

ENVIRONMENTAL PROFILE OF THE ENERGY CONSUMPTION OF PROPERTIES OVERSEAS USED BY KESKO IN 2019

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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 2019: 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 2017 – 2019 is based on the calculations made by EnerKey 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 9.

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 2017			Kesko's affiliates 2018			Kesko's affiliates 2019			
	Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total	
Purchases	MWh	12 632	4 051	16 683	12 217	3 136	15 353	11 294	4 091	15 385
Primary energy	TJ	83,4	16,2	99,6	80,7	12,5	93,2	74,6	16,4	91,0
Fossile	TJ	3,4	5,8	9,3	3,3	4,5	7,8	3,1	5,9	9,0
Renewable	TJ	32,1	10,4	42,5	31,0	8,0	39,1	28,7	10,5	39,2
Nuclear	TJ	47,9	0,0	47,9	46,3	0,0	46,3	42,8	0,0	42,8
Environmental effects										
Climate change	tonnes CO ₂ -eqv	136	117	254	132	91	223	122	119	241
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 2017			Kesko's affiliates 2018			Kesko's affiliates 2019		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	3 250	1 197	4 447	8 489	2 027	10 516	13 835	3 417	17 252
Primary energy	TJ	12,1	4,8	16,9	31,6	8,1	39,7	51,5	13,7	65,1
Fossile	TJ	0,6	2,6	3,2	1,7	4,3	6,0	2,7	7,3	10,1
Renewable	TJ	11,4	2,2	13,7	29,9	3,8	33,7	48,7	6,3	55,1
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	28	16	45	74	28	101	120	46	167
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 2017			Kesko's affiliates 2018			Kesko's affiliates 2019		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	5 309	1 484	6 793	5 945	1 817	7 762	5 399	1 551	6 949
Primary energy	TJ	45,7	5,9	51,7	51,2	7,3	58,5	46,5	6,2	52,7
Fossile	TJ	40,9	3,4	44,3	45,8	4,1	49,9	41,6	3,5	45,1
Renewable	TJ	4,8	2,6	7,4	5,4	3,1	8,6	4,9	2,7	7,6
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	5 444	1 068	6 512	6 096	1 307	7 403	5 536	1 116	6 652
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 2017			Kesko's affiliates 2018			Kesko's affiliates 2019		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	4 520	309	4 829	4 941	144	5 085	4 826	127	4 954
Primary energy	TJ	31,8	1,2	33,1	34,8	0,6	35,4	34,0	0,5	34,5
Fossile	TJ	20,3	0,8	21,1	22,2	0,4	22,5	21,6	0,3	22,0
Renewable	TJ	11,6	0,5	12,0	12,6	0,2	12,8	12,3	0,2	12,5
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	657	45	702	718	21	739	701	19	720
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 2017			Kesko's affiliates 2018			Kesko's affiliates 2019		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	28 022	4 405	32 428	29 184	4 356	33 540	27 498	4 186	31 684
Primary energy	TJ	185,6	17,6	203,2	193,3	17,4	210,7	182,1	16,7	198,8
Fossile	TJ	120,5	5,6	126,1	125,5	5,5	131,0	118,2	5,3	123,5
Renewable	TJ	65,1	12,1	77,1	67,8	11,9	79,7	63,9	11,5	75,3
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	5 204	463	5 667	5 419	458	5 877	5 106	440	5 546
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 2017			Kesko's affiliates 2018			Kesko's affiliates 2019		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	7 894	1 799	9 694	9 055	3 423	12 478	10 030	2 144	12 174
Primary energy	TJ	70,9	7,2	78,1	81,3	13,7	95,0	90,0	8,6	98,6
Fossil	TJ	70,5	6,6	77,1	80,8	12,5	93,4	89,5	7,8	97,4
Renewable	TJ	0,4	0,6	1,0	0,5	1,2	1,6	0,5	0,7	1,2
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 CO ₂ -eqv	3 055	489	3 545	3 504	931	4 435	3 882	583	4 465
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 2017			Kesko's affiliates 2018			Kesko's affiliates 2019		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	2 828	2 945	5 773	2 815	2 841	5 656	2 738	1 181	3 919
Primary energy	TJ	24,2	11,8	36,0	24,1	11,4	35,5	23,4	4,7	28,2
Fossil	TJ	21,8	11,2	33,0	21,7	10,8	32,5	21,1	4,5	25,6
Renewable	TJ	2,4	0,6	3,0	2,4	0,6	2,9	2,3	0,2	2,5
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 CO ₂ -eqv	2 065	1 821	3 886	2 056	1 757	3 812	1 999	730	2 729
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 2018 to 2019.

