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COMMISSION STAFF WORKING DOCUMENT

EU ENERGY POLICY DATA

(accompanying the following documents)

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EU ENERGY POLICY DATA

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In order to ensure comparability figures rely mostly on IEA and Eurostat and are based on 2006 data for the new EU-27. The reference year used is 2004.

Sources:

European Commission

EUROSTAT

DG TREN

DG ENVIRONMENT

European Environmental Agency

EURATOM

European Energy and Transport: Trends to 2030 – Update 2005, DG TREN, 2006

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Other sources

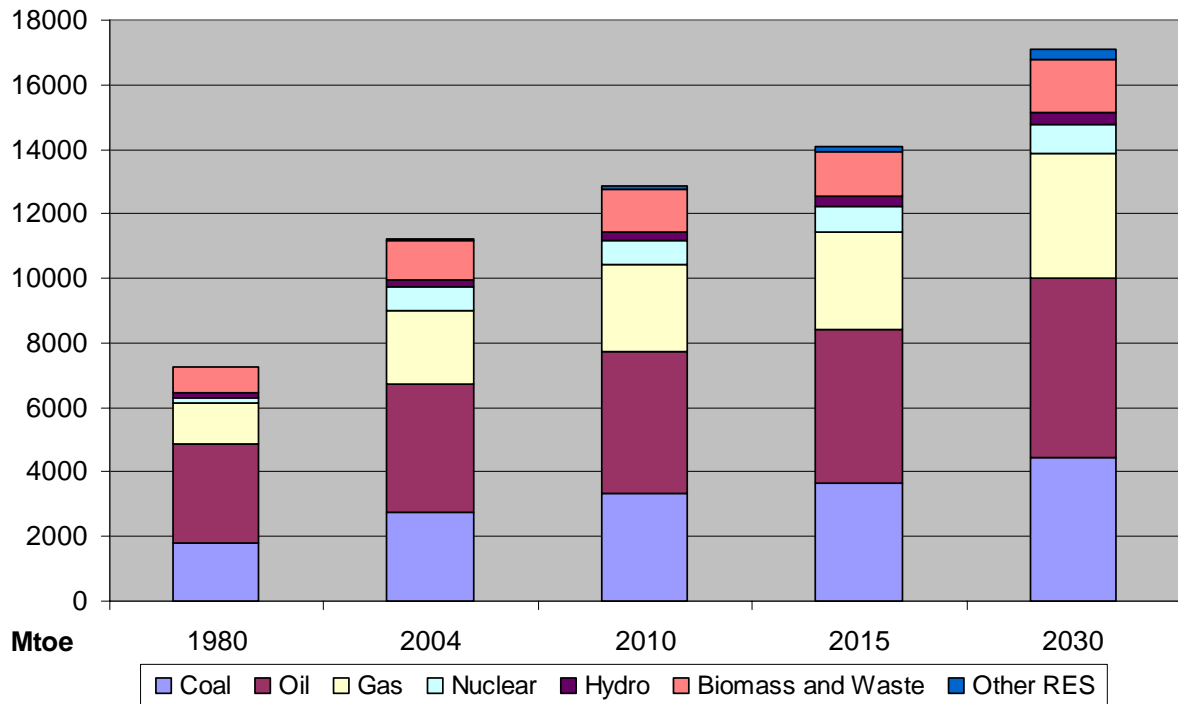
OMV, 2003

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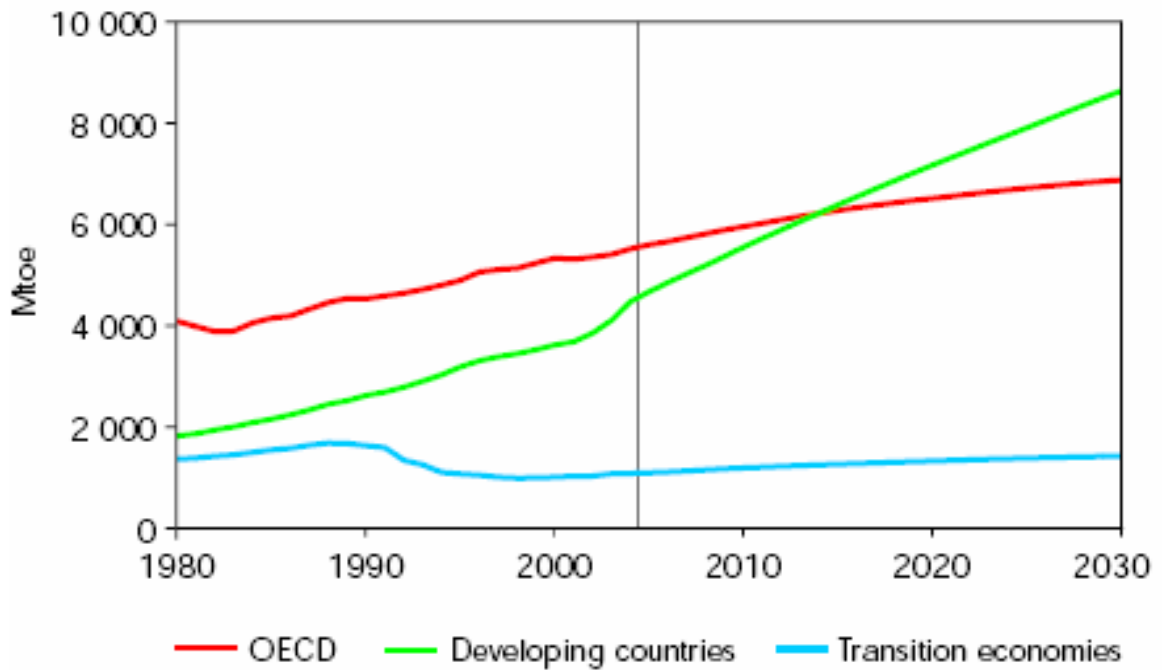
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1.1. World Primary Energy Demand 1980-2030 (IEA Reference Scenario)



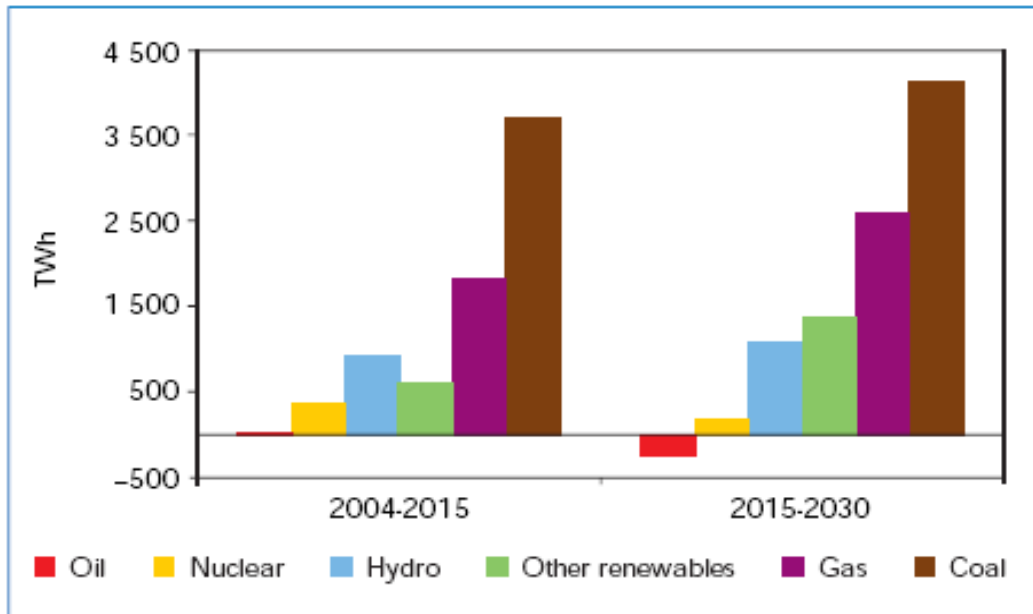
Source: WEO 2006, OECD/IEA 2006

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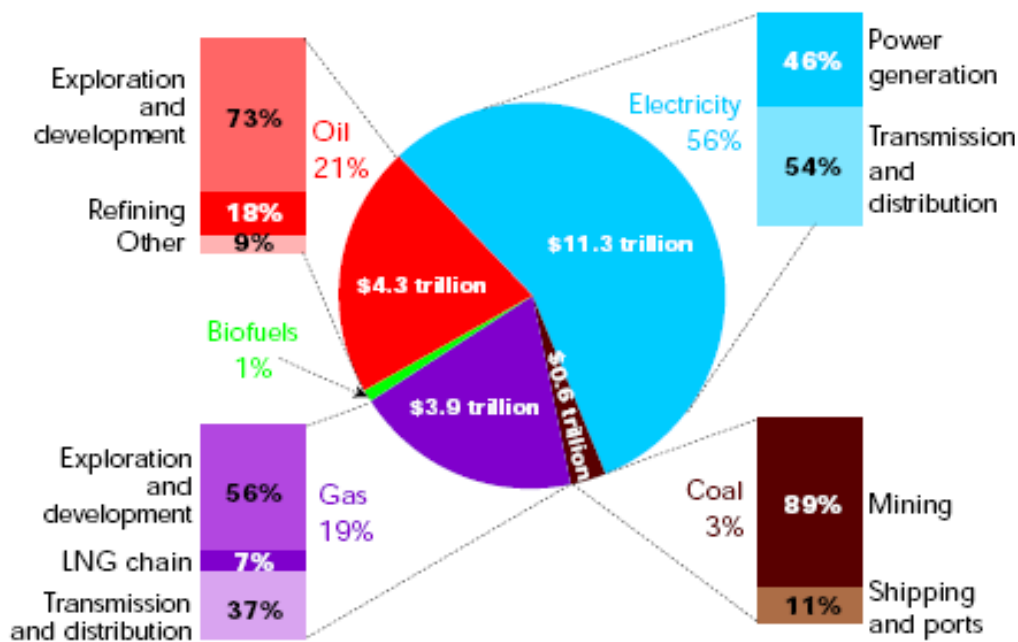
Source: WEO 2006 ©OECD/IEA 2006

1.3. World Incremental Electricity Generation by Fuel (IEA Reference Scenario)



Source: WEO 2006 ©OECD/IEA 2006

1.4. Cumulative Energy Investment in Energy Supply Infrastructure 2005-2030 (IEA Reference Scenario)



Total investment = \$20.2 trillion (in year-2005 dollars)

Source: WEO 2006 ©OECD/IEA 2006

1.5. Comparative Analysis of Energy Indicators of Major Global Energy Players (2004)

Main Energy Indicators	Brazil	China	India	Japan	Russia	USA	World	EU-27
Total Primary Energy Supply (TPES) [2004, Mtoe]	204.85	1 609.35	572.85	533.2	641.53	2 325.89	11 223.3	1 814.77
TPES/POP [toe/capita]	1.11	1.24	0.53	4.18	4.46	7.91	1.77	3.78
TPES/GDP [toe/000 2000\$]	0.31	0.94	0.99	0.11	1.95	0.22	0.32	0.2
TPES/GDP (PPP) [toe/000 2000\$ PPP]	0.15	0.23	0.18	0.16	0.49	0.22	0.21	0.16
CO ₂ /TPES [tCO ₂ /toe]	1.58	2.94	1.93	2.28	2.38	2.49	2.37	2.27
CO ₂ /GDP [kgCO ₂ /2000\$]	0.49	2.76	1.9	0.25	4.65	0.54	0.76	0.46
CO ₂ /GDP (PPP) [kgCO ₂ /2000\$ PPP]	0.23	0.67	0.35	0.35	1.17	0.54	0.51	0.36
Total Primary Energy Supply - Mix [2004, share in %]								
oil	42.3%	19.3%	22.2%	47.8%	20.4%	40.7%	35.2%	36.8%
gas	7.7%	2.6%	4.1%	13.2%	54.0%	22.1%	20.6%	24%
coal/solid fuels	6.9%	61.7%	34.1%	21.8%	16.2%	23.4%	24.7%	16.2%
nuclear	1.5%	0.8%	0.8%	13.8%	5.9%	9.1%	6.4%	14.4%
hydro	13.5%	1.9%	1.3%	1.5%	2.4%	1.0%	2.2%	1.54%
combined renewable + waste	26.5%	13.7%	37.4%	1.2%	1.1%	3.0%	10.5%	4.51%
geothermal/solar/wind	0.0%		0.1%	0.7%	0.1%	0.5%	0.5%	0.66%
Total Final Consumption [2004, Mtoe]	172.2	1038.4	403.3	354.3	425.2	1 600.8	7 644.4	1 177.10
Intensity of total R&D [2003, % of GDP] (1)				3.12%		2.59%		1.97%
Net Imports [Mtoe]	31.33	90.37	105.8	440.75	-511.01	714.51	4 352.7	934.51
Net Imports/TPES [%]	15.29%	5.62%	18.47%	82.66%	-79.65%	30.72%	38.8%	50%

(1) Including industry and public research. Data for EU refer to EU-25 (Source: DG RTD)

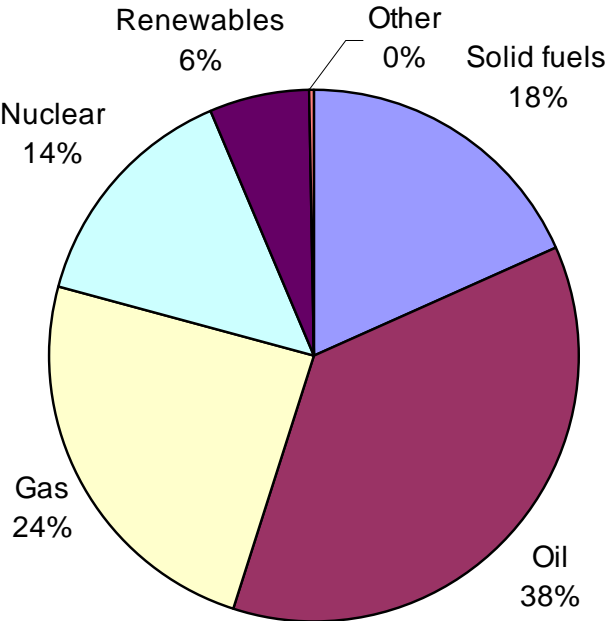
Source: European Commission DG TREN, IEA

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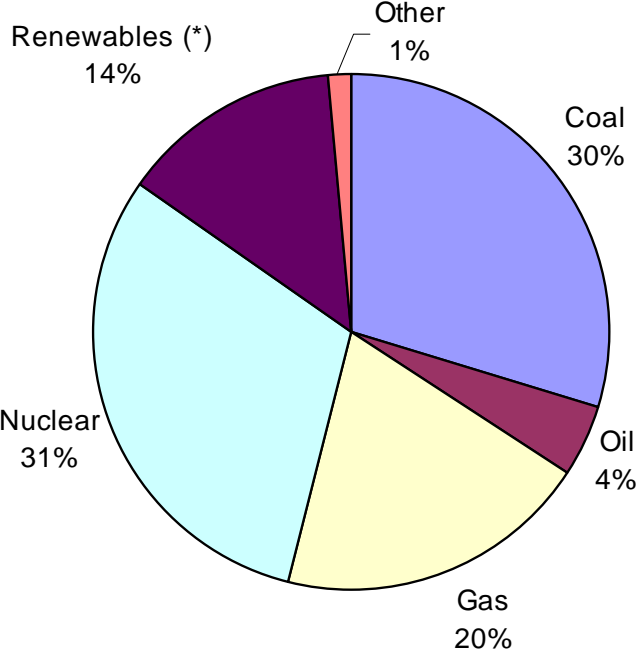
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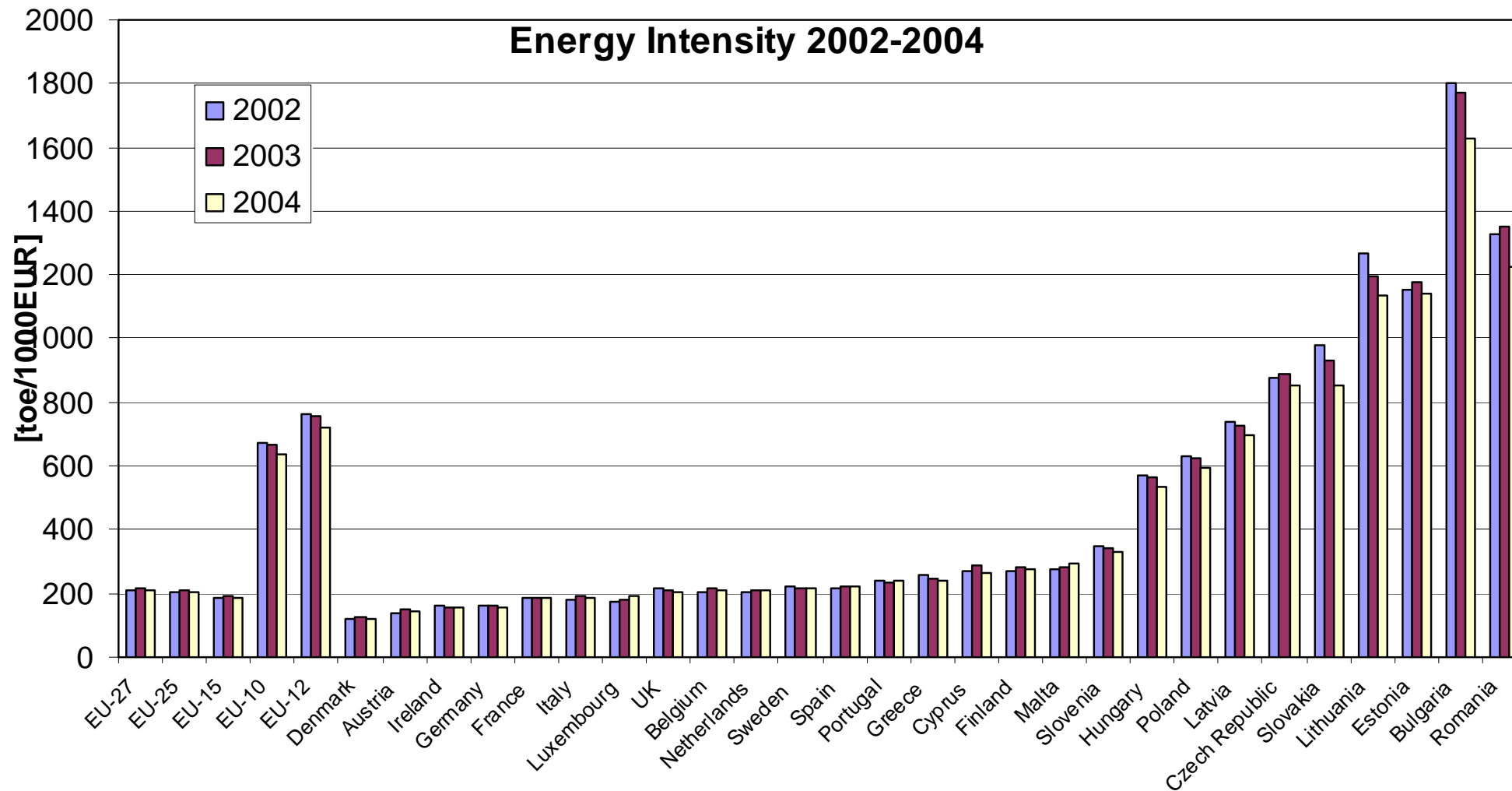
Source: European Commission DG TREN, Eurostat

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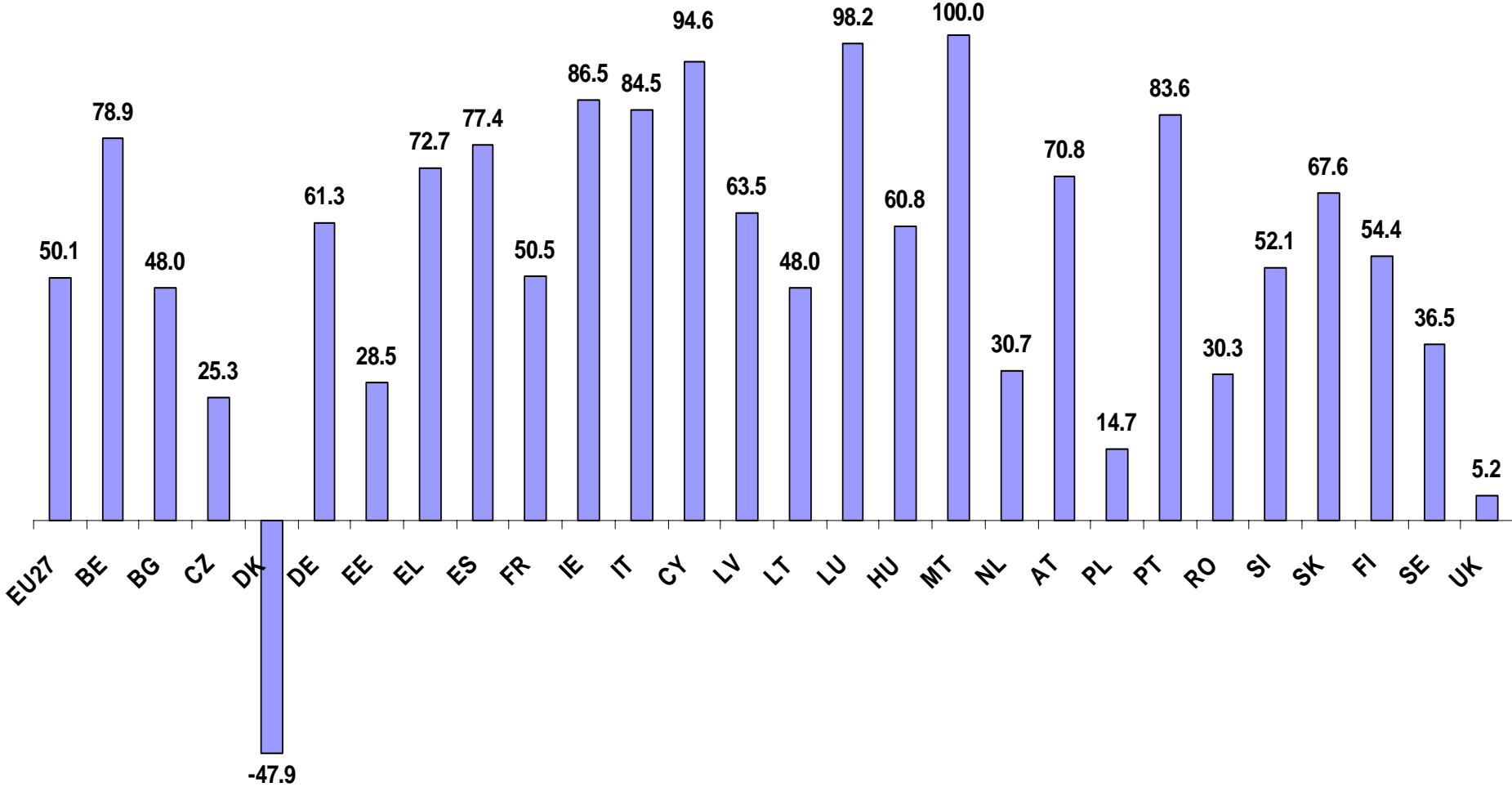
Source: European Commission DG TREN, Eurostat, *Renewables:

