

# ANNUAL REPORT ON THE EED 2015

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29 April 2015

Report to the European Commission pursuant to Article 24(1) of the  
Energy Efficiency Directive

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## INTRODUCTION

The EED Annual Report 2015 is Finland's third annual report pursuant to Directive 2012/17/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency. The report presents statistical information on energy consumption, i.e. the indicators for annual reporting described in Part 1 of Annex XIV to the Directive for 2013, the relevant energy efficiency actions taken in 2014, the results of the central government's energy savings strategy for 2014, and a reviewed estimate of cumulative energy savings achieved in the period 2009-2013 under energy performance contracts.

It is not as yet possible to give any information in this report on the achievement of a cumulative energy savings target by virtue of Article 7 of the Energy Efficiency Directive. The energy savings reported in April 2015 will be a consequence of the energy efficiency actions implemented in 2013, which will not produce energy savings to meet the cumulative energy savings target for the period 2014-2020 pursuant to Article 7 of the EED. Finland has taken account of the so-called early action energy savings achieved in the period 2009-2013 as part of the maximum 25 % flexibility allowed by the Directive. Section 5 of the Annual Report sets out the result of the revised estimate only for the cumulative energy saving produced in the period 2009-2013 under energy performance contracts, as it alone is more than double the 25 % flexibility figure set in Article 7(3).

The energy saving achieved by central government in 2014 is many times more than the energy savings target for this first year of the target period. However, most of the saving will have a short-term effect and if the total target for 2020 is to be reached, therefore, it will require new actions on an annual basis.

In 2014, Finland focused on implementing its obligations pursuant to the EED. The deadline for the national implementation of the Directive was 5 June 2014. In October 2014, Government Bill HE 182/2014 was presented to Parliament; it comprised the new Energy Efficiency Act and amendments to the existing legislation. The statutes/provisions required for the Directive's implementation at national level entered into force on 1 January 2015.

As regards indicators, the Directive only calls for a presentation of the information for 2013. Furthermore, in sectors in which final energy consumption remains stable or is up on the previous year, an analysis of the changes is required. To illustrate trends, the indicators presented in section 6 are in the form of graphs covering the period 2000-2013.

## 1. Finnish indicative national energy efficiency target for 2020

Finland's indicative national energy efficiency target for 2020 is a level of final energy consumption of 310 TWh (26.66 Mtoe). This corresponds to an absolute level of primary energy consumption of 417 TWh (35.86 Mtoe). The estimated gross domestic product for 2020 used in the scenarios was EUR 159 billion (EUR 134.7 billion in 2010 at 2000 prices).

The target was set in the first annual report required by the EED in April 2013<sup>1</sup>. Primary energy consumption in Finland in 2013 was 382 TWh (32.85 Mtoe), and final energy consumption was 304 TWh (26.13 Mtoe).

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<sup>1</sup> [http://ec.europa.eu/energy/efficiency/eed/doc/reporting/2013/fi\\_2013report\\_fi.pdf](http://ec.europa.eu/energy/efficiency/eed/doc/reporting/2013/fi_2013report_fi.pdf)

## 2. INDICATORS SET OUT IN THE ANNUAL REPORT AND STATISTICAL INFORMATION ON COMBINED HEAT AND POWER (CHP)

### 2.1 Indicators

Table 1 gives the indicators required for the EED annual report for the years 2012 and 2013. No conclusions regarding changes to energy efficiency can be reached based on an analysis of just two years. In Finland the situation depends very much on the weather in any given year (need for heating) and the production volumes for energy-intensive industry.

