Nordic Tax Report 2013
electricity sector

Prepared by Nordenergi WG Taxes and Levies:

Anders Espensen, Dansk Energi
Antti Kohopää, Finnish Energy Industries
Inge Pierre, Svensk Energi
Ingvar Solberg, Energi Norge

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Introduction

Terms of reference

The objectives of the Nordic Tax Group – WG Taxes&Levies - is to

- collect and exchange information about development and political discussions within the field of energy taxation, and
- annually perform a study presenting the tax systems in the Nordic countries and the level of taxes.

The study contains

- a description of the national tax systems,
- an up-to-date list of taxes imposed in the electricity sector, taxes and parafiscal charges paid by the electricity companies as well as consumption based taxes.

Nordic electricity – some key figures

<table>
<thead>
<tr>
<th>Key figures 2013</th>
<th>Norway</th>
<th>Sweden</th>
<th>Finland</th>
<th>Denmark</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spotmarketprice Area 1 (EUR/MWh)</td>
<td>37,6</td>
<td>39,2</td>
<td>41,2</td>
<td>39,0</td>
<td>38,1</td>
</tr>
<tr>
<td>Spotmarketprice Area 2</td>
<td>37,3</td>
<td>39,2</td>
<td></td>
<td>39,6</td>
<td></td>
</tr>
<tr>
<td>Spotmarketprice Area 3</td>
<td>39,0</td>
<td>39,5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spotmarketprice Area 4</td>
<td>38,6</td>
<td>39,9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spotmarketprice Area 5</td>
<td>37,6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power production, TWh</td>
<td>134,2</td>
<td>149,2</td>
<td>68,2</td>
<td>32,5</td>
<td>384,1</td>
</tr>
<tr>
<td>of which Hydropower</td>
<td>129,0</td>
<td>60,8</td>
<td>12,7</td>
<td></td>
<td>202,5</td>
</tr>
<tr>
<td>Wind power</td>
<td>1,9</td>
<td>9,9</td>
<td>0,8</td>
<td>11,1</td>
<td>23,7</td>
</tr>
<tr>
<td>Other renewable</td>
<td>0,0</td>
<td>0,0</td>
<td></td>
<td>0,0</td>
<td></td>
</tr>
<tr>
<td>Nuclear power</td>
<td>0,0</td>
<td>63,6</td>
<td>22,7</td>
<td></td>
<td>86,3</td>
</tr>
<tr>
<td>Biomass</td>
<td>0,0</td>
<td>11,3</td>
<td>10,7</td>
<td></td>
<td>22,0</td>
</tr>
<tr>
<td>Other thermal power</td>
<td>3,3</td>
<td>3,6</td>
<td>21,2</td>
<td>21,3</td>
<td>49,4</td>
</tr>
<tr>
<td>Gross consumption, TWh</td>
<td>129,2</td>
<td>139,2</td>
<td>83,9</td>
<td>33,6</td>
<td>385,9</td>
</tr>
<tr>
<td>Net consumption, TWh</td>
<td>114,0</td>
<td>128,7</td>
<td>81,2</td>
<td>32,7</td>
<td>356,6</td>
</tr>
<tr>
<td>of which Energy intensive industry 1)</td>
<td>29,6</td>
<td>38,0</td>
<td>39,7</td>
<td></td>
<td>107,3</td>
</tr>
<tr>
<td>General consumption</td>
<td>84,4</td>
<td>90,7</td>
<td>41,5</td>
<td></td>
<td>216,6</td>
</tr>
<tr>
<td>Net import, TWh</td>
<td>-5,0</td>
<td>-10,0</td>
<td>15,7</td>
<td>1,1</td>
<td>1,8</td>
</tr>
</tbody>
</table>

1) Sweden, definition in accordance to the energy intensive definition in the renewable electricity certificates system
Taxes in the Nordic countries

The tax system on company level differs a lot between the Nordic countries and between technologies. In short one may say that Norwegian Hydro Power experiences the highest tax level due to several specific taxes and Denmark the highest consumption based taxes with very high energy taxes.

The development during later years may be briefly summarized:

- In Norway the tax on hydro power has been increased several times since 2007, the resource rent tax was increase in 2007 and again as from 2014. The property tax has been raised twice, in 2012 and 2013.
- In Sweden the property tax on hydro power plants has been increased several times the last years. The corporate tax has been reduced, from 26.3 to 22 per cent as from 2013.
- In Finland the electricity tax was increased by 100 per cent as from 2011. The ordinary income tax was reduced from 26 to 24.5 per cent from 2012 and a further reduction to 20 per cent will be effective from 2014. Discussions about tax on windfall profits have been going on for several years and an agreement with EU is expected to be settled this year.
- The development during later years in Denmark has been towards lower taxes on electricity used for heating purposes, in order to align the differences in tax rates between fuels for heating. On the subsidy side, one in Denmark has seen increased subsidies for especially household renewables.

<table>
<thead>
<tr>
<th>Some general tax rates 2013</th>
<th>Norway</th>
<th>Sweden</th>
<th>Finland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary income tax, per cent</td>
<td>28,0</td>
<td>22,0</td>
<td>24,5</td>
<td>24,5</td>
</tr>
<tr>
<td>VAT, per cent</td>
<td>25,0</td>
<td>25,0</td>
<td>24,0</td>
<td>25,0</td>
</tr>
<tr>
<td>Energy tax households, EUR/MWh</td>
<td>13,9</td>
<td>33,3/22,0</td>
<td>17,0</td>
<td>54,1/109,3</td>
</tr>
<tr>
<td>Energy tax manufacturing industry, EUR/MWh</td>
<td>0,5</td>
<td>0,5</td>
<td>7,0</td>
<td>14,7</td>
</tr>
</tbody>
</table>

2) Major consumption. Details and exemptions are described in text.