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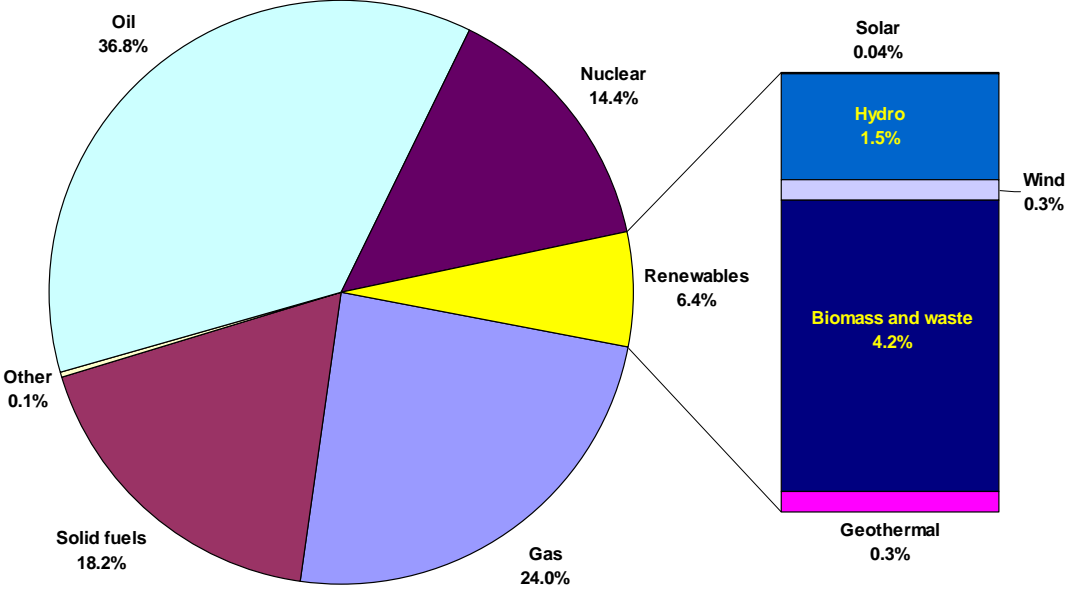
Source: Eurostat

2.4. EU-27 Import Dependency 2004 (%)



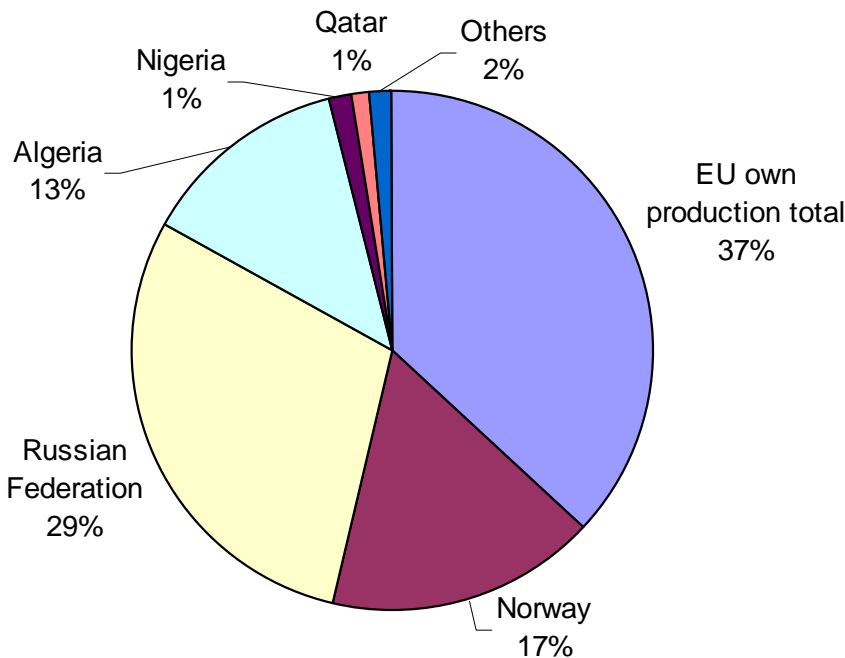
Source: Eurostat

2.5. EU-27 Energy Mix with Renewable Energy Sources (2004)



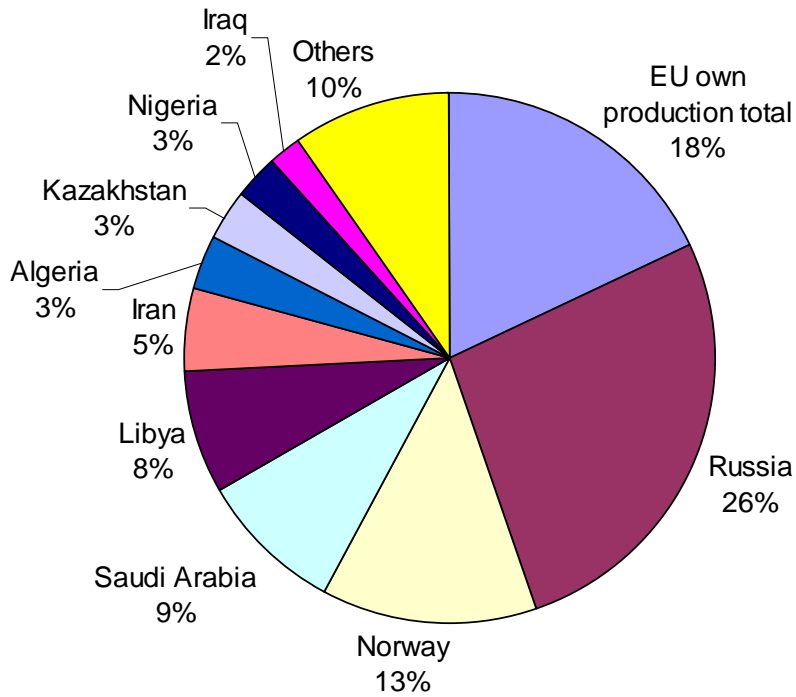
Source: European Commission DG TREN, Eurostat

2.6. EU-27 Origin of Natural Gas (2004)



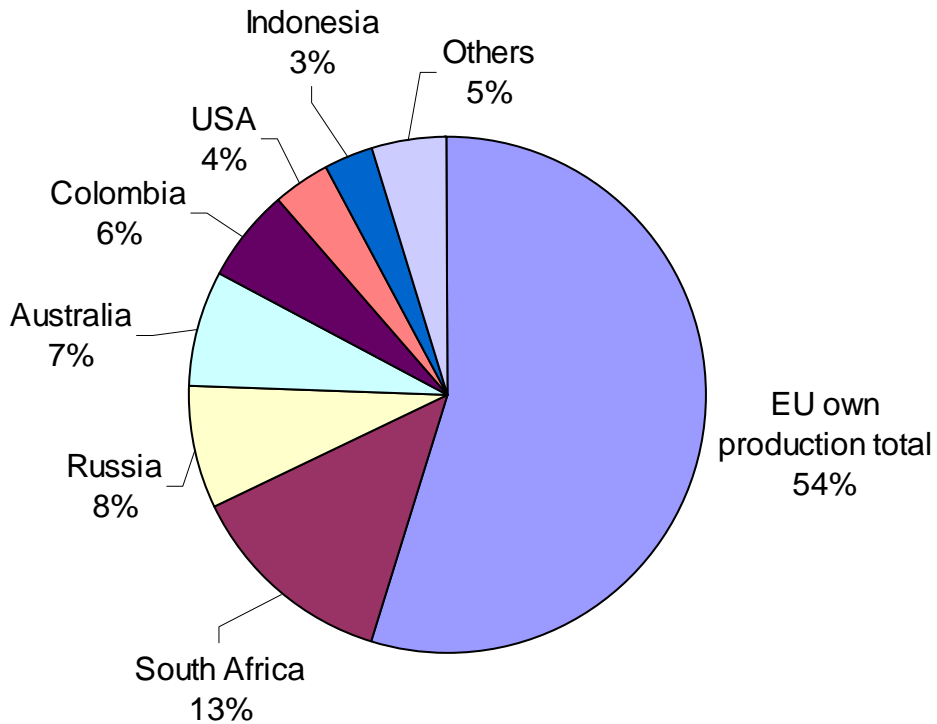
Source: European Commission DG TREN, Eurostat

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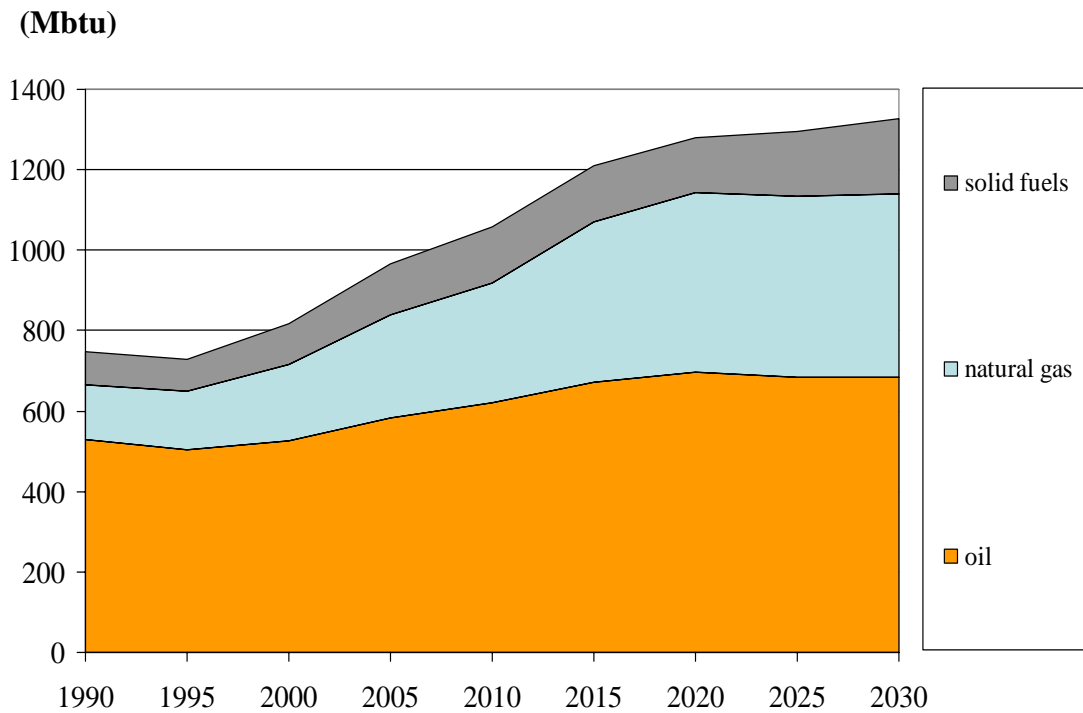
Source: European Commission DG TREN, Eurostat

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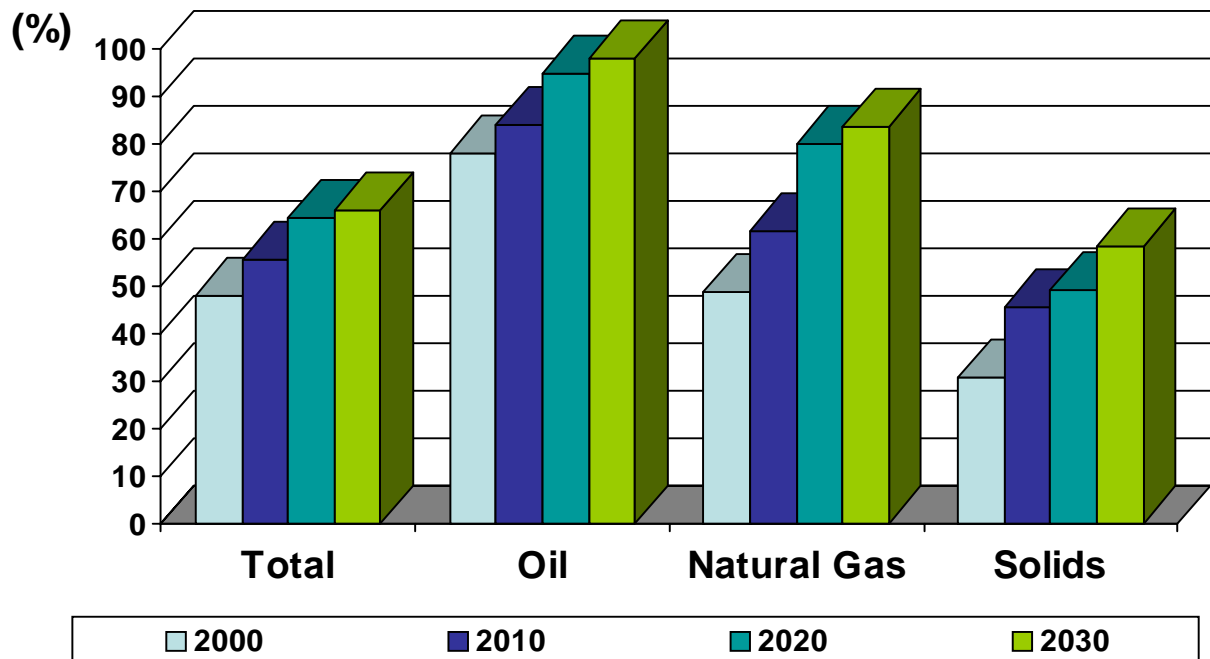
Source: European Commission DG TREN, Eurostat

2.9. EU-27 Net Imports of Fossil Fuels (Baseline Scenario)



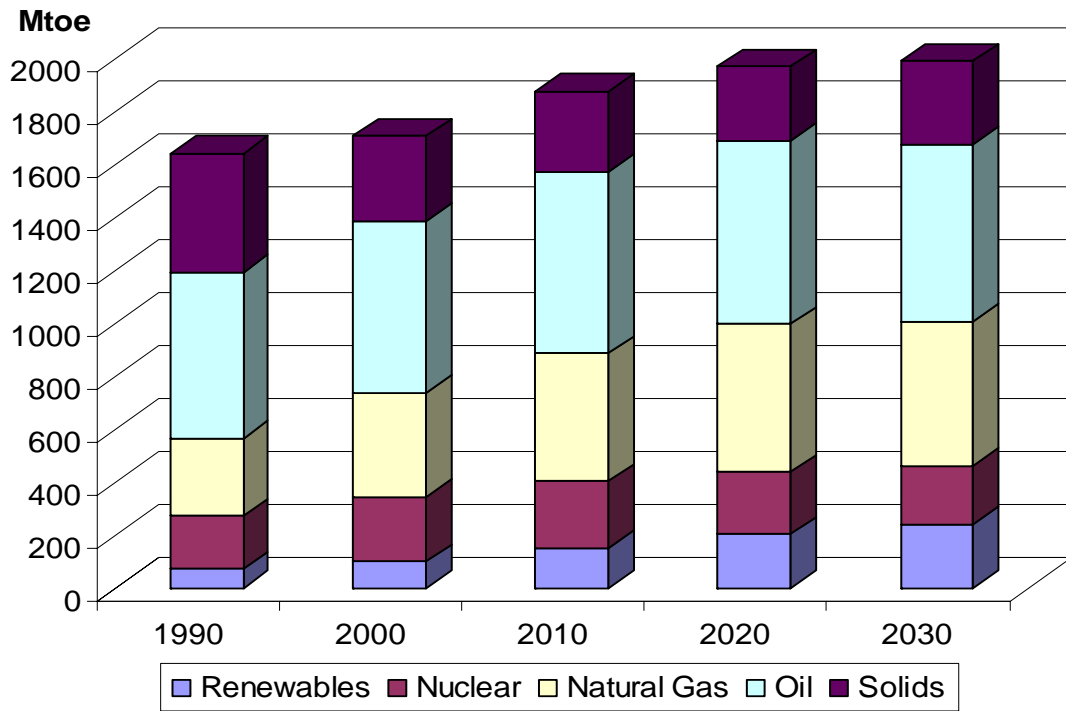
Source: European Commission DG TREN, PRIMES

2.10. EU-27 Development of Import Dependence up to 2030 (Baseline Scenario)



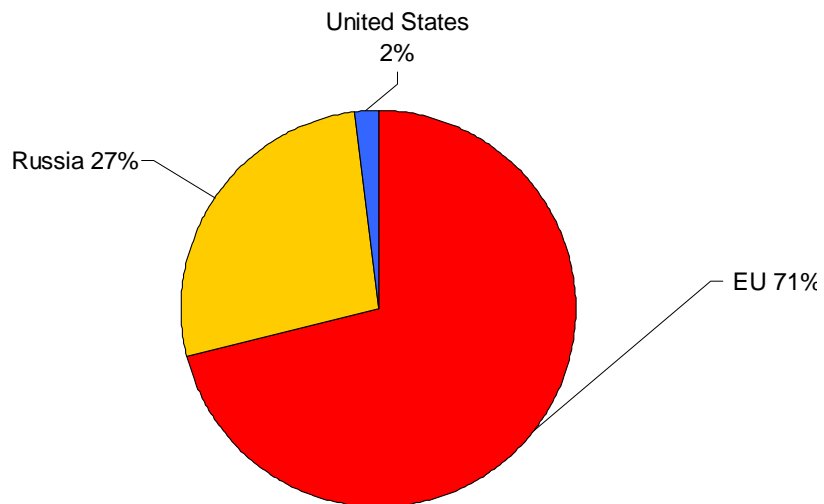
Source: European Commission DG TREN, PRIMES

2.11. EU-27 Total Primary Energy Supply (Baseline Scenario)



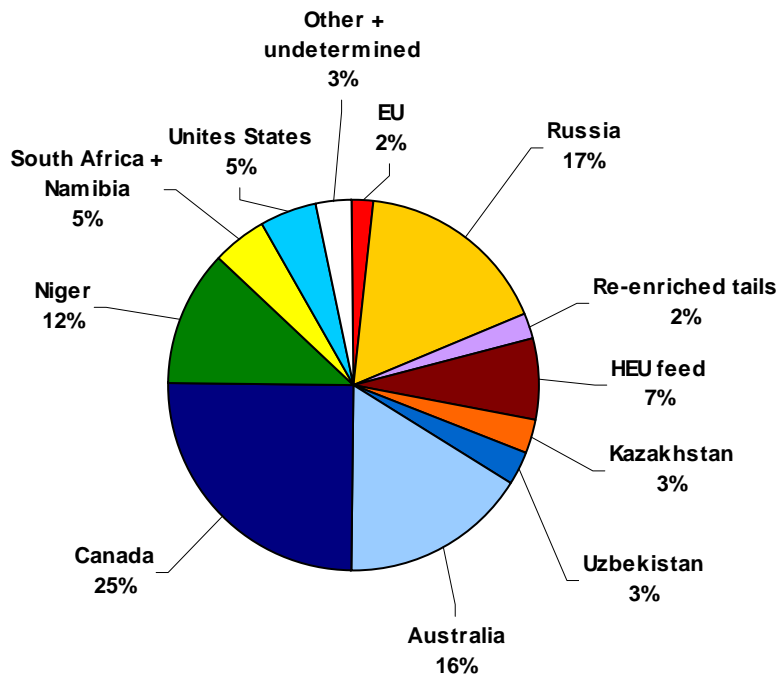
Source: European Commission DG TREN, PRIMES

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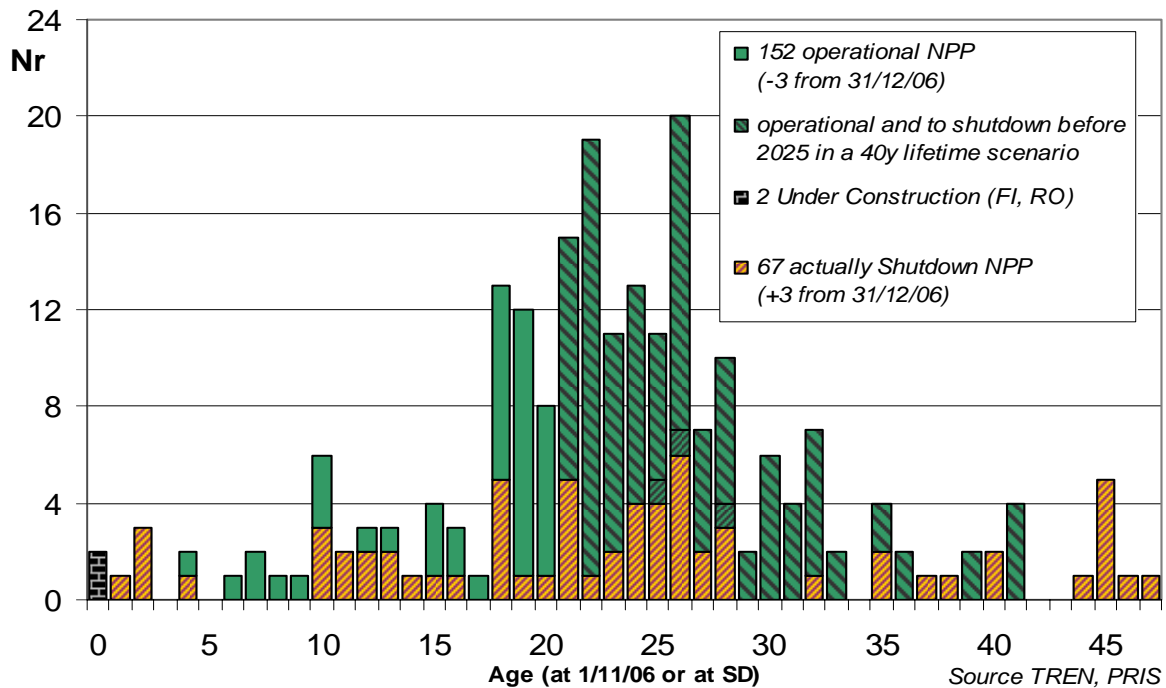
Source: European Commission DG TREN, Euratom Supply Agency

2.13. EU-25 Origins of natural uranium 2005



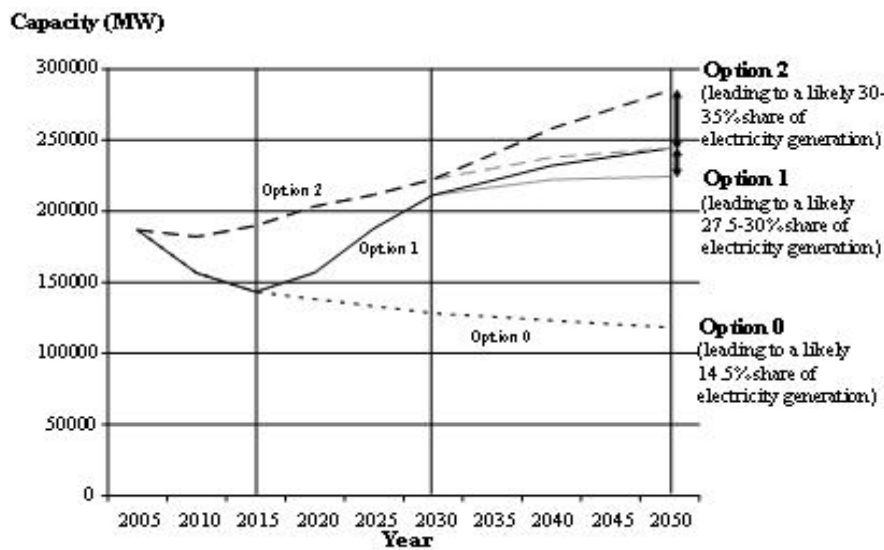
Source: European Commission DG TREN, AAE

2.14. EU-27 Overview of Operational and Shutdown Nuclear Power Plants



Source: European Commission DG TREN, PRIS

2.15. Anticipated effects on Capacity of Coal-Fired Power Plants 2005-2050



Note:

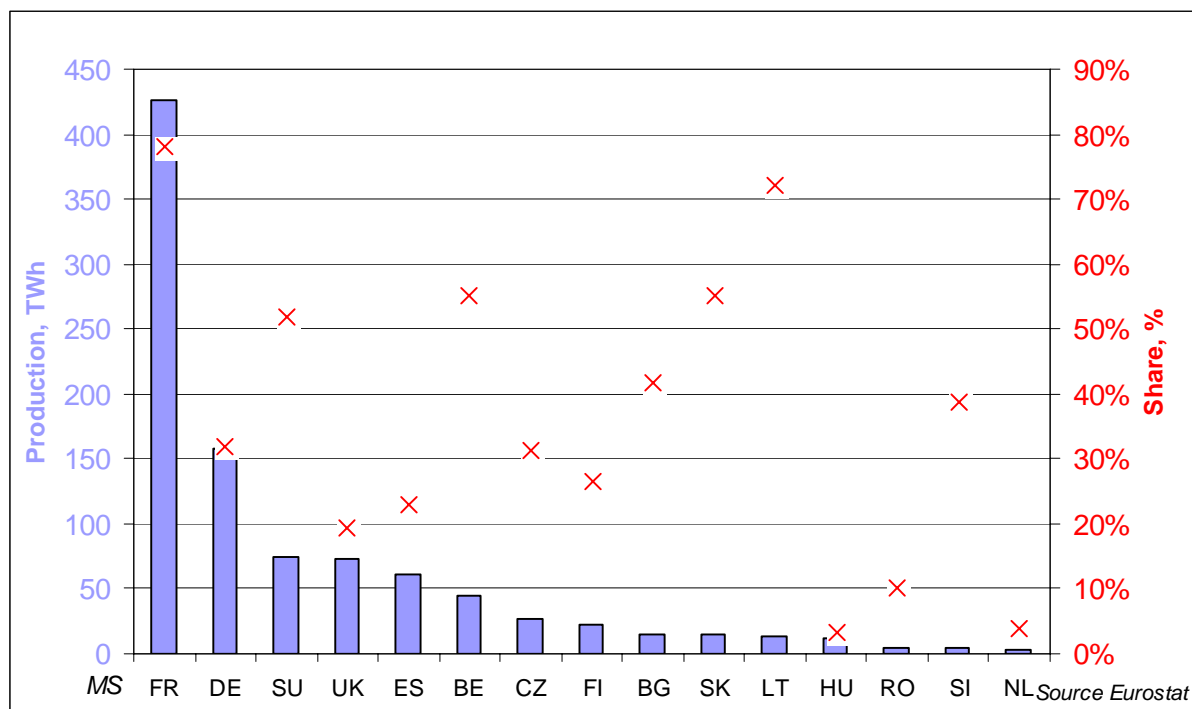
Option 0: No policy Change,

Option 1: Removal of Barriers to Sustainable Coal Technologies,

Option 2: Pro-active Introduction of Incentives for the Penetration of Sustainable Coal Technologies

Source: European Commission DG TREN

2.16. Nuclear Share in Power Generation in the Member States



The asterisks indicate to whether a nuclear plant is being constructed in that country or whether a project for a new plant is already in preparation or finally a decision on new build may be possible in future.

