Statistics 2003

eurogas

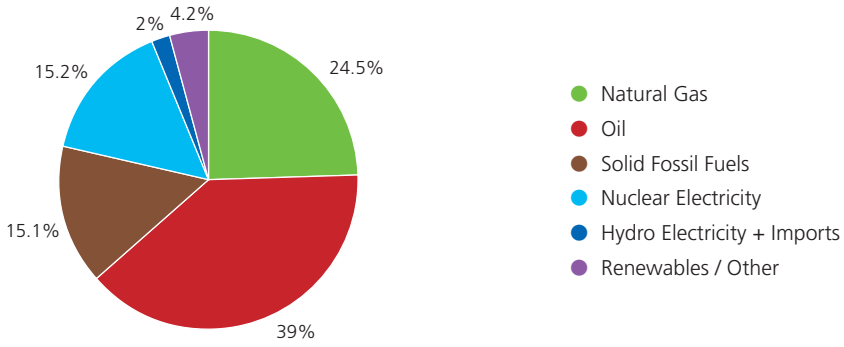
Primary energy consumption

2003 Primary energy consumption in Eurogas Member Countries and EU15

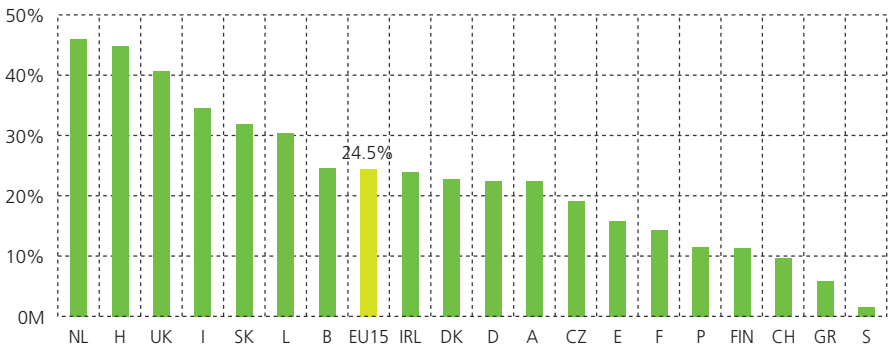
MTOE	A	B	CH	CZ	D	DK	E	F	FIN	GR	H	I	IRL	L	NL	P	S	SK	UK	EU 15
Oil	14.3	24.2	12.8	7.7	124.5	8.2	68.3	92.0	8.9	17.0	6.3	90.2	8.6	2.6	28.3	14.6	17.5	5.6	73.5	592.7
Solid Fossil Fuels	3.9	6.2	0.1	21.2	86.0	5.7	20.6	13.5	8.2	9.0	3.8	15.3	2.8	0.1	9.0	6.3	2.6	5.6	40.5	229.7
Natural Gas	7.3	14.4	2.6	8.1	77.0	4.7	21.5	39.2	4.0	1.8	11.7	63.6	3.7	1.2	35.4	2.9	0.8	6.5	95.0	372.4
Nuclear Electricity	0.0	12.3	6.8	6.7	43.1	0.0	16.1	115.0	5.7	0.0	2.9	0.0	0.0	0.0	0.9	0.0	17.2	1.5	20.5	230.9
Hydro Electricity	3.3	0.6	3.1	0.0	3.4	0.0	3.4	5.6	0.8	0.8	0.0	3.8	0.1	0.0	0.0	1.3	4.6	0.4	0.4	28.0
Electricity Net Import	0.0	0.0	-0.3	-1.4	-0.7	-0.7	0.1	-5.7	0.4	0.7	0.6	4.6	0.1	0.5	1.5	0.2	1.1	0.5	0.2	2.3
Renewables	3.7	0.6	0.8	0.0	9.1	2.8	5.5	12.6	6.9	1.2	0.9	4.4	0.2	0.0	0.3	0.1	8.8	0.3	2.7	59.0
Others	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	2.0	0.0	0.0	1.6	0.0	1.1	0.0	0.0	5.1
Total	32.5	58.3	27.1	42.4	342.4	20.6	135.5	272.2	35.2	30.5	26.1	183.9	15.4	4.5	77.0	25.5	53.7	20.3	232.8	1520.0

Notes : Nuclear and hydro electricity is domestically produced.
Renewables includes biomass, wind solar and geothermal energy.