Denmark: The lower tax rate is paid by households using electricity for heating and only for consumption above 4,000 kWh/y. The higher rate is paid by all other household consumption.
During later years, many European countries have experienced a development towards lower income tax (corporate tax) as part of a policy to increase competitiveness and attract new industries. In the Nordic countries Finland has now (from 2014) taken the lead while Norway is lagging behind:

![Ordinary income tax / corporate tax chart](chart1.png)

When it comes to electricity tax, the level differs a lot between the Nordic countries:

![Electricity tax chart](chart2.png)

For Norway and Sweden, exchange rate per 31.12.2013. Denmark, fixed rate against EUR

The electricity taxes in the Nordic countries, except Finland, are normally index regulated by the expected rate of inflation. The substantial drop in the Danish lower rate as from 2013 is the most significant abruption from this development during the last 5 year period. In general, the electricity tax in Denmark is very high. The lower rate applies for households use of electricity above 4 000 kWh/y. At the same time, the household has to be registered as electrical heated, directly or via a heat pump.
The following information is divided in three parts and includes the following types of taxes for each country:

A. Specific taxes and levies on production of electricity
   • Property taxes (e.g. land and real estate tax)
   • Environmental taxes
   • Other taxes (e.g. nuclear production taxes, tax on pollutant activity)
   • Parafiscal levies

B. Specific taxes and levies on transport of electricity

C. Specific taxes and levies on sales of electricity
   • Consumption taxes (e.g. tax on electricity consumption, mineral oil tax)
   • Environmental taxes
   • Other consumption taxes (e.g. energy contribution tax, levy, VAT)

Subsidies

This report focuses on 2013 rates and regulations. In the end of each section changes effective as from 2014 and under discussion are included.
This report focuses on specific taxes and levies on the production, transport and sale of electricity in Norway.

The electricity sector is an important contributor to the State and many municipalities:

<table>
<thead>
<tr>
<th>Taxes and levies 2013, mill NOK</th>
<th>Total</th>
<th>State</th>
<th>Municipalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property tax</td>
<td>2 600</td>
<td>2 600</td>
<td></td>
</tr>
<tr>
<td>Natural resource tax</td>
<td>1 600</td>
<td>1 600</td>
<td></td>
</tr>
<tr>
<td>Licence fees</td>
<td>700</td>
<td>140</td>
<td>560</td>
</tr>
<tr>
<td>Licence power supply</td>
<td>1 520</td>
<td>1 520</td>
<td></td>
</tr>
<tr>
<td>Corporate income tax</td>
<td>3 000</td>
<td>3 000</td>
<td></td>
</tr>
<tr>
<td>Resource rent tax</td>
<td>5 000</td>
<td>5 000</td>
<td></td>
</tr>
<tr>
<td>Fee to energy fund (Enova)</td>
<td>700</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>Energy tax</td>
<td>7 000</td>
<td>7 000</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22 120</strong></td>
<td><strong>15 840</strong></td>
<td><strong>6 280</strong></td>
</tr>
</tbody>
</table>

A. Specific taxes and levies on production of electricity

Hydroelectric power generates 97 per cent of Norway’s electricity production, and income from hydropower plants are subject to special rules concerning taxation. In addition to ordinary income tax (28 per cent) hydro power production is subject to the following taxes:

- Property tax, 0.7 per cent to the municipalities.
- Licence fees, approximately 0.7 €/MWh, mainly to the municipalities.
- Resource rent tax, 30 per cent of extraordinary profit, to the state.
- Natural resource tax, 1.7 €/MWh, to the municipalities.
- Licence power supply, 10 per cent of production to the municipalities at a very low price (app 14 €/MWh).

Wind power is also subject to property tax in accordance with general rules (0.7 per cent) but the following description deals with taxation on hydro power production.

1. Property taxes

The municipalities may decide to levy a municipal property tax, and most municipalities where a power plant is situated, take this opportunity. The rate is 0.7 per cent, based on a calculated market value. This calculated value (NPV where spotmarket price for a period of 5 years and a rate of interest set by the Ministry of Finance are the central elements) may vary between a minimum value of 0.95 NOK/kWh and a maximum value of 2.74 NOK/kWh (increased from 2.47 in 2012).
2. **Environmental taxes**

*License fees*
Licence fees represent compensation for damage caused to districts in which water resources are exploited. Licence fees are paid annual to the local authorities and to the state, for the increase in hydroelectric power which is obtained from regulating water courses. The basis for the taxation is the net power potential (in natural HP) of the river flow exploited.

3. **Other taxes**

*Resource rent tax*
The resource rent tax is a tax on the possible extraordinary profit a company may achieve by exploiting a natural resource, the waterfalls. The resource rent tax is profit-dependent and is calculated at a rate of 30 per cent on the net resource rent revenue generated by each power plant. Resource rent revenue is calculated on the basis on the individual power plant’s production hour by hour, multiplied by the spot price for the corresponding hour, with some exception like delivery of licence power and some long-term contracts when the actual contract price is applied. This calculated revenue is thereafter reduced by the actual operating costs, depreciation and tax-free revenues, in order to arrive at the tax basis for net resource rent tax. For 2013 the tax-free revenues is decided by the authorities to 1.5 per cent of the value of the plant’s operating assets for taxation purposes. Negative net resource rent revenues in one plant can be offset against positive revenues in other plants. Income from electricity certificates (hydro power plants) is also subject to resource rent tax.

The resource rent tax together with ordinary income tax adds up to a marginal income tax of 58 per cent.

The resource rent tax applies to hydro power plants with generators > 5 500 kVA.

