



Statistics 1998

euro  gas

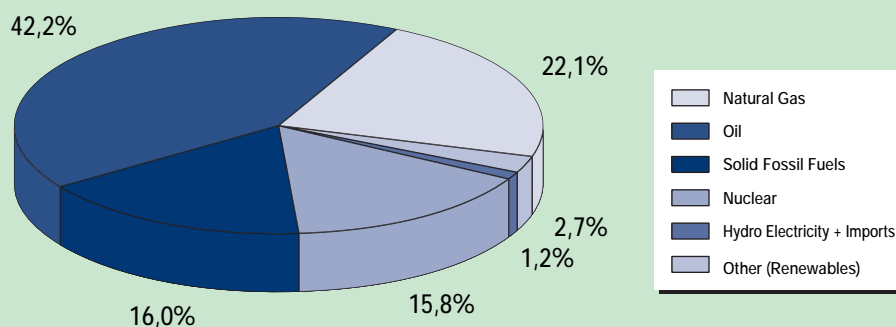
# 1. Primary energy consumption

## 1997 - Primary Energy Consumption in eurogas Member Countries (EU 15)

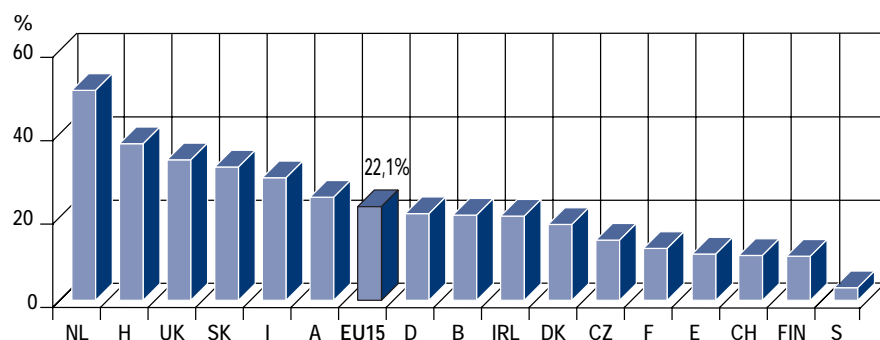
MTOE	A	B	CH	CZ (3)	D	DK	E	F	FIN	H	I	IRL	NL	S	SK(3)	UK (4)	EU15
Oil	11,5	23	12,2	7,8	137,2	9,2	57,4	95,9	8,4	7,2	94	6,02	23,9	17,7	5,4	75,8	588,8
Solid Fossil Fuels	3,6	8,2	0,1	22,8	86,8	6,7	17,6	13,6	6,4	4,1	12,9	2,83	8,8	2,1	5,4	40,8	223,9
Natural Gas	6,6	11,3	2,3	7,6	71,5	3,9	11,1	31	2,9	9,6	47,7	2,32	35,6	0,9	6,9	82,9	308,4
Nuclear Electricity 1)	0	11,7	6,2	3,2	44,4	0	14,4	103,1	5,2	3,6	0	0	0,6	17,5	1	23	219,9
Hydro Electricity 1)	3,2	0,1	3	0,2	1,7	0	3,1	5,8	1	0,0	3,8	0,06	0	5,9	0,4	0,3	27,2
Electricity Net Import	-0,1	0,7	-0,6	0	-0,2	-0,6	-0,3	-17	0,7	0,2	3,1	0	1,1	-0,2	0,3	1,4	-10,8
Renewables 2)	3,4	0	0,4	0	5,1	1,8	3,7	4,2	5,9	0,3	3,1	0,18	0	7,4	0	1,4	36,2
Other	0,4	0	0,9	0	0	0	0	0	0	0,1	0	0	1,3	0,3	0,6	0	2
<b>Total</b>	<b>28,6</b>	<b>55</b>	<b>24,5</b>	<b>41,6</b>	<b>346,5</b>	<b>21</b>	<b>107</b>	<b>236,6</b>	<b>30,4</b>	<b>25,2</b>	<b>164,6</b>	<b>11,4</b>	<b>71,3</b>	<b>51,6</b>	<b>20,1</b>	<b>225,6</b>	<b>1.395,6</b>

- Notes : 1) Domestically produced  
 2) Renewables includes biomass, wind, solar and geothermal energy.  
 3) 1996 figures  
 4) UK figures are gross CV