2003 Primary energy consumption by fuel (EU15)



2003 Share of Natural Gas in primary energy consumption (%)



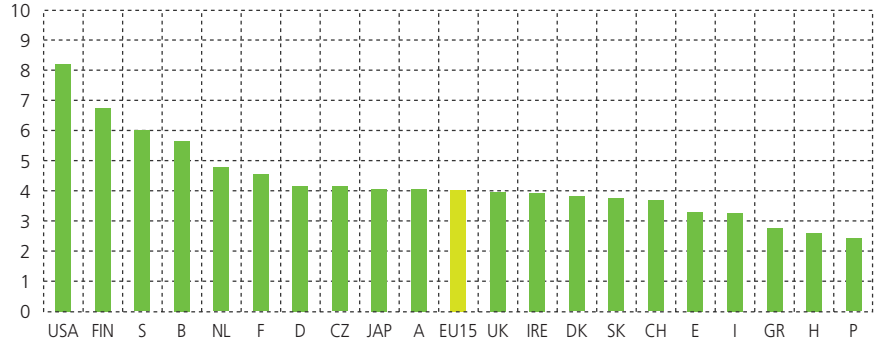
Primary energy consumption

2003 Primary energy consumption (PEC) per capita and per GDP unit

TOE	A	B	CH	CZ	D	DK	E	F	FIN	GR	H	I	IRE	L	NL	P	S	SK	UK	EU15	USA	JAP
PEC/CAPITA	4.05	5.65	3.68	4.14	4.15	3.81	3.30	4.54	6.75	2.76	2.60	3.27	3.93	9.73	4.77	2.42	6.00	3.74	3.96	4.02	8.40	4.04
PEC/GDP RATIO	0.11	0.17	0.08	0.44	0.13	0.09	0.14	0.14	0.19	0.16	0.28	0.11	0.09	0.15	0.13	0.15	0.16	0.55	0.11	0.13	0.18	0.13

Note : GPD expressed on EURO.

2003 Primary energy consumption per capita (TOE)



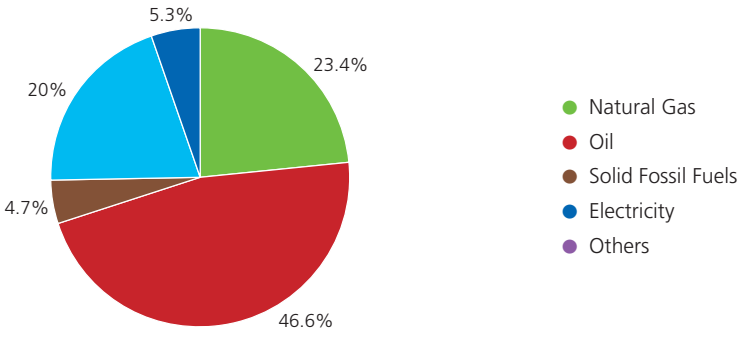
Final energy consumption

2002 Final energy consumption (FEC) in Eurogas Member Countries and EU15

MTOE	A	B	CH	CZ	D	DK	E	F	FIN	GR	H	I	IRL	L	NL	P	S	SK	UK	EU 15
Oil	10.7	20.6	11.9	5.7	100.0	7.2	57.6	72.7	8.5	13.9	5.4	67.3	7.4	2.4	21.3	10.6	11.9	5.6	65.4	477.6
Solid Fossil Fuels	0.9	2.5	0.6	3.7	16.4	0.2	2.5	6.5	1.2	0.7	1.2	3.6	0.8	0.9	1.9	0.2	6.3	1.0	3.8	48.3
Natural Gas	3.4	11.0	2.3	6.6	55.2	1.7	14.1	31.5	1.7	0.4	7.4	39.0	1.2	0.7	22.0	1.3	0.5	4.6	56.3	239.9
Electricity	5.9	6.7	4.7	4.4	41.9	2.8	17.8	33.9	6.7	10.8	2.7	24.3	1.9	0.5	8.4	3.6	11.4	2.1	28.6	205.1
Others	2.7	0.5	0.9	4.9	12.9	3.2	3.6	9.0	7.5	1.1	1.5	1.5	0.2	0.1	4.9	2.6	4.4	–	0.7	54.8
Total	23.5	41.3	20.4	25.3	226.4	15.1	95.6	153.6	25.6	26.9	18.1	135.7	11.4	4.6	58.5	18.3	34.5	13.3	154.7	1025.7