Table 1. Statistical information on energy consumption 2012 and 2013<sup>2</sup>

	INDICATOR	2012	2013	UNIT
1	Primary energy consumption	1 372 430	1 373 164	TJ
2	Total final energy consumption	1 110 006	1 095 492	TJ
3	Final energy consumption – industry	503 609	508 722	TJ
4	Final energy consumption – transport	179 227	179 455	TJ
5	Final energy consumption – households	242 028	228 337	TJ
6	Final energy consumption – services	123 101	118 684	TJ
7	Gross value added – industry <sup>2</sup>	35 029	34 489	M€
8	Gross value added – services <sup>3</sup>	113 835	111 967	M€
9	Disposable household income	105 465	107 814	M€
10	Gross domestic product (GDP) <sup>1</sup>	189 173	186 673	M€
11	Electricity generation from thermal power generation	28 463	32 209	GWh
12	Electricity generation from combined heat and power	23 286	23 326	GWh
13	Heat generation from thermal power generation	89 314	86 700	GWh
14	Heat generation from combined heat and power plants	71 343	69 780	GWh
15	Fuel input for thermal power generation	547 323	570 682	TJ
16	Passenger kilometres	79 735	79 518	million pass. km
17	Tonne kilometres	35 242	33 531	million tonne/km
18	Population	5 426 674	5 451 270	Inhabitants
19	<i>Average disposable household income</i>	<i>40 881</i>	<i>41 473</i>	<i>€/household</i>
20	<i>Number of households</i>	<i>2 579 781</i>	<i>2 599 613</i>	<i>no.</i>
21	<i>Fuel input for combined heat and power plants</i>	<i>417 176</i>	<i>411 292</i>	<i>TJ</i>
22	<i>Energy transmission and distribution losses (all fuels)</i>	<i>7 194</i>	<i>6 715</i>	<i>GWh</i>
23	<i>Heat generation from district heating plants<sup>4</sup></i>	<i>36 972</i>	<i>30 316</i>	<i>TJ</i>
24	<i>Fuel input for district heating plants<sup>4</sup></i>	<i>41 958</i>	<i>32 821</i>	<i>TJ</i>

<sup>2</sup> Indicators in the table in italics are contained in the reporting guidelines for the Commission's annual report (2013) at [http://ec.europa.eu/energy/sites/ener/files/documents/20131106\\_swg\\_guidance\\_neeaps.pdf](http://ec.europa.eu/energy/sites/ener/files/documents/20131106_swg_guidance_neeaps.pdf), but they are not required in Part 1(a) of Annex XIV to the Directive on the matter of reports

<sup>3</sup> At 2010 fixed prices.

<sup>4</sup> Separate production.

The data on the indicators in the previous Table to be reported annually in accordance with Part 1 of Annex XIV to the Directive are set out in the annex here in the form of time series covering the 2000-2013 period (Annex 1 – EED Annual Report – indicator illustrations). The data have been set out both in accordance with the Directive ('EED indicators') and in the form of three-year rolling averages.

## 2.2 Analysis of changes in energy consumption

The Energy Efficiency Directive requires, as part of the annual report, an analysis and presentation of an estimate of changes in final energy consumption in various areas and sectors (industry, transport, households, services), in which it has remained stable or seen an increase (EED, Annex XIV, Part 1).

Energy consumption grew in industry and also slightly in the transport sector in 2013. Energy consumption in households fell by 5.7 % and in services by 3.6 %. Tonal final energy consumption fell by 1.3 %, but primary energy consumption increased by 0.1 %.

In Finland, energy consumption is affected to a great extent by annual fluctuations in the need for heating. The difference between a cold and a warm year alone can result in more than a 5 % change in final energy consumption in the country.

### INDUSTRY

Energy consumption in industry grew by 1.0 % in 2013.

The value added figure for industry fell by 1.5 % and the volume index production went down by 3.4 % in 2013, so the change is not explained by a general increase in industrial production. The main factor that accounts for the change is the increase in paper production. That grew by 6.6 % and pulp production went up by 0.4%, these sectors accounting at the same time for as much as 43 % of energy consumption in industry.