(1)* 1 Unit under construction

(3)***

Project(s) under decision

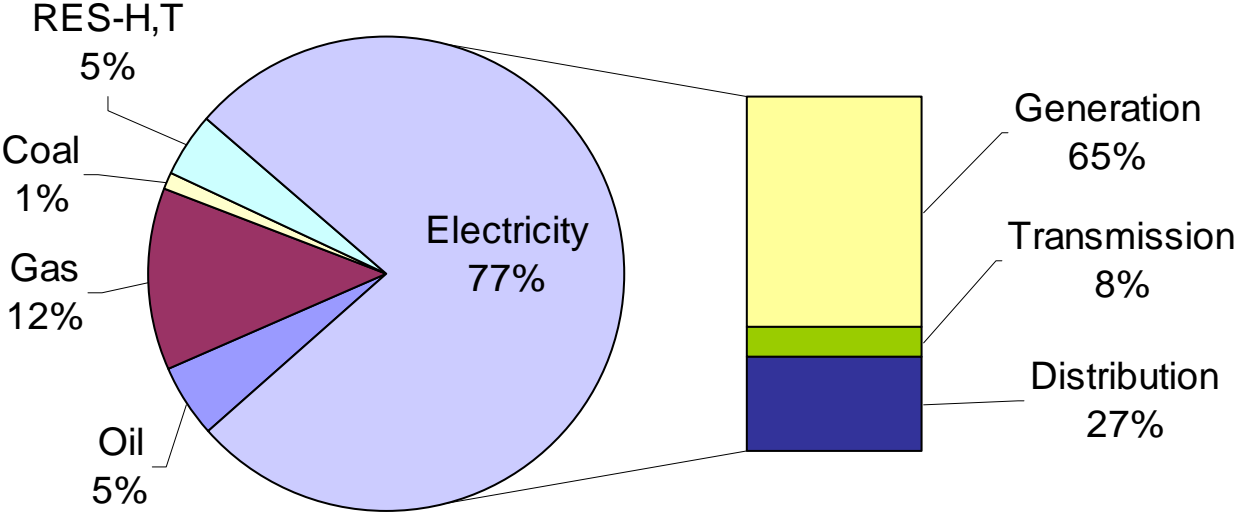
(2)** Project(s) in preparation

2.17. EU-27 Cumulative Energy Investment Needs up to 2030 (Baseline Scenario)

Investment		(billion EUR)	Share
Oil (development, exploration, refining)		90	5.1%
Gas (exploration and development, distribution)		221	12.3%
Coal (mining, shipping)		24	1.3%
Renewables (heating and biofuels)		78	4.4%
Electricity: total investment		1 377	76.9%
Of which: Generation	Total	897	50%
	<i>Gas</i>	<i>148</i>	<i>8.3%</i>
	<i>Oil</i>	<i>19</i>	<i>1%</i>
	<i>Coal</i>	<i>261</i>	<i>14.6%</i>
	<i>RES</i>	<i>327</i>	<i>18.3%</i>
	<i>Nuclear</i>	<i>141</i>	<i>7.9%</i>
Of which: Transmission		116	6.5%
Of which: Distribution		364	20.3%
Total Energy Investment		1 790	100%

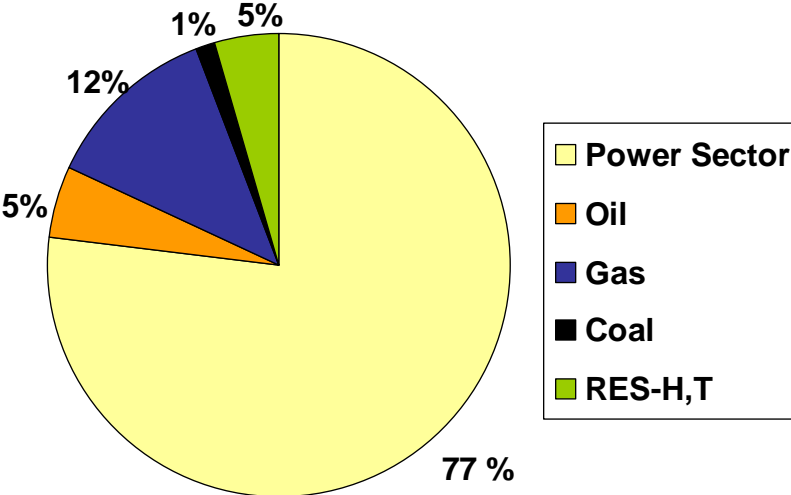
Source: European Commission DG TREN

2.18. EU-27 Cumulative Investments in Energy by Electricity Supply Infrastructure (2005-2030)



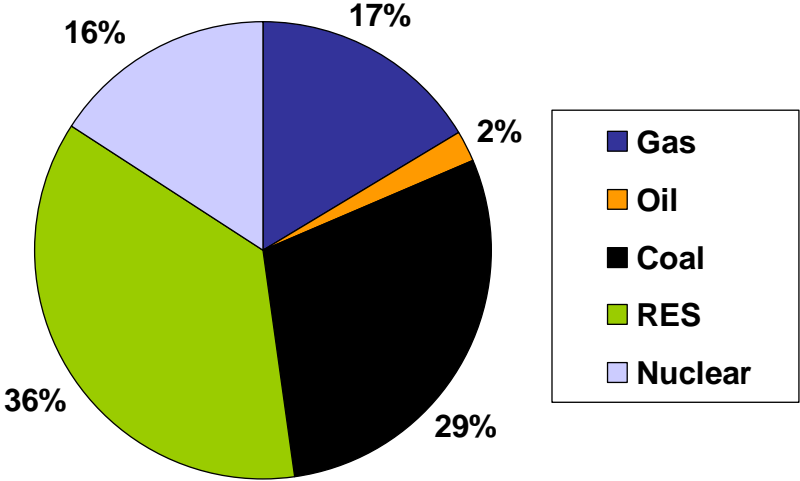
Source: European Commission DG TREN

2.19. EU-27 Cumulative Energy Investments (2005-2030): €1 800 billion



Source: European Commission DG TREN

2.20. EU-27 Cumulative Electricity Investments (2005-2030): €00 billion



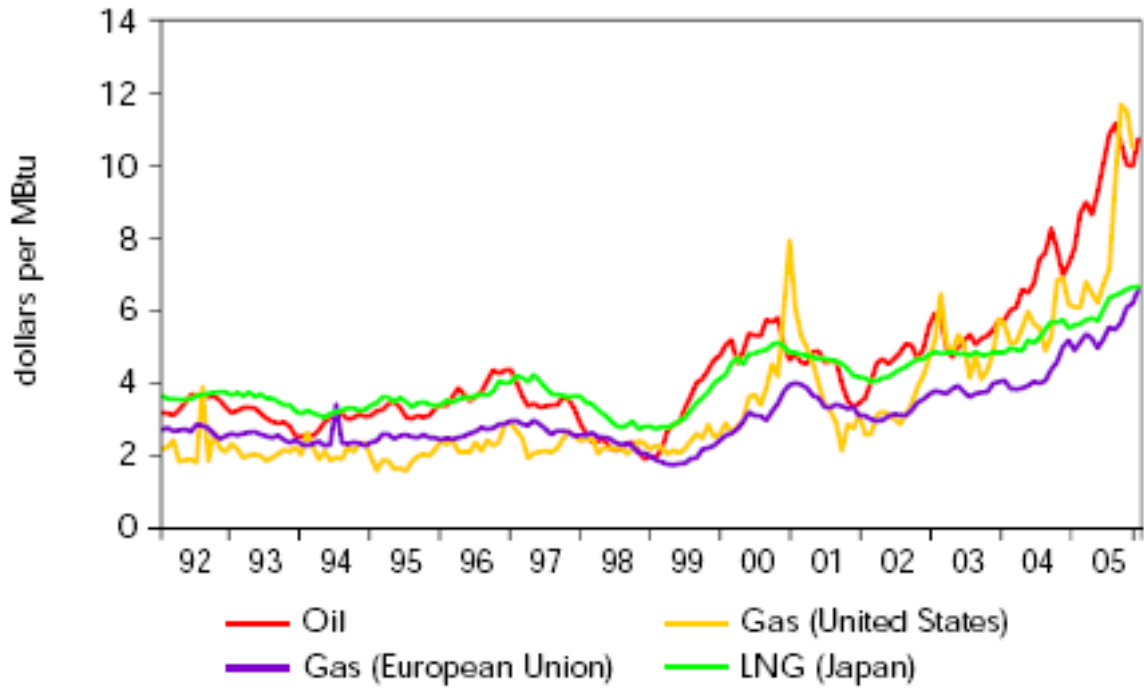
Source: European Commission DG TREN

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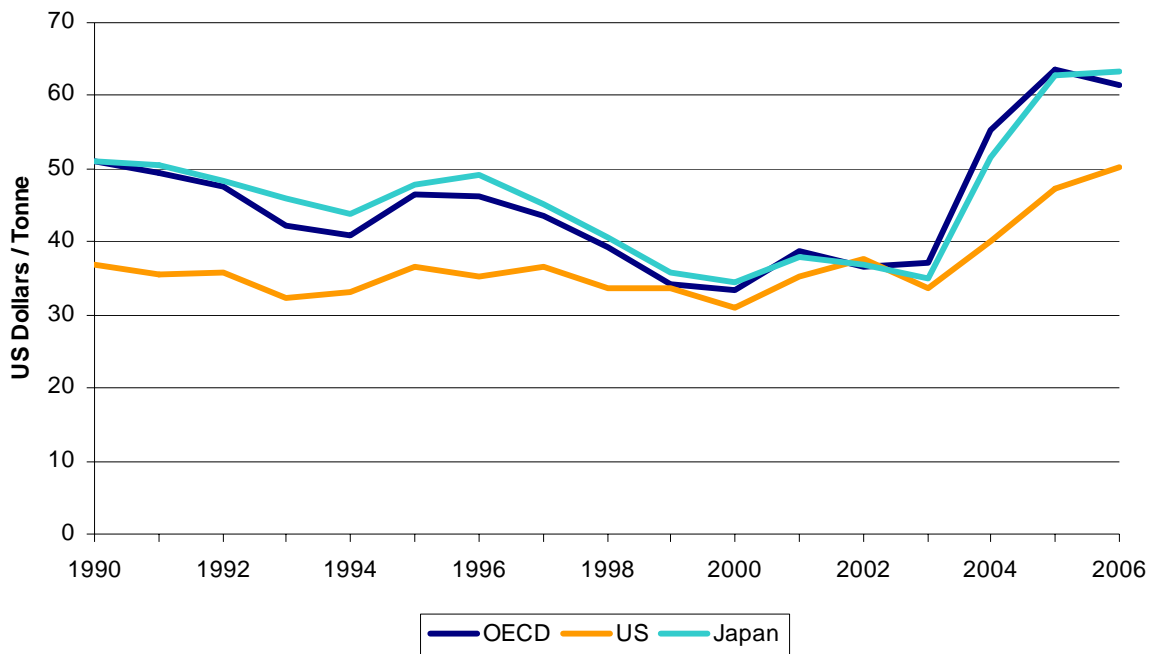
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3.1. Average Crude Oil and Natural Gas Import Prices



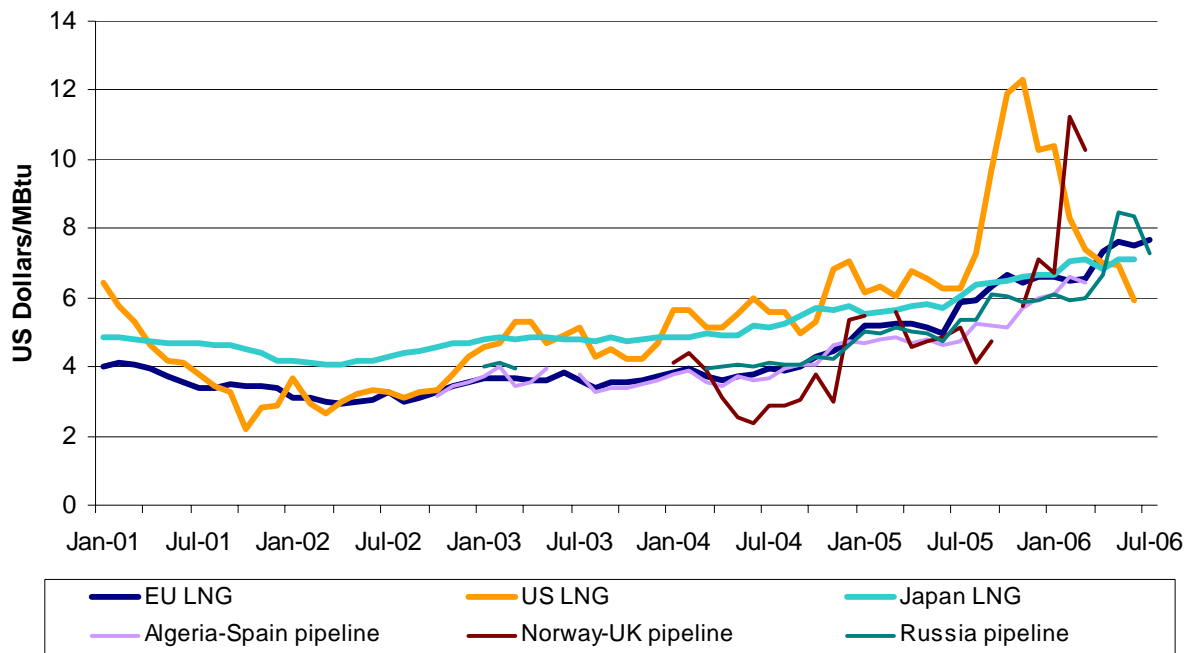
Source: WEO 2006 ©OECD/IEA 2006

3.2. Coal Import Prices



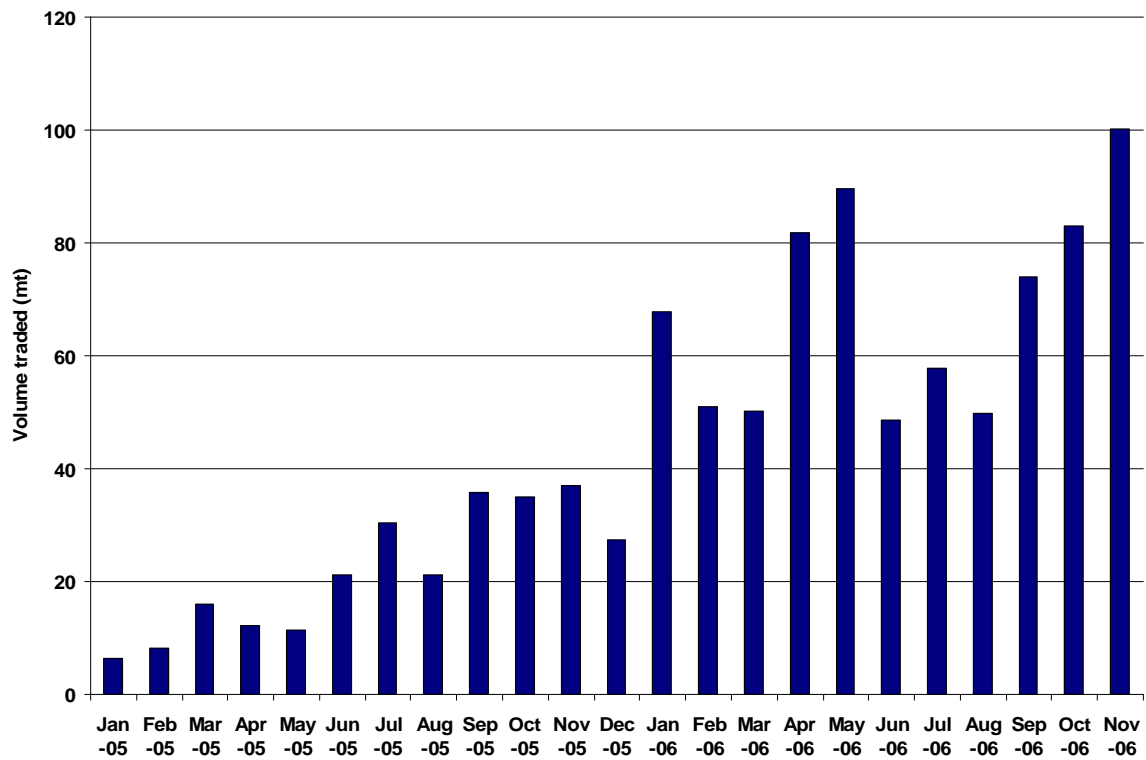
Source: Electricity Prices and Taxes 3Q2006, OECD/IEA 2006

3.3. EU, US and Japan LNG and EU Pipeline Import Prices



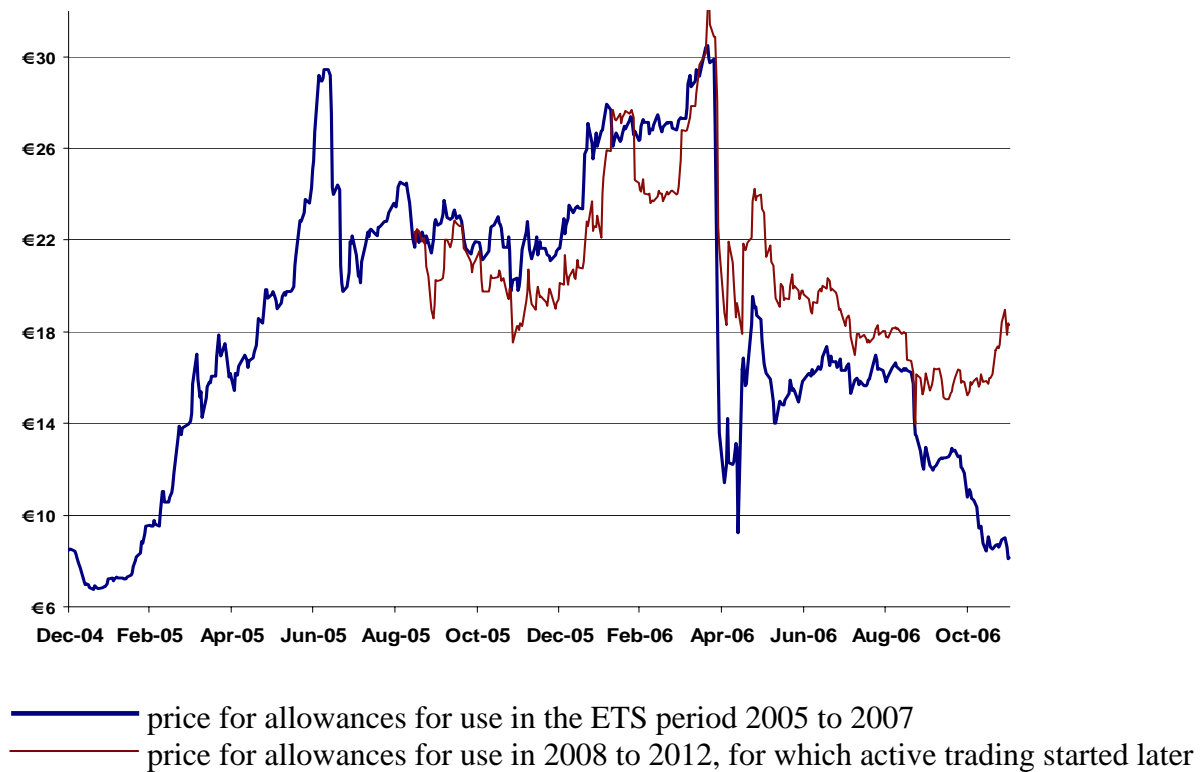
Source: Electricity Prices and Taxes 3Q2006, OECD/IEA 2006

3.4. EU Emission Trading Scheme: Market Volume



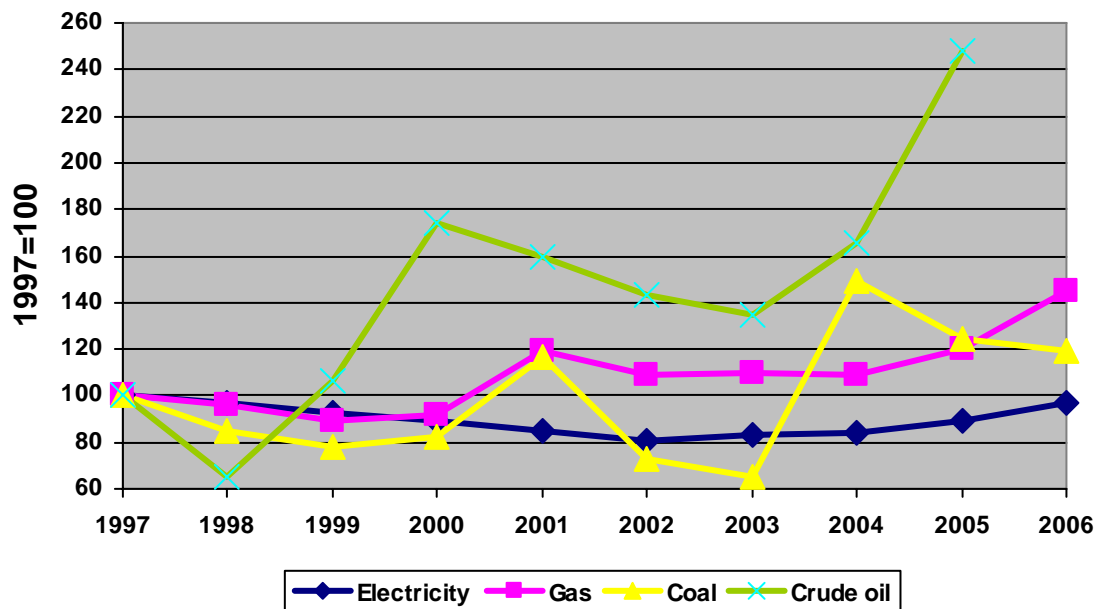
Source: European Commission DG ENV, Point Carbon

3.5. EU Emission Trading Scheme: Price Development



Source: European Commission, DG ENV, Point Carbon

3.6. EU-15 Average Electricity and Gas Retail Prices 1997-2006



Weighted average of large industrial, industrial, commercial and household prices (at 1995 price levels and not including taxes).