*Natural resource tax*
The natural resource tax is to be a stable element in the municipalities’ tax income from the hydropower plants. The tax is profit-independent, and calculated on basis of the individual power plant’s average production over the last seven years. The tax rate was 1.7 €/MWh in 2013. For most companies the natural resource extraction tax does not impose any additional burden, since it is deductible from income tax. Any natural resource tax that exceeds income tax can be carried forward, together with interest, for deduction in later years.
4. Parafiscal levies

**Licence power supply**
Local authorities affected by hydroelectric development are also entitled to buy a proportion of the power generated. The licensee can be required to sell up to 10 per cent of the electricity generated to the local authorities concerned. The power recipient pay a relatively low price (app 14 €/MWh), set in accordance with regulations from the central authorities.

For the licensee – the hydropower company – the difference between the price for this licensed power supply and the market price represent an income loss.

**Changes from 2014 – decided or under discussion**

As part of a "package" to stimulate investments in the industry (industry except from the offshore-industry) the Government (Stoltenberg) last summer proposed some changes, amongst other a reduction in the ordinary income tax from 28 to 27 per cent. As part of this package, the resource rent tax on hydro power plants was increased from 30 to 31 per cent.

The new Government (Solberg) adopted these proposals which were finally decided in the Parliament last November.
Specific taxes and levies on transport of electricity

1. Property taxes
As for production plants, the municipalities may decide to levy a property tax on the grid network. Approximately 60 per cent of the Norwegian municipalities take this opportunity. The rate is 0.7 per cent.

2. Other taxes
Fee to energy fund
Activities at the state-owned Enova company are financed through an energy fund, which receives income generated by a levy of NOK 0.01 per kWh in 2013 (1.25 €/MWh), on the grid tariff. Enova is charged with promoting more efficient energy use and to some extent R&D in new, renewable energy forms.

Changes from 2014 – decided or under discussion
No specific changes, the energy tax is each year index regulated (rate of inflation).

C. Specific taxes and levies on sale of electricity

1. Tax on electricity consumption (energy tax)
The grid companies are responsible for collecting the energy tax. Parts of the industrial consumption and households in some of the municipalities in the northmost part of Norway, are exempted. For 2013 the rate is NOK 0.1161 per kWh, 15.5 €/MWh and 0.0045 NOK per kWh (0.6 €/MWh) for manufacturing industry.

2. Other consumption taxes
Value added tax (VAT)
25 % - not levied in the three northmost counties of Norway.

3. Green certificates
As a consequence of the common green certificate market between Norway and Sweden, the consumers have to pay for these certificates, included in the electricity bill. Exemptions from this obligation will be (almost) the same as for energy tax.
Subsidies

A common electricity certificate market between Sweden and Norway was introduced in 2012. The target is 26.4 TWh new renewable electricity production within 2020 (described under Sweden).
This report focuses on specific taxes and levies on the production and sale of electricity in Sweden.

The Swedish energy taxation is regulated in the Act on Excise Duties on Energy (SFS 1994:1776). In the Act Sweden has implemented the harmonised taxation of energy products (fossil fuels like petrol, diesel, heating oils, coal and natural gas) and electricity. From 1 January 2004 a new energy tax directive, 2003/96/EC, has repealed the older directives 92/81/EEC and 92/82/EEC that only covered mineral oils. The administration of harmonised excise duties is regulated in directive 92/12/EEC.

The rates for energy and carbon dioxide tax have been adjusted for yearly indexing according to the Energy Tax Act.

The tax rates in Euro in this report are calculated with the exchange rate 8.8 SEK per euro year 2013 (rate by 13-12-31).

Taxes and levies 2013:

<table>
<thead>
<tr>
<th>Description</th>
<th>SEK million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property tax on hydropower plants, state tax</td>
<td>6000</td>
</tr>
<tr>
<td>Property tax on nuclear power plants, state tax</td>
<td>300</td>
</tr>
<tr>
<td>Property tax on CHP plants, state tax</td>
<td>150</td>
</tr>
<tr>
<td>Nuclear power tax and Studsvik charge, state tax</td>
<td>4 500</td>
</tr>
<tr>
<td>Certain charges for government financing</td>
<td>300</td>
</tr>
<tr>
<td>Electrical safety tax, network monitoring fees etc</td>
<td>300</td>
</tr>
<tr>
<td>Tax on fossil fuels, state tax</td>
<td>100</td>
</tr>
<tr>
<td>Energy tax on electricity, state tax</td>
<td>20 000</td>
</tr>
<tr>
<td><strong>Total excl VAT</strong></td>
<td><strong>3600 EURO</strong></td>
</tr>
</tbody>
</table>

**31 650**

A. Specific taxes and levies on production of electricity

1. Property taxes
A tax on real estate is levied on the industry including electricity companies. The tax is 0.5% of the real estate property value excluding hydro power and wind. For wind power plants the real estate tax is 0.2%.

For hydro power the tax is 2.8% of the real estate value. This tax was increased by 0.6% on January 1st 2011. For 2013 the tax rate for real estate tax on hydro power plants remained at 2.8% but due to a new estimation of the values of the hydro power plants, the real estate values increased up to 70% with an average of 50%. This resulted in an increased tax of around 2000 MSEK (233 MEURO).
2. Environmental taxes

There are three different kinds of excise duties, which are levied on fuels – energy tax, carbon dioxide tax and sulphur tax. There is also a nitrogen fee. The energy tax has been collected for several years, while the carbon dioxide was introduced in 1991. The carbon dioxide tax rates correspond from January 1\(^{st}\) 2013 to approx. 1.10SEK (0.125 Euro) per kilogram carbon dioxide released. Biofuels and peat are not taxed.

According to the Act on Excise Duties on Energy relief from energy tax and carbon dioxide tax is granted for fuels used for the production of electricity. However 5 % of the fossil fuel is taxed (CO\(_2\) tax and energy tax) in condensing plant and 1.5 % (from 1 July 2002) in the CHP:s.

