ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
ORGANISATION DE COOPÉRATION ET DE DÉVELOPPEMENT ÉCONOMIQUES
www.oecd.org
BETTER POLICIES FOR BETTER LIVES DES POLITIQUES MEILLEURES POUR UNE VIE MEILLEURE

# DENMARK: INVENTORY OF ESTIMATED BUDGETARY SUPPORT AND TAX EXPENDITURES FOR FOSSIL-FUELS

**Energy resources and market structure**

Denmark has considerable oil and gas resources in the North Sea, which have been exploited since the early 1970s. However, the country became a net exporter of oil and gas only in 1997, and can be expected to remain so at least until end-2018 and 2020, respectively. Denmark is the second-largest producer of oil in the EU. In 2010, fossil fuels accounted for nearly 80% of Denmark's total primary energy supply (TPES). Oil is the leading fossil fuel in TPES, accounting for around 38%, followed by coal (20%) and natural gas (22%). Combined heat and power (CHP) plants play an important role in Denmark's electricity production, providing around 80% of all electricity produced. In the early 1980s, oil was the main fuel used in CHPs. However, since the 1980s, there has been a significant fuel switching from oil to coal and natural gas in electricity production. In 2010, coal fuelled around 44% of the electricity plants in Denmark while natural gas provided 20%, and biofuels and waste about 13%. Wind turbines generated most of the remaining power. The country imports almost all of the coal it uses for electricity production, mainly from Russia, South Africa and Colombia.

Oil production in Denmark has been decreasing at the rate of 3% to 9% a year since 2005. This downward trend is due to ageing fields, of which the oldest field, Dan, started production in 1972. A total of ten companies contribute to oil production in the Danish sector of the North Sea, of which Shell, A.P Møller and Chevron account for around 85% of total oil production. The Danish government and private companies continue to invest in new production wells. In 2010, development activities totalled DKK 4.9 billion, a 27% decrease compared with 2009. Gas production, on the other hand, has been relatively stable. Oil and gas exploration rights are granted to one or more companies through the "Open Door Procedure" which was introduced in 1997, and covers all non-licensed areas. The Ministry for Climate and Energy issues licences to companies, while the state usually holds a 20% share of each licence group. The state's participation in oil and gas exploration is managed by the Danish North Sea Fund, which was established after the semi-privatisation of the state-owned utility, the Danish Oil and Natural Gas Group, in 2005.

In 2004, the Danish government decided to establish a single entity to own and operate Denmark's electricity and gas transmission network. Before this reform, electricity transmission was completely separated, and owned by two companies: Elkraft (in eastern Denmark) and Eltra (western Denmark). Until the end of 2005, however, the domestic gas transmission network (pipelines) was owned by the Danish Oil and Natural Gas Group. In 2006, the government established a new entity, Energinet.dk, in order to merge all electricity and gas transmission assets. Access to Energinet.dk's network is subject to regulated conditions with tariffs. All prices and terms for using the transmission network are publicly accessible and are under the supervision of the public authorities. In 2005, the Danish Oil and Natural Gas Group merged with five other energy companies, Elsam, Energi E2, NESA, Københavns Energi and Frederiksberg, and formed the Danish Oil and Natural Gas Group. The Danish government still holds around 75% of the Danish Oil and Natural Gas Group's assets. All offshore pipelines connecting the North Sea to the Danish coast and natural gas storage facilities are still owned by former the Danish Oil and Natural Gas Group. Third parties can access the pipelines, but must negotiate the terms and tariffs for access with the company.

Denmark was one of the first EU member states to liberalise both its electricity and gas markets. As a member of Nordpool, Denmark participates in a common electricity market with other Nordic countries. Fluctuations in wholesale electricity prices in Denmark thus depend not only on domestic supply and demand, but also on market conditions in other Nordpool countries. At the retail level, since January 2003, all electricity customers can purchase electricity in the open market and choose the supplier they prefer. The same situation applies to the gas market: the government encourages transparency and competition for gas consumers through a website, where consumers can compare different suppliers' prices.

**Prices, taxes and support mechanisms**

Although ex-tax electricity prices are cost-reflective, due to the liberalisation of the electricity market, the end-use retail prices in Denmark are among the highest in the OECD area, because of high rates of taxation. Retail prices consist of four different elements: electrical energy, transmission and distribution elements, and the PSO (additional tax to support renewable energy). Denmark has the highest percentage of taxes in electricity prices for households – 56% in 2010 – while taxes levied on industrial users are relatively lower.

While ex-tax gas prices in Denmark are close to those found in other EU countries, their final retail price is the highest among OECD member states due to high taxes. In 2010, the percentage of taxes on natural gas prices for households amounted to 50.6%.

Income derived from oil and gas production is subject to various taxes and fees: corporate income tax, a hydrocarbon tax (a specific tax on income derived from oil and gas production), royalties and compensatory payments and profit sharing. The 25% corporate tax is deductible from the hydrocarbon tax base, for which the tax rate is 52%. In addition to this, the oil pipeline tariff and compensatory fee can be offset against the hydrocarbon tax, but not against the corporate tax base.