Notes: Electricity includes electricity produced by CHP-plants. Heat produced by CHP-plants is included in "Others".
Others includes heat (e.g. district heating) and non-electricity generating renewables (e.g. biomass generated heat).

2002 Final energy consumption by source (EU15)

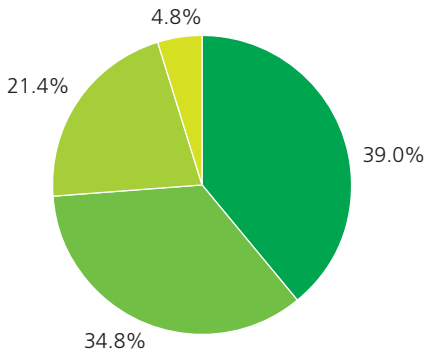


Natural Gas sales and supplies

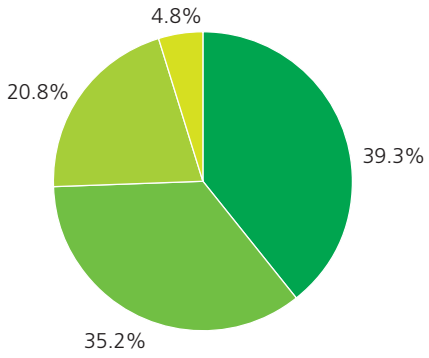
2003 Inland Sales of Natural Gas by sector in Eurogas Member Countries and EU15

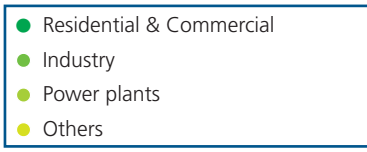
[PJ] - GCV	RESIDENTIAL & COMMERCIAL	INDUSTRY	POWER PLANTS	OTHERS	TOTAL INLAND SALES
A	118.0	135.0	81.0	26.0	360.0
B	246.3	253.9	167.7	0.0	667.9
CH	69.7	44.3	0.0	8.2	122.2
CZ	181.8	115.8	58.4	13.7	369.7
D	1300.0	1395.0	295.0	470.0	3460.0
DK	43.7	43.6	36.0	66.4	189.7
E	170.4	677.2	144.2	0.0	991.8
EST	3.4	11.0	2.8	14.3	31.6
F	926.3	860.4	0.2	42.0	1828.9
FIN	3.0	83.7	53.9	49.7	190.3
GR	2.1	21.6	68.6	0.6	92.9
H	278.4	82.8	144.9	42.4	548.5
I	1065.0	824.3	1006.7	40.5	2936.5
IRL	38.8	20.9	105.3	3.8	168.8
L	15.9	17.1	16.3	0.0	49.3
LIT	8.6	40.8	57.7	0.9	108.0
LV	8.2	13.8	22.9	15.9	60.8
NL	710.4	647.1	288.5	3.5	1649.5
P	9.2	64.9	47.2	2.1	123.4
PL	207.7	278.7	0.0	3.3	489.8
S	8.1	16.7	0.0	15.2	40.0
SLO	11.1	29.6	1.3	0.0	42.0
SK	92.1	162.5	0.0	0.0	254.6
UK	1762.0	665.0	1218.0	68.0	3713.0
EU 15	6419.2	5726.3	3528.6	787.8	**16461.9**
CEEC	791.4	735.0	288.0	90.5	**1904.9**
EU25	7210.6	6461.3	3816.7	878.3	**18366.8**

