

ENVIRONMENTAL PROFILE OF THE ENERGY CONSUMPTION OF PROPERTIES OVERSEAS USED BY KESKO IN 2018

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Anna-Mari Pirttinen
+358 40 838 1385

anna-mari.pirttinen@enerkey.com

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1 Introduction

The purpose of this report was to investigate the environmental impacts of electricity and heat consumption in the Kesko-owned real estate properties in the following countries in 2018: Estonia, Latvia, Lithuania, Sweden, Norway, Belarus and Poland. The report is a continuation of previous environmental profile calculations for Kesko's properties and has been carried out in a similar manner.

2 Environmental profile

2.1 The environmental profile for energy and heat consumption consumed by Kesko

The environmental impacts of electricity and heat consumption in the Kesko-owned real estates have been presented in Tables 1 - 9. The information for the years 2016 – 2018 is based on the calculations made by EnerKey Enegia Solutions Oy. The own production of heat and electricity has not been taken into account in the calculations. The own production by country and the total emissions are presented in Table 10.

2.2 On the base data used for the calculations

The electricity and heat production profiles by country used in the calculations are based on the IEA statistics from 2015 on production diffusion¹ and carbon dioxide emissions for the production methods². The factor 3.0 mgU/kWh was applied to evaluate the used nuclear waste build up, regardless of the country evaluated³.

Table 1. Environmental profile of properties used or owned by Kesko in Sweden

Sweden										
	Unit	Kesko's affiliates 2016			Kesko's affiliates 2017			Kesko's affiliates 2018		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	13 904	3 708	17 612	12 632	4 051	16 683	12 217	3 962	16 179
Primary energy	TJ	91,8	14,8	106,7	83,4	16,2	99,6	80,7	15,8	96,5
Fossile	TJ	3,8	5,3	9,1	3,4	5,8	9,3	3,3	5,7	9,0
Renewable	TJ	35,3	9,5	44,8	32,1	10,4	42,5	31,0	10,2	41,2
Nuclear	TJ	52,7	0,0	52,7	47,9	0,0	47,9	46,3	0,0	46,3
Environmental effects										
Climate change	tonnes CO ₂ -eqv	150	108	258	136	117	254	132	115	247
Radioactive waste	tonnes	0,01	0,00	0,01	0,01	0,00	0,01	0,01	0,00	0,01

¹ IEA. Statistics. 2015. <http://www.iea.org/statistics/statisticssearch/>

² IEA. 2017. CO₂ emissions per kwh of electricity and heat (gCO₂/kWh). Tables sent to EnerKey by email by 1 December 2017.

³ RE-DISS II. 2014. European Residual Mixes 2013. http://www.reliable-disclosure.org/upload/65-RE-DISS_2013_Residual_Mix_Results_v1-0_2014-05-15.pdf

Table 2. Environmental profile of properties used or owned by Kesko in Norway

Norway										
Unit	Kesko's affiliates 2016			Kesko's affiliates 2017			Kesko's affiliates 2018			
	Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total	
Purchases	MWh	993	505	1 498	3 250	1 197	4 447	8 489	2 027	10 516
Primary energy	TJ	3,7	2,0	5,7	12,1	4,8	16,9	31,6	8,1	39,7
Fossile	TJ	0,2	1,1	1,3	0,6	2,6	3,2	1,7	4,3	6,0
Renewable	TJ	3,5	0,9	4,4	11,4	2,2	13,7	29,9	3,8	33,7
Nuclear	TJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Environmental effects										
Climate change	tonnes CO2-eqv	9	7	16	28	16	45	74	28	101
Radioactive waste	tonnes	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 3. Environmental profile of properties used or owned by Kesko in Estonia

Estonia										
Unit	Kesko's affiliates 2016			Kesko's affiliates 2017			Kesko's affiliates 2018			
	Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total	
Purchases	MWh	4 790	1 622	6 412	5 309	1 484	6 793	5 945	1 817	7 762
Primary energy	TJ	41,3	6,5	47,8	45,7	5,9	51,7	51,2	7,3	58,5
Fossile	TJ	36,9	3,7	40,6	40,9	3,4	44,3	45,8	4,1	49,9
Renewable	TJ	4,4	2,8	7,2	4,8	2,6	7,4	5,4	3,1	8,6
Nuclear	TJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Environmental effects										
Climate change	tonnes CO2-eqv	4 912	1 167	6 079	5 444	1 068	6 512	6 096	1 307	7 403
Radioactive waste	tonnes	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 4. Environmental profile of properties used or owned by Kesko in Latvia

Latvia										
Unit	Kesko's affiliates 2016			Kesko's affiliates 2017			Kesko's affiliates 2018			
	Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total	
Purchases	MWh	4 446	210	4 657	4 520	309	4 829	4 941	259	5 200
Primary energy	TJ	31,3	0,8	32,1	31,8	1,2	33,1	34,8	1,0	35,8
Fossile	TJ	19,9	0,5	20,5	20,3	0,8	21,1	22,2	0,7	22,8
Renewable	TJ	11,4	0,3	11,7	11,6	0,5	12,0	12,6	0,4	13,0
Nuclear	TJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Environmental effects										
Climate change	tonnes CO2-eqv	646	31	677	657	45	702	718	38	756
Radioactive waste	tonnes	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 5. Environmental profile of properties used or owned by Kesko in Lithuania

