

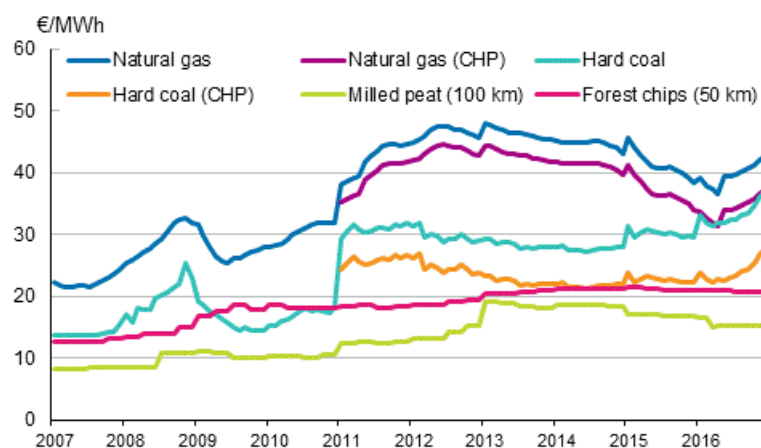
# Energy prices

2016, 4th quarter

## Prices of imported fuels increased in the last quarter

According to Statistics Finland's data, prices of imported fuels made a clear upturn in the last quarter of 2016. This also affected the rise in the prices of liquid fuels and electricity. At the beginning of 2017, energy taxes were raised for several products.

### Fuel Prices in Heat Production



Oil producer countries' agreements to limit oil production in the last quarter of the year raised the prices of oil products imported to Finland. This was also reflected in the consumer prices of liquid fuels that made a clear upturn in December. The price of motor gasoline was four per cent higher and diesel oil ten per cent higher in December than one year earlier. For light fuel oil, the price rise in December was as much as 33 per cent year-on-year but it was also affected by the tax hike at the beginning of 2016.

The rise in the world market price of hard coal clearly affected the tax-free price of hard coal used in electricity production. In December, the year-on-year growth amounted to 50 per cent. Even the tax-free price of natural gas started to grow at the end of the year and it was 11 per cent higher in December than one year earlier. In Finland, the fuels for electricity production are tax-free while excise duty is paid on fuels used in heat production.

The prices of hard coal and natural gas used in heat production rose in the last quarter as a result of the increase in the excise duty at the beginning of 2016 and the rise in tax-free prices. Compared to the situation one year earlier, the price of hard coal was 25 per cent higher in December and the price of natural gas was 12 per cent higher. In turn, excise duty was lowered for milled peat used in heat production last March, due to which its price was ten per cent lower in the fourth quarter than one year before. The price of forest chips declined by one per cent in the last quarter. The price of wood pellets used by consumers was one per cent lower in November than one year ago.

The system price of the Nordic electricity exchange derived from the sell and buy bids on the exchange went up in the fourth quarter, which was affected by the especially poor water situation in the Nordic countries. In December, the average for the system price was EUR 31.79 per megawatt hour, which was 67 per cent more than one year earlier. Due to electricity transmission restrictions, the Finnish area price was, on average, seven per cent higher than the system price, that is, EUR 34.00 per megawatt hour, rising by 28 per cent from one year ago.

The electricity prices for end users rose more moderately than the exchange price. In December, the prices of electricity for household customers were, on average, three per cent higher than one year earlier. The prices for enterprise and corporate customers rose by two per cent for the smallest consumers and by ten per cent for the biggest consumers.

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**Appendix table 1. Energy taxes, precautionary stock fees and oil pollution fees**

