks and greatly increasing the share of renewables in the heating sector.

The composition of input to district heating could look like this:



Source: Heat Plan Denmark, Danish District Heating Association, 2008

A further example of the role of district heating is found in Heat Plan Greater Copenhagen deals with the future district heating in Greater Copenhagen area. The analyses show that renewable energy can cover more than 70 percent of district heating supplies in Greater Copenhagen from as early as 2015. This can be achieved without negative economic consequences. There are two main factors that make it possible. First, there is a scope for converting the fuel at the existing large combined heat and power plants from coal to biomass, and second, there are opportunities for exploiting the increasing volumes of waste in highly efficient incineration plants, which produce both electricity and heat. (See more about this later.)

## Proposed implementing measures

No measures for implementation of the RES-directive have been proposed yet. Support for cogeneration based on renewables already exists (see section Support Measures for DHC, 3 subsidies), but may have to be changed/increased.