When the tax reduction is calculated the fuel consumption in the CHP plant shall be allocated to the production of heat and electricity respectively through proportioning. The proportion of the fuel that is related to the electricity produced is fully exempted from tax except the 1.5% share as mentioned before.

A uniform energy tax on fossil fuels was introduced from January 1\(^{st}\) 2011. The level in 2013 is 8.3 öre/kWh (100 öre = 0.094 Euro). For the industry, agriculture, CHP included in the EU ETS a 70% deduction is decided.

A \(100\%\) reduction of the carbon dioxide tax is granted from January 2013 for fuels used for the production of heat in a combined heat and power plant (CHP) within the EU ETS system.

A \(100\%\) reduction of the carbon dioxide tax was granted already from January 2011 for fuels used in the industry, including industry CHP, within the EU ETS system.

From 1\(^{st}\) of January 2011 the electricity efficiency in a CHP must be minimum 15 %, otherwise no reduction of the carbon dioxide tax will apply.

From year 2011 a 70 \% reduction of the carbon dioxide tax is granted for heating purpose for fuel used in the industry and CHP outside the ETS system. For pure heat production plants the reduction is 6 \%. In some cases an additional 70 \% exemption from the carbon dioxide tax can be obtained via a refund. From 2014 the 6 \% reduction will be increased to 20 \% for fossil fuels.

Tax reductions can be applicable to energy intensive enterprises. This means that the remaining carbon dioxide tax must be at least 0.5 \% of the value added for the manufactured products. If the paid carbon dioxide tax exceeds 0.8 \% of the sales value of the products being sold by the enterprise. The reductions will be phased out between year 2011 – 2015. From January 1\(^{st}\) 2011 the value 0.8 \% was increased to 1.2 \%. 
The consumption tax on electricity was increased in Jan 2013 by an index. The increase was 1.0%

The carbon dioxide tax has been increased by the rate of inflation. The tax was in 2013 approximately 110 öre/kg CO2. (1Euro = 8.8 Swedish Crowns approx., 1 Swedish Crown = 100 öre).

On 1 July 2006, a waste incineration tax was levied on the fossil-based portion of incinerated household waste. The fossil share i estimated at roughly 12.5 %. Swedish parliament has passed a decision to abolish the tax as of 1 October 2010.

The sulphur tax on peat, coal, petroleum coke and other solid or gaseous products is set at 30 SEK (3.4 euro) per kilogram of sulphur in the fuel. The sulphur tax on liquid fuels – such as diesel and heating oils – is 27 SEK (3.1 euro) per m$^3$ of oil for each tenth of a percent by weight of the sulphur content. However, oil products with a sulphur content of a maximum of 0.05 % by weight are exempted from tax. Oils with a sulphur content above 0.05 % but below 0.2 % are taxed as oils with a sulphur content of 0.2 %.

The nitrogen fee is levied at SEK 50 (5.7 Euro) per kg of nitrogen oxides (designated as NO$_2$) from use of boilers and gas turbines with a utilized energy output of more than 25 GWh/year. The bulk of the fees are repaid to the taxable entities in proportion to their share of utilized energy.

3. **Other taxes**

3.1 **Nuclear tax and fees**

Apart from the energy tax, which is levied on the consumption of energy, there is an additional tax on electricity, which is applied to the production of electricity in a nuclear plant. The duty rate applicable is 12 648 SEK (1437 Euro) from January 1$^{st}$ 2008 per megawatt of thermal capacity and calendar month. If a reactor has been out of operation for a contiguous period of more than 90 days, a deduction of 415 SEK per MW is permitted for the number of calendar days in excess of 90.

Before 1 July 2000 the special tax on nuclear was related to the production of electricity.

In order to cover future costs for final storage of spent fuel and decommissioning of the nuclear power plants, each plant is charged an individual fee. As a weighted average for the Swedish nuclear the fee in 2013 is 2.2 öre/kWh (0.0025 EURO per kWh).

4. **Parafiscal levies**

5. **Income taxes**

All companies are subject to income tax on their profits. The rate of taxation was lowered in 2013 from 26.3 % to 22%. The amount may be reduced by for example temporary
amount set aside (funds). A physical shareholder is then obliged to pay tax on the share
dividend. The rate of taxation for dividends is 30% (tax on capital). In practice this
double taxation implies that the company profit is taxed by approximately 50% tax.
B. Specific taxes and levies on transport of electricity

1. Value-Added Tax (VAT)
Value added tax (VAT) is levied on all kinds of energy consumption with the exception of fuels used for air navigation. The tax rate is 25%.

2. Environmental Taxes
Taxes on electricity – Energy Tax

Energy tax is levied on the consumption of electricity in Sweden. The rates vary according to for example the type of consumption (industrial or private). The suppliers are responsible for collecting the energy tax. The consumer price index is used for adjusting the energy tax, which has led to an increase in the tax of electricity most years.

On 1 January 2012 Sweden introduced a reduced rate of electricity tax for electric power used in seagoing vessels with a gross tonnage of at least 400, when the vessel is lying at berth in a port and the voltage of the electric power transmitted to the vessel is at least 380 volts. The tax reduction was approved (2011/384/EU) by the Council of the European Union on 20 June 2011 in accordance with Article 19 of Directive 2003/96/EC. The decision is valid for a limited period and applies until 25 June 2014.