Date	Fuels <sup>1)</sup>								Electricity				
	Motor-gasoline, unleaded <sup>2)</sup>	Diesel fuel <sup>3)</sup>	Light fuel oil <sup>12)</sup>	Liquefied petroleum gas	Heavy fuel oil	Hard coal <sup>11)</sup>	Natural gas	Peat	Consumption		Production		
									Electricity, I <sup>4)</sup>	Electricity, II <sup>5)</sup>	Nuclear power	Hydro power	Imports
c/l			c/kg		€/t	€/MWh		c/kWh					
<b>Excise taxes <sup>10)</sup></b>													
1.1.1990	21,53	16,82	0,34	-	0,34	2,69	0,17	0,34	-	-	-	-	-
1.1.1991	26,57	17,49	0,35	-	0,35	2,83	0,18	0,35	-	-	-	-	-
1.1.1992	28,26	17,49	0,35	-	0,35	2,83	0,18	0,35	-	-	-	-	-
1.8.1992	31,62	17,49	0,35	-	0,35	2,83	0,18	0,35	-	-	-	-	-
1.1.1993	39,52	19,17	1,41	-	1,12	5,61	0,35	0,70	0,25	0,25	0,10	-	0,10
1.7.1993	39,52	16,65	1,41	-	1,12	5,61	0,35	0,70	0,25	0,25	0,10	-	0,10
1.1.1994	40,05	17,29	2,05	-	1,98	11,30	1,09	0,35	-	-	0,35	0,03	0,22
1.1.1995	45,12	27,50	3,02	-	3,12	19,53	0,94	0,59	-	-	0,40	0,07	0,37
1.1.1996	51,85	27,50	3,02	-	3,12	19,53	0,94	0,59	-	-	0,40	0,07	0,37
1.1.1997	51,85	27,50	4,88	-	3,72	28,42	1,19	0,71	0,40	0,40	-	-	-
1.4.1997	51,85	27,50	4,88	-	3,72	28,42	1,19	0,71	0,56	0,24	-	-	-
1.1.1998	55,22	30,02	5,50	-	4,34	33,40	1,40	0,82	0,56	0,34	-	-	-
1.9.1998	55,22	30,02	6,37	-	5,40	41,37	1,73	1,51	0,69	0,42	-	-	-
1.1.2003	58,08	31,59	6,71	-	5,68	43,52	1,82	1,59	0,73	0,44	-	-	-
1.7.2005	58,08	31,59	6,71	-	5,68	43,52	1,82	-	0,73	0,44	-	-	-
1.1.2007	58,08	31,59	6,71	-	5,68	43,52	1,82	-	0,73	0,22	-	-	-
1.1.2008	62,02	36,05	8,35	-	6,42	49,32	2,016	-	0,87	0,25	-	-	-
1.1.2011	62,02	36,05	15,70	-	18,51	126,91	8,94	1,90	1,69	0,69	-	-	-
1.1.2012	64,36	46,60	15,70	-	18,51	126,91	8,940	1,90	1,69	0,69	-	-	-
1.1.2013	64,36	46,60	15,99	-	18,93	131,53	11,38	4,90	1,69	0,69	-	-	-
1.1.2014	66,61	49,31	15,99	-	18,93	131,53	11,38	4,90	1,89	0,69	-	-	-
1.1.2015	67,45	50,26	18,39	-	21,84	153,24	15,36	3,40	2,24	0,69	-	-	-
1.1.2016	67,45	50,26	21,05	24,82	25,08	177,36	17,34	3,40	2,24	0,69	-	-	-
1.3.2016	67,45	50,26	21,05	24,82	25,08	177,36	17,34	1,90	2,24	0,69	-	-	-
1.1.2017	69,57	52,67	22,52	26,54	26,96	189,84	18,53	1,90	2,24	0,69	-	-	-
<b>Energy content tax <sup>8)</sup></b>													
1.1.2011	50,36	-	7,70	-	8,79	54,54	3,00	-	-	-	-	-	-
1.1.2012	50,36	30,70	7,70	-	8,79	54,54	3,00	-	-	-	-	-	-
1.1.2013	50,36	30,70	6,65	-	7,59	47,10	4,45	-	-	-	-	-	-
1.1.2015	51,20	31,65	6,65	-	7,59	47,10	6,65	-	-	-	-	-	-
1.1.2016	52,19	32,77	7,05	9,01	8,05	49,93	7,05	-	-	-	-	-	-
<b>Carbon dioxide tax <sup>9)</sup></b>													
1.1.2011	11,66	-	8,00	-	9,72	72,37	5,94	-	-	-	-	-	-
1.1.2012	14,00	15,90	8,00	-	9,72	72,37	5,94	-	-	-	-	-	-
1.1.2013	14,00	15,90	9,34	-	11,34	84,43	6,93	-	-	-	-	-	-
1.1.2014	16,25	18,61	9,34	-	11,34	84,43	6,93	-	-	-	-	-	-
1.1.2015	16,25	18,61	11,74	-	14,25	106,14	8,71	-	-	-	-	-	-
1.1.2016	16,25	18,61	14,40	16,32	17,49	130,26	10,69	-	-	-	-	-	-
1.1.2017	17,38	19,90	15,47	17,53	18,78	139,91	11,48	-	-	-	-	-	-