### TRANSPORT

Energy consumption in transport grew by 0.1 % in 2013. To aid the compilation of statistics use is made of VTT Technical Research Centre of Finland's LIPASTO system, which has undergone a major change. This has caused a time series break for key factors such as performance and the allocation of consumption to different means of transport. Accordingly, it is not possible to give a detailed analysis of the factors leading to the growth in consumption in 2013. On the other hand, the accuracy of calculation with models in the transport sector is not sufficient either to analyse such a small increase.

Haulage (tonnes/kilometre) decreased by 4.9 % in 2013. There has been a change in the structure of transport, as now the main trend is towards bulk cargo. Furthermore, the 'just-on-time' (right-on-time?) transport requirements, an increasing phenomenon among customers, are presenting problems for logistics and energy efficiency in transport as a result.

Passenger transport (passenger kilometres) was down by 0.3 %, despite population growth. In 2013, the population increased by 0.5 % and the number of households by 0.8 %.

## 2.3 Statistical information on combined heat and power

The EED obliges Member States to submit statistics by the end of April for the year (x-2)<sup>5</sup> on national electricity and heat production from high and low efficiency cogeneration in relation to total heat and electricity production.

Statistics Finland, the Finnish national authority on statistics, has submitted statistical information for 2013 via the eDAMIS portal in accordance with the guidelines from Eurostat received on 16 December 2014, with the exception of statistics relating to distant cooling. The tables are also set out in Annex 2.

In 2013, the production of district cooling<sup>6</sup> was 169 217 MWh and the capacity figure was 318.4 MW.

## 3 MAJOR MEASURES TAKEN THE PREVIOUS YEAR

In 2014, Finland focused on the implementation of the Energy Efficiency Directive. This mainly relied on the final report by the EED work group produced in 2013 and published in January 2014<sup>7</sup>.

In 2014, a new Energy Efficiency Act was drafted as well as two Decrees, which together transposed the obligations of the EED, for which there had been no legal basis previously. Government Bill 182/2014, which came before Parliament in October, also contained proposals for the amendments that the Directive called for to the (Finnish) Electricity Market Act, Natural Gas Market Act and the Act on the Supervision of the Electricity and Gas Market. The Energy Efficiency Act that entered into force at the start of 2015 provides for compulsory energy audits by large enterprises (EED, Article 8), metering and billing (EED, Articles 9-11), and the promotion of the combined production of electricity and heat (EED, Article 14).

The energy performance contracts in effect until 2016 play a major role in the achievement of the cumulative energy savings target for 2014-2020 referred to in Article 7 of the EED. In the autumn of 2014, there were broad-based discussions with all the key players on the basic features of the system of energy performance contracts starting in 2017, and it was agreed that talks on the contracts should begin in earnest in early 2015.

## 4 CENTRAL GOVERNMENT BUILDINGS – ARTICLE 5

Finland opted for an alternative approach in the implementation of Article 5, in accordance with paragraph 6 of the Article. Finland submitted a report<sup>8</sup> to the Commission on 18 December 2013 setting out information relating to the central government building stock (884 000 m<sup>2</sup>), an annual energy saving reflecting the obligation to carry out renovation work for the period 2014-2020 (8 225 MWh), and eight major energy efficiency measures to achieve the 3 % saving, subject to the restrictions in Article 5.

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<sup>5</sup> x = current year.

<sup>6</sup> <http://energia.fi/tilastot-ja-julkaisut/kaukolampotilastot/kaukojaahdytys>.

<sup>7</sup> [https://www.tem.fi/files/38617/Energiatsehokkuusdirektiivin\\_toimeenpano\\_EED-tyoryhman\\_loppuraportti\\_2014.pdf](https://www.tem.fi/files/38617/Energiatsehokkuusdirektiivin_toimeenpano_EED-tyoryhman_loppuraportti_2014.pdf).

<sup>8</sup> [http://ec.europa.eu/energy/sites/ener/files/documents/article7\\_fi\\_finland.pdf](http://ec.europa.eu/energy/sites/ener/files/documents/article7_fi_finland.pdf).