Unit		Kesko's affiliates 2018			Kesko's affiliates 2019			Change 2018 - 2019		
		Electricity	Heat	Total	Electricity	Heat	Total	Electricity	Heat	Total
Purchases	MWh	72 645	17 744	90 389	75 620	16 697	92 318	4,1 %	-5,9 %	2,1 %
Primary energy	PJ	496,9	71,0	567,9	502,1	66,8	568,9	1,0 %	-5,9 %	0,2 %
Fossil	PJ	301,0	42,2	343,2	298,0	34,7	332,6	-1,0 %	-17,8 %	-3,1 %
Renewable	PJ	149,6	28,8	178,4	161,3	32,1	193,4	7,9 %	11,5 %	8,5 %
Nuclear	PJ	46,3	0,0	46,3	42,8	0,0	42,8	-7,6 %		-7,6 %
Environmental effects										
Climate change	tonnes CO ₂ -eqv	17 999	4 593	22 592	17 467	3 053	20 520	-3,0 %	-33,5 %	-9,2 %
Used nuclear fuel	tonnes	0,01	0,00	0,01	0,01	0,00	0,01	-7,6 %		-7,6 %

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 2019.

	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	2 829	7 161	180	245	4 751	3 053	2 442	20 662
Environmental change	tonnes CO ₂ -eqv	574	1 426	48	65	1 194	636	503	4 446

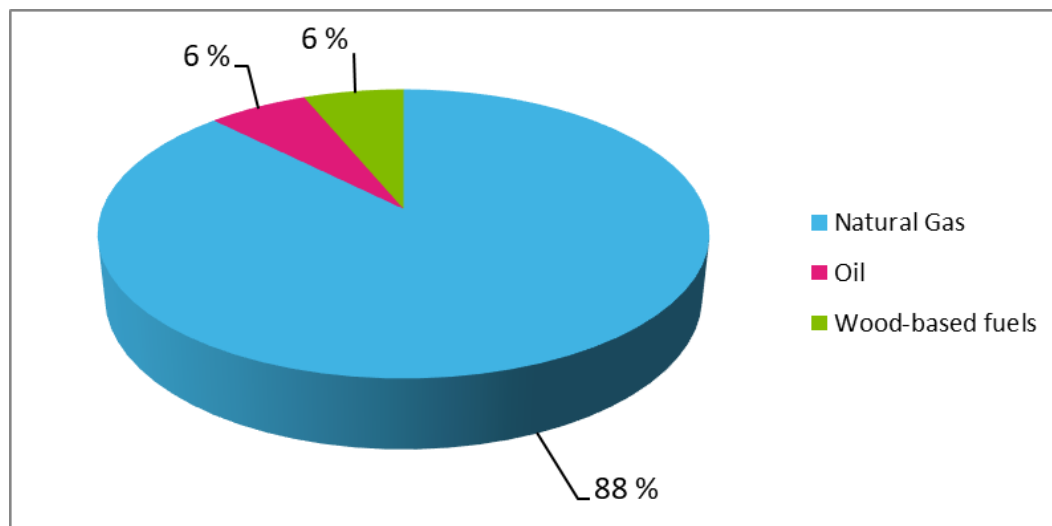


Figure 1. Fuel distribution of the heat production of properties owned or used by Kesko in 2019.