Date	Fuels <sup>1)</sup>								Electricity				
									Consumption		Production		
	Motor-gasoline, unleaded <sup>2)</sup>	Diesel fuel <sup>3)</sup>	Light fuel oil <sup>12)</sup>	Liquefied petroleum gas	Heavy fuel oil	Hard coal <sup>11)</sup>	Natural gas	Peat	Electricity, I <sup>4)</sup>	Electricity, II <sup>5)</sup>	Nuclear power	Hydro power	Imports
c/l			c/kg		€/t	€/MWh	c/kWh						
<b>Energy tax <sup>7)</sup></b>													
1.1.2011	-	-	-	-	-	-	-	1,90	1,69	0,69	-	-	-
1.1.2013	-	-	-	-	-	-	-	4,90	1,69	0,69	-	-	-
1.1.2014	-	-	-	-	-	-	-	4,90	1,89	0,69	-	-	-
1.1.2015	-	-	-	-	-	-	-	3,40	2,24	0,69	-	-	-
1.1.2016	-	-	-	-	-	-	-	3,40	2,24	0,69	-	-	-
1.3.2016	-	-	-	-	-	-	-	1,90	2,24	0,69	-	-	-
<b>Strategic stockpile fees</b>													
1.7.1984	0,72	0,39	0,39	-	0,32	1,48	-	-	-	-	-	-	-
1.1.1997	0,68	0,35	0,35	-	0,28	1,18	0,084	-	0,013	0,013	-	-	-
1.1.2016	0,68	0,35	0,35	0,11	0,28	1,18	0,084	-	0,013	0,013	-	-	-
<b>Oil pollution fees <sup>6)</sup></b>													
1.1.1990	0,28	0,031	0,031	-	0,037	-	-	-	-	-	-	-	-
1.1.2005	0,038	0,042	0,042	-	0,050	-	-	-	-	-	-	-	-
1.1.2010	0,113	0,126	0,126	-	0,150	-	-	-	-	-	-	-	-

1) Fuels in electricity production tax-exempt since 1 January 1997

2) Reformulated, since 1 January 1993, also sulphur-free since 1 September 2004. Fossil fuel

3) Sulphur-free, sulphur content < 50 ppm since 1 July 1993, sulphur content < 10 ppm since 1 September 2004. Fossil fuel.

4) Tax class I: others

5) Tax class II: industry and professional greenhouses

6) Fee for imported oil and oil products: 1,50 €/t

7) Energy tax included in excise taxes

8) Energy content tax included in excise taxes

9) Carbon dioxide tax included in excise taxes

10) Excise taxes contain energy content tax, carbon dioxide tax, and energy tax.

11) Excise taxes for hard coal is in the heat production. In CHP use excise tax is lower.

12) Fossil fuel. Sulphur-free.

**Appendix table 2. Energy prices in heat production in December 2016**

Energy source	<sup>1)</sup> Price €/MWh	Annual change-%
<sup>2)</sup> Hard coal (VAT 0%)	37.06	24.8
Natural gas (VAT 0%)	42.74	11.5
Forest chips (VAT 0%)	20.73	-1.4
Milled peat (VAT 0%)	15.18	-10.1

1) Inclusive of excise duties.

2) The price is preliminary.