1997  
Primary  
Energy  
Consumption  
by fuel (EU15)



1997  
Share of  
Natural Gas  
in Primary  
Energy  
Consumption



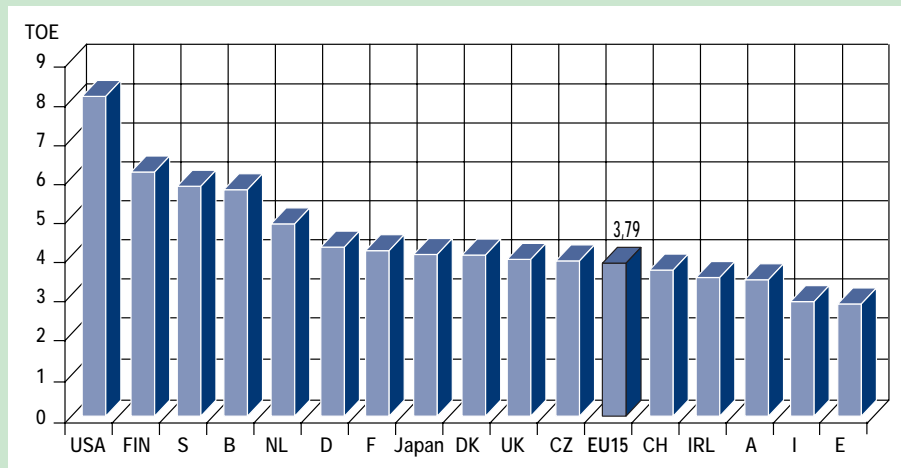
## 1997 Primary Energy Consumption (PEC) per capita / per unit of GDP

	A	B	CH	CZ	D	DK	E	F	FIN	I	IRL	NL	S	UK	EU 15
PEC per capita 1)	3,39	5,64	3,65	3,8	4,27	4,02	2,74	4,17	6,17	2,84	3,45	4,78	5,79	3,87	3,79
PEC/GDP-ratio 2)	0,15	0,26	0,11	1,44	0,19	0,14	0,19	0,19	0,22	0,14	0,18	0,22	0,21	0,21	0,19

Notes : 1) IEA – estimate (for 1997) measured as total primary energy supply in TOE per inhabitant.

2) IEA – estimate (for 1997) measured as total primary energy supply in TOE per \$ 1000 of GDP at 1990 prices and exchange rates

### 1997 Primary Energy Consumption per Capita



## 2. Final energy consumption

### 1997 Final Energy Consumption in eurogas Member Countries (EU15)

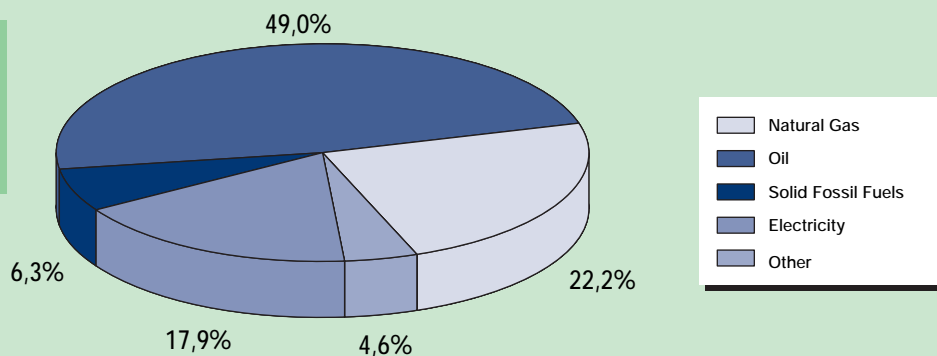
MTOE	A	B (3)	CH	CZ (3)	D	DK (3)	E	F	FIN (3)	H	I	IRL	NL	S	SK (3)	UK	EU15
Oil	10,2	20,9	11,7	6,7	104,2	7,7	50,1	89,2	9,4	4,7	63,7	5,3	18,7	12,2	2,5	67,1	480,6
Solid Fossil Fuels	1,5	3,4	0,1	6,3	16,7	0,4	2,3	8,2	1,2	1,6	5,8	0,7	2,3	6,5	2,8	10,2	61,3
Natural Gas	3,7	10,2	2,1	6	51,7	1,8	8,2	29,9	1,3	6	35,4	0,8	23	0,5	6,3	50,7	218,0
Electricity 1)	4,2	6	4,2	4,4	39,7	2,8	13,4	30,6	5,8	2,4	21,4	1,5	7,6	10,8	1,9	26,2	175,9
Other 2)	4,3	0	1	4,1	13,9	3,1	3,3	4,1	5,5	2,4	0	0	4,4	4		1,2	44,8
<b>Total</b>	<b>23,9</b>	<b>40,5</b>	<b>19,1</b>	<b>27,5</b>	<b>226,2</b>	<b>15,8</b>	<b>77,3</b>	<b>162</b>	<b>23,2</b>	<b>17,1</b>	<b>126,3</b>	<b>8,3</b>	<b>56</b>	<b>34</b>	<b>13,5</b>	<b>155,4</b>	<b>980,5</b>

