

EEA Core Set of Indicators - CSI 029

Total energy consumption by fuel

May 2005 assessment

working draft

About this document

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European Environment Agency





Key policy question: Are we switching to less polluting fuels to meet our energy consumption?

Key message: Fossil fuels continue to dominate total energy consumption, but environmental pressures have been limited by switching from coal and lignite to relatively clean natural gas.

The share of fossil fuels, such as coal, lignite, oil and natural gas in total energy consumption declined only slightly between 1990 and 2002, to reach 79 %. Their use has considerable impact on the environment and is the main cause of greenhouse gas emissions. However, changes to the fossil fuel mix have benefited the environment, with the share of coal and lignite declining continuously and being replaced by relatively cleaner natural gas, which now has a 23 % share.

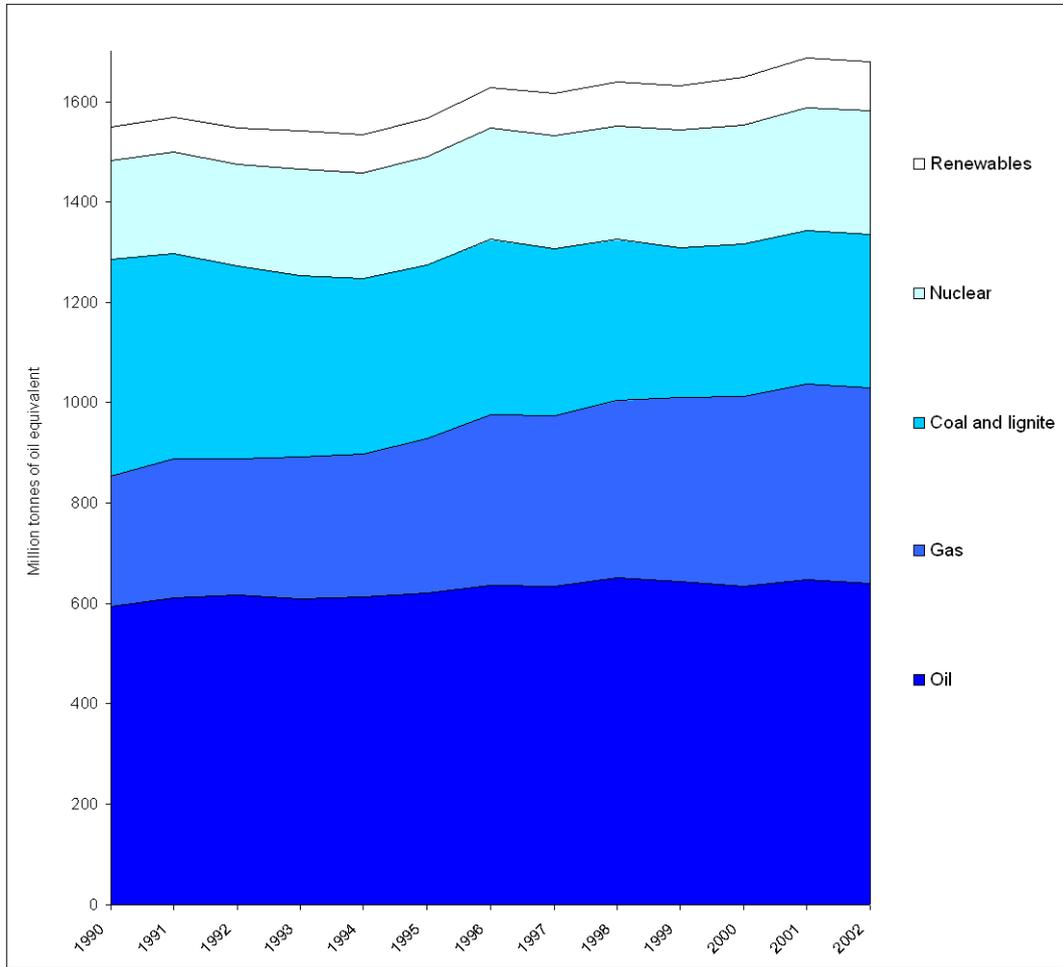
Most of this switch within the fossil fuels occurred in the power generation sector. In the pre-2004 EU-15 Member States this was supported by the implementation of environmental legislation and the liberalisation of electricity markets, which stimulated the use of combined-cycle gas plants due to their high efficiency, low capital cost and low gas prices in the early 1990s, and the expansion of the trans-EU gas network. In the new Member States fuel mix changes were induced by the process of economic transformation, which led to changes in fuel prices and taxation and removal of energy subsidies, and policies to privatise and restructure the energy sector.

