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Important information with regard to the application of the environmental indicators presented in the sheet "Specific indicators" and "Average indicators".

Data have been collected and compiled in 2014/2015 in order to provide environmental indicators for the calculation of national Residual Mixes for 2014.

The table below shows the calculated environmental indicators and data sources

Environmental indicator	Data source
CO2 Direct = Direct onsite CO2 emissions [kg CO2/kWh].	Treyer and Bauer (2013), Dong Energy A/S, Energi.dk, Vattenfall (2010), Fritsche and Rausch (2009), Bauer (2008), GEMIS database (GEMIS, 2015)
CO2 LCA = Life Cycle Assessment CO2 emissions [kg CO2/kWh].	ecoinvent v. 3.01 Database
GWP Direct = Direct onsite Global Warming Potential emissions [kg CO2e/kWh].	
GWP LCA = Life Cycle Assessment Global Warming Potential emissions [kg CO2e/kWh]	
Nuclear waste = mg high-level radioactive waste generated [mg nuclear waste per/kWh]	Expert estimates by Öko-Institut. Data for PWR and BWR adapted to the waste factor provided in BDEW (2015). Data for Magnox/AGR derived from DECC (2014).

Direct CO2-emissions and nuclear waste

Country and technology specific data can be openly published

Direct emissions data for GWP (CO2-equivalents) and life cycle based (LCA) emissions data for CO2 and GWP (CO2-equivalents)

Country and technology specific data *cannot* be openly published. These data are provided only for the purpose of calculating National Residual Mixes. Weighted European average values (see sheet "Average indicators") are, however, permitted to be published.

The data set is not subject to large annual changes, so that it seems appropriate that the given data can be used for several years and does not need to be updated on an annual basis. The data are therefore recommended to be applied for calculation of national Residual Mixes for at least two more years (2015 and 2016) before starting any updating process.

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Environmental indicators per country

Environmental indicator	Energy source/technology	AT	BE	BG	HR	CZ	DK	FI	FR	DE	GB	GR	HU	IE	IT	LU	NL	
mg nuclear waste/kWh	Nuclear	n/a	2,7	3,5	n/a	3,5	n/a	3,0	2,7	2,7	8,0	n/a	3,5	n/a	n/a	n/a	2,7	
CO2 (kg/kWh)	Fossil	Hard Coal	0,8380	0,9480	1,0570	0,9490	1,1350	0,8140	0,8140	0,9490	0,9220	1,0040		1,0040	1,0040	0,9070		0,9490
		Lignite (or brown coal)			1,1000	1,2600	1,1300				1,1800		1,2500	1,1350	1,1800			
		Natural Gas	0,4751	0,4416	0,6092	0,5497	0,4992	0,3430	0,4172	0,3980	0,4610	0,4640	0,4397	0,4992	0,4616	0,4586	0,3430	0,4719
		Oil	0,7040	0,7900	0,7930	0,8270	0,8509	0,7120	0,4480	0,6500	0,9830	0,9890	0,7460	1,0074	0,7400	0,7610		0,6070
		Unspecified (fossil)	0,4861	0,4609	1,0933	0,5720	1,1340		0,4329		0,9220	0,4642	1,2546		1,0044	0,4609		0,6090

Environmental indicator	Energy source/technology	NO	PL	PT	RO	SK	SI	ES	SE	CH	CY	EE	IS	LV	LT	MT	
mg nuclear waste/kWh	Nuclear	n/a	n/a	n/a	18,0	3,5	2,7	2,7	2,7	2,7	n/a	n/a	n/a	n/a	n/a	n/a	
CO2 (kg/kWh)	Fossil	Hard Coal	0,8140	1,0040	0,9020	1,0040	0,8720	0,8480	0,9600	0,8140							
		Lignite (or brown coal)		1,0800		1,1000	1,1640	1,1700	1,1800				0,9596				
		Natural Gas	0,4860	0,4992	0,4397	0,6500	0,4910	0,5310	0,4330	0,4860	0,3483		0,6029		0,6029	0,6029	
		Oil	0,4480	0,8513	0,7830	0,8160	0,7930	0,7070	0,8320	0,5190	0,6694	0,8301	0,9273		0,9273	0,9273	0,8178
		Unspecified (fossil)	0,4861		0,4609	1,1025	0,8723		0,4329	0,4861	0,3982		1,0447	0,4861	0,6201	0,6201	0,8265

Energy source/technology		Weighted average		
		LCA	Direct	LCA
		CO2 (kg/kWh)	GWP (kg CO2-eqv/kWh)	
Renewable	Solar	0,0624		0,0708
	Wind	0,0182		0,0200
	Hydro & Marine	0,0053	0,0002	0,0058
	Geothermal	0,0549		0,0590
	Biomass & Biogas	0,1181	0,0460	0,1762
	Unspecified (renewable)	0,0299	0,0206	0,0535
Fossil	Hard Coal	1,0382	0,9660	1,1626
	Lignite (or brown coal)	1,1986	1,1641	1,2192
	Natural Gas	0,5258	0,4614	0,5658
	Oil	0,8869	0,7844	0,9142
	Unspecified (fossil)	0,8060	0,7785	0,8981