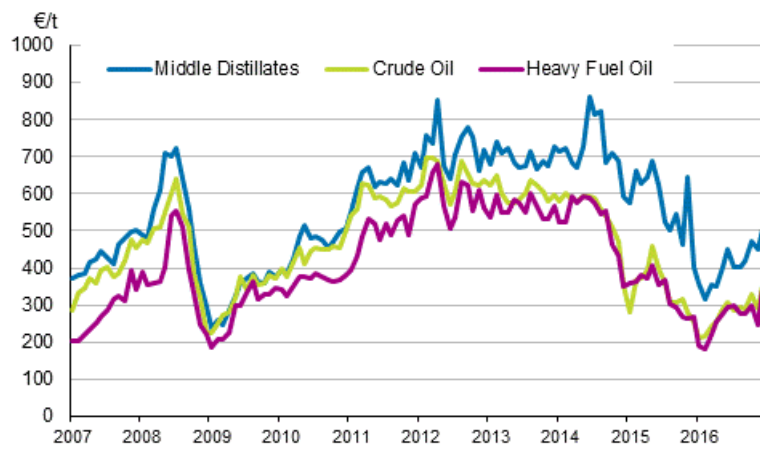
**Appendix table 3. Consumer prices of heating energy in December 2016**

Energy source	<sup>1)</sup> Price €/MWh	Annual change-%
Light fuel (VAT 24%)	88.1	33.0
Household electricity, K2 (VAT 24%)	119.5	1.6
Wood pellet (VAT 24%)	57	-1.0
District heat, terraced house / low-rise block of flats (VAT 24%)	78.28	1.5

1) The price of wood pellet is from November and district heat January 2016

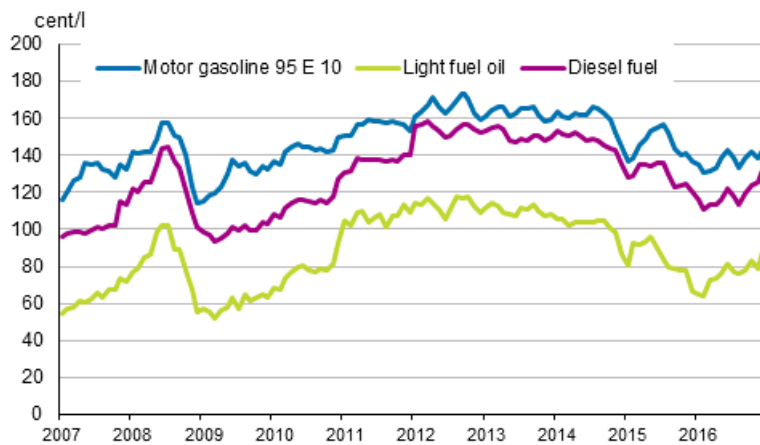
# Appendix figures

**Appendix figure 1. Import prices of oil**



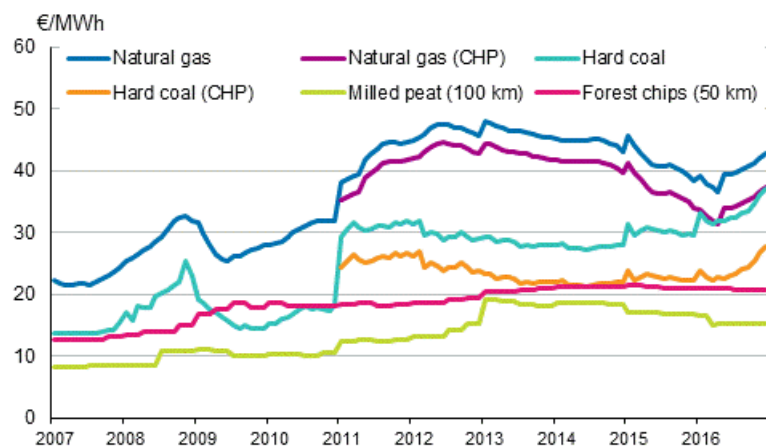
Source: Finnish Customs/Foreign Trade Statistics