The monitoring data suggest that the normalised total specific energy consumption of state-owned buildings in 2014 was around 4 % lower than in 2013. The change in specific consumption reflects the improved energy efficiency of the buildings as a whole and the achievement of energy savings in 2014.

Table 2. Energy savings target under Article 5 of the Energy Efficiency Directive and actual energy savings in the period 2014-2020

YEAR	SAVINGS TARGET	ACTUAL LONG-TERM SAVING MWh	ACTUAL SHORT-TERM SAVING MWh	ACTUAL TOTAL SAVING MWh
2014	1 285	<b>878</b>	<b>7 948</b>	<b>8 826</b>
2015	2 531	1 755	7 968	9 703
2016	3 741	1 755	-	1 755
2017	4 913	1 755	-	1 755
2018	6 051	1 755	-	1 755
2019	7 154	1 755	-	1 755
2020	8 225	1 755	-	1 755

The long-term saving effect of the measures implemented (1 755 MWh) comprises measure 3 (1 479 MWh) and measure 6 (276 MWh) described in the third paragraph of the notification referred to in Article 5<sup>8</sup>. The savings with the latter measure, improved space efficiency, have at this stage only been included for the defence forces. In the near future, the expectation is that there will be better opportunities for monitoring and reporting and the effects of space efficiency should also be able to be considered in the property belonging to the rest of central government and for building stock in use. Energy savings will be calculated in full for the years following the year in which they are realised. Half of the energy savings effect is taken into account in the year in which they are achieved. The short-term saving effect of the measures implemented is 8 826 MWh in the year in which they were achieved (2014) and 9 703 MWh in 2015. It comprises measures 1, 2, 4, 7 and 8 of the notification referred to in Article 5<sup>8</sup>.

The combined effect of the measures taken in 2014 is 8 826 MWh in the year in which they were achieved (2014) and 9 703 MWh in 2015. Of this, the long-term energy saving effect in 2020 will be 1 755 MWh and the short-term energy saving effect over two years 7 948 MWh.

## 5 ENERGY SAVINGS – ARTICLE 7

Finland opted to take other policy measures under paragraph 9 of Article 7 of the EED in the Article's implementation. Finland submitted a notification<sup>9</sup> to the Commission on 5 December 2013, in which it listed eight energy efficiency measures and gave more detailed descriptions of them as well as a method for calculating a cumulative energy saving. On 30 January 2014, there was a supplementary notification to the Commission when the official energy statistics were adopted in 2012 and again at the start of June 2014, as part of Finland's report on the national implementation of the EED in its entirety.

The monitoring of the achievement of the energy savings target referred to in Article 7 of the Energy Efficiency Directive may take account of energy savings that result from the energy efficiency measures implemented from 2014. The 2015 EED annual report as yet does not give the cumulative energy saving for 2014-2020 within the meaning of Article 7. As the situation is as it is with regard to the indicators presented in section 2 of this document, the energy savings for 2015 can only be reported for 2013 (x-2)<sup>5</sup>.

In its updated notification with regard to Article 7 submitted in connection with the notification on the implementation of the Directive in June 2014, Finland presented a figure of 90.71 TWh<sub>cum</sub> for the cumulative energy saving achieved through early action in the period 2009-2013. Of this figure, energy performance contracts accounted for approximately half.

The 2014 annual report had employed an estimate for energy savings in 2013 based on average achieved savings for previous years. Under the revised calculation, in which the year 2013 is based on actual energy savings, the cumulative energy from the measures implemented saving in the period 2009-2013 in effect in 2020 under the energy performance contracts will be 38.87 TWh<sub>cum</sub>.

With regard to the other early action implemented in the period 2009-2013 in effect in 2020 stated in the notification pursuant to Article 7, the amounts for cumulative energy savings have not been revised to fall in line with the actual result for 2013. The target in Article 7 of the Directive may include a maximum of 25 % of the effects or energy efficiency measures implemented in the period 2009-2013, which for Finland is 16.25 TWh<sub>cum</sub>. The revised savings effect of early action under energy performance contracts compared to this is well over twice as much.