2003 Natural Gas sales by sector (EU15)

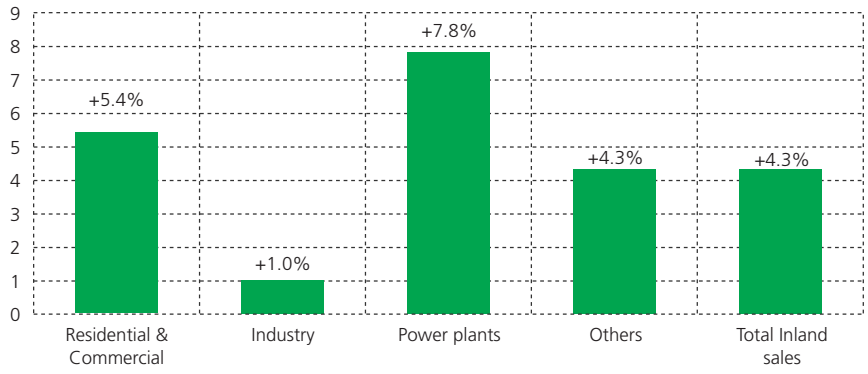


2003 Natural Gas sales by sector (EU25)





2003 Gas demand growth rate by sector (EU15) over 2002 (%)

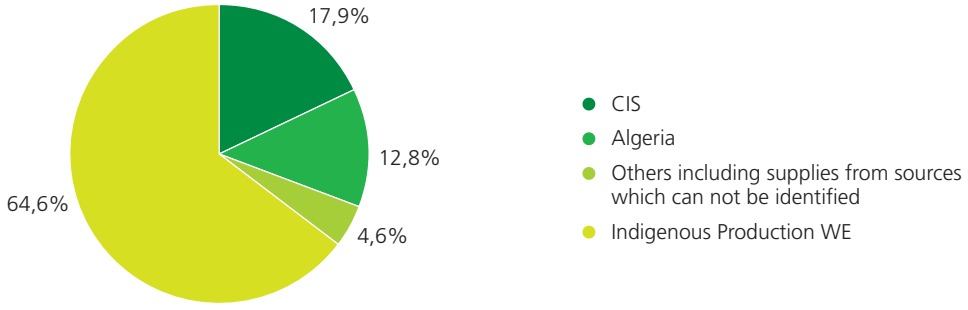


Natural Gas sales and supplies

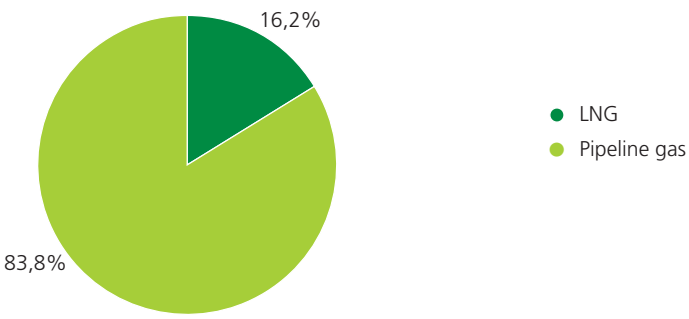
Eurogas Member Countries and EU15

[PJ]	2003 Supplies of Natural Gas					2003 LNG Supplies
	Indigenous Production	Total Net / Import EU15	Total Net / Imp. non-EU15	Changes in stocks	Total Net Supply	LNG-Imports
A	84.0	13.0	271.0	-8.0	360.0	–
B	0.0	299.3	361.2	7.4	667.9	134.2
CH	0.0	106.7	15.5	0.0	122.2	–
CZ	1.6	-1.8	363.9	6.0	369.7	–
D	765.0	678.0	2112.0	-95.0	3460.0	–
DK	307.0	-121.0	0.0	2.2	189.7	–
E	9.1	0.0	994.7	7.7	991.8	630.5
F	59.7	285.5	1460.3	23.3	1828.9	408.6
FIN	0.0	0.0	190.0	0.0	190.3	–
GR	0.0	0.0	93.1	-0.2	92.9	22.6
H	106.3	42.9	419.5	-20.2	548.5	–
I	523.5	308.1	2055.4	49.5	2936.5	133.8
IRL	25.3	145.8	0.0	0.0	168.8	–
L	0.0	49.3	0.0	0.0	49.3	–
NL	2430.2	-1424.4	643.7	0.0	1649.5	–
P	0.0	1.0	119.0	3.3	123.3	17.0
S	0.0	40.8	0.0	-0.5	40.0	–
SK	3.7	0.0	252.1	1.2	254.5	–
UK	4029.0	-326.0	0.0	13.0	3713.0	–
EU15	8232.8	-50.6	8300.4	2.7	16461.9	1346.7