Energy tax rates in Swedish crowns (SEK) and Euro on electricity, 1 January 2013

<table>
<thead>
<tr>
<th>Type of consumption</th>
<th>Energy tax</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SEK per kWh</td>
</tr>
<tr>
<td>1. Manufacturing industry and agriculture including commercial greenhouse cultivation</td>
<td>0.005</td>
</tr>
<tr>
<td>2. Ships in harbours and connected to the grid</td>
<td>0.005</td>
</tr>
<tr>
<td>3. Other consumption than specified under 1, in the northern parts of Sweden</td>
<td>0.194</td>
</tr>
<tr>
<td>4. Other consumption than specified under 1, in the southern parts of Sweden</td>
<td>0.293</td>
</tr>
</tbody>
</table>

Exemptions from energy tax is granted if the electricity is produced in a certain manner or used for specific purposes, namely
1. produced and consumed on board a craft or other means of transportation,
2. used in connection with the production of electricity,
3. produced in a reserve power station and
4. used in an industrial enterprise that takes part in a five year programme to increase energy efficiency. The energy savings must at least correspond to the tax relief. No more companies can sign up for this programme from 1 January 2013 and the programme will be phased out by 2017.
3. Other taxes

3.1 Charges to authorities
The electricity consumers are during 2013 paying charges to finance authorities (security regulations, supervision of the network etc). The charges are paid via the network companies. For the high voltage consumer the charge is 3577 SEK (406 Euro) per year and for the low voltage consumer the charge is 54 SEK (6.14 Euro) per year. The total amount of charges is estimated to about 300 million SEK (34 million Euro) during 2013.

3.2 Electricity certificate system (REC)
An electricity certificate system was introduced on 1 May 2003. This system replaced previous support systems for renewable electricity production. A producer of renewable electricity receives a certificate for the electricity that is produced. Each MWh of renewable electricity provides an electricity certificate, offered by the market. When the system was introduced, the quota obligation was assigned the electricity end-users (customers). In reality the electricity suppliers handled the quota obligation for the majority of their customers and had the right to impose a charge for this.

An evaluation of the REC system in 2006 led to some changes that went into effect on 1 January 2007. The goal is to simplify, expedite and streamline the system. One of these changes is that the quota obligation has been shifted from the customers to the electricity suppliers. Each electricity supplier is obliged to purchase a certain quota/percentage of certificates corresponding his total electricity sales and usage.

For 2013, the compulsory quota is 0.135 or 13.5 percent. Until 2012 the system has increased renewable electricity by just over 13 TWh compared to the 2002 level, mainly in biomass fired CHP plants and wind. The electricity-intensive industries are exempted from the quota obligation for electricity used in manufacturing processes, but not for their other electricity usage.

From January 1st 2010 a company is defined as electricity intensive company if it

- Conducts and has during the past three years conducted manufacturing in a process that uses an average of at least 190 MWh of electricity for every SEK 1 million of the total sales value of the electricity intensive industry’s production or
- Conducts new operations with industrial manufacturing in a process that uses an average of at least 190 MWh of electricity for every SEK 1 million of the total sales value of the electricity intensive industry’s production or
- Conducts operations for which a deduction is permitted for tax on electric power in accordance with Chapter 11, 9 § 2, 2 or 5 of the Act on Excise Duties on Energy (1994:1776).

Electricity used as assisting power in electric power generation and transmission losses are also exempted from the quota obligation.
Around SEK 4 000 million (455 million Euro) is paid by electricity consumers in Sweden per year for the electricity certificate system.

On 10 March 2010 Swedish government presented a further developed system. The new target is 25 TWh additional renewable electricity year 2020 compared to the 2002 level.

In 2009 the Swedish and Norwegian Ministers for Energy agreed to strive towards a common Swedish-Norwegian green certificates market. This was realised on the 1st of January 2012.

The Norwegian and Swedish Energy Ministers signed a binding agreement in June 2011 on the common green certificate system. The target is 26.4 TWh renewable electricity production between 1 January 2012 and 2020 in the joint system.

**Changes from 2014 – decided**

On 6 March the government presented a bill for support of micro production of renewable electricity. This support applies to both private owners of facilities for production of renewable electricity and companies. The support is in the form of a tax reduction of 60 öre/kWh (0.068 EURO per kWh) for the renewable electricity that has been inserted to the grid in the same connection point up to maximum 30 000 kWh per year. However, the tax reduction will not be based on higher amount of kWh than has been taken out per year from the grid at the connection point. This new law will be implemented from 1 July 2014 if approved by the Swedish parliament. From 2015 some adjustment in the common Swedish-Norwegian green certificate system will take place.
This chapter focuses on specific taxes and levies on the production and sale of electricity in Finland. In addition, there is a short description of excise duties on heating fuels. Changes from 2013 to 2014 are described at the end of each chapter with italics.

### FINLAND

<table>
<thead>
<tr>
<th>Taxes and levies 2013, mill EUR</th>
<th>Total</th>
<th>State</th>
<th>Municipalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate income tax (levied on energy sector)</td>
<td>N.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property tax (levied on energy sector)</td>
<td>53</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Excise duties on heating fuels</td>
<td>645</td>
<td>645</td>
<td></td>
</tr>
<tr>
<td>Electricity tax</td>
<td>969</td>
<td>969</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1 667</strong></td>
<td><strong>1 614</strong></td>
<td><strong>53</strong></td>
</tr>
</tbody>
</table>

*Estimated numbers*

### A. Specific taxes and levies on production of electricity

1. **Property taxes**
   Property taxes are levied by local municipalities. A common property tax rate can vary between 0.60-1.35 % by the decision of a municipality. The property tax is levied based on the value of the property. A municipality can levy a higher rate for power plants and buildings used for nuclear waste management, in which case the maximum rate is 2.85 %. However, the maximum rate for hydropower plants and wind turbines with a nominal output of 10 MVA or under, has to be between 0.60 to 1.35 %.