**Appendix figure 2. Consumer prices of principal oil products**



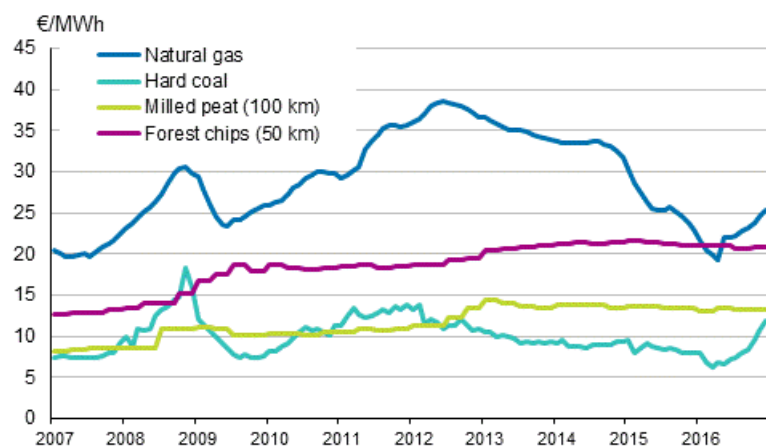
Source: Finnish Petroleum and Biofuels Association

### Appendix figure 3. Fuel prices in heat production



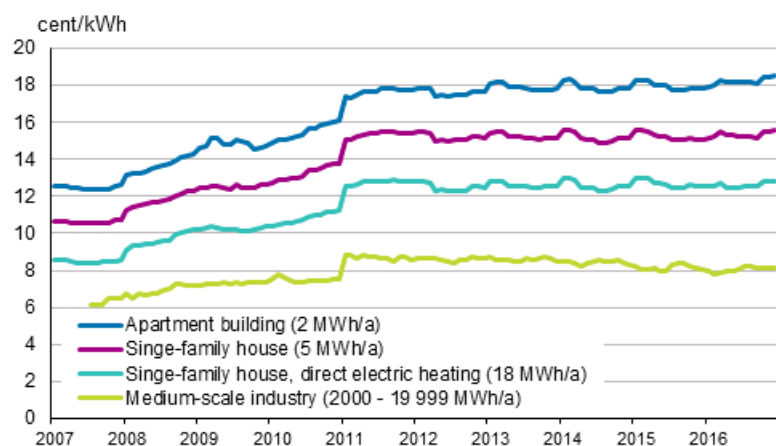
The prices include excise duties (VAT 0%). The carbon dioxide tax on natural gas and hard coal used in combined heat and power production was halved from the beginning of 2011. Sources: Finnish Customs/Foreign Trade Statistics, Energy Authority/Gasum Oy, The Bioenergy Association of Finland/Association of Finnish Peat Industries, Finnish Petroleum and Biofuels Association

### Appendix figure 4. Fuel prices in electricity production



The fuels of electricity production are exclusive of tax. Sources: Finnish Customs/Foreign Trade Statistics, Energy Authority/Gasum Oy, The Bioenergy Association of Finland/ Association of Finnish Peat Industries, Finnish Petroleum and Biofuels Association

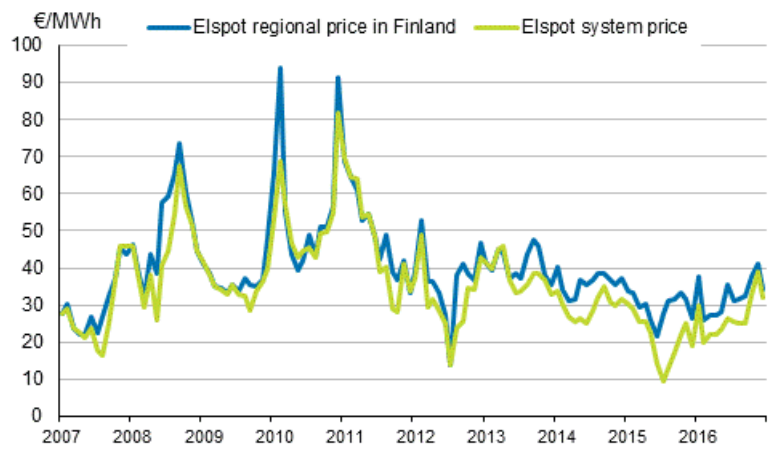
### Appendix figure 5. Price of electricity by type of consumer (the figure was corrected on 17 February 2017)



The prices include electrical energy, transmission fee and taxes. Source: Energy Authority, Statistics Finland



**Appendix figure 6. Average monthly spotprices at the Nord Pool Spot power exchange**



Source: Nord Pool Spot

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Source: Statistics Finland, Energy prices