2003 Breakdown of Western Europe's Natural Gas net-supplies



2003 Net-import by transport (EU15)



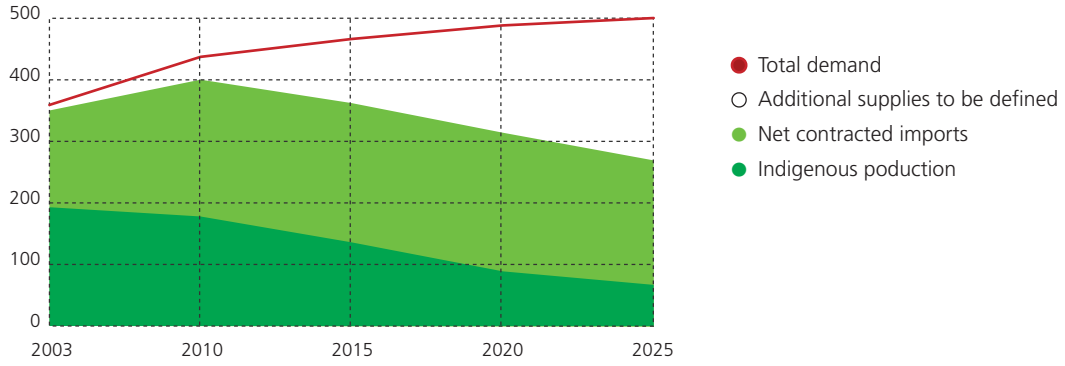
Natural Gas demand and supply outlook to 2025

Eurogas long-term Natural Gas demand & supply outlook / EU15

YEAR	2003	2010	2015	2020	2025
Total demand	355	436	466	488	500
Indigenous production	193	178	136	89	67
Net contracted imports	157	222	226	225	202
Additional supplies to be defined	9	37	104	174	231
Share of Natural Gas in PEC	23.2%	25.1%	26.8%	27.9%	28.5%

MTOE (Million Tonnes of Oil Equivalent), 1 MTOE = 41.86 PJ (NCV).

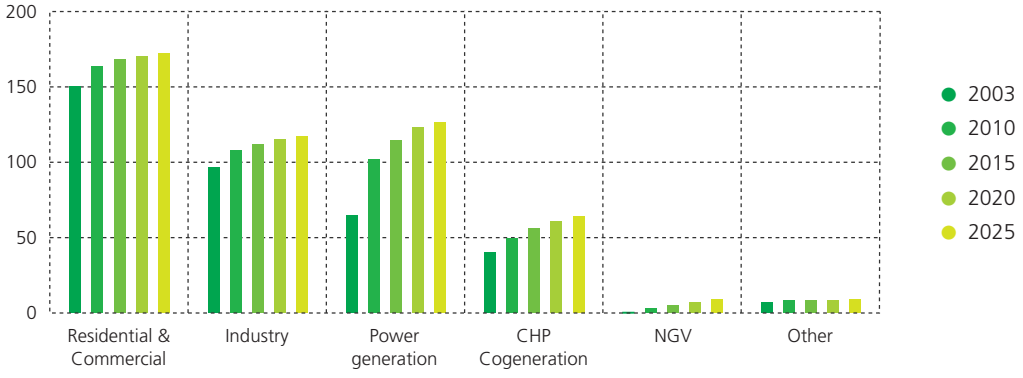
EU15 Natural Gas demand & supply outlook 2003-2025



Maximum expected import dependancy EU15 / Western Europe

	2003	2010	2015	2020	2025
EU import dependancy	46%	59%	71%	82%	87%
WE import dependancy	35%	44%	56%	67%	73%