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<sup>9</sup> [http://ec.europa.eu/energy/sites/ener/files/documents/article7\\_fi\\_finland.pdf](http://ec.europa.eu/energy/sites/ener/files/documents/article7_fi_finland.pdf).

## 6 ANNEX 1 EED ANNUAL REPORT – INDICATOR ILLUSTRATIONS

### 1. Primary energy consumption (i)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

### 2. Total final energy consumption (ii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

### 3. Final energy consumption – industry (iii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

#### 4. Final energy consumption – transport (iii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

#### 5. Final energy consumption – households (iii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average
Normeerattu loppukulutus	Normalised final consumption

#### 6. Final energy consumption – services (iii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 7. Gross value added – industry (iv)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
Milj. euroa (2005 hinnoin)	€ million (2005 prices)

## 8. Gross value added – services (iv)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
Milj. euroa (2005 hinnoin)	€ million (2005 prices)

## 9. Disposable household income (v)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
Milj. euroa (käypiin hintoihin)	€ million (current prices)

## 10. Gross domestic product (vi)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
Milj. euroa (2005 hinnoin)	€ million (2005 prices)

## 11. Electricity generation from thermal power generation (vii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 12. Electricity generation from combined heat and power (viii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 13. Heat generation from thermal power generation (ix)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 14. Heat generation from combined heat and power plants (x)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 15. Fuel input for thermal power generation (xi)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 16. Passenger kilometres (xii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average
Milj. hlö-km	Million passenger kilometres

## 17. Tonne kilometres (xiii)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average
Milj. tonni-km	Million tonne kilometres

## 18. Population (xv)

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
EED-indikaattori	EED indicator

## 19. Average disposable household income

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
Komission indikaattori	Commission indicator
Euroa/talous (käypiin hintoihin)	€/household (current prices)

## 20. Number of households

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
Komission indikaattori	Commission indicator

## 21. Fuel input for combined heat and power plants

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
Komission indikaattori	Commission indicator
3 vuoden liukuva keskiarvo	Three-year rolling average



## 22. Energy transmission and distribution losses

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
Komission indikaattori	Commission indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 23. Separate production form district heating

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
Komission indikaattori	Commission indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 24. Fuel input from separate production from district heating

[See original.]

<u>Legend</u>	
<u>Finnish</u>	<u>English</u>
Komission indikaattori	Commission indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