2. **Excise duty on heating fuels**
   Excise duties were increased for coal, natural gas, heavy fuel oil and light fuel oil from the beginning of 2011. Fuel taxes were separated into two parts: energy content tax and CO2 tax. All fuels excluding peat got an energy content tax of 6.65 €/MWh and CO2 tax based on 35 €/ton CO2. The energy content tax for natural gas will rise in three steps and the final 6.65 €/MWh level will come into force at the beginning of 2015. Fuels used for heat production in CHP plants got a 50% discount on CO2 tax (17.5 €/t).

   Until 2011 peat had not been taxed, but at the beginning of 2011 it was levied a fiscal tax of 1,9 €/MWh. The fiscal tax for peat will increase to the level of 5,9 €/MWh at the beginning of 2015. Since the beginning of 2013 tax level of peat has been 4.9 €/MWh.

3. **Strategic stockpile fee**
   A strategic stockpile fee is levied for securing economical resources which are necessary for the subsistence of the citizens, the economy of the state and national defence. A stockpile fee is levied on fuels used in heat production. Stockpile fee levels are presented in the overview table.
4. Income tax
All limited companies are subject to a corporate tax on their profits. In 2012 the rate of the corporate tax was 24.5%.

When a company pays dividends to its shareholders, the dividends will be taxed as shareholders’ income.

*Since the beginning of 2014 the rate of the corporate tax has been 20%.*

5. Windfall tax

*The Finnish government is planning to introduce a ‘windfall’ tax on low-carbon power producers (hydro, wind and nuclear) to cut profits that have resulted from the implementation of the EU Emissions trading system. The tax would be applied to facilities that have been constructed before 2004. The level of the tax is based on the real estate value of the plants.*

The proposed level of the tax is 50 M€/a. Due to the structure of the tax it falls disproportionately on hydro assets that will have to pay C. 80% of the total tax. Virtually all rest falls on nuclear generators.

*Tax is currently undergoing a notification process with the DG-competition to seal EC approval for the tax.*

B. Specific taxes and levies on transport and sales of electricity

1. Electricity consumption taxes
In Finland there are two tax levels for electricity consumption, depending on where the electricity is consumed. Tax class 2 includes electricity consumed in the manufacturing industry and commercial greenhouse cultivation. Other consumed electricity is taxed in class 1.

In 2013 electricity consumption tax in tax class 1 was 1.69 cents/kWh and in tax class 2 it was 0.69 cents/kWh.

*Since the beginning of 2014 the tax level in tax class 1 has been 1.89 cents/kWh. According to a passed bill, tax class 2 will be widened for electricity consumed in server halls with the minimum capacity of 5 MW. The bill will came into force after the approval by the European Commission.*

2. Tax refund for energy intensive industry
In Finland energy intensive industry is entitled to a tax refund, if a company has paid fuel and electricity consumption taxes of more than 0.5% of its annual value added. It can
apply for an 85% refund on the share of paid taxes which exceeds 0.5%. In addition the refund will be paid only on the share which exceeds 50 000€.

3. **Value added tax (VAT)**
The common rate for value added tax was 24 % in 2013.

4. **Strategic stockpile fee**
A strategic stockpile fee is levied for securing economical resources which are necessary to the subsistence of the citizens, the economy of the state and national defence. A stockpile fee is levied on electricity. Stockpile fee levels are presented in the overview table.

<table>
<thead>
<tr>
<th>Product</th>
<th>Unit</th>
<th>2013</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Energy tax</td>
<td>Energy content tax</td>
<td>CO2 tax</td>
<td>Strategic stockpile fee</td>
</tr>
<tr>
<td>Electricity, tax class 1</td>
<td>cents/kWh</td>
<td></td>
<td>-</td>
<td>1.69</td>
<td>-</td>
<td>0.013</td>
</tr>
<tr>
<td>Electricity, tax class 2</td>
<td>cents/kWh</td>
<td></td>
<td>-</td>
<td>0.69</td>
<td>-</td>
<td>0.013</td>
</tr>
<tr>
<td>Heavy fuel oil 2013</td>
<td>cents/kg</td>
<td></td>
<td>-</td>
<td>8.79</td>
<td>9.72</td>
<td>0.28</td>
</tr>
<tr>
<td>Light fuel oil 2013</td>
<td>cents/litre</td>
<td></td>
<td>-</td>
<td>10.35</td>
<td>8</td>
<td>0.35</td>
</tr>
<tr>
<td>Natural gas</td>
<td>€/MWh</td>
<td></td>
<td>-</td>
<td>3</td>
<td>5.94</td>
<td>0.084</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2013</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coal 2013</td>
<td>€/ton</td>
<td></td>
<td>54.54</td>
<td>72.37</td>
<td>1.18</td>
<td>128.09</td>
</tr>
<tr>
<td>Peat</td>
<td>€/MWh</td>
<td></td>
<td>47.10</td>
<td>84.43</td>
<td>1.18</td>
<td>132.71</td>
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<tr>
<td></td>
<td>2011</td>
<td></td>
<td>1.9</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td></td>
<td>4.9</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td></td>
<td>5.9</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

*Overview – taxes on electricity consumption and heating fuels 2013*
This chapter focuses on taxes, levies and subsidies on the production and consumption of electricity in Denmark.

A. Specific taxes and levies on production of electricity

1. Property taxes

*Tax on land*
The municipalities in Denmark levy a municipal land tax on the property’s land value. The mean tax rate (over the municipalities) on land in 2013 was 26.27 per thousand of the value of the land.

*Business activity tax*
All companies in Denmark pay business activity tax on their turnover. The tax rate is 25 percent, and is calculated from the surplus of each company. From 2014 the rate will be lowered to 24.5 pct. and will gradually be reduced to 22 pct. in 2016.

2. Environmental taxes

Environmental taxes are in Denmark applied to consumption of energy instead of the production of energy.