In Denmark, district-heating customers pay a reduced fee for energy delivered from CHP plants. Currently, these plants are partly (around 50%) fuelled by fossil fuels, mostly coal and natural gas. Various sectors in Denmark are exempted from paying energy duties on their fuel consumption. Natural gas enjoyed a reduced energy duty until 2001, coal was also entitled to a similar reduced energy duty from 1982 to 1998. Energy consumption by aircraft, both domestic and foreign air traffic, and energy consumption by ferries, both domestic and foreign ferry services, are the two main sectors that are exempt from fuel-excise tax. Passenger transport and taxis are also exempt from energy duties. Diesel, on the other hand, is subject to a lower fuel-excise tax than petrol.

The Danish government invests in different innovative research and development projects in order to achieve a better oil recovery and to develop new methods of oil and gas extraction. The government invests extensively in offshore methanol stranded and flared natural gas technology. The purpose of this project is to assess the feasibility of a Floating Production, Storage and Offloading (FPSO) vessel capable of converting natural gas to liquid. In addition to these, Denmark is involved in large-scale carbon capture and sequestration (CCS) projects, that are managed by the European Union. Two Danish energy companies, DONG Energy and DTU Chemical Engineering, are playing an important role in EU-funded research into CCS.

**Data documentation**

***General notes***

Denmark's fiscal year coincides with the calendar year.

***Consumer Support Estimate***

*Energy Duty Exemption for Aircrafts (no data available)*

Fuels used in aircrafts are exempted from energy-duty payments.

Tax expenditures provided by the Danish authorities include exemptions granted to both domestic and foreign air traffic. Since it is impossible to isolate the domestic part of the tax expenditure, data estimates for this measure are not provided.

Sources: Rigsrevisionen (2007).

*Energy Duty Exemption for Petrol Used in Agriculture (data for 1996)*

This measure provided the agricultural sector with an energy duty exemption for petrol consumed by farmers. This exemption was abolished in 1997.

We allocate the annual payments to diesel oil, motor gasoline, natural gas and heavy fuel oil on the basis of the IEA's Energy Balances for the agricultural sector.

Sources: Danish Ministry of Finance (2002).

Tag: DNK_te_01

*Energy Duty Exemption for Ferries (no data available)*

Fuels used in ferries are exempt from energy-duty payments.

Tax expenditures provided by the Danish authorities include exemptions granted to both domestic and foreign ferries. Since it is impossible to isolate the domestic part of the tax expenditure, data estimates for this measure are not provided.

Sources: Rigsrevisionen (2007).

*Reduced Energy Duty for Coal (data for 1996-1997)*

Denmark started to levy tax on coal in 1982. However, coal was entitled to a reduced energy duty in comparison to other fossil fuels such as oil and fuel-oil until 1998.

Sources: Danish Ministry of Finance (2002).

Tag: DNK_te_02

*Reduced Energy Duty for CHP Generation (data for 1995- )*

Customers of district heating pay a reduced energy duty for heat delivered from a combined generation of electricity and district heating plant. The aim of this exemption is to disincentivise consumers from using other sources of fuel, such as fuel oil, for heating purposes.

We allocate the annual payments to diesel oil, other bituminous coal, refinery gas and heavy fuel oil on the basis of the IEA's Energy Balances for the combined heat and power generation sector.

Sources: IEA, Rigsrevisionen (2007).

Tag: DNK_te_03

*Reduced Energy Duty for Diesel (data for 2001- )*

The excise duty on diesel used as motor fuel is lower that the excise duty on gasoline. Despite the fact that a compensatory tax fee is charged for diesel vehicles, it does not balance off the lower energy duty on gasoline. Therefore, the reduced excise duty is reported as tax expenditure.

Data estimate for 2011 was unavailable.

Sources: Rigsrevisionen (2007).

Tag: DNK_te_04

*Reduced Energy Duty for Natural Gas (data for 1996)*

First tax on petrol was introduced in 1917. In 1977, the Danish government introduced a similar tax on other oil products and electricity. As a consequence, from 1977 natural gas was temporarily taxed but only at very low rates. Natural gas was entitled to a reduced energy duty in comparison with other fossil fuels, such as oil and fuel-oil, until 2001. In 1998, the Danish government increased the tax on natural gas, which led to a significant decrease (by about DKK 440 million) of this tax expenditure, according to the Danish Ministry Finance. In 2001, the energy tax rate on natural gas corresponded to the tax level on oil products.

Source: Danish Ministry of Finance (1997), IEA (2002).

Tag: DNK_te_05

**Sources**

***Policies and transfers***

Rigsrevisionen (2007), *Report to the Public Accounts Committee on transparency of tax expenditures (tax exemptions, allowances, etc.)*, Available at: *www.rigsrevisionen.dk/media(461,1033)/Transparency_of_Tax_Expenditures.pdf*.

Danish Ministry of Finance (2002), Available at: *www.fm.dk/publikationer/1997/skatteudgifter-i-danmark/2-opdatering-af-skatteudgifter*.

IEA (2002), *Energy Policies of IEA Countries: Denmark 2002 Review*, International Energy Agency, Paris.

***Energy statistics***

IEA (2011), *Energy Balances of OECD Countries*, International Energy Agency, Paris.