



EXECUTIVE SUMMARY: STRATEGIC ENERGY AND CLIMATE PLAN 2020

A future free from fossil fuels

Høje-Taastrup Municipality 2015



**Høje-Taastrup
Kommune**

Introduction

We are the first generation to really experience the impact and consequences of global climate changes and we are responsible for acting upon these experiences. It is adamant that we halt and reduce global CO₂ emission, which causes rising temperatures worldwide.

Greenhouse gases are emitted into the atmosphere with the burning of fossil fuels such as coal, oil and gas, which is happening globally to a rising extent. The UN's panel on climate changes recommends that industrialised countries reduce their emission of greenhouse gases by 80-95 % in 2050 in comparison with the 1990 level. EU has agreed to this and it is also a benchmark for Denmark's policies regarding climate.

In the long-term climate plan from 2013, the government objective is that all of Denmark's energy supply, including the transport sector, will be covered by renewable energy in 2050. As a part of this process oil and coal for heating will be phased out no later than 2030, and the supply of electricity and heat will be covered 100% by renewable energy in 2035.

Today about 80% of Denmark's energy supply is dependent on fossil fuels such as coal, oil and natural gas. If the government objective of a fossil free energy supply is to be obtained, it demands an extensive, consistent and coordinated effort on all levels.

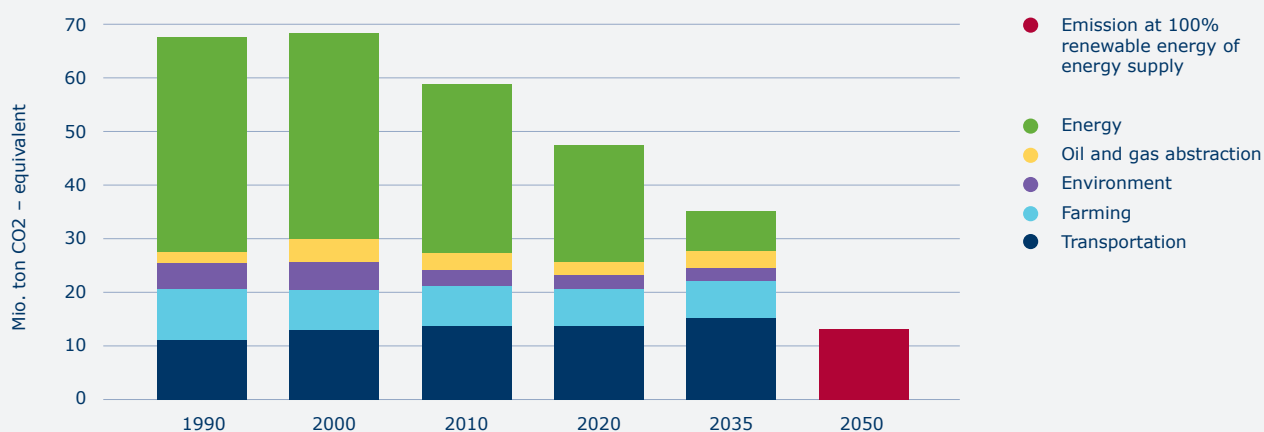
The government climate plan from 2013 also says that the climate effort should be implemented in the most cost effective way and under the regard of maintaining a high security of supply.

Even regionally in the capital area there is a focus on the climate challenges. In 2012 a climate strategy for the capital area was passed, which was approved by all 29 municipalities and the regional council.

As a follow up to the climate strategy the municipalities of the region, the supply companies and the capital region have in 2014 initiated a strategic energy plan co-operation through the project "Energi på Tværs". The co-operation's main aim is to establish a coherent and flexible energy and transportation system based on renewable energy.

The aim is an overall energy vision for the capital region, which encompasses principles and political agendas as well as a framework for future energy and climate co-operation. Høje-Taastrup municipality participates as one of the six municipalities in the project's steering group.

Figure 1. Historical and extrapolated Danish greenhouse gas emission until 2020
(Source: DCE and Energistyrelsen)



Municipal ambitions

Valuable experiences and genuine results



In Høje-Taastrup Municipality we aim our efforts at obtaining the regional, national, and international objectives in the fight against global climate changes. In order to carry out this task, we operate with strategic energy and climate planning on a concrete and practical level where new green activities are continuously initiated and implemented for the benefit of citizens and businesses.