Notes : 1) Includes electricity produced by CHP-plants. Heat produced by CHP-plants is included in "Other".

2) Includes heat (e.g. district heating) and non-electricity generating renewables (e.g. biomass generated heat).

3) 1996 figures

### 1997 Final Energy Consumption by Source (EU15)



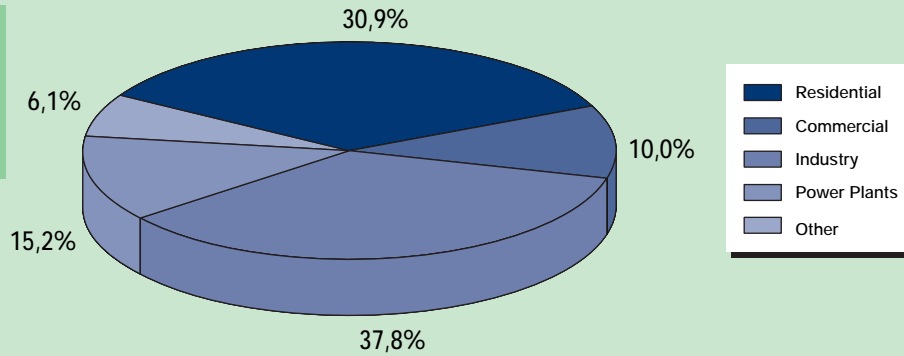
# 3. Natural Gas Sales and Supplies

## 1997 - Inland Sales of Natural Gas by Sector in eurogas Member Countries / EU 15

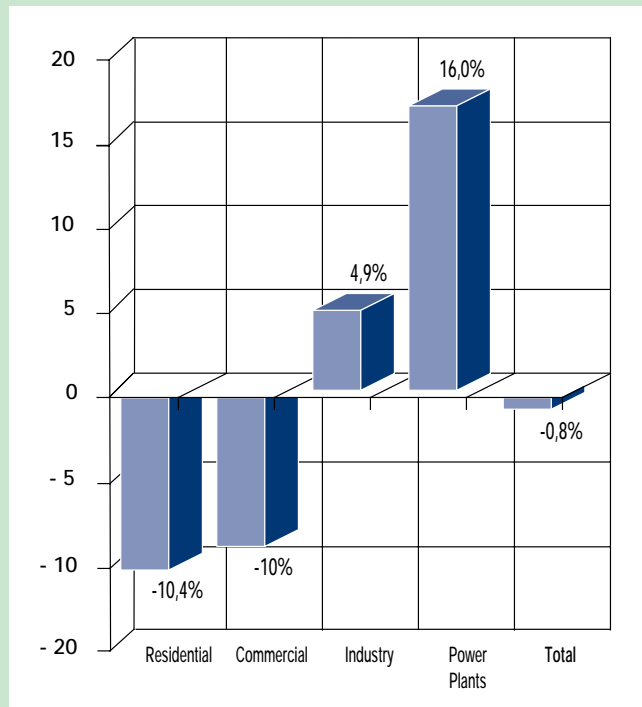
PJ	A	B	CH	CZ	D	DK	E	F	FIN	H	I	IRL	NL	S	SK	UK	EU15
Residential	104	148,7	38,4	95,3	1060,6	26,7	58,5	532,2	0,9	141,3	674,4	13,3	435,2	2,3	60,1	1.162	4.229,3
Commercial	n.a.	67,7	17,6	65,4	127,6	14,2	19,5	232,6	1,3	58,3	190,2	9,6	323,6	3,6	15	369	1.361,4
Industry	129	212,3	42,2	116,2	1336,5	41,8	362,9	669,2	69,4	116,1	975,7	39	598,1	13,7	176,7	702	5.164,0
Power Plants	55	95,1	0	64,3	249,6	16,4	73,6	0,5	28,1	76,8	324,2	62,5	268,9	0	0	894	2.073,3
Others	17	0	8,5	6,5	447,9	61,3	0	18,3	35,3	58,6	38,6	2,4	5,6	13,7	3,8	198	838,1
<b>Total</b>	<b>305</b>	<b>523,8</b>	<b>106,7</b>	<b>347,7</b>	<b>3222,2</b>	<b>160,4</b>	<b>514,5</b>	<b>1.452,8</b>	<b>135</b>	<b>451,1</b>	<b>2.203,1</b>	<b>126,8</b>	<b>1.631,4</b>	<b>33,3</b>	<b>255,6</b>	<b>3.325</b>	<b>13.666,1</b>