## 7 ANNEX 2 STATISTICAL INFORMATION ON CHP

CHP Supplementary Reporting for European Union Countries Under the EU DIRECTIVE 2004/8/EC									
Table EU-1: Electricity and Heat production by CHP Units									
Country name: Finland									
2013									
Completely CHP Units (Efficiency $\geq$ 75%)									
Type of cycle		Maximum capacity			Production			Fuel Input	Number of Units
		Electricity		Heat	Electricity		Heat		
		CHP	Gross	Net	CHP	Gross	CHP		
		MW	MW	MW	GWh	GWh	TJ		
		A	B	C	D	F	G	H	I
Combined cycle (eff $\geq$ 80%)	1	1523	1523	1790	6142	6142	25903	54139	13
Gas turbine with heat recovery	2	296	296	495	377	377	2877	5060	23
Internal Combustion engine	3	40	40	59	10	10	55	113	10
Steam: backpressure turbine	4	2691	2691	9331	11313	11313	159949	242984	77
Steam: condensing turbine (eff $\geq$ 80%)	5	1235	1235	2861	5177	5177	40866	70861	18
Others	6								
<b>Subtotal (1+2+3+4+5+6)</b>	<b>7</b>	<b>5785</b>	<b>5785</b>	<b>14536</b>	<b>23019</b>	<b>23019</b>	<b>229650</b>	<b>373157</b>	<b>141</b>
Units with a non-CHP component (Efficiency $<$ 75%)									
Type of cycle		Maximum capacity			Production			Fuel Input	Number of Units
		Electricity		Heat	Electricity		Heat		
		CHP	Gross	Net	CHP	Gross	CHP		
		MW	MW	MW	GWh	GWh	TJ		
		A	B	C	D	F	G	H	I
Combined cycle (eff $\geq$ 80%)	8	43	364	70	7	117	29	70	1
Gas turbine with heat recovery	9	1	27	2	0	97	9	19	1
Internal Combustion engine	10	9	18	11	27	27	103	277	2
Steam: backpressure turbine	11	258	723	1148	1270	1893	21414	37696	12
Steam: condensing turbine (eff $\geq$ 80%)	12	0	929	0	0	4023	0	0	0
Others	13								
<b>Subtotal (8+9+10+11+12+13)</b>	<b>14</b>	<b>311</b>	<b>2061</b>	<b>1231</b>	<b>1304</b>	<b>6157</b>	<b>21555</b>	<b>38062</b>	<b>16</b>
<b>Total (7+14)</b>	<b>15</b>	<b>6096</b>	<b>7846</b>	<b>15767</b>	<b>24323</b>	<b>29176</b>	<b>251205</b>	<b>411219</b>	<b>157</b>
<i>of which Autoproducers</i>	16	1616	1856	6848	8228	9109	130410	199818	52

Table EU-2: OPERATIONAL CHP UNITS FUEL INPUT

Country name: Finland

2013		Units	MAIN ACTIVITY PRODUCER PLANTS	AUTOPRODUCERS PLANTS	TOTAL
HARD COAL	1	10 <sup>3</sup> t	2031	38	2069
	2	TJ (NCV)	50508	1060	51568
SUB-BITUMINIOUS COAL	3	10 <sup>3</sup> t			0
	4	TJ (NCV)			0
BROWN COAL	5	10 <sup>3</sup> t			0
	6	TJ (NCV)			0
PEAT	7	10 <sup>3</sup> t	3263	883	4146
	8	TJ (NCV)	31360	8759	40119
COKE OVEN GAS	9	TJ (GCV)			0
	10	TJ (NCV)		112	112
BLAST FURNACE AND OXYGEN STEEL FURNACE GAS	11	TJ (GCV)			0
	12	TJ (NCV)	875	1091	1966
OTHER COAL PRODUCTS (SOLID)	13	10 <sup>3</sup> t	4		4
	14	TJ (NCV)	46		46
RESIDUAL FUEL OIL	15	10 <sup>3</sup> t	24	54	78
	16	TJ (NCV)	979	2234	3213
REFINERY GAS	17	10 <sup>3</sup> t		21	21
	18	TJ (NCV)		1028	1028
OTHER LIQUID FOSSIL FUELS	19	10 <sup>3</sup> t	3	20	23
	20	TJ (NCV)	120	808	928
NATURAL GAS AND GAS WORKS GAS	21	TJ (GCV)	50898	22122	73020
	22	TJ (NCV)	45854	19929	65783
SOLID BIOMASS	23	TJ (NCV)	71678	152595	224273
INDUSTRIAL WASTE	24	TJ (NCV)	2982	6992	9974
MUNICIPAL WASTE (RENEWABLE)	25	TJ (NCV)	4284	2548	6832
MUNICIPAL WASTE (NON-RENEWABLE)	26	TJ (NCV)	2661	2076	4737
BIOGAS	27	TJ (NCV)	43	585	628
OTHER RENEWABLES AND WASTES	28	10 <sup>3</sup> t	1		1
	29	TJ (NCV)	12		12
NUCLEAR HEAT	30	TJ (NCV)			0
<b>TOTAL</b>	31	TJ (NCV)	<b>211402</b>	<b>199817</b>	<b>411219</b>

NCV - Net Calorific Value

GCV - Gross Calorific Value