Through the implementation of climate plan 2009-2013, the municipality has shown that a systematic and efficient effort can lead to considerable CO₂ reductions and efficient energy use. In the period of 2008-2012 the municipality's overall CO₂ emission has been reduced by about 20% and in the municipality as a company it has been reduced by 25%. The effort coincides with an increase in the number of jobs and residents of the municipality.

The pivotal point of the effort has been the energy renovation of municipal buildings, but also to support energy renovation of detached houses and blocks of flats, development and restructuring to environmentally friendly district heating, development of renewable energy supply as well as several approaches in the transportation area.

In order to accomplish green transition most cost-effectively, it is necessary to co-operate across municipal, regional and national borders as well as between private businesses

and public institutions. The basis of the municipality's effort is a wide range of concrete and practical projects that work together with the national and regional plans and activities.

One important step in the transition process is the energy renovation of municipal buildings, the so-called ESCO-project in which the buildings are examined and analysed for their savings potential. The project has entailed the conversion and replacement of heat supply, the renovation and replacement of lighting, as well as the installation of about 5.000 m² PV solar systems (the equivalent of 7% of electricity consumption in municipal buildings), and qualification of operational staff.

Another cross-cutting and strategic effort is the project 'Høje-Taastrup going green' which in 2014-2015 underpins the municipality's strategic energy and climate work. The aim is to show, through analysis and visionary demonstration projects, how a municipality is able to implement an accelerated transition into fossil free energy supply within electricity, heat and the transportation area.

We have good reason to be proud of the results we have obtained until now, and which now form the basis of the aims and efforts contained in this Strategic Energy and Climate Plan 2020 for Høje-Taastrup.

Visions and objectives

Vision

Høje-Taastrup Municipality will be fossil free no later than 2050. We will obtain the objective by a cost effective green conversion of the electricity, heat and transportation areas for the benefit of the environment, climate, residents and businesses.

The Strategic Energy and Climate Plan 2020 defines aims and guidelines for the coming years' efforts within the energy, climate and transportation areas in Høje-Taastrup Municipality.

The plan is a direct follow-up to the recent Climate Plan 2009-2013, which has now been implemented, and where the results more than satisfy the objectives set out in the plan.

The Vision of the Strategic Energy and Climate Plan 2020 is:

Høje-Taastrup Municipality will be fossil free no later than 2050. We will obtain the objective by a cost effective green conversion of the electricity, heat and transportation areas for the benefit of the environment, climate, residents and businesses.

The main objectives for Høje-Taastrup Municipality are:

Short-term objective, until 2020

That the municipality's overall CO₂ emission is reduced by an average of 3% pr. year.

Medium-term objectives, until 2035

That Høje-Taastrup Municipality achieves the governmental objective of a fossil free electricity and heat supply.
That the CO₂ emission is reduced by about 65%

Long-term objectives, until 2050

That Høje-Taastrup Municipality achieves the governmental objective of a fossil free electricity, heat and transport sector. That CO₂ emission is reduced by about 95%.

Høje-Taastrup Municipality's partial objectives and benchmarks:

Short-term objective, until 2020

One of the prerequisites for the reduction of CO₂ emission by an annual average of 3% is that a broad range of initiatives are implemented to provide results in energy savings within all consumption sectors and contribute to the increase in use of renewable energy sources.

As a milestone, the use of oil and natural gas for heating in the municipality is to be reduced by averagely 4,5% annually until 2020.

Medium-term objectives, until 2035

If the objective of a fossil free electricity and heat supply is to be obtained no later than 2035, initiatives need to be implemented that reduce energy consumption and increase the use of renewable energy sources in electricity and heat supply. To obtain a cost-effective green conversion optimal interaction is necessary between investment in energy savings and new sources of renewable energy.

In 2035 the transport sector will be well ahead in the process of conversion to fossil free fuels at the same time as the vehicles will become still more energy efficient.