With an assumed energy content of 1m<sup>3</sup> of 39 MJ (GCV), Total Inland Sales corresponds to 350 BCM (approx. 294 MTOE (NCV))

1997  
Natural Gas  
Sales  
by Sector  
(EU 15)



1997  
Gas Demand  
Growth Rate  
by Sector  
(EU15)

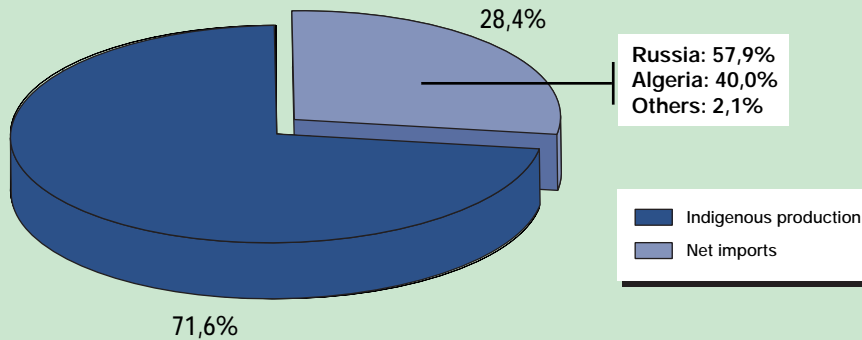


## 1997 - Supplies of Natural Gas in eurogas Member Countries / EU 15

PJ	A	B	CH	CZ	D	DK	E	F	FIN	H	I	IRL	NL	S	SL	UK	EU15	% EU15
Indigenous Production	57	0	0	3,8	741,7	305,3	6,9	94,2	0	154,7	729	88,7	2.795,4	0	11,3	3.391	8.214,5	60,1%
+ Net Imports																		
- from EU-members	12	179,4	92,8	16,9	900,8	-129,9	40,3	147,9	0	63,1	190,5	40,3	-1.364,6	33,3	7,5	-78	0,4	0%
- from Non-EU-members	228	345,3	13,9	335	1.808,9	0	495,6	1.217,4	135,1	241,7	1.297	0	187	0	244,4	51	5.770,3	42,2%
+/- changes in stocks 1) and other balances	8	-0,9	0	-6	-229,2	-15,7	-28,4	-6,7	-0,1	-8,4	-13,4	0	13,6	0	3,8	-41	-319,6	-2,3%
= Net Supplies	305	523,8	106,7	349,7	3.222,2	159,7	514,4	1.452,8	135	451,1	2.203,1	129	1.631,4	33,3	267	3.323	13.665,6	100%

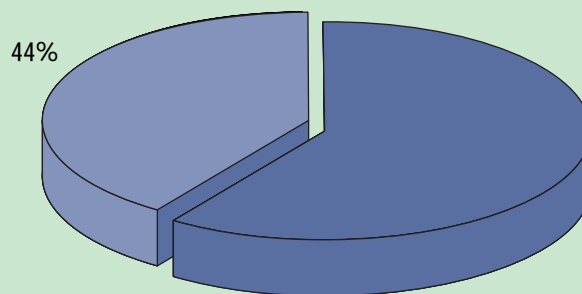
Notes : 1) - Increase in stocks. + Decrease in stocks

### 1997 Breakdown of Western Europe's Natural Gas Supplies



Note: Western Europe = EU + Norway + Switzerland

### 1997 EU Share of World Gas Trade



In 1997 world natural gas trade (import/export) totalled to some 393 MTOE of which 44% was imported by EU-countries.