Renewable energy, which typically has lower environmental impacts than fossil fuels, has seen rapid growth in absolute terms but from a low starting point. Despite increased support at the EU and national level, its contribution to total energy consumption remains low at almost 6 %. The share of nuclear power has grown slowly to reach almost 15 % of total energy consumption in 2002. While nuclear power produces little pollution under normal operations there is a risk of accidental radioactive releases and highly radioactive wastes are accumulating for which no generally acceptable disposal route has yet been established.

Overall, the changes in the fuel mix of total energy consumption contributed to reducing emissions of greenhouse gases and acidifying substances. Rising total energy consumption however counteracted some environmental benefits of the fuel switch. Total energy consumption in the EU-25 increased 8.4 % over the period 1990-2002 although it decreased slightly between 2001 and 2002 due to higher than average temperatures and a slowing of GDP growth.



Fig. 1: Total energy consumption by fuel in the EU25



Data source : Eurostat.

working draft



Fig. 2: Total energy consumption by fuel (%)

	Total energy consumption by fuel (%) in 2002							Total energy consumption (1000 TOE)
	Coal and lignite	Oil	Gas	Nuclear	Renewables	Industrial waste	Imports-exports of electricity	
EEA members	18.5	37.6	23.1	13.8	6.8	0.2	0.0	1,843,310
EU-25 members	18.2	38.0	23.1	14.8	5.7	0.2	0.1	1,684,042
EU-15 old members	14.7	39.9	23.6	15.6	5.8	0.2	0.3	1,482,081
EU-10 new members	43.5	23.8	19.5	8.8	5.0	0.3	-1.0	201,961
BE	12.7	35.5	25.4	23.2	1.6	0.4	1.2	52,570
CZ	49.9	19.9	18.9	11.1	2.2	0.3	-2.4	40,991
DK	21.1	44.1	23.3	0.0	12.3	0.0	-0.9	19,821
DE	24.9	37.1	22.0	12.4	3.1	0.4	0.3	343,671
EE	57.2	21.5	12.0	0.0	10.5	0.0	-1.2	4,963
EL	31.4	57.0	6.1	0.0	4.7	0.0	0.8	29,736
ES	16.7	50.5	14.4	12.5	5.6	0.0	0.4	130,063
FR	5.2	34.7	14.1	42.4	6.1	0.0	-2.5	265,537
IE	17.0	56.6	24.3	0.0	1.9	0.0	0.3	15,139
IT	7.9	50.9	33.2	0.0	5.3	0.2	2.5	173,550
CY	1.5	96.7	0.0	0.0	1.9	0.0	0.0	2,420
LV	2.4	27.2	30.8	0.0	34.8	0.0	4.8	4,189
LT	1.7	29.4	25.3	42.1	8.0	0.0	-6.4	8,671
LU	2.3	62.4	26.5	0.0	1.4	0.0	7.4	3,979
HU	14.1	24.8	42.2	14.0	3.5	0.0	1.4	25,633
MT	0.0	100.0	0.0	0.0	0.0	0.0	0.0	823
NL	10.7	37.9	45.8	1.3	2.2	0.3	1.8	78,195
AT	12.3	41.5	21.4	0.0	24.0	0.6	0.2	30,909
PL	61.7	22.4	11.4	0.0	4.7	0.6	-0.7	88,837
PT	13.4	61.4	10.5	0.0	14.0	0.0	0.6	25,966
SI	22.8	35.5	11.3	20.8	11.0	0.0	-1.4	6,864
SK	22.9	18.4	31.6	24.9	3.9	0.3	-1.9	18,570
FI	18.5	28.9	10.5	16.4	22.2	0.6	2.9	35,136
SE	5.5	30.7	1.6	34.2	27.1	0.1	0.9	51,435
UK	15.8	34.7	37.9	10.0	1.2	0.0	0.3	226,374
IS	2.9	24.3	0.0	0.0	72.8	0.0	0.0	3,382
NO	3.1	29.0	23.4	0.0	47.7	0.0	-3.2	26,278
BG	35.6	23.4	11.6	27.9	4.4	0.0	-2.9	18,720
RO	22.0	26.7	37.2	4.0	10.5	0.3	-0.7	35,753
TR	26.3	40.8	19.6	0.0	12.9	0.0	0.4	75,135

Data source: Eurostat.

Note: TOE refers to tonnes of oil equivalents.