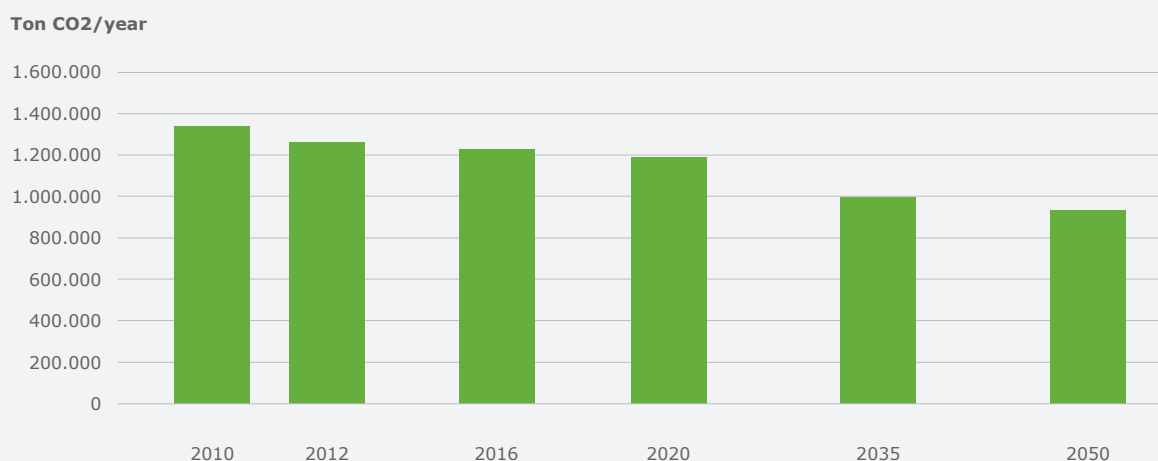
Høje-Taastrup Municipality has a partial objective of reducing energy consumption for heating by about 25% in 2035, while the consumption of electricity for other purposes than heating and transportation will be reduced by about 20%.

Long-term objectives, until 2050

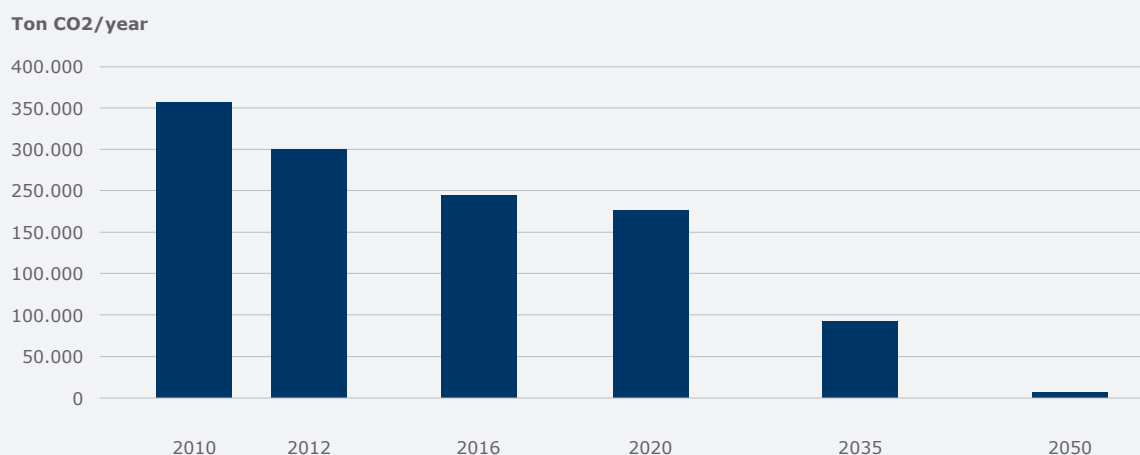
A fossil free energy supply will demand further efforts within all areas and not least the area of transportation.

Regarding energy savings in buildings, Høje-Taastrup Municipality has set as a partial objective to reduce the use of energy for heating by 35%, which is assessed to be the most cost-effective potential in the national energy renovation strategy of 2014. Furthermore, a partial objective is to reduce the consumption of electricity for other purposes than heating and transportation by 30%.

Figur 2: Extrapolation of energy consumption in Høje-Taastrup Municipality until 2020 and the benchmarks for 2035 and 2050.



Figur 3: Extrapolation of CO2 emission in Høje-Taastrup Municipality until 2020 and the benchmarks for 2035 and 2050.



Four areas of operation



The Strategic Energy and Climate Plan 2020 for Høje-Taastrup Municipality focuses on four areas of operation:

- Energy efficiency
- Electricity supply
- Heat supply
- Transportation

The four areas of operation are not to be considered isolated fields as they function in close association with each other. Further more, basic conditions such as human behaviour and technological developments are crucial for the achievement of objectives.