Source: European Commission DG TREN, Internal Market Report

3.7. EU-15 Electricity Price Summary 1997-2006

1997 = 100, constant prices	July 1997	July 2000	July 2005	July 2006
Average (all consumers)	100	86	89	98
Very large	100	83	96	121
Medium industrial	100	82	94	107
Small commercial and households	100	88	86	91

Source: Eurostat

3.8. EU-15 Gas Price Summary 1997-2006

1997 = 100, constant prices	July 1997	July 2000	July 2005	July 2006
Average (all consumers)	100	92	120	153
Very large industrial users	100	98	133	201
Large industrial users	100	93	135	186
Medium industrial users	100	95	138	206
Small commercial and households	100	91	114	146

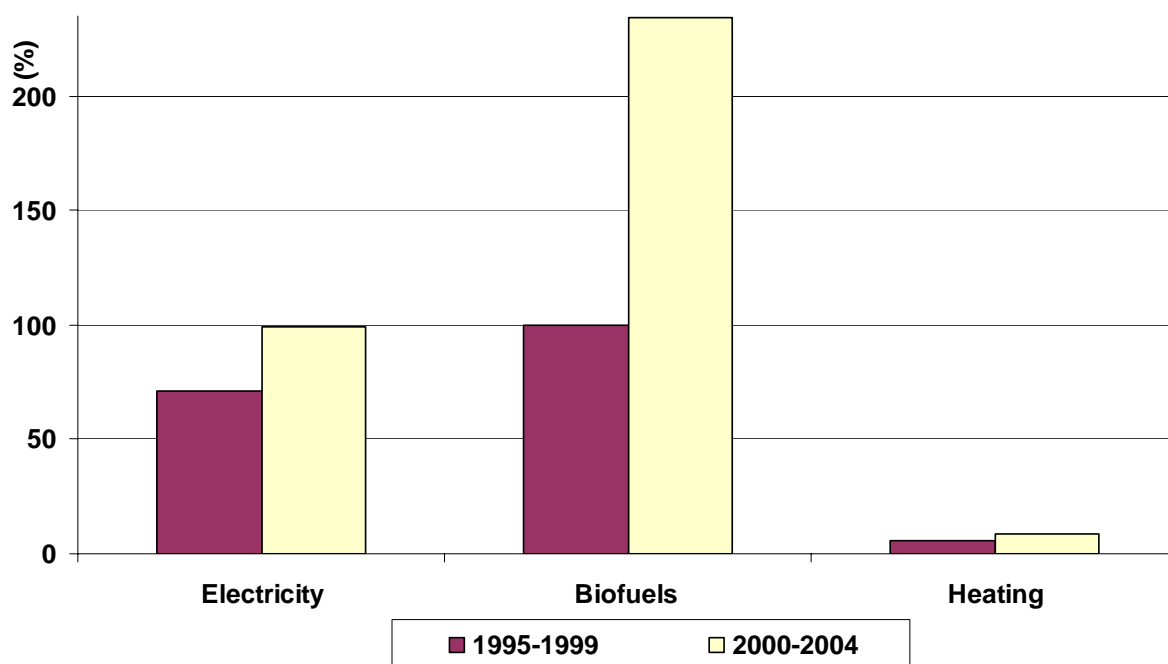
Source: Eurostat

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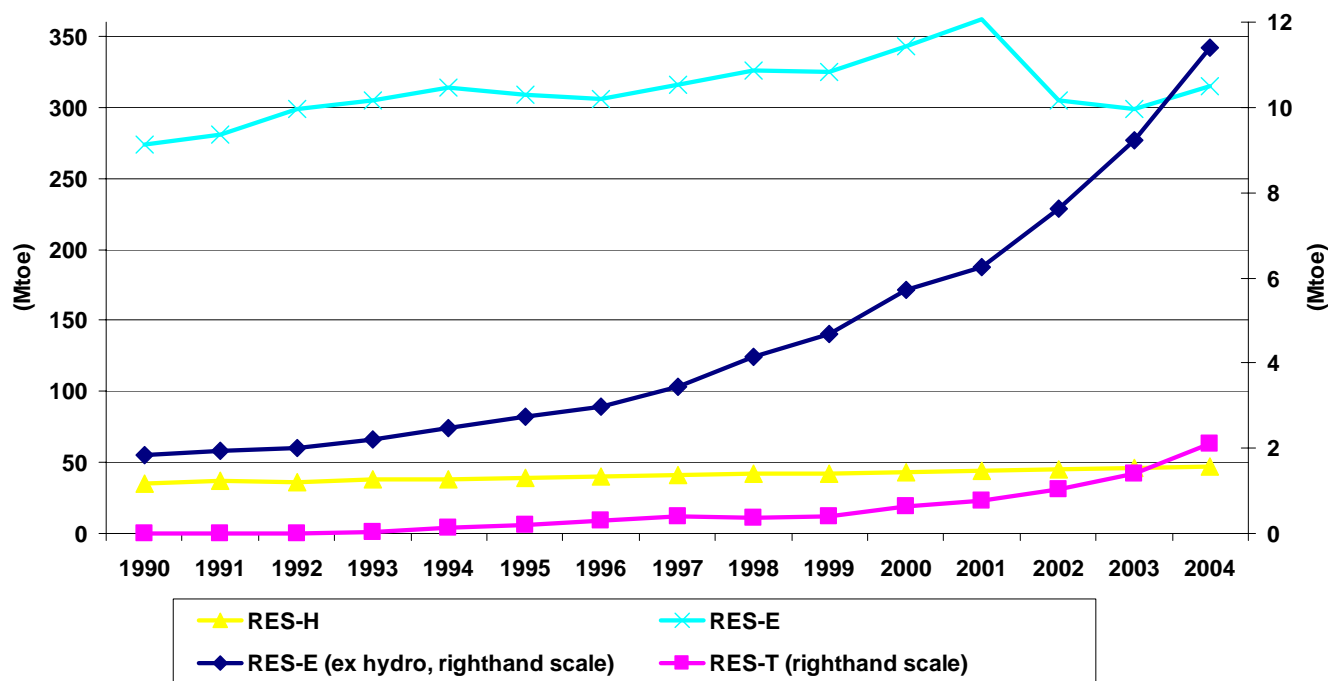
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4.1..... Development of the Share of Renewable Energy Sources (RES) per Sector



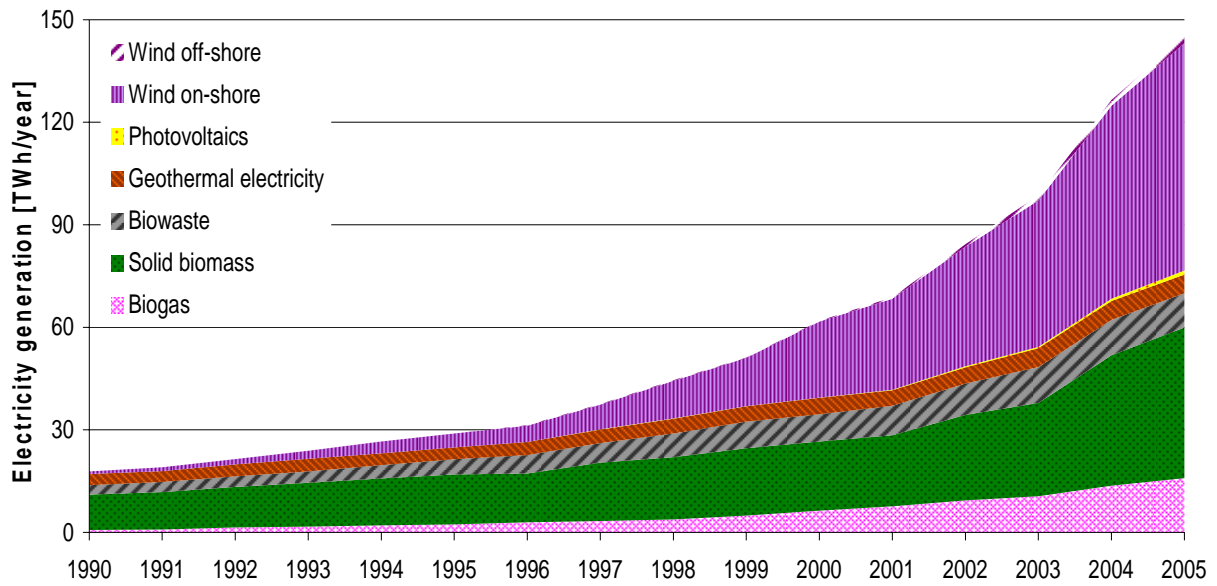
Source: European Commission DG TREN

4.1. Contribution of Renewable Energy (Electricity, Transport and Heat) 1990-2004



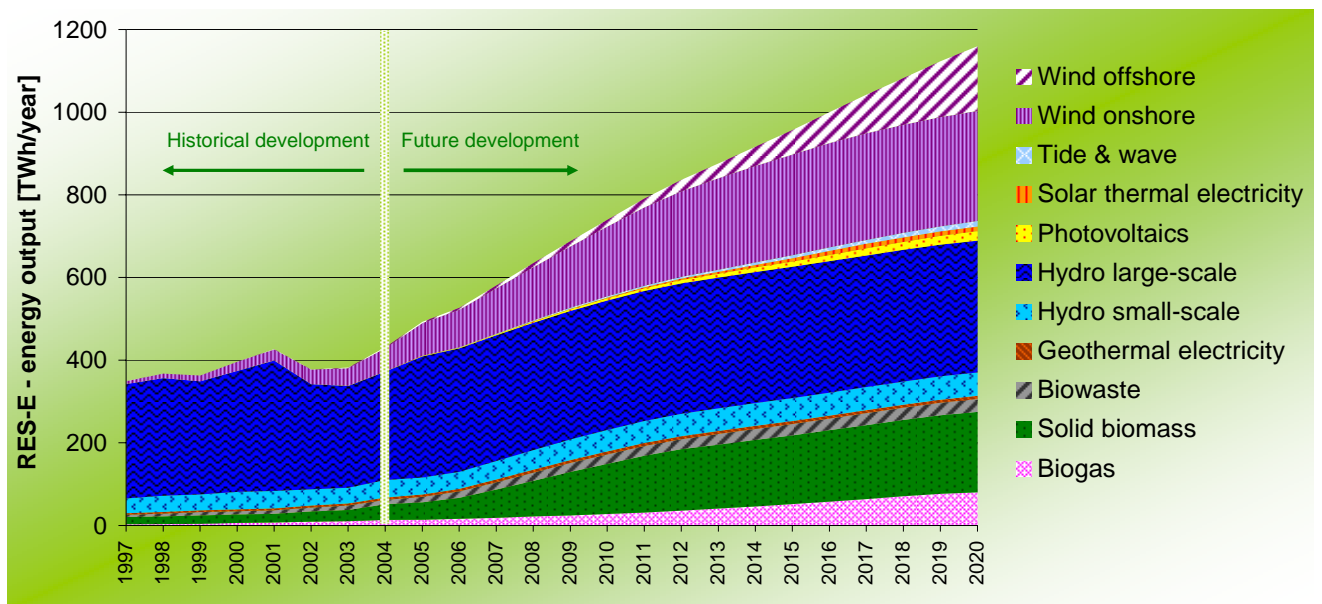
Source: European Commission, DG TREN

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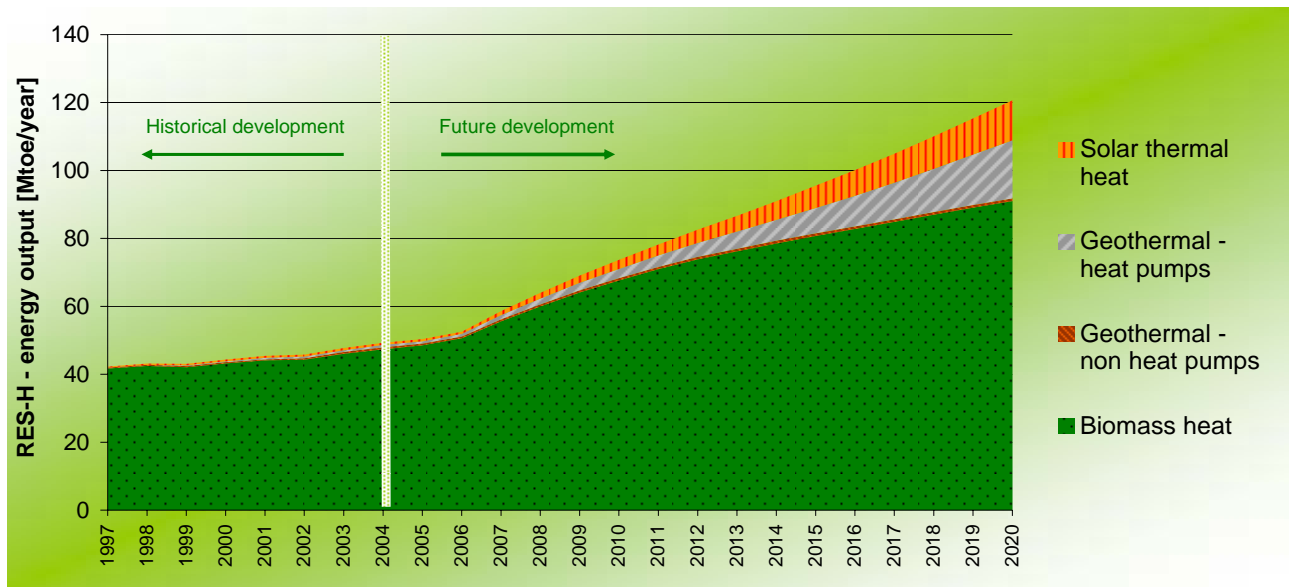
Source: European Commission, Renewables Roadmap

4.3. Renewables Growth: Electricity Projections up to 2020



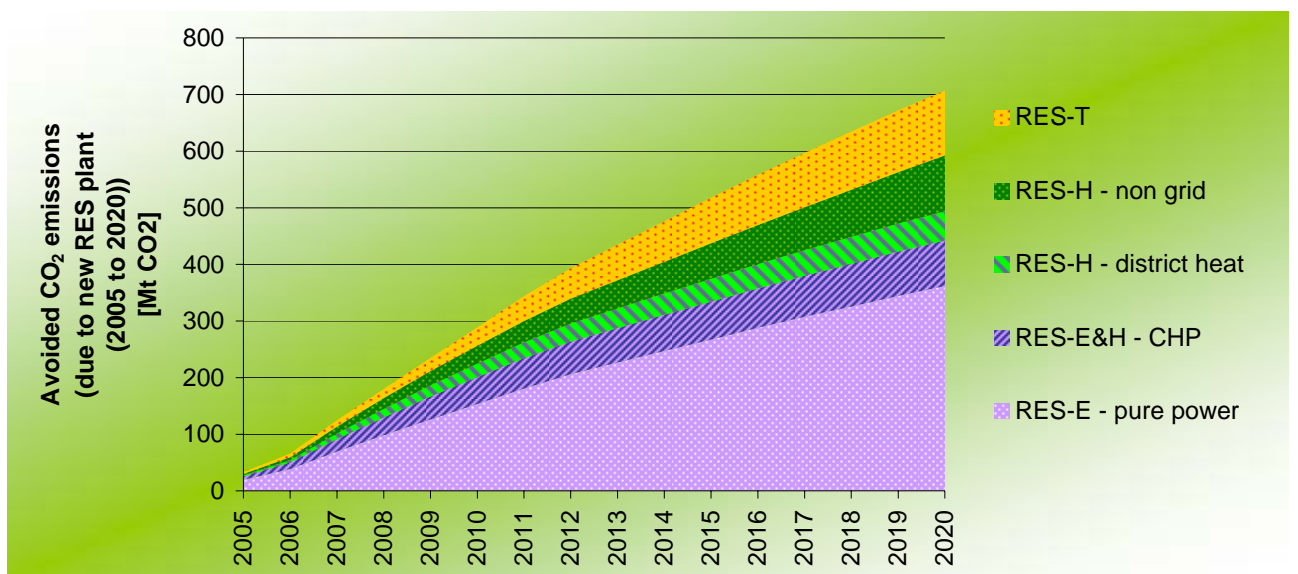
Source: European Commission, Renewables Roadmap

4.4. Renewables Growth: Heating and Cooling Projections up to 2020



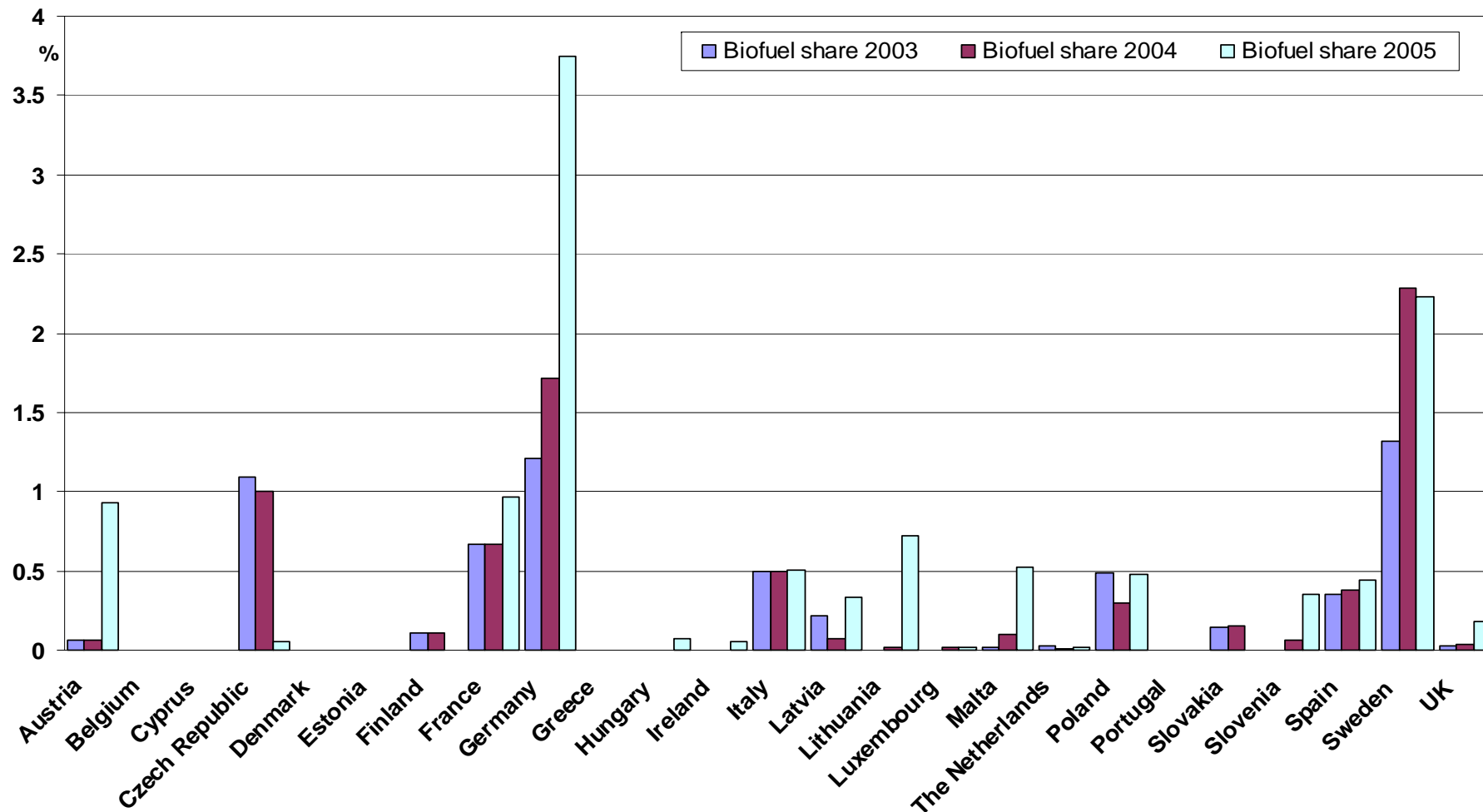
Source: European Commission, Renewables Roadmap

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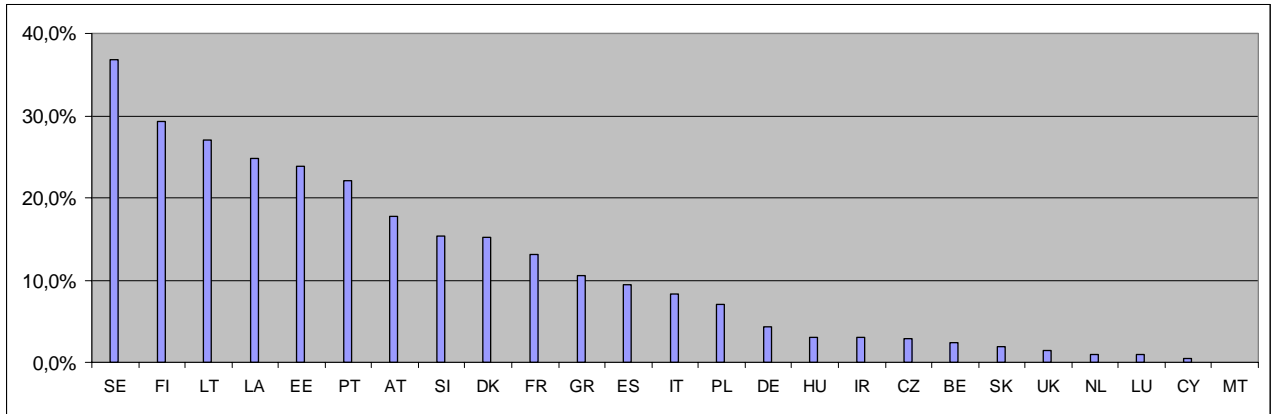
Source: European Commission, Renewables Roadmap

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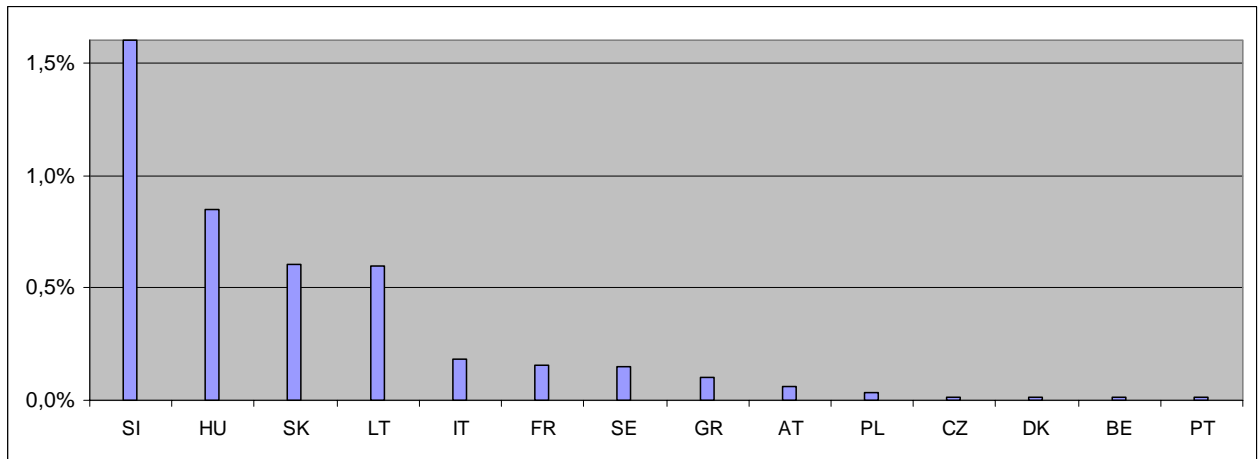
Source: European Commission DG TREN, Biofuels Progress Reports provided by Member States