3. Other taxes

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4. Parafiscal levies
B. Specific taxes and levies on transport and sales of electricity

1. Consumption taxes
The Danish tax system levies the taxes for energy on the consumers and not the producers of energy.

Households

Households without heating by electrical power
All households pay a tax of 75.5 øre/kWh (10.1 cents) in 2013. This tax include a plain energy tax of 64.7 øre/kWh, an energy efficiency contribution of 0.6 øre/kWh, a supplementary electricity tax of 6.2 øre/kWh and an electricity distribution contribution of 4 øre/kWh. On top of the consumption tax we have an energy savings levy (the former CO\textsubscript{2} levy) of 6.5 øre/kWh (0.86 cents). In total all the elements amount to 82 øre/kWh (10.9 cents).

Households heated by electrical power, consumption above 4,000 kWh/y
If a household has a consumption of more than 4,000 kWh/y and is heated by electrical power, it has to pay a reduced tax on the consumed electricity above 4,000 kWh/y. The tax rate has been reduced significantly from 62.4 øre/kWh in 2012 (8.3 cents) to 34.1 øre/kWh in 2013. This tax include a plain energy tax of 23.3 øre/kWh, an energy efficiency contribution of 0.6 øre/kWh, a supplementary electricity tax of 6.2 øre/kWh and an electricity distribution contribution of 4 øre/kWh. On top of the consumption tax there is an energy savings levy (the former CO\textsubscript{2} levy) of 6.5 øre/kWh (0.86 cents).

In total households with a yearly consumption above 4,000 kWh/y which are heated by electrical power has to pay a tax of 40.6 øre/kWh (5.4 cents) for the part of their consumption above 4,000 kWh/y and a tax of 82 øre/kWh (10.9 cents) for the first 4,000 kWh.

From 2014 it has been decided that all the current elements on the electricity bill will be added together to a single energy tax rate. The rates will be 83.3 and 41.2 øre/kWh respectively.

Companies
All Danish consumers have to pay the same taxes as the households pay however, Danish companies can get a refund depending on the purpose for which electricity is used.

Processes
For all electricity used for processes (up to the first 15 GWh) Danish companies pay a total of 9.6 øre/kWh (1.28 cents) in energy taxes in 2013. This consists of an electricity distribution contribution of 1 øre/kWh, a supplementary electricity tax of 2.1 øre/kWh and an energy savings levy (the former CO\textsubscript{2} levy) of 6.5 øre/kWh. For consumption above 15 GWh/year the combined tax rate is lowered by 1 øre/kWh.
From 2014 this rate has been lowered substantially to 0.4 øre/kWh (0.05 cents), so it matches EU’s minimum tax rate.

**Heating purposes**
Electricity used for heating purposes paid a tax in 2013 equal to the rate of households using electricity for heating. The tax rate for these companies is in total 40.6 øre/kWh (5.4 cents).

The following table presents an overview of electricity consumption taxes and taxes for the mostly used heating fuels in 2013 and 2014.

<table>
<thead>
<tr>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.93</td>
<td>11.11</td>
<td></td>
<td></td>
<td>11.28</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- of which

<table>
<thead>
<tr>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.63</td>
<td></td>
<td></td>
<td></td>
<td>0.28</td>
<td>0.05</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.08</td>
<td></td>
<td></td>
<td></td>
<td>0.13</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.53</td>
<td></td>
<td></td>
<td></td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fuels used for heating purposes**

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
<th>Energy Tax</th>
<th>CO2 tax</th>
<th>SO2 tax</th>
<th>Nox Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Fuel Oil</td>
<td>3.68</td>
<td>1.36</td>
<td>0.07</td>
<td>0.37</td>
<td>2.48</td>
<td>1.03</td>
<td>0.06</td>
<td>0.35</td>
</tr>
<tr>
<td>Light Fuel Oil</td>
<td>2.51</td>
<td>0.91</td>
<td>0.01</td>
<td>0.18</td>
<td>1.70</td>
<td>0.68</td>
<td>0.01</td>
<td>0.16</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>2.51</td>
<td>0.91</td>
<td>0.01</td>
<td>0.18</td>
<td>1.70</td>
<td>0.68</td>
<td>0.01</td>
<td>0.16</td>
</tr>
<tr>
<td>Coal</td>
<td>2.51</td>
<td>0.91</td>
<td>0.01</td>
<td>0.18</td>
<td>1.70</td>
<td>0.68</td>
<td>0.01</td>
<td>0.16</td>
</tr>
<tr>
<td>Biomass (straw)</td>
<td>0.24</td>
<td>0.07</td>
<td>0.00</td>
<td>0.01</td>
<td>0.24</td>
<td>0.07</td>
<td>0.00</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**Note:** (1) The SO2-tax is only paid, when the fuel contains more than 0.05 pct. sulphur. In 2013 the rate is 22.2 DKK/kg sulphur (3 Euro). The values in the table are therefore dependent on the actual sulphur content. (2) The Danish Government has raised the NOx-tax from 5.1 DKK/kg (0.68 Euro) to 25 DKK/kg (3.3 Euro) emitted for all stationary plants. The changes are effective from 1st of July 2012. (3) Electricity use that exceeds 4,000 kWh/year used for heating purposes is subject to a reduced energy tax of 23.3 øre/kWh (3.1 cents) in 2013. The full tax paid for these consumers amount to 40.6 øre/kWh (5.4 cents). From 2013 these rates have been lowered substantially.

**Note 2:** All rates are subject to 25% VAT payment.

2. Environmental taxes

Danish electricity consumers pay an additional levy for CO2 which amounts to 6.5 øre/kWh (0.86 cents) in 2013 – the tax is called an energy savings levy but equals the earlier CO2 levy, which is not to be confused with the other energy saving taxes, included in the general energy consumption tax.

