

**10. Eco-innovation and sustainable employment**

**Innovations that address material security and/or resource efficiency (substitution, minimisation of material use, closing loops, etc) and reduce environmental impacts;**

In 2025 Copenhagen needs to make room for an anticipated 637,000 inhabitants, an increase of approximately 100,000 compared to today. This growth is seen as an opportunity to strengthen the development of sustainable city solutions. Copenhagen is determined to grow in a green way.

The City's strategy for creating employment opportunities and achieving the necessary economic growth is included in the current Municipal Plan. The plan focuses on green growth, based on strengthening renewable energy and providing the necessary frameworks for eco-innovation and development of clean technology.

Copenhagen is implementing a climate plan aimed at reducing CO2 emissions by 20% in 2015 and achieving emission neutrality by 2025. Economic growth and job creation are seen as integral parts of achieving this ambitious goal.

An important aspect of the City's green growth strategy is to strengthen the clean-tech sector. For many of the region's clean-tech companies, increasing exports is the only way to ensure growth. The City is helping to stimulate demand and attract investors through exposure of systemic eco-solutions that are rarely marketed by individual private actors. The City has developed a catalogue of innovative solutions that are considered to have been the most significant in the development of a green Copenhagen and that have the potential to be replicated in other cities. The catalogue is being promoted through various international networks and events. (See details on the catalogue at: [http://www.kk.dk/sitecore/content/Subsites/CityOfCopenhagen/~/\\_media/BBE24DD4459F48578A6DD58B1E93749F.ashx](http://www.kk.dk/sitecore/content/Subsites/CityOfCopenhagen/~/_media/BBE24DD4459F48578A6DD58B1E93749F.ashx))

As part of the goal of stimulating demand, the City of Copenhagen works with private partners to attract large-scale green events to Copenhagen with the aim of providing companies with platforms for exposure. The events are also a way of displaying Copenhagen as green city and attracting attention to some of the innovative solutions being implemented in and around the City. As an example, Copenhagen has been selected to host the European Wind Energy Conference & Exhibition 2012, which is the world's largest wind turbine event.

Public-private partnerships are at the core of the City's approach to eco-innovation and sustainable employment. Through dedicated forums the City is working with green companies, universities and organisations on developing and implementing green growth. An important partner in this regard is the Copenhagen Clean-tech Cluster, which works to create continuous growth for existing clean-tech companies, support new clean-tech companies and attract more foreign clean-tech companies to Copenhagen.

Through implementation of the Municipal Plan and the 2025 Climate Plan, the City of Copenhagen is creating the frameworks for creating eco-innovation and sustainable employment. The City's investments are resulting in reduced GHG emissions and lower environmental impacts as well as creating growth and employment.

**Number of jobs created in green sectors such as renewable energy and waste recycling, in total and as share of total jobs in the city and total jobs created during a period of one year.**

The number of green jobs is increasing in Copenhagen and the City will increase efforts to strengthen this growth. Please see details in section 2 below.

**Share of hybrid or fully electric cars sold in total car sales**

Copenhagen is promoting the use of hybrid and fully electric cars with the municipality showing the way. As part of adopting the Climate Plan 2009, a unanimous City Council decided to increase the proportion of electric and hybrid cars owned by the City. By 2015 85% of the total municipal car fleet will be hybrid or electric cars.

**Share of energy provided in the city that is sourced from renewable energy sources. Renewable energy sources to be specified.**

In 2010 almost a quarter of electricity consumption in Copenhagen was generated from renewable sources (biomass and wind). In terms of heating, 98% of homes in Copenhagen are connected to the city's district heating system, with 30% of that supply being based on renewable sources (biomass and organic waste). See also under section 12 "Energy performance" for more details.

**Awareness raising and training to encourage the development and take-up of environmentally friendly technologies, particularly through training in industrial and business settings.**

Green Businesses (*Grønne Erhverv*) is the City's network for private companies that want to be part of green growth in Copenhagen. The main objectives of the network are to engage Copenhagen-based businesses in the City's ambition to become CO2-neutral in 2025 as well as to reduce the negative environmental impacts in areas such as noise and air pollution, waste water and chemicals. Green Businesses offers assistance and training to companies that have recently started their environmental efforts, as well as partnerships with frontrunners that have long standing experience in this field of work.

In January 2011 a total of 980 companies had joined Green Businesses. From 2009-2011 approximately 200 companies had received free energy counselling from Green Business partners. Companies from the Green Business network are participating in an EU-supported project, Carbon 20. Experience from the project will be shared with municipalities and business organisations in other EU countries.