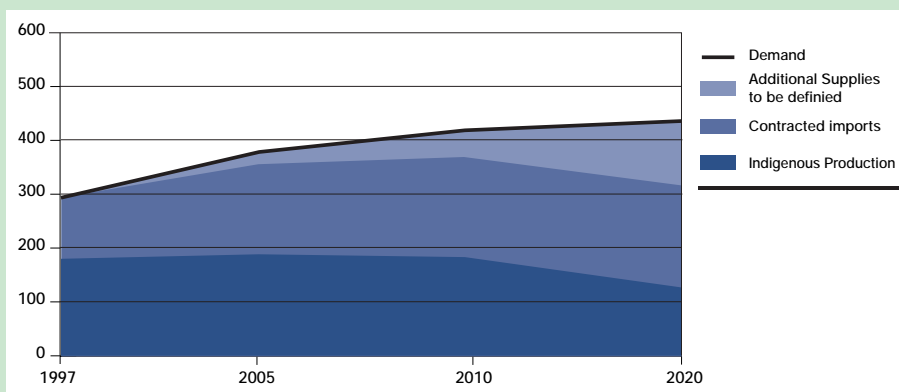
Source : eurogas and Cedigaz

# 5. Natural Gas Demand and Supply Outlook to 2020

## eurogas Long-term Natural Gas Demand & Supply Outlook / EU15

MTOE (N.C.V.)	1997	2005	2010	2020
<b>Total Demand</b>	300	380	410	435
<b>Indigenous Production</b>	180	190	180	125
<b>Net Contracted Imports</b>	120	180	195	190
<b>Additional Supplies to be Defined</b>	-	10	35	120
<b>Share of Primary Energy Consumption</b>	22%	25%	26%	27%

### EU Natural Gas Demand & Supply Outlook 1998-2020 (MTOE)

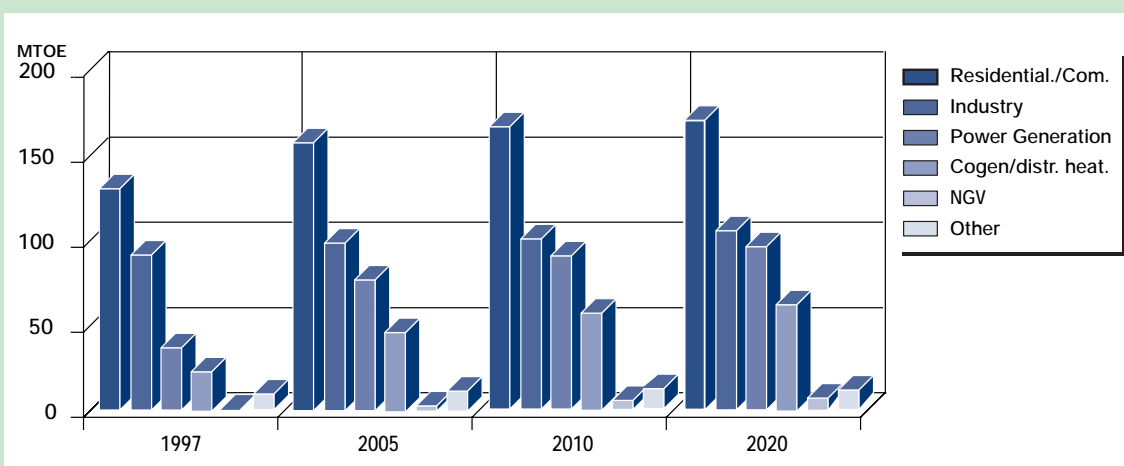


## Expected Import Dependency EU15 / Western Europe

MTOE	1997	2005	2010	2020
<b>European Union</b>	40%	50%	56%	71%
<b>Western Europe</b>	29%	31%	37%	51%