3. Other consumption taxes

The Danish VAT is paid by consumers only – refundable for all firms. The rate is 25 percent and is calculated on all other energy taxes as well as on the electricity itself.
4. Parafiscal levies

Grid and system tariffs
Energinet.dk, the Danish TSO, owns the Danish high voltage grid. They are charging all grid operators for the transportation of electricity throughout the grid. The grid operators collect the tariffs on behalf of Energinet.dk via the electricity bill. The grid tariff covers the expenses of operating the high voltage grid. The system tariff covers the expenses of reserve capacity, system operation and the like. The 2013 grid tariff is 2.8 øre/kWh gross consumption (0.37 cents) and the system tariff equals 4.1 øre/kWh gross consumption (0.55 cents). This sums up to 0.92 cents/kWh gross consumption.

In 2014 the tariffs will be 4.2 øre/kWh (0.56 cents) and 2.7 øre/kWh (0.36 cents) respectively.

PSO tariff
The PSO tariff covers the Danish system operators, Energinet.dk, costs relating to public service obligations as laid down in the Danish Electricity Supply Act. The tariff is used to pay the subsidies of green energy (i.e. biomass, biogas, windmills, solar etc.) which is described in section 5 and is further used to pay for research funds in green technology. The tariff changes every quarter, and is negatively correlated with the price of electricity, since many subsidies are given as a fixed level minus the electricity price.
From 2011 the level of the tariff has been equalized across Denmark, whereas it previously was different tariffs for West and East Denmark.
In 2013 the tariff averaged 17.4 øre/kWh (2.3 cents) and in the first quarter of 2014 it is 19 øre/kWh (2.5 euro cent/kWh).
The tariff is reduced for autoproduction, and for electricity consumption above 100 GWh/year, but otherwise everyone else pays the full tariff.

5. Subsidies
Energy production through renewable energy sources are subsidized in Denmark. The money to the subsidies are paid by all consumers through a PSO-tariff (see section B.4). Depending on the type of production the subsidies vary.

Power plants producing electricity based on biomass get 15øre/kWh (2 cents) for every kWh biomass produced electricity in 2013.
In 2013 new wind turbines on land get 27.7 øre/kWh (3.7 cents) which includes a standard help of 25 øre/kWh for the first 22,000 full load production hours plus 2.3 øre/kWh in help to balancing costs and 0.4 øre/kWh for a green fond. From 2014 the subsidies on land wind decreases when the price of electricity is above 33 øre/kWh (4.4 cents), see section 6 below.

Offshore wind farms are subsidized individually according to an auction where the suppliers of offshore wind farms bid on the lowest possible (guaranteed) price, which they can produce the required energy level for. The newest offshore wind farm in Denmark (near Anholt) get a guaranteed price of 105.1 øre/kWh (14 cents) (the subsidy amounts to 105.1øre/kWh minus the current electricity price) for a production of 20 TWh but in a maximum period of 20 years.
Electricity produced on biogas is guaranteed a price of 80.7 øre/kWh (10.8 cents) or if used in production in conjunction with natural gas there is a fixed price subsidy of 49.9 øre/kWh (5.9 cents). Additionally there is a supplementary subsidy of 36 øre/kWh independent of the use, which is somewhat dependent on the price of natural gas.

Households producing electricity on small solar cell plants or small household windmills are not paying anything for the electricity used when produced. For the remaining part they receive a fixed fee of 130 øre/kWh for solar PV for 10 years (17.3 cents) and a guaranteed price of 250 øre/kWh for small windmills for 20 years (33.3 cents).

Household production of energy from existing windmills and solar cells avoid the Danish energy taxes on the energy they produce (and if they produce more energy than they use at one point in time they are entitled to use a similar amount of energy without paying the price at another point in time where they use more energy than they produce).

Electricity produced from renewable energy sources besides the (above) mentioned technologies, receives a subsidy that together with the market price, does not exceed 60 øre/kWh (8 cents) in the first 10 years after grid connection, and hereafter 40 øre/kWh (5.3 cents) in the following 10 years.

6. Changes from 2014 – decided
In 2013 the Danish energy tax system faced severe changes. Lowered tax rates for electricity used for heating purposes and increasing rates for fossil fuels dominated the headlines of 2013.

Energy used for industrial processes
In 2014 we will see significant changes mainly for the energy intensive industry. From the 1st of January 2014 electricity used for processes in the industry pays a total of 0.4 øre/kWh in energy tax. In 2013 use of electricity for processes was taxed 11 øre/kWh, so the reduction is noticeable.

This will be the only tax rate that applies, but industry still has to pay the full PSO tariff (see section B.4).

For other fuels the energy tax rates will also be reduced to the highest minimum rates in the Energy Taxation Directive equaling 4.5 DKK/GJ (0.6 euro).

Security of Supply Tax
Denmark has so far levied taxes on all fossil fuels, however with the green transition of the energy system the tax revenue is falling due to more renewable energy sources, which are exempt for energy taxes today. Due to this development the Danish government decided to introduce a security of supply tax. It is just a tax increase on the tax on fuels. The tax increase for fossil fuels increased 10 kr./GJ at February 1st 2013 and the following years the rates will be adjusted with 1.8 pct. (see table pp 22).

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1 The legislation for household solar cells has been changed on the 15th of November 2012, which is the cutting date for being on the old or new regulation rules.
It was expected, that a similar increase of the tax rate would be introduced for non-fossil fuels from 2014, but that has not been effectuated.

**On Shore Windmill Subsidy**  
Every produced kWh from onshore windmills is subsidized with 25 øre, from 2014 the subsidy is reduced when the electricity price is above 33 øre/kWh.  
The reduction is a one-to-one reduction, so when the price is 34 øre the subsidy is 24 øre and so forth until the price of 58 øre/kWh and above, where no subsidy will be granted.