Natural Gas demand outlook by sector, EU15



The European Natural Gas industry in key figures

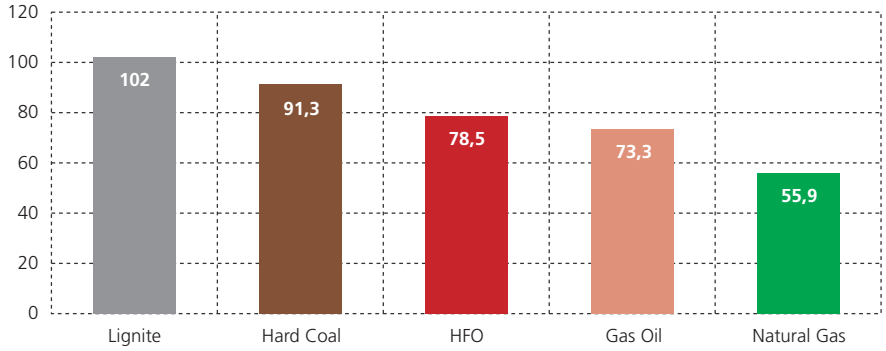
(at 1 January 2004)

	Number of Gas Customers			Number of employees	Pipeline Lengths			Natural Gas storages		
	Domestic *in thousands*	Non-Domestic *in thousands*	Total *in thousands*	Number of employees *in thousands*	Transmission *in km*	Distribution *in km*	Total *in km*	Number of storage facilities	Max. working volume [million m³]	Max. withdrawal capacity [million m³/day]
A	n.a.	n.a.	1310.0	2700	5400	26000	31400	4	2820	33
B	2502.8	105.0	2607.8	3700	3693	51117	54810	2	655	22
CH	430.0	30.0	460.0	1620	2198	13724	15922	1	72	2
CZ	2564.3	173.4	2737.7	6482	3638	67481	71119	9	3150	52
D	17590.0	760.0	18350.0	34000	61000	314000	375000	43	18599	462
DK	331.0	19.0	350.0	1400	1439	17000	18439	2	700	20
E	n.a.	n.a.	5305.0	4765	10691	37457	48148	2	1500	12
EST	64.0	3.0	67.0	364	–	2148	2148	–	–	–
F	10676.0	546.0	11222.0	28000	35750	176340	212090	15	11000	195
FIN	34.3	1.5	35.8	335	1000	1440	2440	–	–	–
GR	15.8	2.9	18.7	1131	961	2751	3712	1	75	5
H	3038.0	182.0	3220.0	6423	5278	72409	77687	5	3380	44
I	15050.0	970.0	16020.0	30000	31220	197000	228220	10	16800	295
IRL	449.0	16.6	465.6	704	1850	8400	10250	–	–	–
L	n.a.	n.a.	74.0	185	320	1750	2070	–	–	–
LIT	518.0	3.0	521.0	1900	1600	6400	8000	–	–	–
LV	422.3	4.4	426.7	1260	1244	3675	4919	1	2255	24
NL	n.a.	n.a.	6850.0	9350	11600	123500	135100	3	3500	146
P	683.0	18.4	701.4	815	1402	9359	10761	–	–	–
PL	6056.0	17.2	6073.2	35000	15451	219720	235171	6	1365	26
S	52.0	3.0	55.0	200	530	2000	2530	1	10	1
SLO	100.0	0.2	100.2	149	961	n.a.	961	–	–	–
SK	1424.0	n.a.	1424.0	5659	6196	23837	30033	3	2018	25
UK	21153.0	422.0	21575.0	51600	19424	262000	281424	9	3855	131
EU 15	n.a.	n.a.	84888.4	168685	185750	1228644	281424	92	59514	1321
CEEC	n.a.	n.a.	14569.8	57237	34368	395670	429077	24	12168	172
EU 25	n.a.	n.a.	99510.1	226122	220648	1625784	1845471	116	71682	1494