4.7. Biomass Share of Heating in Member States



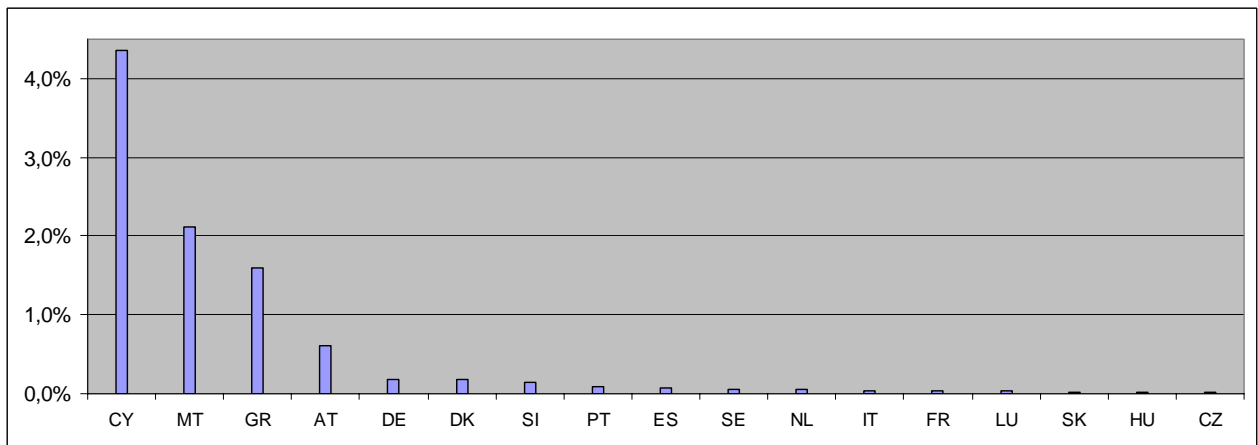
Source: Eurostat, European Commission DG TREN

4.8. Geothermal Share of Heating in Member States



Source: Eurostat, European Commission DG TREN

4.9. Solar Share of Heating in Member States



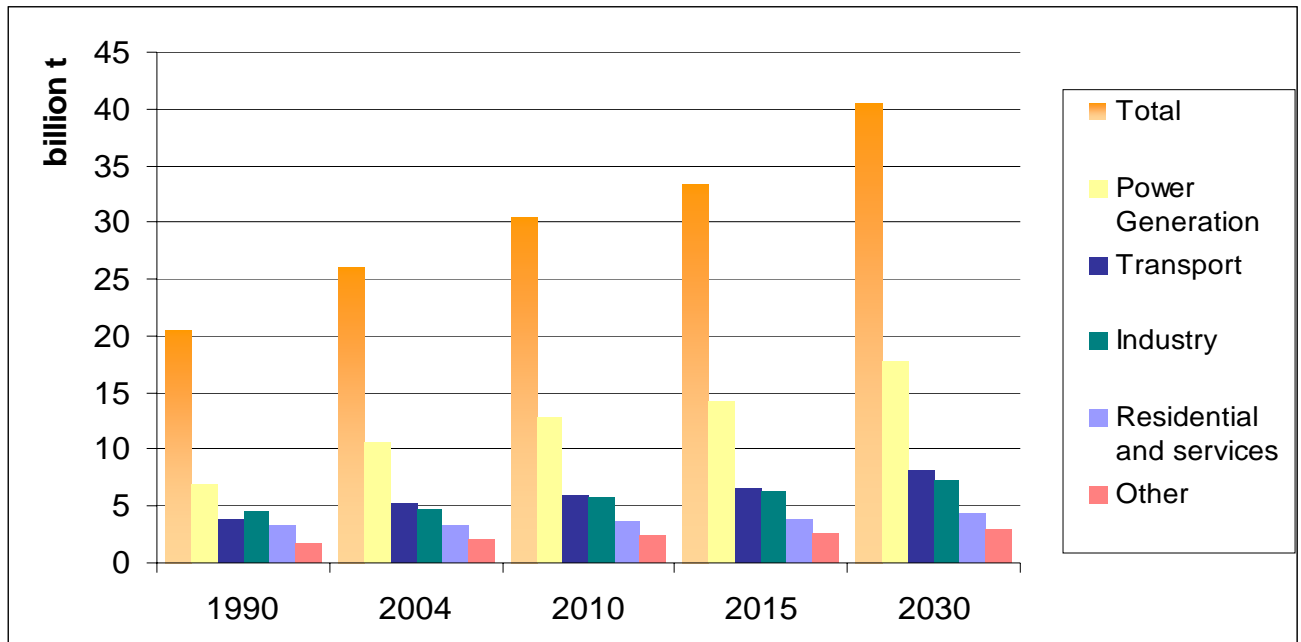
Source: Eurostat, European Commission DG TREN

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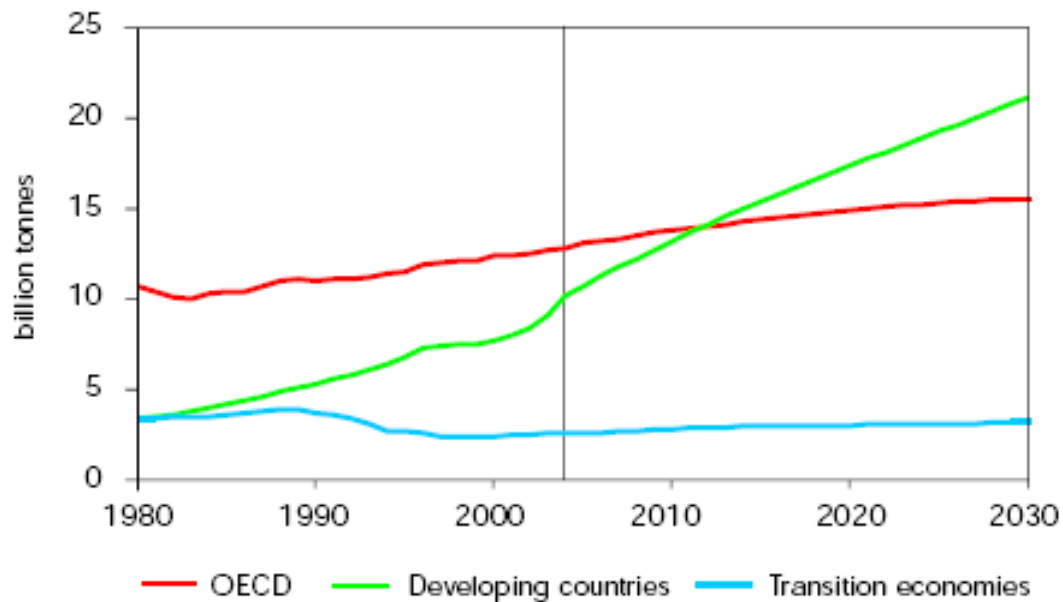
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5.1. World Energy-related CO₂ Emissions by Sector (IEA Reference Scenario)



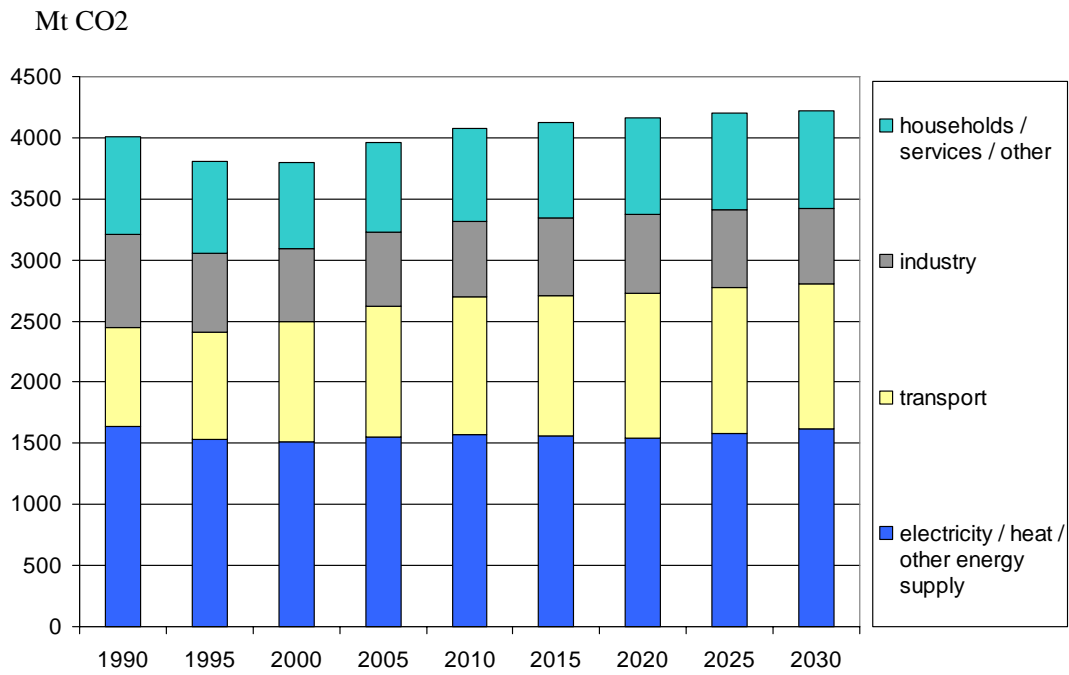
Source: WEO 2006 ©OECD/IEA 2006

5.2. Energy-related CO₂ Emissions by Region (IEA Reference Scenario)



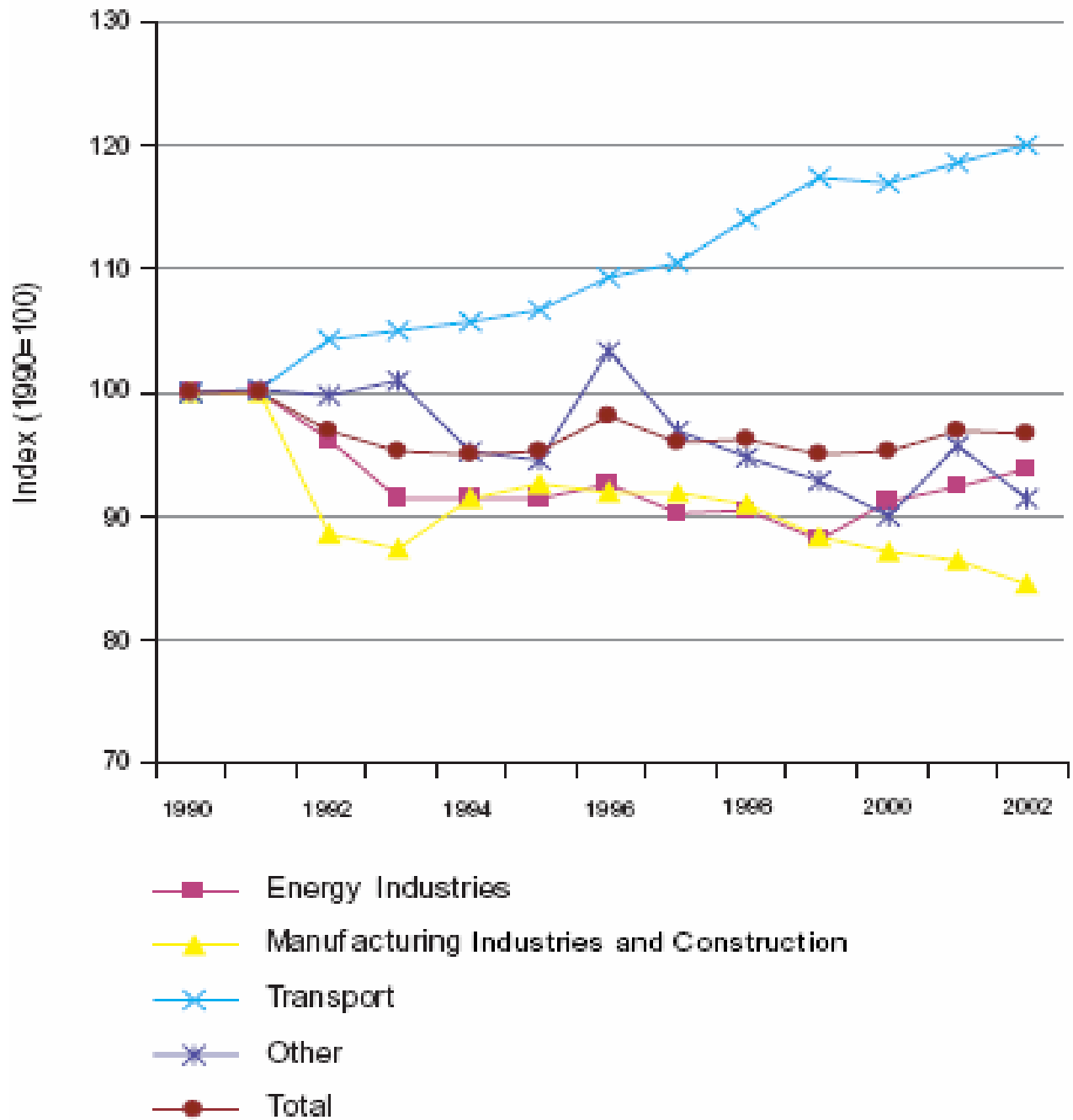
Source: WEO 2006 ©OECD/IEA 2006

5.3. EU-27 Energy- related CO₂ Emissions on Current Trends



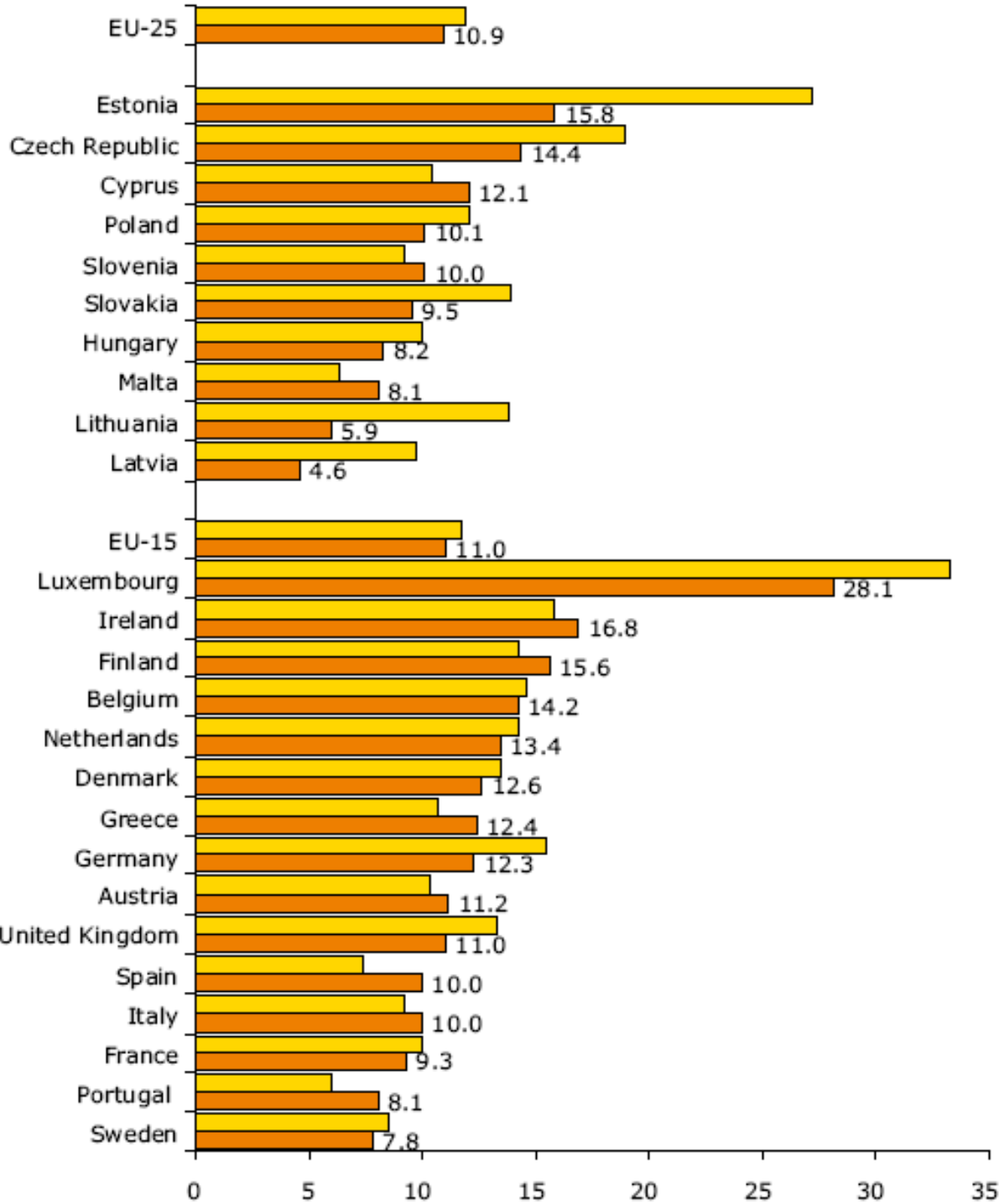
Source: European Commission DG TREN, Eurostat

5.4. EU-25 Total Emissions of Greenhouse Gases from Fuel Combustion by Sector



Source: Eurostat

5.5. EU-25 Greenhouse Gas Emissions per Capita (1990-2004)



1990 █
 2004 █

Source: EEA Report No 9/2006

5.6. Summary of Planned Measures and Progress towards Targets (by Country)

Country	EU burden sharing or Kyoto target	Measures with quantified 2010 reductions projections				Kyoto target projected to be reached?
		Existing policies and measures	Additional policies and measures	Use of Kyoto mechanisms	Net removal from carbon sinks ⁽¹¹⁾	
EU-15	- 8.0 %	X	X	X	X	Yes
EU-15 Member States						
Austria	- 13.0 %	X	X	X	X	No
Belgium	- 7.5 %	X	X	X		No
Denmark	- 21.0 %	X	NA	X	X	No
Finland	0 %	X	X	X		Yes
France	0 %	X	X		X	Yes
Germany	- 21.0 %	X	X			Yes
Greece	+ 25.0 %	X	X			Yes
Ireland	+ 13.0 %	X	NA	X	X	No
Italy	- 6.5 %	X	X	X	X	No
Luxembourg	- 28.0 %	X		X		Yes
Netherlands	- 6.0 %	X	X	X	X	Yes
Portugal	+ 27.0 %	X	X	X	X	No
Spain	+ 15.0 %	X	NA	X	X	No
Sweden	+ 4.0 %	X			X	Yes
United Kingdom	- 12.5 %	X	X		X	Yes
New Member States						
Czech Republic	- 8.0 %	X	X		X	Yes
Cyprus	NR	NR	NR	NR	NR	NR
Estonia	- 8.0 %	X	X			Yes
Hungary	- 6.0 %	X	X			Yes
Latvia	- 8.0 %	X	X			Yes
Lithuania	- 8.0 %	X				Yes
Malta	NR	NR	NR	NR	NR	NR
Poland	- 6.0 %	X				Yes
Slovenia	- 8.0 %	X	X		X	Yes
Slovakia	- 8.0 %	X	X			Yes
Acceding countries ⁽¹²⁾						
Bulgaria	- 8.0 %	X	X			Yes
Romania	- 8.0 %	X	X			Yes
Croatia	- 5.0 %	NA	NA			NA
Turkey	NR	NR	NR			NR
Other EEA member countries						
Iceland	+ 10.0%	X	NA			Yes
Liechtenstein	- 8.0 %	X	NA			No
Norway	+ 1.0 %	X	X			No
Switzerland	- 8.0 %	X	X			Yes

Note: X – reported; NA – no information was available; NR – not relevant since no Kyoto target

Source: EEA Report No 9/2006

5.7. EU-25 Key Figures on the Emission Trading Scheme 2005-2007

Member State	Number of installations covered ⁽¹⁾	CO ₂ allowances per year of the period 2005 to 2007 ⁽²⁾ (million allowances)	Verified emissions (million tonnes of CO ₂)	ETS share in total greenhouse gas emissions ⁽³⁾
EU-15				
Austria	199	32.6	33.4	36.6 %
Belgium	310	59.8	55.4	37.4 %
Denmark	384	31.0	26.5	38.9 %
Finland	595	44.5	33.1	40.6 %
France	1 087	150.5	131.3	23.3 %
Germany	1 850	495.0	474.0	46.7 %
Greece	140	71.1	71.3	51.8 %
Ireland	109	19.2	22.4	32.7 %
Italy	950	207.5	223.6	38.6 %
Luxembourg	15	3.2	2.6	20.5 %
Netherlands	210	86.4	80.4	36.9 %
Portugal	244	36.8	36.4	43.1 %
Spain	825	162.1	182.9	42.9 %
Sweden	705	22.5	19.3	27.8 %
United Kingdom	775 ⁽⁴⁾	209.3	242.5	36.8 %
EU-10				
Cyprus	13	5.6	5.1	57.3 %
Czech Republic	395	96.6	82.5	56.1 %
Estonia	44	18.7	12.6	59.3 %
Hungary	234	30.2	26.0	31.3 %
Latvia	94	4.0	2.9	26.7 %
Lithuania	99	11.4	6.6	32.5 %
Malta	2	2.1	n.a. ⁽⁵⁾	65.6 %
Poland	1 088	239.1	200.8 ⁽⁶⁾	52.0 %
Slovakia	175	30.3	25.2	49.5 %
Slovenia	98	8.6	8.7	43.4 %

- Notes:** (1) Exact numbers vary slightly continuously due to closures and new entrants. The number of installations and verified emissions are taken from the CITL as of 5 September 2006. In Poland, Malta and Cyprus the registry is either not yet functional or only few operators have opened an account. For these countries the final allocation decision was used as data source.
- (2) The average amount of CO₂ allowances 2005–2007 excludes the national new entrants reserves and takes into account temporary exclusion and opt-ins of installations in accordance with Articles 24 and 27 of the Emissions Trading Directive.
- (3) The ETS share is calculated as verified emissions in 2005 divided by 2004 national greenhouse gas emissions.
- (4) The number of covered installations will be higher in 2007, as some installations were only opted out for 2005 and 2006.
- (5) Malta has not yet submitted its verified emissions. For the calculation of the share the total national allocation has been used. For Member States where verified emissions for more than 1 % of allocated allowances are missing the emissions for the outstanding installations have been estimated for the calculation of the share.
- (6) This figure comprises verified emissions of 793 installations. For a further 295 installations, which receive an annual average allocation of 3,284,285 allowances no verified emission figures were available at the time of writing this report.

Source: Community Independent Transaction Log (CITL); first national allocations plans of Member States; EC 2005e.

Source: EEA Report No 9/2006

6. CHAPTER 6: COMPARISON OF MAIN ENERGY SOURCES

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6.1. Energy Sources for Electricity Generation

Energy sources	Technology considered for the cost estimate	2005 Cost (€/ MWh)	Projected Cost 2030 (€/ MWh with €20-30/t/CO ₂)	GHG emissions (Kg CO ₂ eq/MWh) ⁽⁴⁾	EU-27 Import dependency ⁽⁵⁾		Efficiency ⁽⁶⁾	Fuel price sensitivity	Proven reserves / Annual production ⁽⁷⁾
		Source IEA ⁽¹⁾			2005	2030			
Natural gas	Open cycle gas turbine	45 – 70 ⁽²⁾	55 - 85	440	57%	84%	40%	Very high	64 years
	CCGT (Combined Cycle Gas Turbine)	35 - 45	40 - 55	400			50%	Very high	
Oil	Diesel engine	70 - 80	80 - 95	550	82%	93%	30%	Very high	42 years
Coal	PF (Pulverised Fuel with flue gas desulphurisation)	30 - 40	45 - 60	800	39%	59%	40-45%	medium	155 years
	CFBC (Circulating fluidized bed combustion)	35 - 45	50 - 65	800			40-45%	medium	
	IGCC (Integrated Gasification Combined Cycle)	40 - 50	55 - 70	750			48%	medium	
Nuclear	Light water reactor	40 - 45	40 - 45	15	Almost 100% for uranium ore		33%	low	Reasonable reserves: 85 years ⁽⁸⁾
Biomass	Biomass generation plant	25 - 85	25 - 75	30	nil		30 - 60%	medium	Renewable
Wind	On shore	35 - 175	28 - 170	30			95-98%	nil	
		35 – 110 ⁽³⁾	28 – 80 ⁽³⁾				95-98%		
Wind	Off shore	50 - 170	50 - 150	10			95-98%		
		60 – 150 ⁽³⁾	40 – 120 ⁽³⁾				95-98%		
Hydro	Large	25 - 95	25 - 90	20	95-98%				
	Small (<10MW)	45 - 90	40 - 80	39 5	95-98%				
Solar	Photovoltaic	140 - 430	55 -260	100	/				

Nota 1:

Costs are calculated at the boundary of the power plant (ex factory), without transmission and distribution costs.