Western Europe = EU + Norway + Switzerland

## Natural Gas Demand Outlook by Sector, EU15



# 7. Gas Supply Industry Key Figures

## Number of Gas Customers (in thousands, rounded) at 1 January 1998

	A	B	CH	CZ (2)	D (1)	DK	E	F	FIN	H	I	IRL	NL	S (2)	SK	UK	EU15
Domestic	1.207	2.303	406	2.221	15.720	298	3.156	9.590	34	2.577	14.100	279	n.a.	52	1.164	19.897	66642
Non-Domestic	2	85	24	n.a.	680	7	63	514	1	130	900	10	n.a.	3	44	390	2656
<b>Total</b>	<b>1.209</b>	<b>2.388</b>	<b>430</b>	<b>n.a.</b>	<b>16.400</b>	<b>305</b>	<b>3.219</b>	<b>10.104</b>	<b>35</b>	<b>2.707</b>	<b>15.000</b>	<b>289</b>	<b>6.390</b>	<b>55</b>	<b>1.208</b>	<b>20.287</b>	<b>75688</b>

## Number of Employees at 1 January 1998

	A	B	CH	CZ	D	DK	E	F	FIN	H	I	IRL	NL	S	SK	UK	EU15
Total for Transmission and Distribution	3.063	4.184	1.650	8.076	44.000	1.264	4.134	25.000	310	9.500	34.000	735	10.450	225	6.375	35.000	163023

## Investments in 1997 (mio ECU-average July 1997 rates)

	A	B	CH	CZ	D	DK	E	F	FIN	H	I	IRL	NL	S	SK	UK	EU15
Total for Transmission and Distribution	186	279	122	n.a.	3.000	102	498	1019	35	n.a.	1.710	71	417	4	242	674	8441

## Pipeline Lengths at 1 January 1998 (km)

	A	B	CH	CZ	D	DK	E	F	FIN	H	I	IRL	NL	S	SK	UK	EU15
Transmission	5.172	3.488	1.976	3.354	55.000	1.127	7.141	32.500	900	5.048	29.300	1.035	11.389	527	5.580	18.000	166967
Distribution	20.219	43.000	12.416	40.897	285.000	16.415	19.881	144.000	1.070	48.799	170.000	5.756	110.500	3.000	15.923	254.800	1076148
<b>Total</b>	<b>25.391</b>	<b>46.488</b>	<b>14.392</b>	<b>44.251</b>	<b>340.000</b>	<b>17.542</b>	<b>27.022</b>	<b>176.500</b>	<b>1.970</b>	<b>53.847</b>	<b>199.300</b>	<b>6.791</b>	<b>121.889</b>	<b>3.527</b>	<b>21.503</b>	<b>272.800</b>	<b>1243115</b>

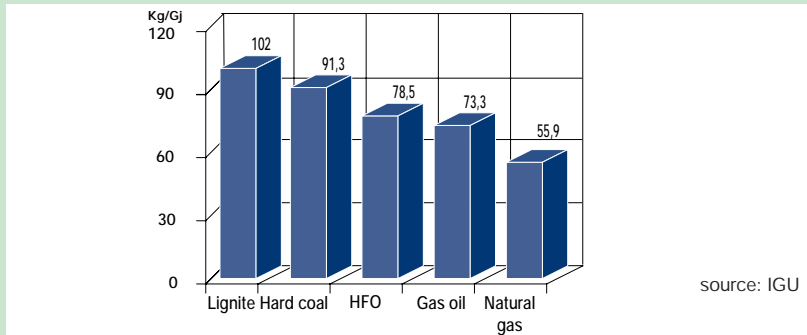
## Natural Gas Storage at 1 January 1998

	A	B	CH (3)	CZ (3)	D	DK	E	F	FIN	H	I	IRL	NL	S	SK	UK
Number of Storage Facilities	5	3	{1}	5 + {2}	37	2	2	15	0	4	8	0	3	0	1 + {1}	7
Maximum Working Volume, mill m <sup>3</sup>	2.630	675	appr. 50	1.670+(900)	14.098	730	1.119	10.400	0	2.620	14.700	0	1500	0	1.285	3.497
Maximum Withdrawal Capacity, mill m <sup>3</sup> /day	27	appr. 19	appr. 1.4	20.5+(9.9)	353	appr. 20	9,15	219	0	appr.34	263	0	100	0	n.a.	134