**Social innovation, including for example community programmes, that shows entrepreneurship and new ways of organisation in order to promote sustainable development and protect the environment locally and globally**

Since 2002 the City of Copenhagen has made great efforts to support and develop local environment work by inspiring and engaging the public, enterprises and organisations in the City to environmentally correct behaviour every day. Initially the City supported the establishment, on a pilot basis, of local "Agenda 21 centres and satellites" in five of the 15 urban districts in Copenhagen. In 2007 politicians decided to make the local initiatives permanent and to spread them to all urban districts. Today every urban district has a local committee which, among other things, supports and develops local environment work.

The local committees initiate activities which make it easier for citizens and enterprises in the urban district routinely to act environmentally correct and to save resources. The local committees work locally on environmental issues in a holistic way that considers social, cultural, economic and integration issues. The committees support local environment efforts through existing and new networks of housing associations, organisations, businesses, schools and institutions.

Copenhagen is preparing a new Agenda 21 Plan for the period 2012-15. The plan will set a new standard for Agenda 21 work from 2012. The public will be at the core of the Plan, which focuses on green growth and new innovative solutions as means

to meet prioritised municipal environment goals. The new Agenda 21 plan will establish 10-20 activities aimed directly at removing existing barriers to green choices by Copenhageners, and at developing new opportunities for people in order to underpin the objective of creating green growth in Copenhagen.

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The City is keeping track of its environmental development. Every year the Copenhagen Green Accounts are published. These are a monitoring tool to ensure timely implementation of planned initiatives by measuring the effects of green initiatives against a number of indicators, including growth and employment (see section 11 for more details on the City's environmental management). The most recent Green Accounts estimates that investments in green energy, green mobility and building renovation in 2010 and up to April 2011 will create 1,540 jobs. Statistics of employment in green sectors are being developed and constantly improved. In 2008 there were an estimated total of 11,000 full-time positions in Copenhagen employed in green sectors (a rise from about 7,500 the year before).

Green city solutions are not a new thing in Copenhagen. Cycling has always been a Danish tradition, but Copenhagen has taken this one step further and made cycling an integral part of urban planning and design. Improving accessibility and increasing the number of cycle lanes (there are presently over 350 km of cycle lanes in Copenhagen) as well as upgrading trains to make it easy and convenient to carry bikes on board, even during peak hours, have made cycling the preferred mode of city transport for Copenhageners. Despite the obvious constraint of the not-always-so-cycle-friendly Scandinavian weather, 50% of all Copenhageners bike to work or school every day.

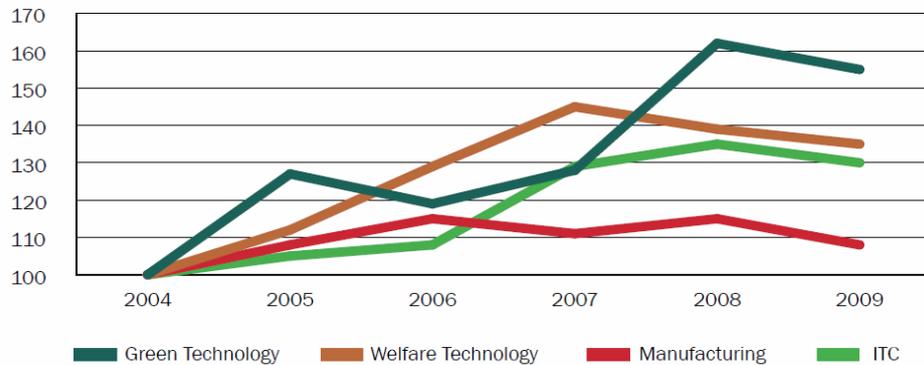
In addition to the environmental benefits of a city that cycles as well as the derived socio-economic advantages of less traffic congestion and lower levels of air pollution, the targeted approach of advancing cycling and establishing the physical infrastructure to sustain it, has led to a growth in innovation and employment linked to cycling. In 2010 there were 309 companies in Copenhagen involved in sales and repairs of bikes. These employed 650 full-time positions and generated a turnover of DKK 1.3 bn. In addition to this come bike rental companies, bike taxies and messengers as well as companies where employees use bikes as an integral part of their work, such as postmen, police officers and home caretakers. Design and development of cargo bikes is an area that has seen clear growth in the last 10 years. In Copenhagen more than one out of every six families owns a cargo bike – it is estimated that there are approximately 19,000 cargo bikes in Copenhagen, equal in value to DKK 285 mill.

Another area with a long track record, and an area where the City continues to strengthen development, is the wind energy sector. Investing in wind energy in Copenhagen has been introduced through a unique partnership based on local ownership, creating a community-owned facility. The first wind farm at Middelgrunden created a wind turbine cooperative, half-owned by the City and with half the shares sold to 8,650 members of the local community. On the basis of the Copenhagen Climate Plan, the city-owned utility company plans to build more than 100 new wind turbines before 2025, positioned both inside and outside the city. Through creating a strong local demand, the Danish wind turbine industry has grown into a multi-billion dollar industry, achieving growth rates of over 30% per year. From 2005 to 2010 employment rose by 4,000 to a total of 25,000 in 2010.