Costs cover investments, operation & maintenance and fuel costs. Investment costs include construction cost, refurbishment costs and decommissioning cost. For nuclear fuel, costs include all the steps from mining to disposal of spent fuel.

Plants are operating on base load conditions with 2006 fuel prices (coal ~ 2€/GJ; gas ~ 4€/GJ; oil ~ 6€/GJ), no cogeneration and no carbon price included. 2030 costs with CCS include capture, transportation and storage.

Intermittent energy sources are without any additional costs for the stand-by generation (back up)

Sources for generation costs:

2005 costs: IEA: Projected cost of generating electricity - IEA, NEA 2005 (European projects only)

2030 costs: IEA: Energy Technology Perspectives - IEA 2006

With 10% discount rate and 1€= \$1.25

Regarding 2030 costs for fossil fuel based generation; additional costs for CO₂ emissions have been calculated and added, on the basis of €20 and €30/tCO₂, to the current generation costs.

With complementary data from

- The Energy Review Report 2006 – DTI (UK)
- The cost of generating electricity - Royal Academy of engineering 2004(UK)
- Study of reference costs for power generation – Industry Ministry; DGEMP 2004(FR)

For intermittent renewable energy sources, the main driving factor for costs calculations is the "capacity factor" (The capacity factor of a power plant is the amount of electricity that it produces over a period of time, divided by the amount of electricity it could have produced the time). The capacity factor varies widely from site to site, especially for wind power and solar power, explaining the wide range of generation costs.

Nota 2: For the open gas cycle turbine, cost figures are from the Royal academy of engineering

Nota 3: Green X Project

Nota 4: The total rate of GHG emission is the sum of the emission during operation (fuel combustion), upstream (construction, mining) and downstream (decommissioning, spent fuel) activities

Source for GHG emissions: Greenhouse gas emissions of electricity generation chains: Assessing the difference; IAEA bulletin 42/2/2000

Nota 5: Import dependency for fossil fuels relate to broad energy sources and not specific derived fuels; numbers are given for coal plus lignite, oil and natural gas rather than for e.g. diesel; import dependency 2005: preliminary statistics; 2030: baseline modelling results (European Energy and Transport Trends to 2030 – update 2005)

Nota 6: Efficiency is the ratio expressed in percent of energy output to the energy input (calorific value of fuel for thermal plants)

Nota 7: The [proven reserves / annual production] ratio represents the length of time that those proven reserves would last if the annual production were to continue at the same level

Sources: World Energy Outlook 2006 - AIE (oil, gas, coal)

Uranium 2005: Resources, Production and Demand – NEA (for uranium)

Nota 8: According to the IAE WEO 2006 "identified conventional uranium resources are sufficient for several decades of operation at current usage rates." The "Uranium 2005: resources, production and demand" published by the OECD mentions 85 years of 2004 world nuclear electricity generation with identified resources.

6.2. Energy Sources for Heating

Energy sources		EU-25 market share by energy source	Market price (€/toe)	Lifecycle cost (€/toe)	GHG emissions (t CO ₂ eq/toe)	EU-27 import dependence	
						2005	2030
Fossil fuels	Heating gas oil	20%	525 (€0.45/l)	300-1300	3.1	82%	93%
	Natural gas	33%	230 – 340 (€20-30/MWh)		2.1	57%	84%
	Coal	1.8%	70 (€100/tce)		4	39%	59%
Biomass	Wood chips	5.7%	280	545-1300	0.4	0	?
	Pellets		540	630-1300	0.4	0	?
Electricity		31%	550 - 660 (€50-60/MWh)	550 - 660	0 to 12	<1%	?
Solar		0.2%	/	680-2320	Very low	0	0
Geothermal		0.4%	/	230-1450	Very low	0	0

Data from:

- EIE Project K4 RES-H
- Green X model

6.3. Energy Sources for Road Transport

	Market price (€/toe)	CO ₂ emissions (t CO ₂ /toe) ¹	Import dependence	
			2005	2030
Petrol and diesel	398-582 ²	3.6–3.7	82%	93%
Natural gas	230–340 (NB: requires a specially adapted vehicle and a dedicated distribution system)	3.0	57%	84%
Domestic biofuel	609-742	1.9–2.4	0%	0%
Tropical bio-ethanol	327-540	0.4	100%	100%
Second-generation biofuel	898–1 109	0.3–0.9	/	15%

Source: JRC well-to-wheels report.

¹ Figures given for biofuels are those for the cheapest production techniques
² Assuming oil price of \$48/barrel and \$70/barrel respectively

7. CHAPTER 7: EU-27 AND MEMBER STATES ENERGY FACTSHEETS

Introduction:

Total primary energy supply – shows the share of energy sources in the energy mix. It is the quantity of energy consumed within the borders of a country. It is calculated using the formula: primary production + recovered products + imports + stock changes - exports - bunkers (i.e. quantities supplied to sea-going ships).

Total final consumption – (Mtoe) - is the energy finally consumed in the transport, industrial, commercial, agricultural, public and household sectors. It excludes deliveries to the energy conversion sector and to the energy industries themselves.

Electricity mix – shows the share of the various energy sources used for electricity generation.

Electricity generation – (TWh) – is the quantity of electricity consumed within the borders of a country.

Indigenous production - shows the share of energy sources extracted and used from domestic natural sources. The precise definition depends on the fuel involved.

Coal - quantities of fuels extracted or produced, calculated after any operation to remove inert matter. In general, production includes the quantities consumed by the producer during the production process (e.g. for heating or operation of equipment and auxiliaries) plus any quantities supplied to other on-site producers of energy for conversion or other uses.

Crude oil - quantities of fuels extracted or produced within national boundaries, including off-shore production. Production includes only marketable production and excludes any quantities returned to formation. Production includes all crude oil, natural gas liquids (NGL), condensates and oil from shale and tar sands, etc.

Natural gas - quantities of dry gas, measured after purification and extraction of natural gas liquids and sulphur. Production includes only marketable production, and excludes any quantities re-injected, vented and flared, and any extraction losses. Production includes all quantities used within the natural gas industry, in gas extraction, pipeline systems and processing plants.

Nuclear - quantities of heat produced in a reactor. Production is the actual heat produced or the heat calculated on the basis of the gross electricity generated and the thermal efficiency of the nuclear plant. All nuclear production is set as fully indigenous.

Renewables

Geothermal - quantities of heat extracted from geothermal fluids. Production is calculated on the basis of the difference between the enthalpy of the fluid produced in the production borehole and that of the fluid disposed of via the re-injection borehole.

Biomass/Waste - in the cases of municipal solid wastes (MSW), wood, wood wastes and other solid wastes, production is the heat produced after combustion and corresponds to the heat content (NCV) of the fuel. In the case of anaerobic digestion of wet wastes, production is the heat content (NCV) of the biogases produced. Production includes all quantities of gas consumed in the installation for the fermentation processes, and excludes all quantities of flared gases. In the case of biofuels, production is the heat content (NCV) of the fuel.

Hydro – electricity generated by hydro power plant includes small hydro. Tide, Wave, Ocean power plants are included as well, because Eurostat is using it in this way.

Wind - electricity generated by onshore and offshore wind power plants. Figures are set for the end of 2004, while there was a significant increase of new installed Wind Power Plants in 2005.

Net imports by fuels (Mtoe) – share of all energy sources imported, excluding all nuclear, which is set as indigenous by Eurostat. Net electricity imports are included.

Imports of crude oil – imported crude oil divided by countries of origin. EU-27 is counted without imports inside the EU.

Imports of natural gas - imported natural gas divided by countries of origin. EU-27 is counted without imports inside the EU.

Imports of hard coal - imported hard coal divided by countries of origin. EU-27 is counted without imports inside the EU.

Abbreviations

Mtoe – million tonnes of oil equivalent.

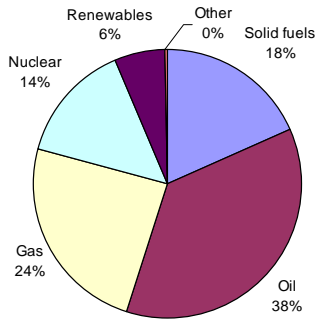
TWh – Terawatt hours.

Sources

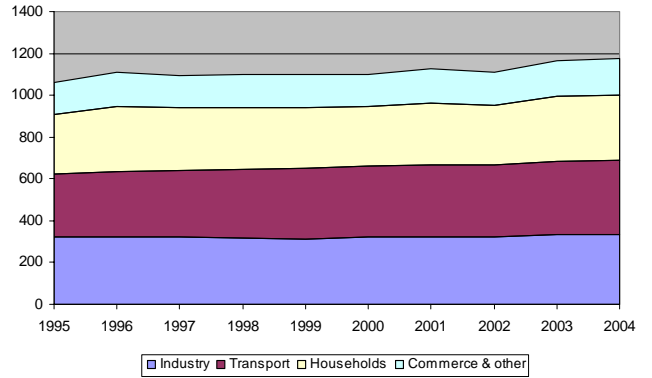
All data are 2004 data from Eurostat, unless otherwise stated.

EU-27

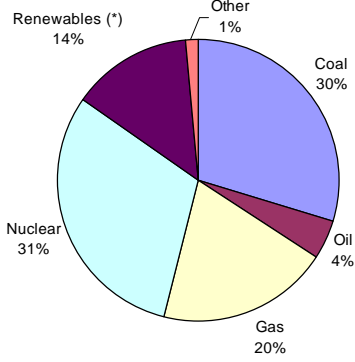
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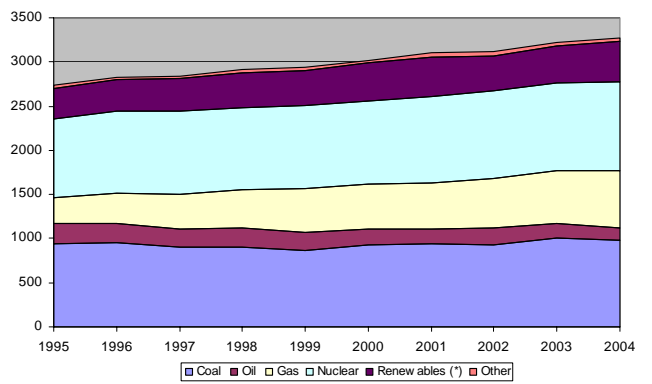
TOTAL FINAL CONSUMPTION (Mtoe)



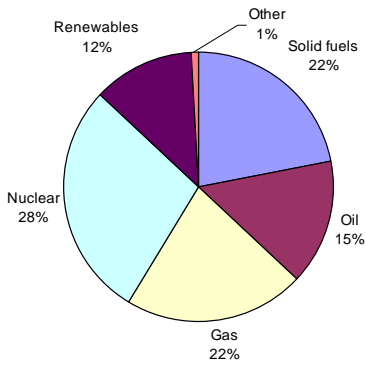
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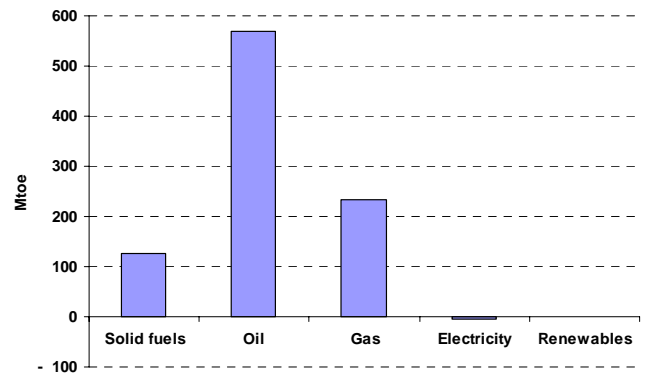
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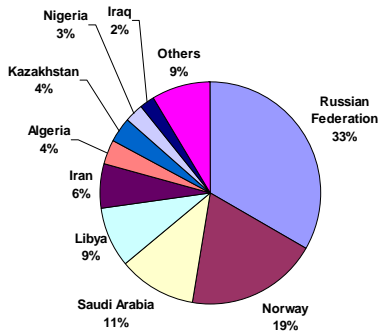
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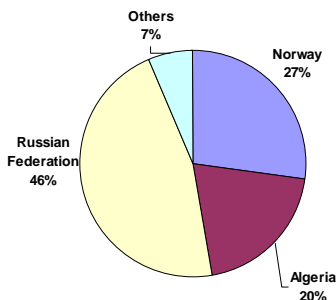
NET IMPORT BY FUELS



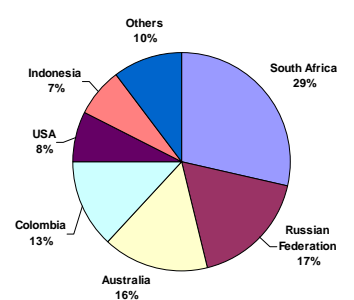
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IMPORTS OF NATURAL GAS

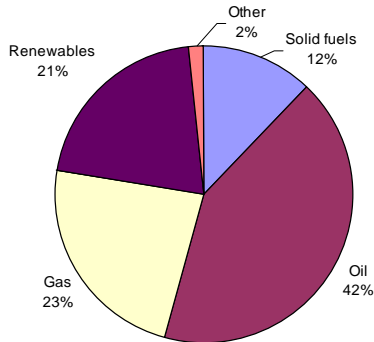


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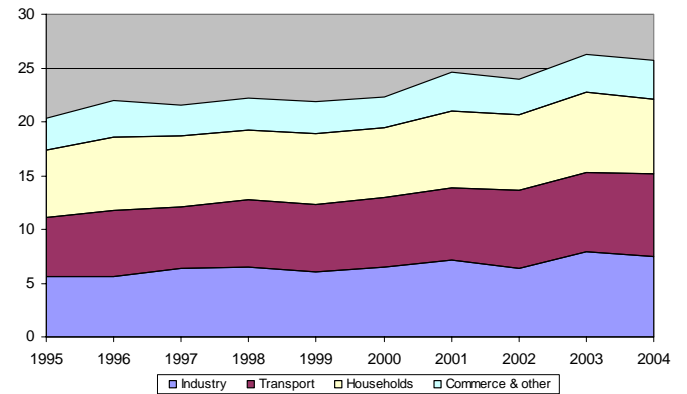


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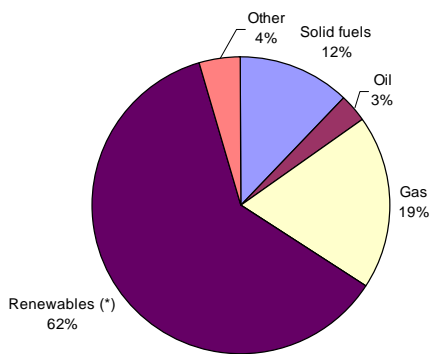
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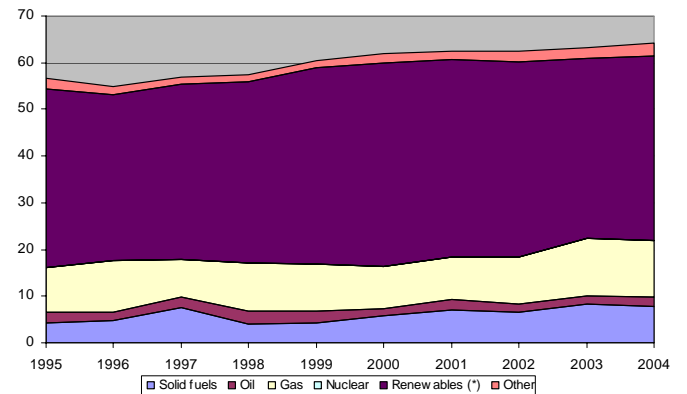
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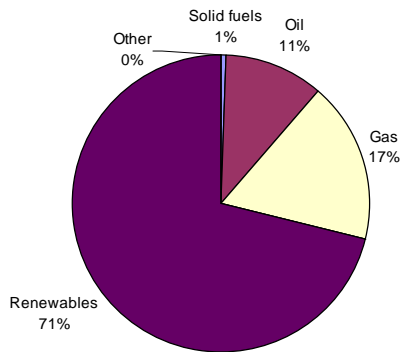
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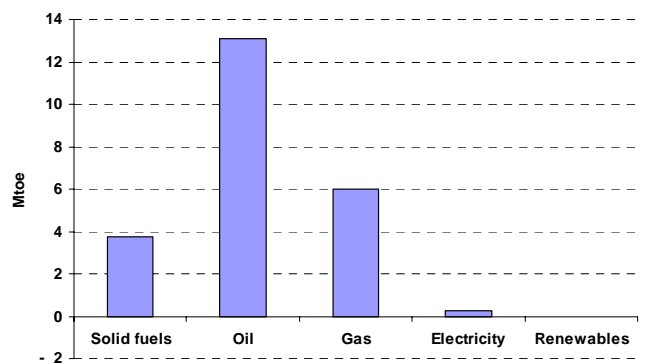
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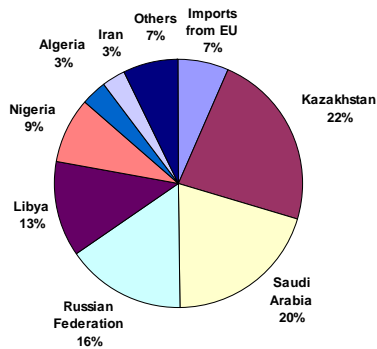
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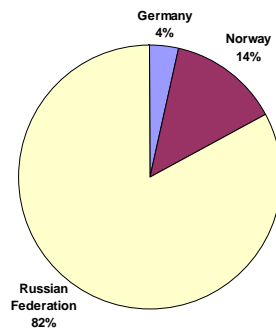
NET IMPORTS BY FUELS



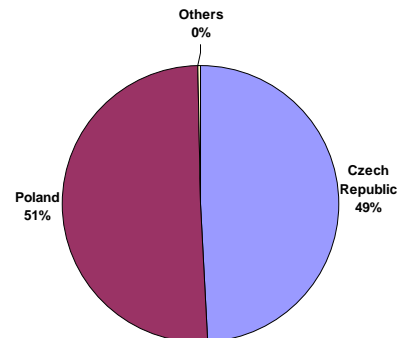
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS



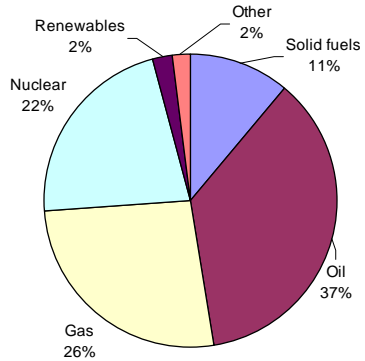
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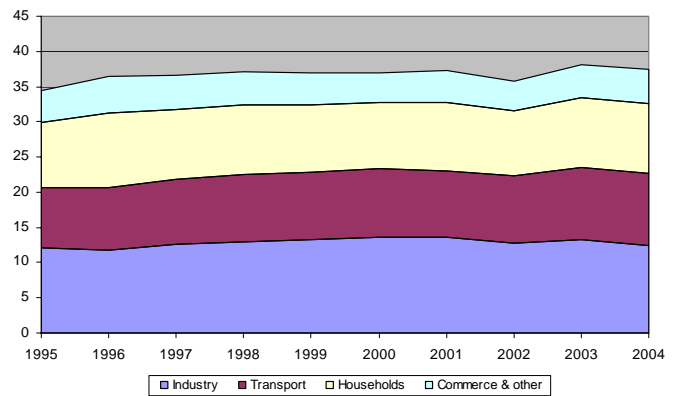
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BELGIUM

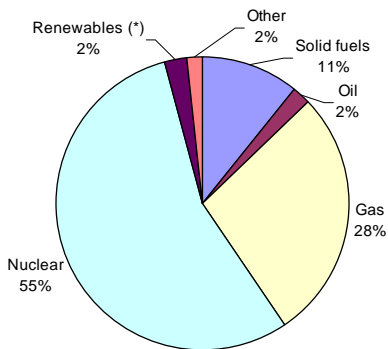
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



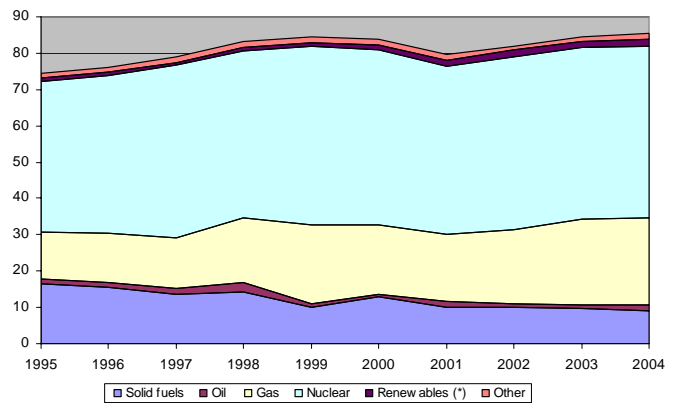
TOTAL FINAL CONSUMPTION (Mtoe)



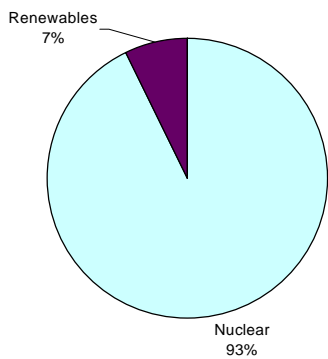
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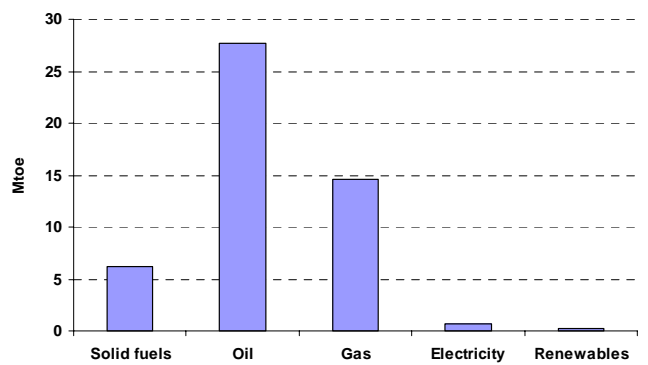
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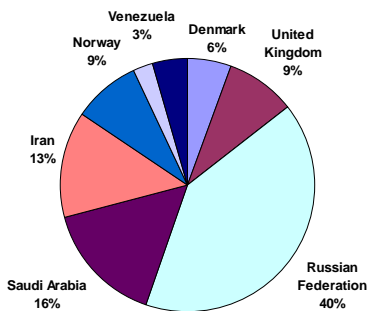
INDIGENEOUS PRODUCTION



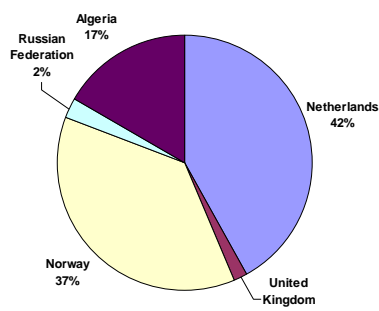
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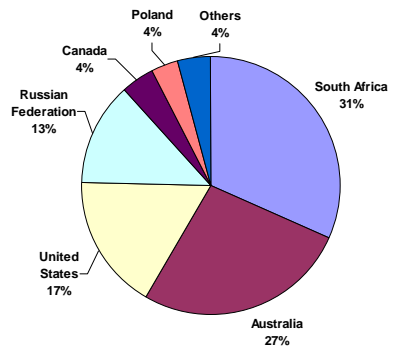
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

