ANNUAL REPORT ON THE EED 2016

25 April 2016

Report to the European Commission pursuant to Article 24(1) of the Energy Efficiency Directive (2012/27/EU)

ANNUAL REPORT 2016 – CONTENTS

INTRODUCTION

The EED Annual Report 2016 is Finland's fourth annual report pursuant to Directive 2012/17/EU of the European Parliament and of the Council on energy efficiency. The report presents statistical information (indicators) for 2014 as referred to in Annex XIV to the EED in accordance with the reporting requirements stated in that Directive, the relevant energy efficiency actions taken in 2015 aimed at the achievement of overall national energy efficiency targets, the central government's energy savings strategy for 2015 pursuant to Article 5, and the energy savings achieved through the measures implemented in 2014 and adopted under Article 7(9).

The Finnish national cumulative energy savings target for the period 2014-2020 by virtue of Article 7 is 49 TWh_{cum}. The energy saving impact of the measures implemented in 2014 is a total of 6.5 TWh per annum. The estimate for the cumulative energy saving impact of the measures implemented in the period 2014-2020 by the end of 2020 is 87.6 TWh_{cum}.

The central government energy savings target for the period 2014-2020 is 8 225 MWh. Energy savings in 2014 and 2015 totalled 13 871 MWh. Of this, the long-term energy saving impact up to the year 2020 is 4 962 TWh_{cum}.

The start of 2015 saw the entry into force in Finland of the Energy Efficiency Act, which implemented the last of the obligations pursuant to the Energy Efficiency Directive. That year new energy performance contracts to take effect at the start of 2017 were negotiated, and there were practical arrangements for energy audits for large enterprises, as referred to in Article 8. At the end of the year, a new national energy and climate strategy began to be drawn up.

As regards indicators, the Energy Efficiency Directive only calls for a presentation of the information for 2014. In sectors in which energy consumption remains stable or is up on the previous year, an analysis of the changes is required. The indicators are given as figures for 2013 and 2014 and in the form of graphs for the period 2000-2014. All indicators for energy consumption show a downward trend.

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 (26.6 Mtoe). This corresponds to a 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). National targets, which are based on the energy and climate strategy drawn up in 2008 and updated in 2013, were notified to the European Commission in the EED Annual Report for 2013. The consumption of primary energy in Finland in 2014 was 374 TWh (32.15 Mtoe), and final energy consumption was 294 TWh (25.23 Mtoe).

Finland's new national energy and climate strategy for 2016 began to be prepared toward the end of 2015. The strategy lays down a comprehensive policy consisting of measures to achieve energy and climate targets set nationally and at EU level. The strategy will be put before the Finnish Parliament in the form of a report at the end of 2016.

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 2013 and 2014. No far-reaching conclusions regarding changes to energy efficiency can be reached based on a comparison of two consecutive 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 2013 and 2014[1]

	INDICATOR	2013	2014	UNIT
1	Primary energy consumption	1 372 962	1 346 418	TJ
2	Total final energy consumption	1 086 126	1 056 339	TJ
3	Final energy consumption – industry	495 059	475 032	TJ
4	Final energy consumption – transport	180 767	176 119	TJ
5	Final energy consumption – households	229 532	229 028	TJ
6	Final energy consumption – services	123 449	123 156	TJ
7	Gross value added – industry[2]	35 023	34 429	M€
8	Gross value added – services2	112 249	111 970	M€
9	Disposable household income	108 412	108 874	M€
10	Gross domestic product (GDP)[1]	187 738	186 427	M€
11	Electricity generation from thermal power generation	32 209	28 440	GWh
12	Electricity generation from combined heat and power	23 326	22 130	GWh
13	Heat generation from thermal power generation	86 700	86 306	GWh
14	Heat generation from combined heat and power plants	69 676	68 773	GWh
15	Fuel input for thermal power generation	570 682	534 937	TJ
16	Passenger kilometres	78 500	78 700	million pass. km
17	Tonne kilometres	32 667	32 197	million

[1] 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_swd_guidance_neeaps.pdf, but they are not required in Part 1(a) of Annex XIV to the Directive on the matter of reports

[2] Fixed prices as at 2010

				tonne/km
18	Population	5 451 270	5 471 753	Inhabitants
19	*Average disposable household income*	*41 703*	*41 590*	*€/household*
20	*Number of households*	*2 599 613*	*2 617 780*	*no.*
21	*Fuel input for combined heat and power plants*	*411 292*	*397 710*	*TJ*
22	*Energy transmission and distribution losses (all fuels)*	*6 918*	*7 446*	*GWh*
23	*Heat generation from district heating plants*[3]	*30 316*	*31 813*	*TJ*
24	*Fuel input for district heating plants3*	*34 331*	*33 850*	*TJ*

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 period 2000-2014 (Annex 1: EED Annual Report – indicator illustrations). The data are given annually 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 sectors/areas (industry, transport, households, services), in which it has remained stable or seen an increase (EED, Annex XIV, Part 1).