From 2004 to 2009 the growth rate for the Copenhagen green sector soared. Over the course of five years the turnover generated in the green sector in the capital region increased by 55 percent (see figure below), contributing more than DKK 50

billion in 2009 alone. Although in absolute terms the green sector is still outperformed by ICT and a more traditional sector like manufacturing, which had turnovers of 81 and 113 million DKK respectively in 2009, the green sector contributed three times more than welfare technology in 2009 and can be considered an important wealth generator and growth engine for Copenhagen.

**Sector turnover increase in the Copenhagen 2004-2009**



For more details on the socioeconomic benefits of greening in Copenhagen please refer to the study “Beyond Green” published by the independent think tank Monday Morning at <http://greengrowthleaders.org/wp-content/uploads/2011/10/CPH-Beyond-Green.pdf>

**Lessons learned**

- That city authorities must analyse very clearly how and where they as public actors can create added value regarding job creation and where they can help to correct certain market failures.
- That the primary role of the City as a public actor is not to create the jobs as such, but rather to facilitate the creation of employment opportunities through providing the political, legal and physical framework for private actors and through entering into partnerships with these.
- That continued efforts must be made to analyse and document the lasting character of jobs created in the green sector as well as the net employment effects of these.

**(max. 800 words)**

As mentioned above, Copenhagen is implementing a climate plan aimed at reducing CO2 emissions by 20% in 2015 and achieving emission neutrality by 2025. Economic growth and job creation are seen as integral parts of achieving this ambitious goal. Further expansion of the renewable energy sector, especially wind power, will boost employment, just as further and planned efforts to create the political and physical foundations for expansion of the clean-tech sector in Copenhagen will generate employment opportunities and investments.

The City is developing into a live laboratory for testing green city solutions. The most ambitious and far-reaching project in this regards is the expansion of Copenhagen’s North Harbour district, creating an entire new city area aimed at providing housing for 40,000 people and a corresponding number of work places. The North Harbour, which today is a largely uncultivated area with parts used for container shipping, will be developed into a sustainable city district. Solar energy, heat storage and geothermal heating are just some of the elements which will make the North Harbour into an international example of sustainable urban development. A partnership on

energy has been decided – see indicator 12.

The City of Copenhagen wants to spearhead the phasing in of electric cars as an alternative to cars running on petrol or diesel. The City of Copenhagen is cooperating with external partners to establish an infrastructure for electric cars on public land. Since autumn of 2009, 50 charging points have been set up. Parking spaces with charging facilities are reserved for electric cars. As mentioned above the City will lead the way - before 2015, 85% of the City's passenger cars will run on electricity or hydrogen. This amounts to about 600 new cars.

At European level, the City is engaged in more projects aimed at establishing a European infrastructure for electric vehicles. At global level, the City is actively engaged in the Clinton Climate Initiative and the C40 facilitated network on EVs.

#### Hydrogen partnerships and car projects

The City has entered into a partnership with the Copenhagen Cleantech Cluster and the Partnership for Hydrogen and Fuel Cells to contribute to knowledge sharing, player awareness and process strategies for the hydrogen sector. The project is to enhance hydrogen partnerships in the region.

The City will cooperate with Scandinavian cities, London and several international car manufacturers on testing hydrogen-electric cars and on establishing a new hydrogen station in Copenhagen. Projects will help attract car manufacturers and ensure that Denmark and Copenhagen are amongst the first market introduction areas in the world. Furthermore, projects will help motivate Danish and foreign enterprises to commence establishment of a nationwide network of hydrogen stations up to 2015. An agreement has already been established with Hyundai.

Through the project **Green Copenhagen**, the Municipality is establishing a user-driven and inter-active platform to work on new green solutions for citizens.

The City wants to promote the development of new green shopping possibilities for citizens, making it easy to make environmentally sound choices in everyday life.

Through workshops Copenhageners were invited to describe the barriers they experience in everyday life to acting green in terms of energy consumption, shopping, waste management and transport. From the description of these barriers, the City developed a catalogue of ideas that was shared with companies who then met and worked on a number of challenges, notably in the following three areas: 1) Visualisation of energy consumption in the home (to show Copenhageners how much heat and electricity they use relatively); 2) Transparency in terms of the most optimal transport solution at any given time during the day (Copenhageners want a tool / service that can display available options in real-time); and finally 3) Transport of larger quantities of goods and products for Copenhageners who do not have access to a car. A number of leading enterprises are involved in the project, but their names are still confidential.

Green Copenhagen expects to present the first green solutions in response to the challenges above during 2012

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