Lithuania										
Unit	Kesko's affiliates 2016			Kesko's affiliates 2017			Kesko's affiliates 2018			
	Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total	
Purchases	MWh	26 770	4 633	31 403	28 022	4 405	32 428	29 184	4 356	33 540
Primary energy	TJ	177,3	18,5	195,8	185,6	17,6	203,2	193,3	17,4	210,7
Fossile	TJ	115,1	5,8	121,0	120,5	5,6	126,1	125,5	5,5	131,0
Renewable	TJ	62,2	12,7	74,9	65,1	12,1	77,1	67,8	11,9	79,7
Nuclear	TJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Environmental effects										
Climate change	tonnes CO2-eqv	4 971	487	5 458	5 204	463	5 667	5 419	458	5 877
Radioactive waste	tonnes	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 6. Environmental profile of properties used or owned by Kesko in Belarus

Belarus										
	Unit	Kesko's affiliates 2016			Kesko's affiliates 2017			Kesko's affiliates 2018		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	6 428	1 231	7 659	7 894	1 799	9 694	9 055	3 423	12 478
Primary energy	TJ	57,7	4,9	62,6	70,9	7,2	78,1	81,3	13,7	95,0
Fossile	TJ	57,4	4,5	61,9	70,5	6,6	77,1	80,8	12,5	93,4
Renewable	TJ	0,3	0,4	0,7	0,4	0,6	1,0	0,5	1,2	1,6
Nuclear	TJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Environmental effects										
Climate change	tonnes CO2-eqv	2 488	335	2 822	3 055	489	3 545	3 504	931	4 435
Radioactive waste	tonnes	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 7. Environmental profile of properties used or owned by Kesko in Poland

Poland										
	Unit	Kesko's affiliates 2016			Kesko's affiliates 2017			Kesko's affiliates 2018		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	1 399	1 112	2 511	2 828	2 945	5 773	1 562	1 018	2 580
Primary energy	TJ	12,0	4,4	16,4	24,2	11,8	36,0	13,4	4,1	17,4
Fossile	TJ	10,8	4,2	15,0	21,8	11,2	33,0	12,1	3,9	15,9
Renewable	TJ	1,2	0,2	1,4	2,4	0,6	3,0	1,3	0,2	1,5
Nuclear	TJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Environmental effects										
Climate change	tonnes CO2-eqv	1 022	688	1 709	2 065	1 821	3 886	1 141	630	1 770
Radioactive waste	tonnes	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Table 8. Environmental profile of properties used or owned by Kesko overseas in years 2017 to 2018

	Unit	Kesko's affiliates 2017			Kesko's affiliates 2018			Change 2017 - 2018		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	80 188	18 057	98 244	71 392	16 862	88 254	-11,0 %	-6,6 %	-10,2 %
Primary energy	PJ	587,2	72,3	659,5	486,2	67,4	553,6	-17,2 %	-6,7 %	-16,0 %
Fossile	PJ	371,0	42,8	413,9	291,3	36,7	328,1	-21,5 %	-14,2 %	-20,7 %
Renewable	PJ	136,8	29,4	166,2	148,5	30,7	179,2	8,5 %	4,5 %	7,8 %
Nuclear	PJ	79,3	0,1	79,4	46,3	0,0	46,3	-41,6 %	-100,0 %	-41,6 %
Environmental effects										
Climate change	tonnes CO2-eqv	22 803	4 624	27 427	17 084	3 506	20 590	-25,1 %	-24,2 %	-24,9 %
Used nuclear fuel	tonnes	0,02	0,00	0,02	0,01	0,00	0,01	-41,6 %	-	-41,6 %

Table 9. The own electricity and heat production as well as the carbon dioxide emissions of production by country in the properties owned or used by Kesko in 2018

	Unit	Latvia	Lithuania	Norway	Sweden	Belarus	Estonia	Poland	Total
Electricity, own production	MWh	0	0	0	0	0	0	0	0
Heat, own production	MWh	3 166	7 156	81	0	4 814	4 263	0	19 481
Environmental change	tonnes CO2-equiv	644	1 425	21	0	1 113	871	0	4 074

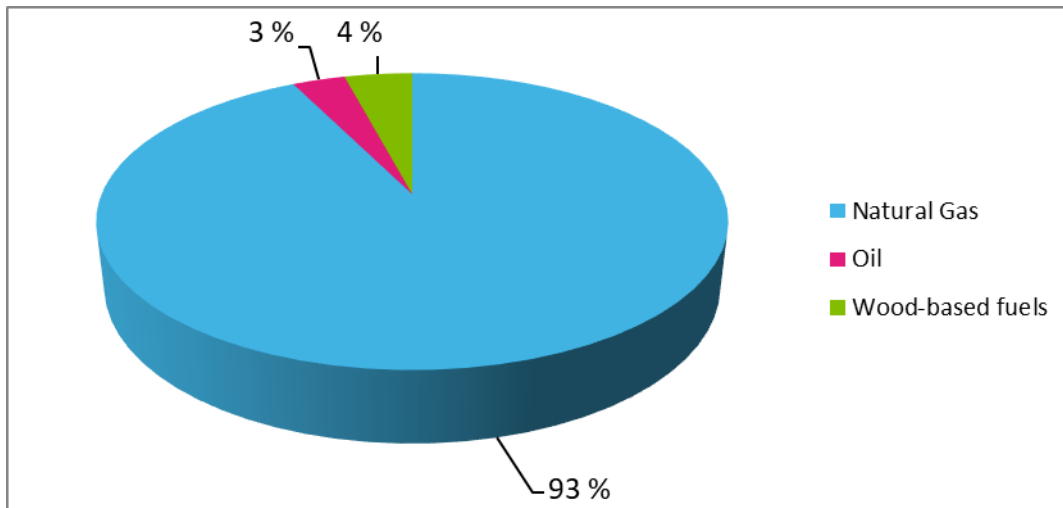


Figure 1. Fuel distribution of the heat production of properties owned or used by Kesko in 2018