Energy Efficiency and Greenhouse Gas Emissions

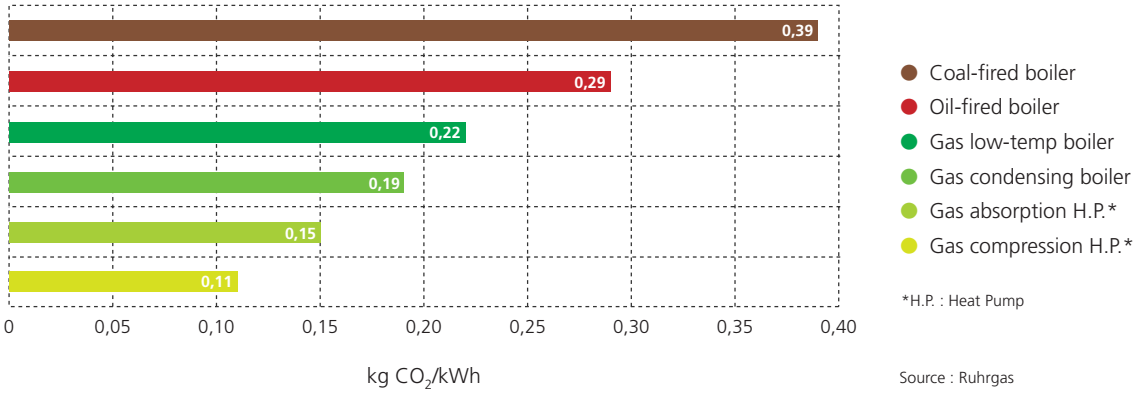
CO_2 formed by the combustion of fossil fuels (kg CO_2/GJ)

For a same amount of energy supplied, Natural Gas generates less CO_2 than other fossil fuels.



Source : IGU

CO_2 emissions from Heat Supply Systems



*H.P. : Heat Pump

Source : Ruhrgas

Methane emissions

Though methane is the main component of natural gas, methane leakages form the total natural gas chain operations (from production to final distribution) are so low that natural gas clearly maintains its "greenhouse" advantage over other fossil fuels. From a comparison among fossil fuels of total greenhouse gas emissions form the overall fuel chain in terms of CO_2 equivalent, it is possible to determine the theoretical leakage rates of methane form gas supply operations at which gas would break even with coal or oil regarding global warming impact.

Break-even leakage rates - Gas vs Oil and Coal

A "virtual" leakage rate between 4% and 6% of consumption would be required to negate the gas advantage over fuel oil (depending on the fuel composition). For coal, the virtual leakage rate would have to be above 8%. These virtual rates are several times higher than the estimated European leakage rate which is only 0.7% of gas consumption. On a business as usual basis, improvements to systems and other measures will continue to reduce methane from operations still further.

Definitions and Conversion Factors

Internationally agreed statistical methods and definitions have been applied. Primary Energy Consumption is defined as the total gross energy supply (indigenous production plus net imports) before any conversion of the primary energy into final energy forms has taken place. Final Energy Consumption is the Primary Energy Consumption less net energy losses in the production of electricity and synthetic gas, refinery use and other energy sector uses and losses. Natural Gas sales and supplies have been stated in PJ because of different national gas qualities. With an assumed energy content of 1 m3 of natural gas of 39 MJ (Gross Calorific Value), 1 PJ corresponds to approx. 25.6 million m3 of natural gas.

Conversion factors

1 PJ (GCV) = 25.6 million m^3 gas
1 m^3 of natural gas = 39 mega joules (MJ – GCV) = 10.8 kWh
1 Mtoe = 1 million tones of oil equivalent = 41.86 PJ (NCV)
1000 m^3 of natural gas = 0.9 ton oil equivante (toe – crude oil)
1 BCM = 1 billion cubic meters
1 cubic meter (m^3) = 35.315 cubic feet (cf)
1 million m^3 of LNG = 593 million m^3 of gas

Net Caloric value (NCV) = 0.9 Gross calorific value (GCV)
1 megajoule = 10^6 joules (MJ)
1 gigajoule = 10^9 joules (GJ)
1 terajoule = 10^{12} joules (TJ)
1 petajoule = 10^{15} joules (PJ)

Heat units

Equivalent to	GJ	kWh	MBtu	th	therm
1 gigajoule (GJ)	1	277.8	0.948	238.9	9.479
1 kilowatt-hour (kWh)	3.6 10-3	1	3.411 10-3	0.86	3.411 10-2
1 million British Thermal Units (MBtu)	1.055	293.2	1	252	10
1 thermie (th)	4.186 10-3	1.162	3.968 10-3	1	3.968 10-2
1 therm	0.1055	29.32	1 10-1	25.2	1