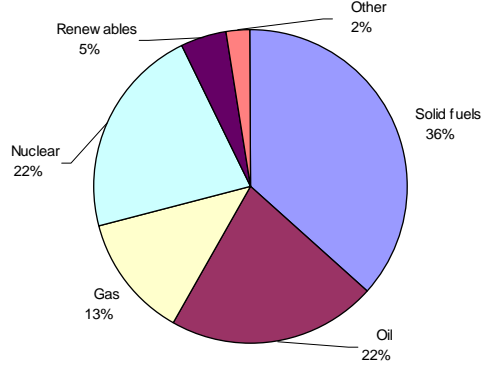


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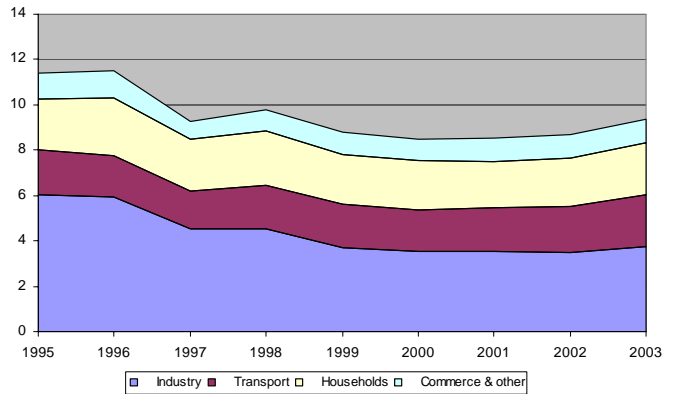


BULGARIA

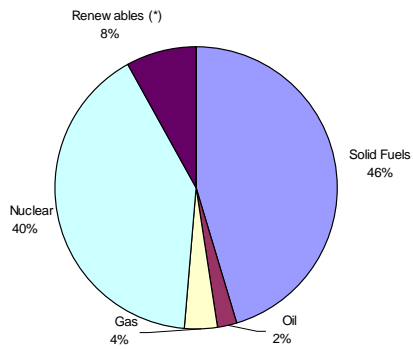
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



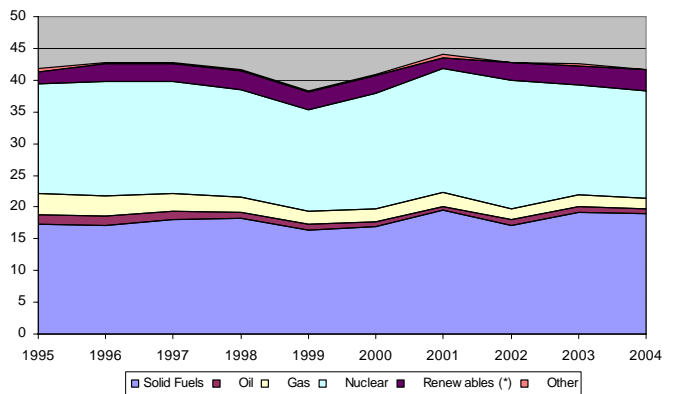
TOTAL FINAL CONSUMPTION (Mtoe)



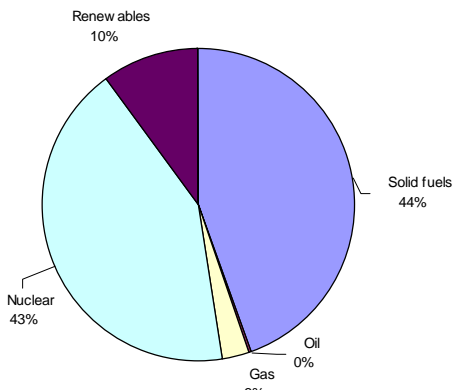
ELECTRICITY MIX



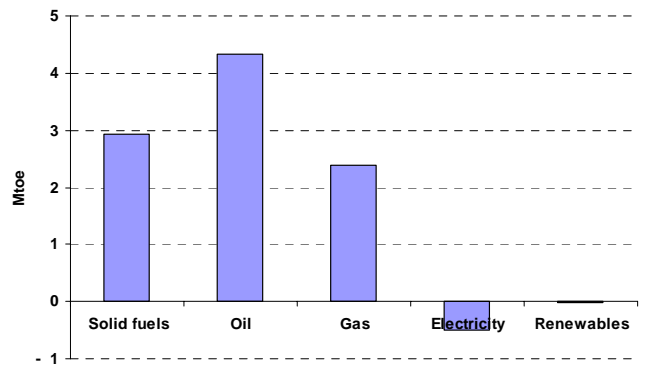
ELECTRICITY GENERATION (TWh)



INDIGENEOUS PRODUCTION



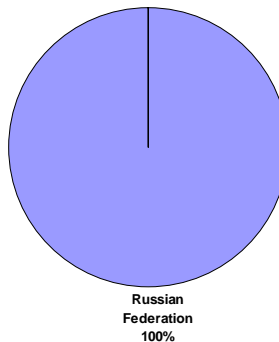
NET IMPORTS BY FUELS



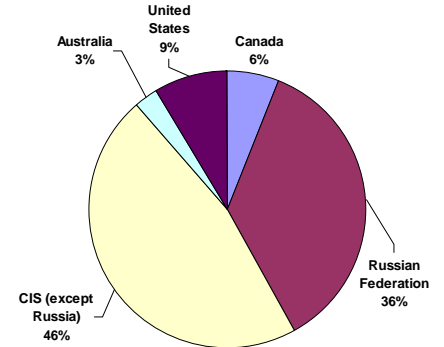
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

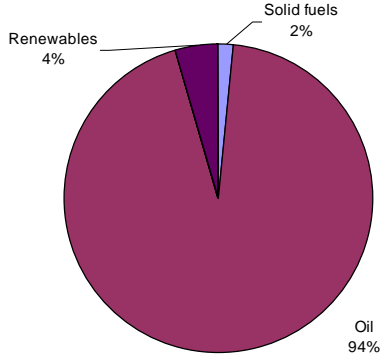


IMPORTS OF HARD COAL

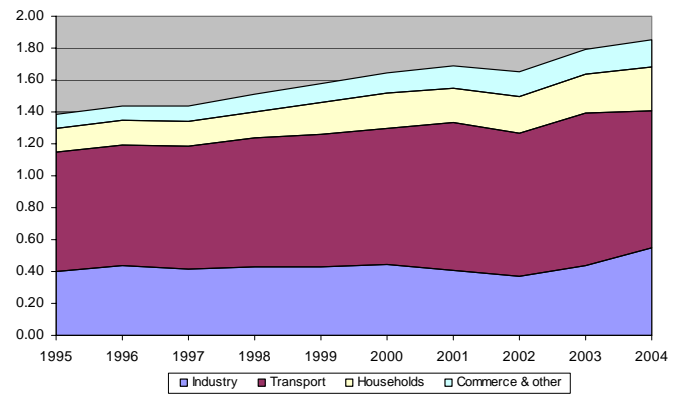


CYPRUS

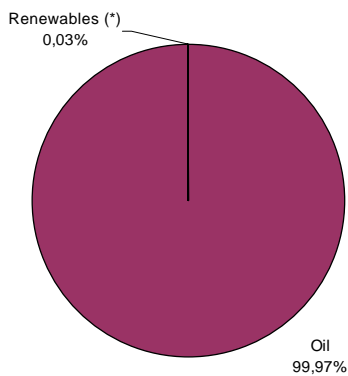
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



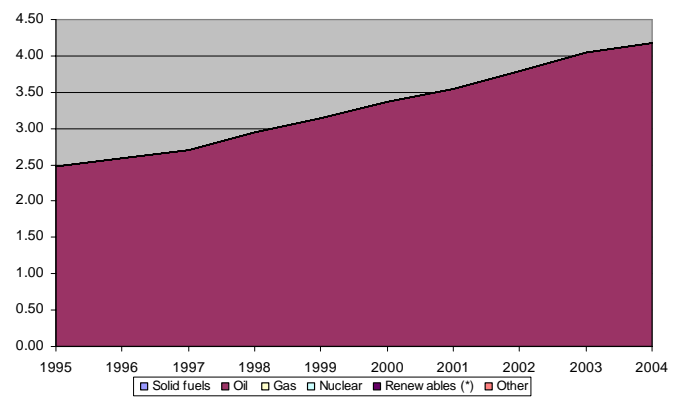
TOTAL FINAL CONSUMPTION (Mtoe)



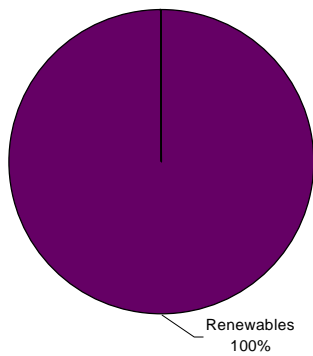
ELECTRICITY MIX



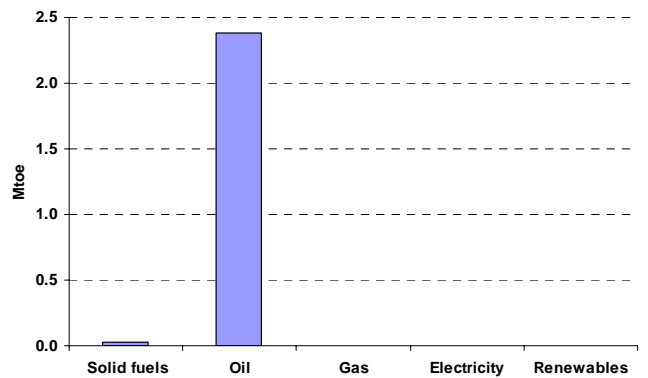
ELECTRICITY GENERATION (TWh)



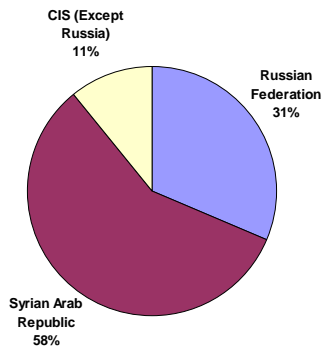
INDIGENEOUS PRODUCTION



NET IMPORTS BY FUELS



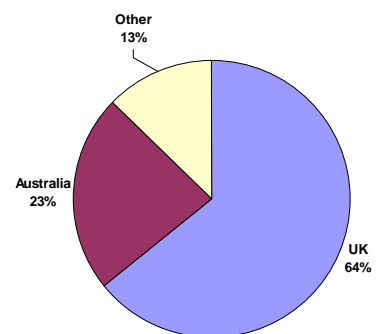
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

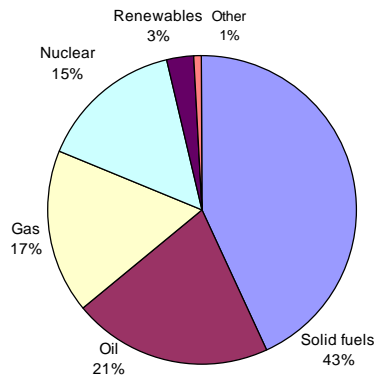
No imports

IMPORTS OF HARD COAL

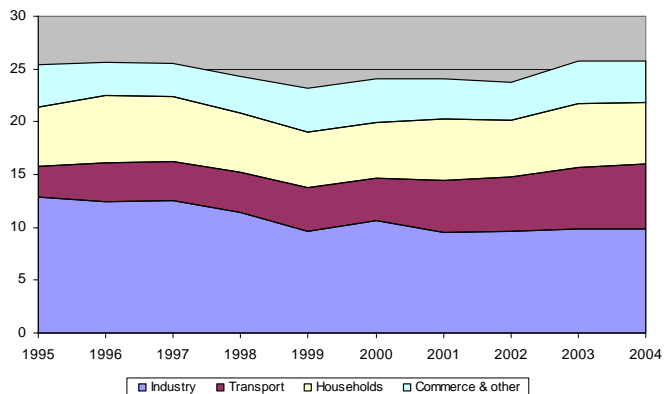


CZECH REPUBLIC

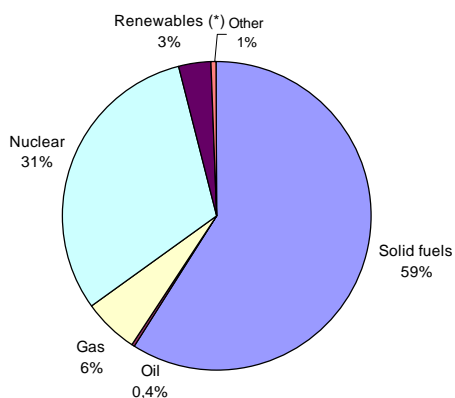
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



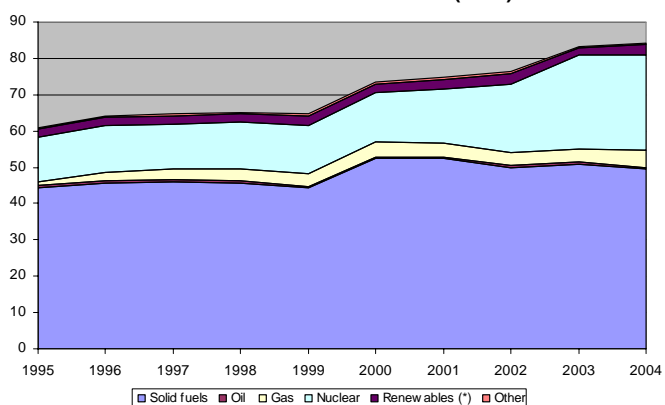
TOTAL FINAL CONSUMPTION (Mtoe)



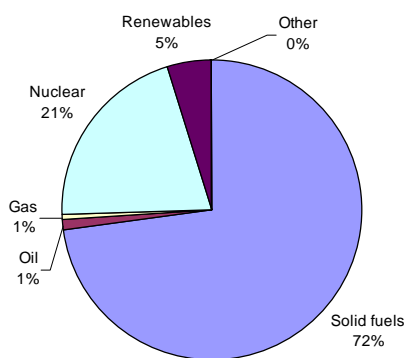
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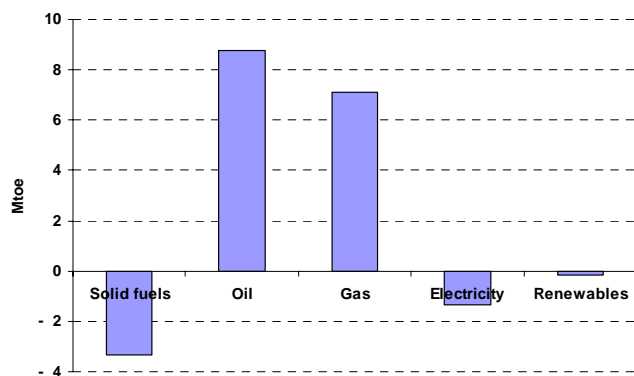
ELECTRICITY GENERATION (TWh)



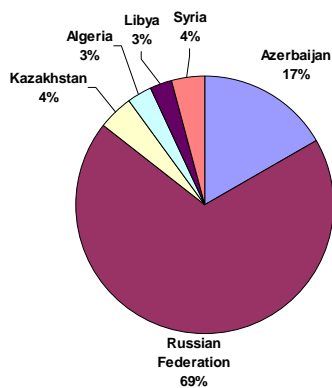
INDIGENOUS PRODUCTION



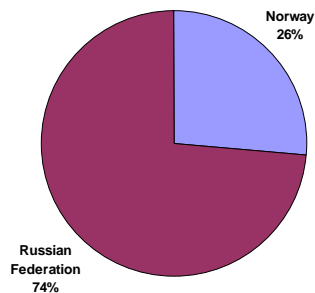
NET IMPORTS BY FUELS



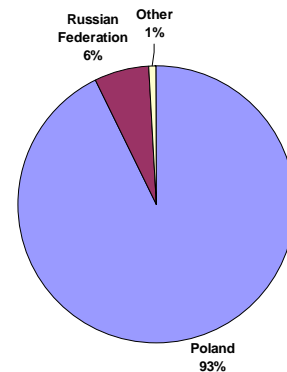
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

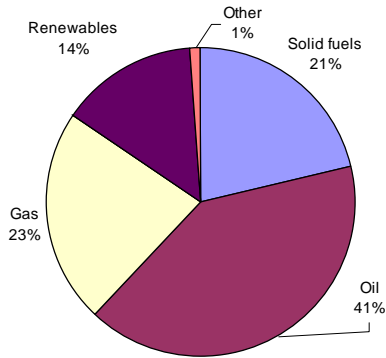


IMPORTS OF HARD COAL

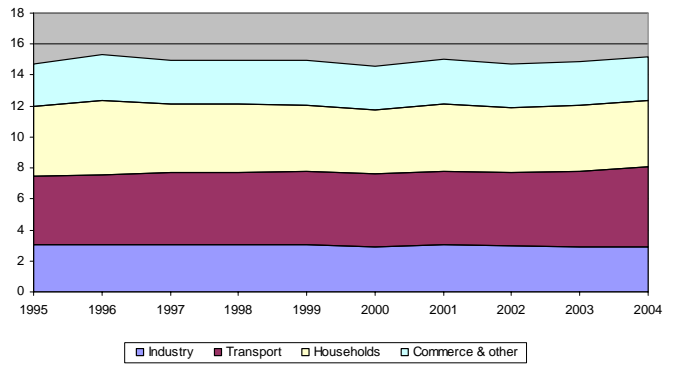


DENMARK

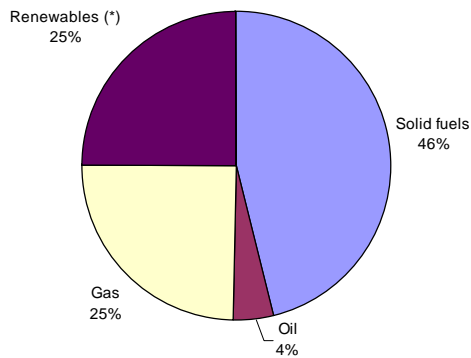
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



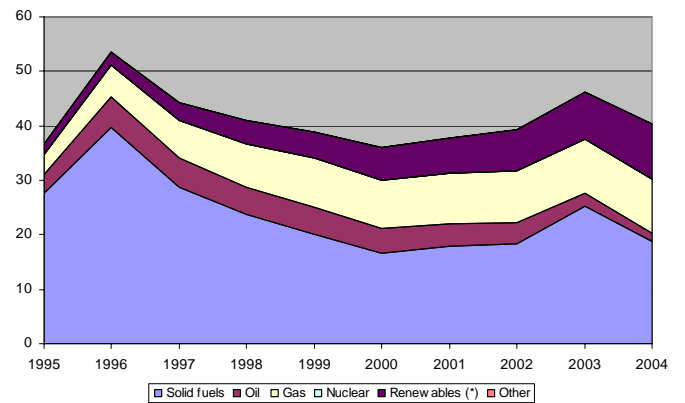
TOTAL FINAL CONSUMPTION (Mtoe)



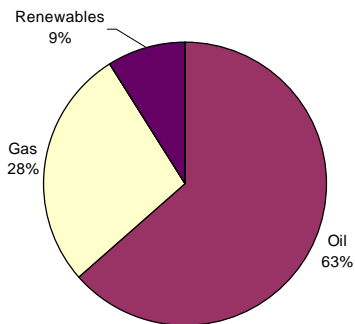
ELECTRICITY MIX



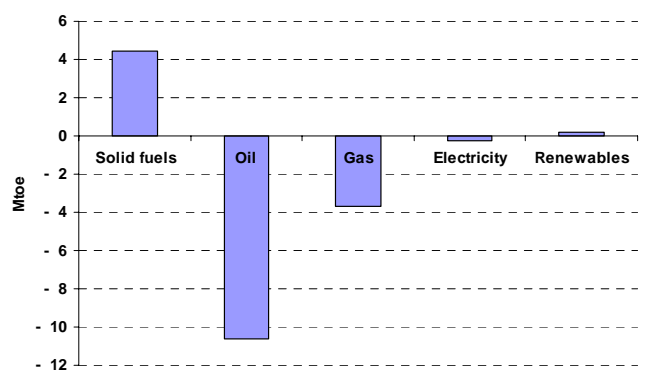
ELECTRICITY GENERATION (TWh)



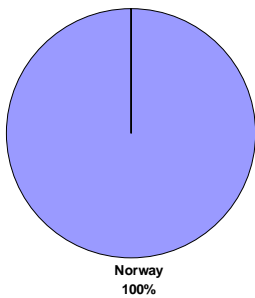
INDIGENEOUS PRODUCTION



NET IMPORTS BY FUELS



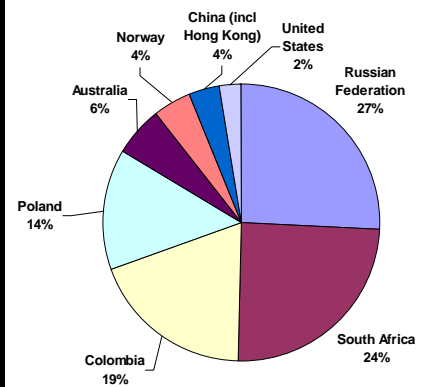
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

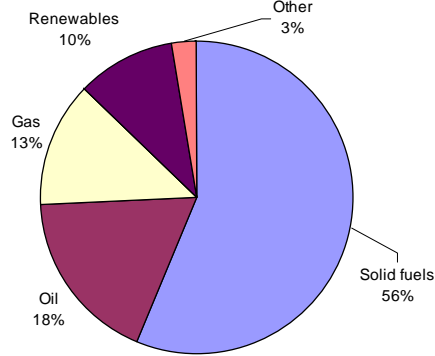
No imports

IMPORTS OF HARD COAL

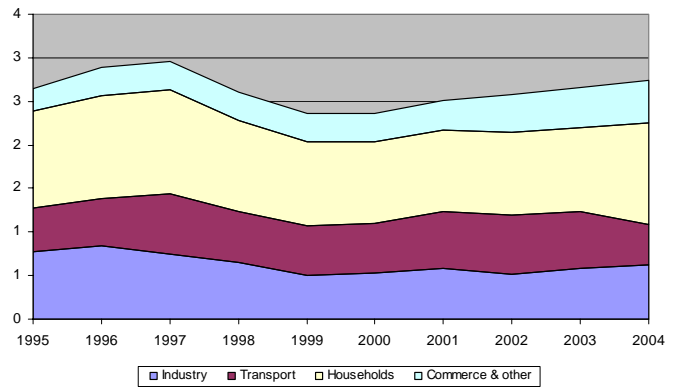


ESTONIA

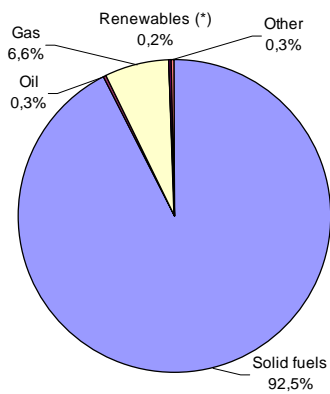
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



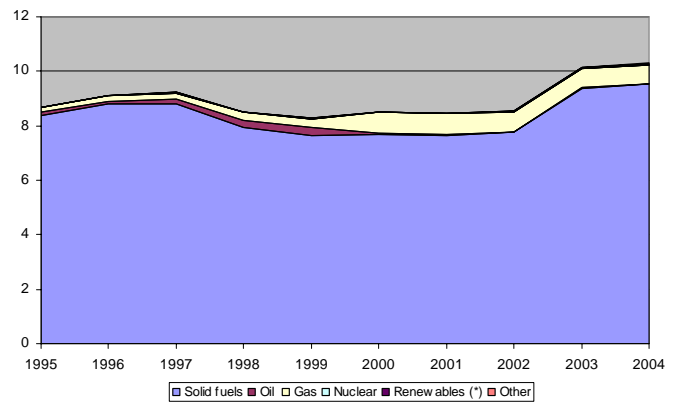
TOTAL FINAL CONSUMPTION (Mtoe)