Energy efficiency

Efforts within energy efficiency encompass all building categories, including municipal institutions, administration buildings, private detached houses, blocks of flats, and businesses. The activities cover energy renovation of municipal buildings, the establishment of a new internet portal for energy consumption, energy savings aimed at detached houses and agreements with housing companies and businesses about energy efficiency. In addition are municipal facilitation tasks and network activities as well as a broad communication of the results from the already implemented activities and projects.

Electricity and heat supply

The phasing-out of oil – and in due time also natural gas – for heating is a prerequisite for obtaining a fossil free electricity and heat supply. The efforts therefore include a development of district heating supply, an improvement of local renewable energy sources, the possibility of creating heat storage facilities, improved utilisation of excess heat from industrial production, conversion to low temperature operation in district heating, information for citizens and businesses in areas outside the district heat supply about alternatives to oil-heating, and cross-municipal co-operations in all appropriate areas.

Transportation

Høje-Taastrup is a traffic hub – and the municipality should continue to be.

The catalogue of efforts in the transportation area therefore encompasses a broad range of initiatives to encourage green transportation; including a strengthened mobility planning which will be able to reduce car commuting to and from the workplaces within the municipality. The use of climate friendly fuels for transportation of people and goods will be promoted with an improvement of the infrastructure by offering more charging stations for electrical cars and a general support of the supply of alternative fuels.

Urban development

The Strategic Energy and Climate Plan 2020 will overall support sustainable urban development in the municipality. Not least the on-going projects, NærHeden and Høje-Taastrup C, which can turn out to be inspiring urban areas encouraging modern mobility habits, energy supply and energy behaviour. Further more, Smart-City elements will be integrated in connection with urban developments of new or existing areas in the municipality.

All the efforts in this plan level with the initiatives already launched within the fields of energy and climate. They are strategically founded and manifest themselves in concrete and measurable efforts based on professional expertise, effective management by objectives, and pragmatic solutions.

Selected examples of implemented climate initiatives in høje-taastrup municipality 2009-2014:

The municipality:

Energy renovation of municipal buildings for 74 million DKK via ESCO where energy savings cover the investment. Renovation of 27 day-care institutions to SuperLowEnergy status instead of building new facilities. New buildings either built as passive houses or according to requirements of building regulation BR2015.

Detached houses:

In the project "GoEnergi i Høje-Taastrup" the 9.000 homeowners of the municipality have been motivated to energy renovate their private houses. Around 900 have participated in information meetings, and about 100 homeowners have launched themselves into extensive energy renovations. In the beginning of 2015, 15 homeowners are ready to show their results.

Se more at www.htk.dk/bedrebolig.

Blocks of flats:

A climate and energy network for housing companies has been established. Cooperation agreements on energy savings have been drawn up with the housing companies. Estates such as Gadehavegaard, Taastrupgaard and Enghavegaard and others have set an example with their deep energy renovations.

Businesses:

The municipality helps businesses get started with green initiatives via projects like "Styr energien". Businesses are offered energy check-ups in co-operation with DONG Energy and the creation of partnerships between the municipality and businesses – for example with Danica Pension in connection with the installation of the PV solar system on CITY2.

Renewable energy:

A windmill of 0,8 MW (IKEA) and more than 5MW PV solar systems have been installed on municipal and private buildings. The potential for further development of local energy production has been analysed.

The development and optimizing of district heating:

3.000 m² solar heating established in Fløng. Low temperature district heating established in selected residential areas. Analysis of how to store heating in gravel sites. Preparations for the utilization of excess heating. Initiatives to phase out oil and gas supply.

Transportation of passenger:

The establishment of infrastructure for electric cars. The municipality has bought 11 electric cars and has decided to buy 20 more in 2015. Development and dissemination of impartial information on electric cars to citizens and businesses on www.elbiler.nu. With the aid of collaborators, citizens have been offered three months free loan of electric cars and electric bikes.

Transportation of goods:

Analyses have been initiated in co-operation with stakeholders in the transport area to promote conversion from diesel to alternative fuels, including electricity and gas.

Sustainable urban development:

Work is intense – and will continue to be so – on the realisation of fossil free, CO₂ neutral urban development in the residential area Nærheden near Hedehusene.



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