Notes : 1) preliminary  
2) approximate  
3) { } = Storage facilities abroad

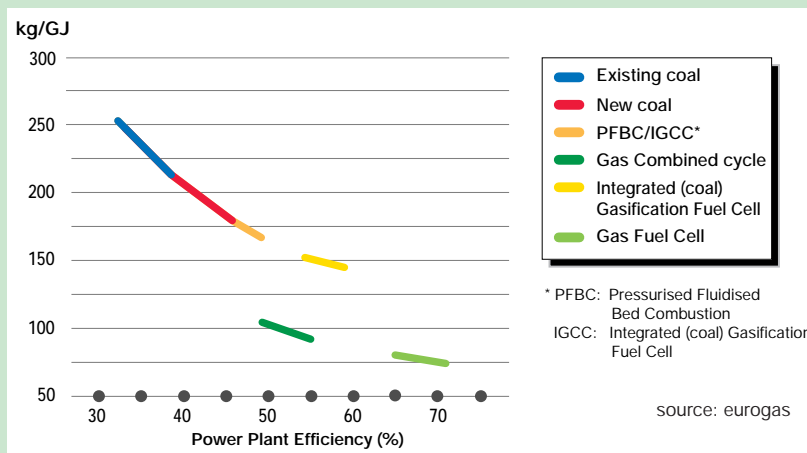
# 8. Energy Efficiency and Greenhouse Gas Emissions

## CO<sub>2</sub> Formed by the Combustion of Fossil Fuels



*For the same amount of energy supplied, natural gas generates less CO<sub>2</sub> than other fossil fuels.*

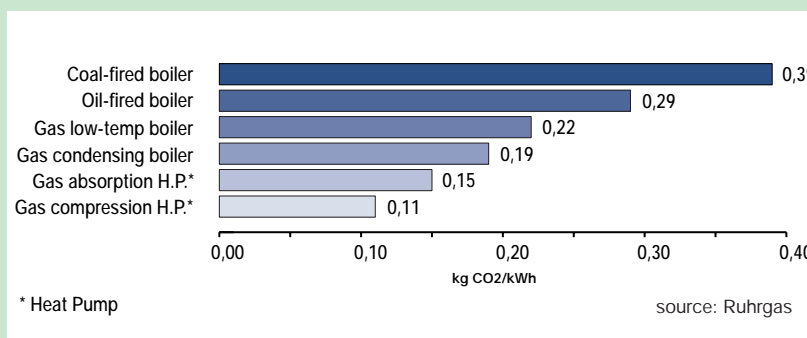
## Efficiencies and CO<sub>2</sub> Emissions from Fossil-Fuelled Power Plants



*For a given energy performance, less energy supply is required with natural gas owing to the high energy efficiency of natural gas fired technologies :*

- easy processing
- efficient combustion
- clean combustion gas for high heat recovery and protection of process equipment

## CO<sub>2</sub> Emissions from Heat Supply Systems



*For a given energy performance, less energy supply is required with natural gas owing to the high energy efficiency of natural gas fired technologies :*

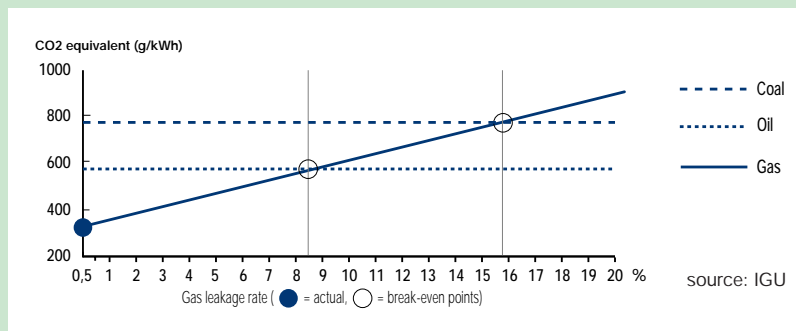
- easy processing
- efficient combustion
- clean combustion gas for high heat recovery and protection of process equipment

## Methane Emissions

Though methane is the main component of natural gas, methane leakages from 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 from the overall fuel chain in terms of CO<sub>2</sub> equivalent, it is possible to determine the theoretical leakage rates of methane from 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 (power generation efficiencies: coal 46%, oil 50%, natural gas 58%)



*Methane leakages from natural gas networks in the USA and Western Europe including Scandinavia are estimated at 0.05-0.66% of throughput (source: IGU), far below the break even rates that would negate the climate change advantage of natural gas. With the ongoing replacement of older, low pressure distribution systems, this figure will gradually be reduced further.*