Primary energy consumption in 2014 was down by 1.9 % on the previous year and final consumption of energy fell by 2.7 %. Energy consumption that year fell by 4.0 % in industry, 2.6% in the transport sector, 0.2 % in services and 0.2 % in households.

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 for the country.

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)[4] 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 for statistics, has submitted statistical information for 2014 via the eDAMIS portal to Eurostat, with the exception of statistics relating to distant cooling. The tables are also set out in Annex 2.

In 2014, the production of district cooling[5] was 190 999 MWh and capacity was 322.3 MW.

[3] Separate production

[4] x = current year.

3 MAJOR MEASURES TAKEN THE PREVIOUS YEAR

The start of 2015 saw the entry into force of the Finnish Energy Efficiency Act and amendments to the Electricity Market Act, Natural Gas Market Act and the Act on the Control of the Electricity and Gas Market. In January two decrees on energy audits for companies entered into force, and in November a decree on cost-benefit analyses for CHP and surplus heat from industry was passed. These statutes serve to implement the obligations of the EED, especially those referred to in Articles 2, 8, 13, 14 and 15.

The energy performance contracts in effect until the end of 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 2015 new energy performance contracts were negotiated, with decisions almost reached in four areas. The talks were concluded in early 2016. The new energy performance contracts signed in October 2016 will be in effect for the period 1 January 2017-31 December 2025.

Preparations for the new national energy and climate strategy got under way at an initial seminar held on 25 November 2015. The strategy will lay down a comprehensive policy consisting of measures to achieve energy and climate targets set nationally and at EU level.

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[6] to the Commission on 18 December 2013 setting out details of the central government building stock (884 000 m²), an annual energy saving reflecting the 3 % renovation rate for the period 2014-2020 (8 225 MWh), and eight major energy efficiency measures to achieve the saving.

The monitoring data suggest that the total energy consumption of state-owned buildings in 2015 was 9 % lower than in 2014. The improvement cannot be estimated with reference to any trend in specific consumption, as it is hidden under the dramatic change that took place in the property stock in 2015. The state let go a significant number of buildings, either by having them demolished or by selling them off.

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

[5] http://energia.fi/tilastot-ja-julkaisut/kaukolampotilastot/kaukojaahdytys.
[6] http://ec.europa.eu/energy/sites/ener/files/documents/article7_fi_finland.pdf.

YEAR	SAVINGS TARGET	ACTUAL LONG-TERM SAVING MWh	ACTUAL SHORT-TERM SAVING MWh	ACTUAL TOTAL SAVING MWh
2014	1 285	**878**	**7 948**	**8 826**
2015	2 531	**3 358**	**10 513**	**13 871**
2016	3 741	*4 962*	*(2 565)*	*7 527*
2017	4 913	*4 962*	-	*4 962*
2018	6 051	*4 962*	-	*4 962*
2019	7 154	*4 962*	-	*4 962*
2020	8 225	*4 962*	-	*4 962*

The long-term saving effect of the measures implemented in 2015 (3 207 MWh) covers measure 3 (472 MWh) and measure 6 (2 735 MWh) described in the report referred to in Article 5[6]. The savings with the latter measure (6 = improved space efficiency), have only been included for the defence forces. Energy savings from long-term measures is 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 in 2015 covers measures 1, 2, 4, 7 and 8 of the report referred to in Article 5. Measure 5 was not realised in 2015. With no new measures, the short-term energy saving impact for 2016 will be 2 565 MWh. The short-term saving is calculated in full for the year in which it is realised and for subsequent years.

The combined effect of the measures in 2014 and 2015 is 13 871 MWh in 2015. With no new measures, the combined effect would be 7 527 MWh in 2016 and 4 962 MWh in the period 2017-2020. Of the total for energy savings pursuant to Article 5 (8 225 MWh), 60 % has been achieved through measures in the first two years.

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[7] 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 describing methods for calculating a cumulative energy saving. On 30 January 2014, there was a supplementary notification of the official energy statistics for 2012 and again on 5 June 2014, as part of Finland's report on the national implementation of the EED. With the notification, Finland presented a figure of 90.71 TWh_{cum} for the cumulative energy saving achieved through early action in the period 2009-2013. The EED Annual Report revised the energy saving impacts for 2013 based on what was realised that year only with regard to Measure KETO-1 Energy Performance Contracting, because it alone already exceeded the 25 % maximum figure for early action.

Finland's target for cumulative energy savings pursuant to Article 7 is 49 TWh_{cum}. 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 in the period 2014-2020. Because energy savings can only be reported for year (x-2), where x is the current year, the results for energy savings with respect to the target referred to in Article 7 are given in this EED Annual Report for the first time.

Table 3 presents the energy saving impact of measures implemented in 2014 and an updated estimate of the cumulative savings impact pursuant to Article 7 in the periods 2014-2020, 2014-2016 and 2017-2020.

Table 3. Energy performance measures under the national energy efficiency programme and their cumulative energy saving impacts (TWh_{cum}) 2014-2020

[7] http://ec.europa.eu/energy/sites/ener/files/documents/article7_fi_finland.pdf.

	Year 2014[8]	Period 1[9] 2014-2016 TWHcum	Period 2[9] 2017-2020 TWhcum	Total 1[9] 2014-2020 TWHcum
KETO–1ENERGY EFFICIENCY CONTRACTING	1 273	19.72	9.71	29.43
KETO–2 TRANSPORT FUEL TAXATION/ROAD TRAFFIC	2 667	8.12	10.91	19.03
KETO–3 ENERGY AUDITS	52	0.91	0.52	1.43
KETO–4 ENERGY EFFICIENCY CONTRACTING/ACTION PLAN FOR ENERGY SERVICES AND HÖYLÄ CUSTOMERS	1 166	3.51	4.66	8.16
KETO–5 HEAT PUMPS FOR DETACHED, SEMI-DETACHED AND TERRACED HOUSES	599	8.15	2.23	10.38
KETO–6 HEATING PLANT INVESTMENT	3	2.03	0.97	2.99
KETO–7 ENERGY EFFICIENCY AND START-UP ASSISTANCE FOR RENOVATION WORK	210	3.65	1.91	5.57
KETO-8 ENERGY REGULATIONS FOR NEW CONSTRUCTION	380	6.98	3.61	10.59
TOTAL	**6 520**	**53.07**	**34.52**	**87.58**[10]

[8] New saving in 2014

[9] Estimate of the cumulative savings impact in 2020 from measures implemented in the period concerned, pursuant to Article 7

[10] Finnish national target pursuant to Article 7 is 49 TWhcum

ANNEX 1 EED ANNUAL REPORT – INDICATOR ILLUSTRATIONS

1. Primary energy consumption (i)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

2. Total final energy consumption (ii)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

3. Final energy consumption – industry (iii)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

4. Final energy consumption – transport (iii)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

5. Final energy consumption – households (iii)

[See original.]

Legend	
Finnish	English
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.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

7. Gross value added – industry (iv)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
Milj. euroa (2010 hinnoin)	€ million (2010 prices)

8. Gross value added – services (iv)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
Milj. euroa (2010 hinnoin)	€ million (2010 prices)

9. Disposable household income (v)

[See original.]

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

10. Gross domestic product (vi)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
Milj. euroa (2010 hinnoin)	€ million (2010 prices)

11. Electricity generation from thermal power plants (vii)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

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

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

13. Heat generation from thermal power plants (ix)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

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

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

15. Fuel input for thermal power plants (xi)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator
3 vuoden liukuva keskiarvo	Three-year rolling average

16. Passenger kilometres (xii)

[See original.]

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

17. Tonne kilometres (xiii)

[See original.]

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

18. Population (xv)

[See original.]

Legend	
Finnish	English
EED-indikaattori	EED indicator

19. Average disposable household income

[See original.]

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

20. Number of households

[See original.]

Legend	
Finnish	English
Komission indikaattori	Commission indicator

21. Fuel input for combined heat and power plants

[See original.]

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

22. Energy transmission and distribution losses

[See original.]

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

23. Separate production of district heating

[See original.]

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

24. Fuel input for separate production for district heating

[See original.]

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

7 ANNEX 2 STATISTICAL INFORMATION ON CHP