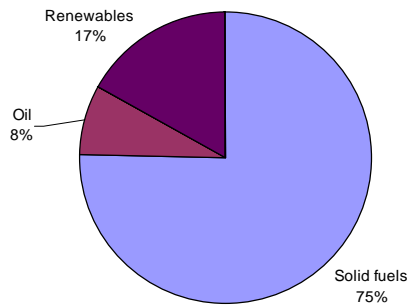
ELECTRICITY MIX



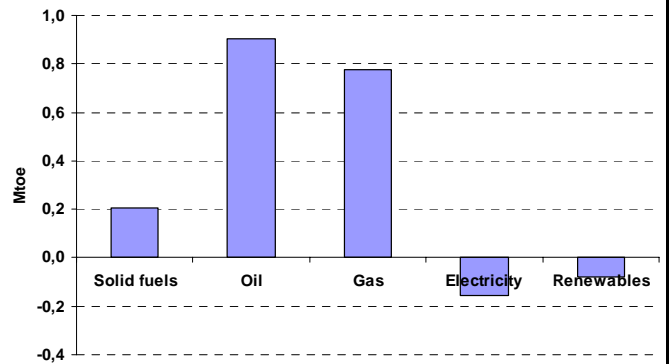
ELECTRICITY GENERATION (TWh)



INDIGENOUS PRODUCTION

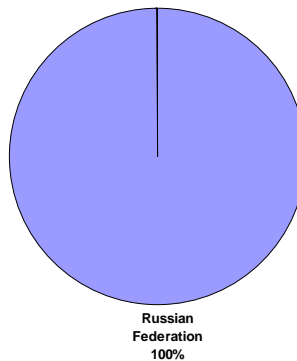


NET IMPORTS BY FUELS



IMPORTS OF CRUDE OIL
No imports

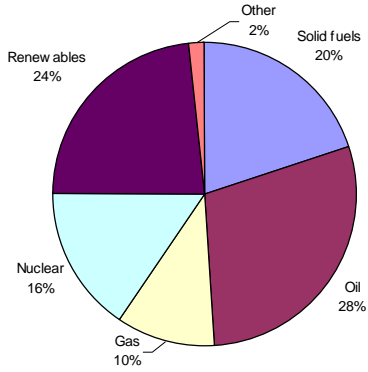
IMPORTS OF NATURAL GAS



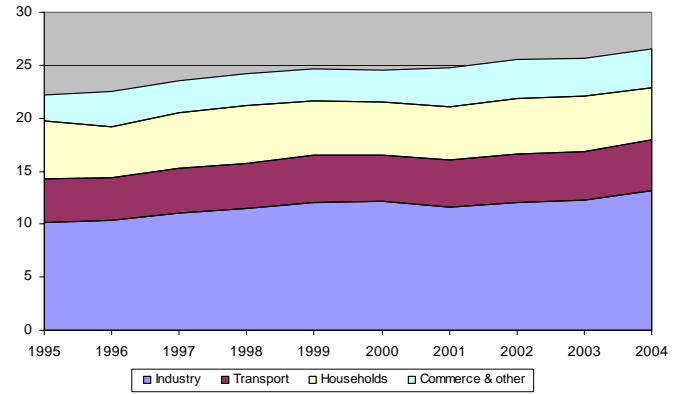
IMPORTS OF HARD COAL
No imports

FINLAND

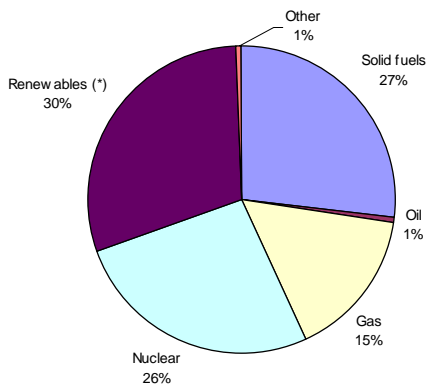
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



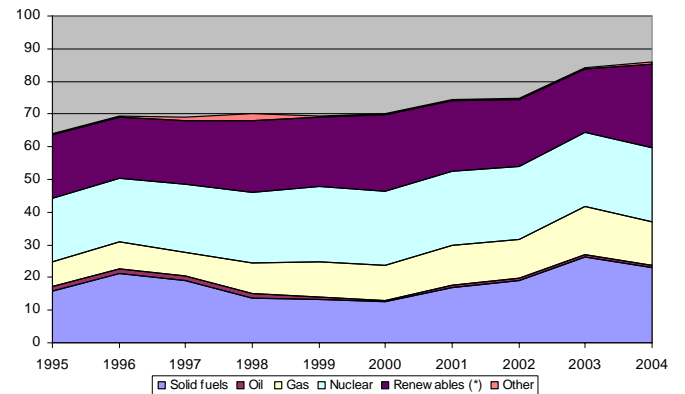
TOTAL FINAL CONSUMPTION (Mtoe)



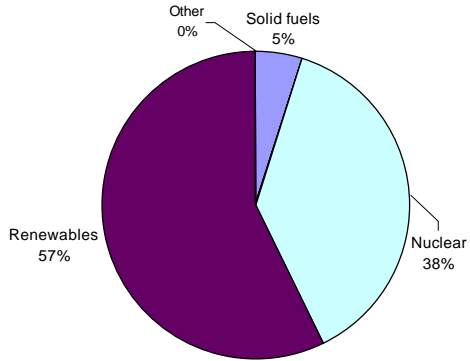
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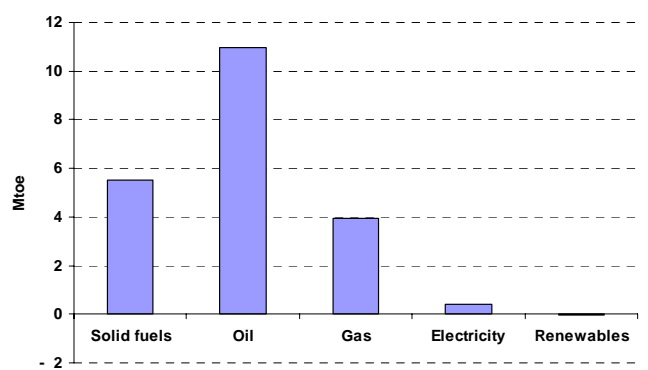
ELECTRICITY GENERATION (TWh)



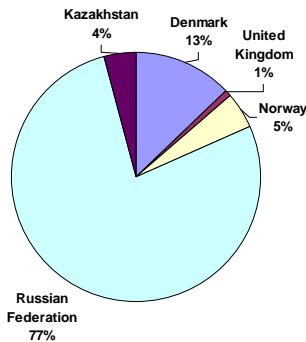
INDIGENEOUS PRODUCTION



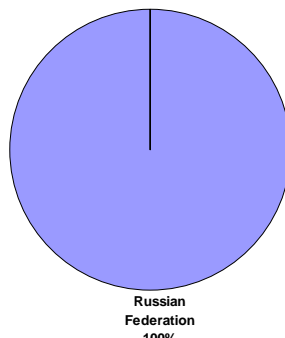
NET IMPORTS BY FUELS



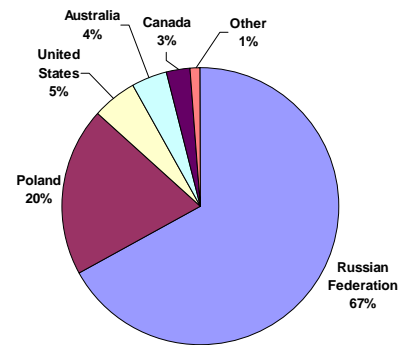
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

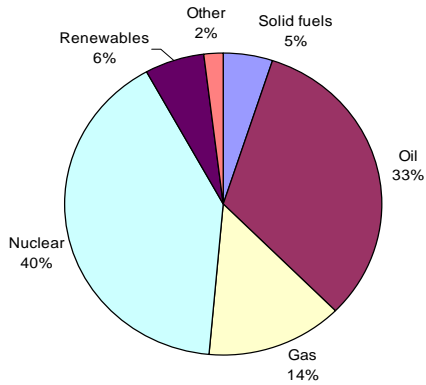


IMPORTS OF HARD COAL

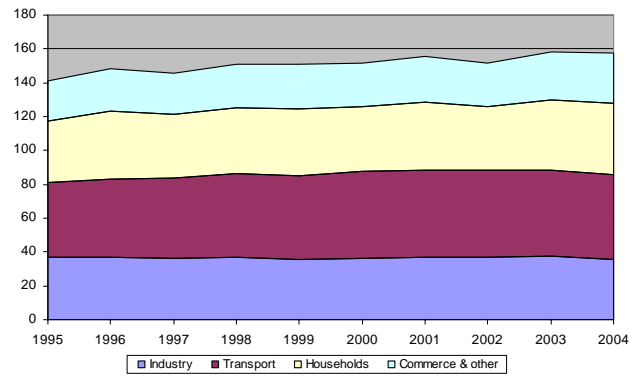


FRANCE

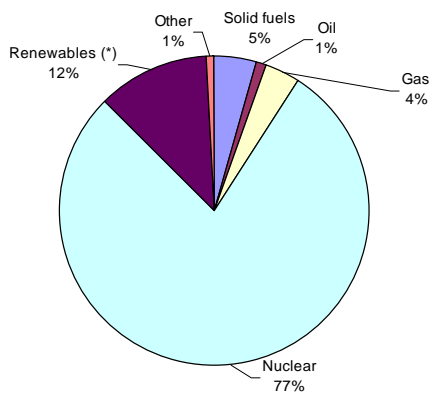
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



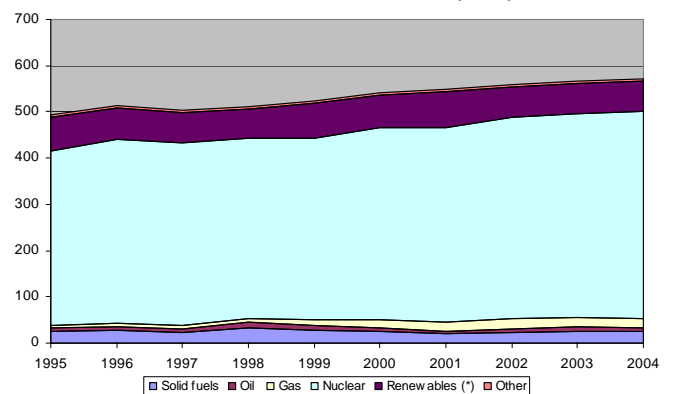
TOTAL FINAL CONSUMPTION (Mtoe)



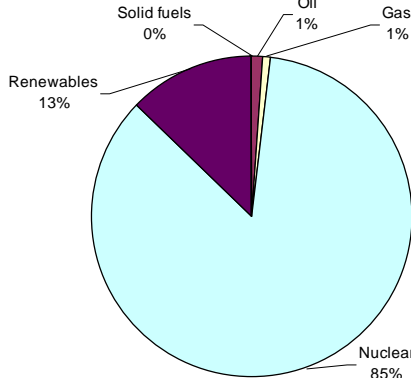
ELECTRICITY MIX



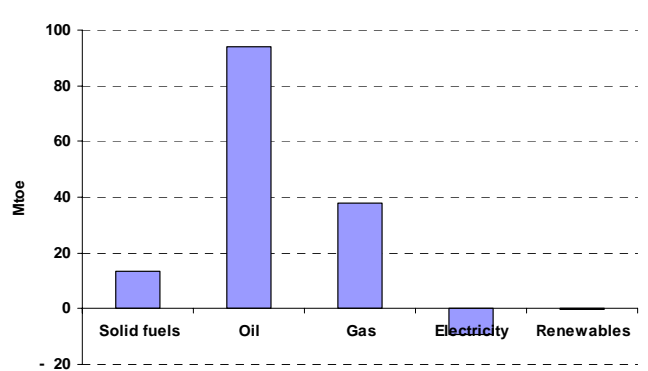
ELECTRICITY GENERATION (TWh)



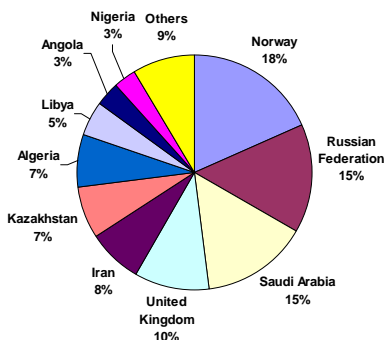
INDIGENEOUS PRODUCTION



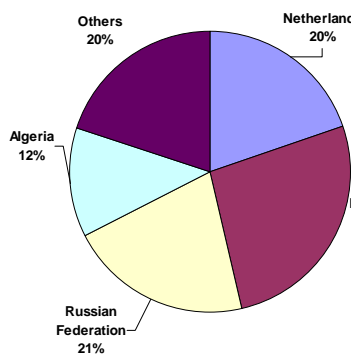
NET IMPORTS BY FUELS



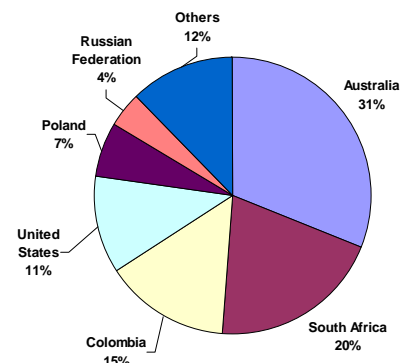
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

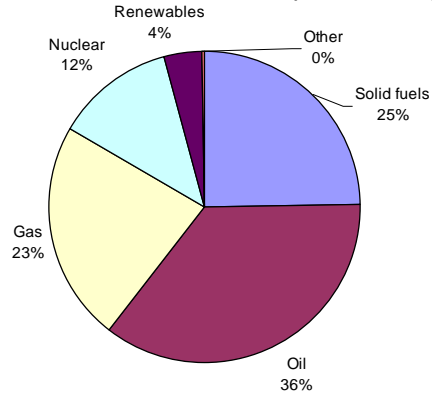


IMPORTS OF HARD COAL

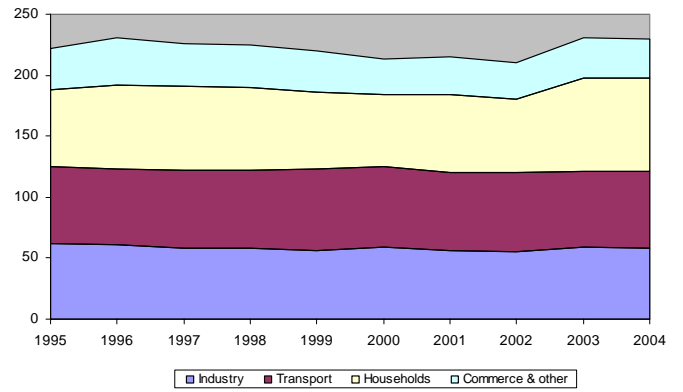


GERMANY

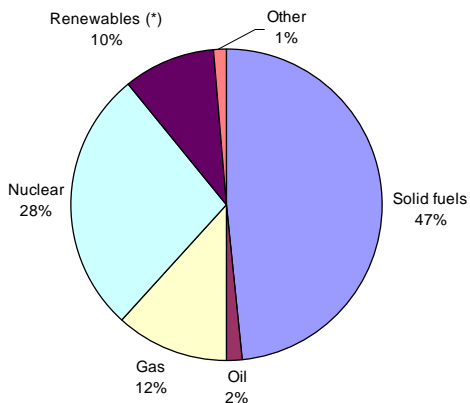
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



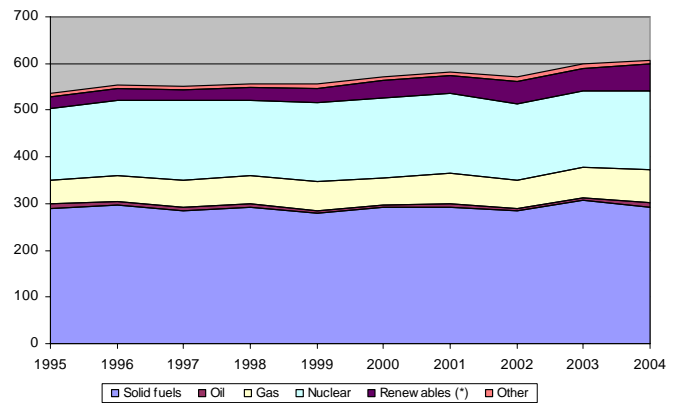
TOTAL FINAL CONSUMPTION (Mtoe)



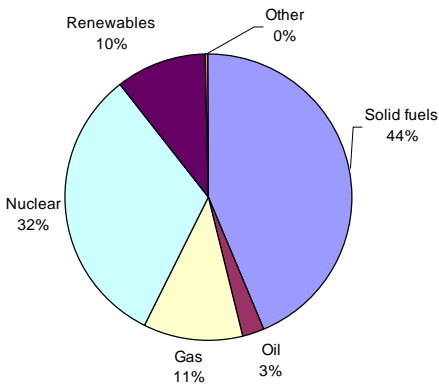
ELECTRICITY MIX



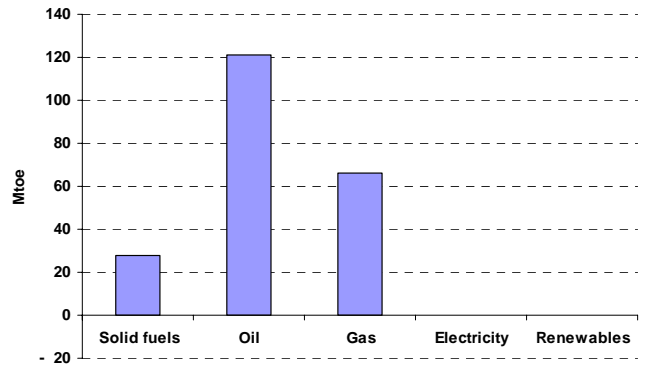
ELECTRICITY GENERATION (TWh)



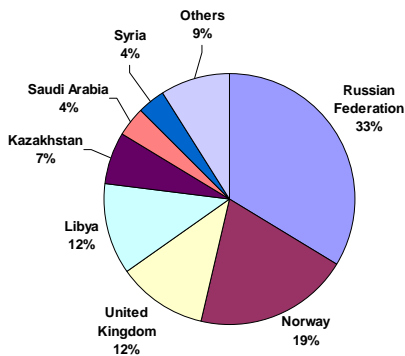
INDIGENOUS PRODUCTION



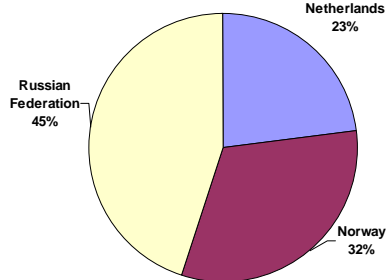
NET IMPORTS BY FUELS



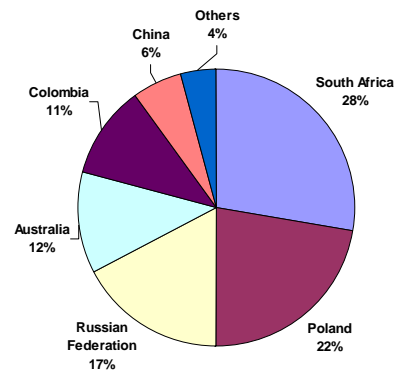
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

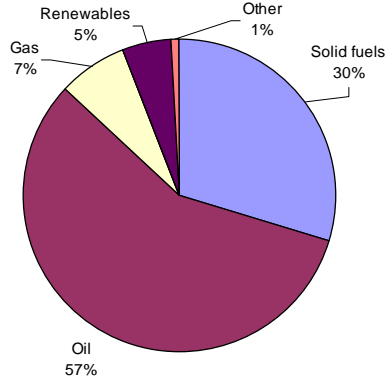


IMPORTS OF HARD COAL

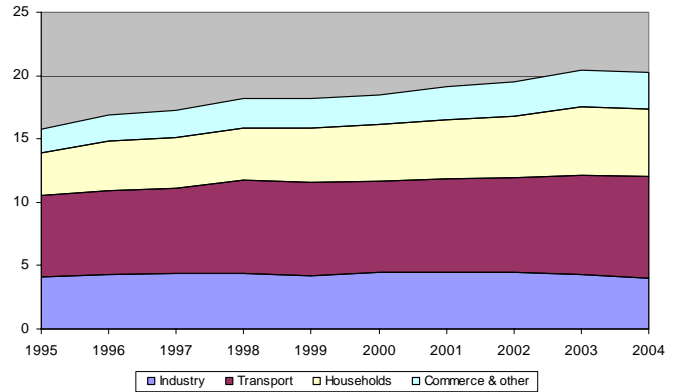


GREECE

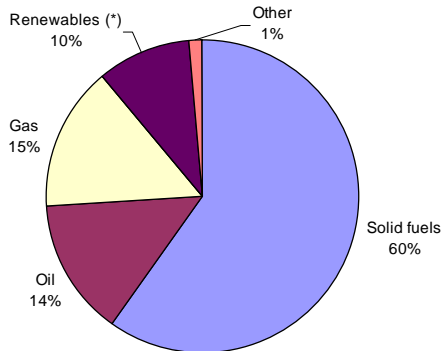
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



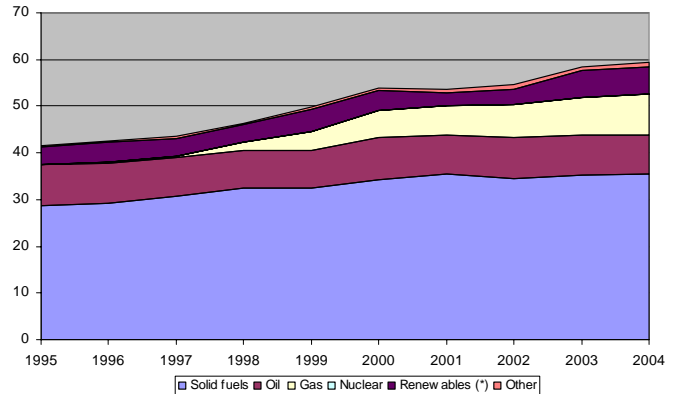
TOTAL FINAL CONSUMPTION (Mtoe)



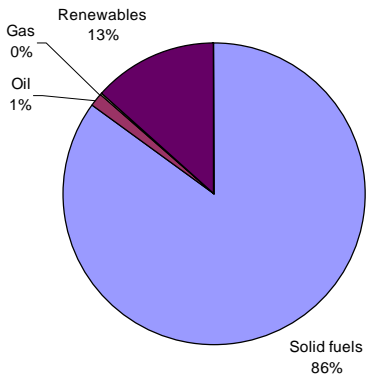
ELECTRICITY MIX



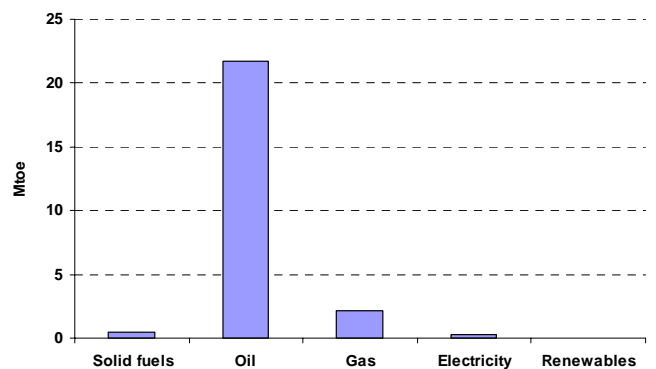
ELECTRICITY GENERATION (TWh)



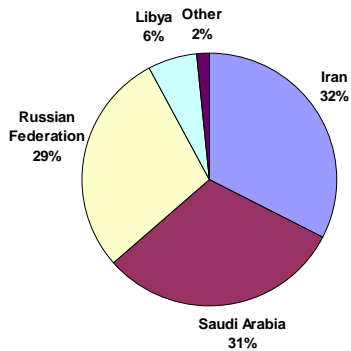
INDIGENEOUS PRODUCTION



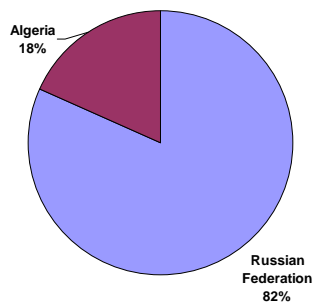
NET IMPORTS BY FUELS



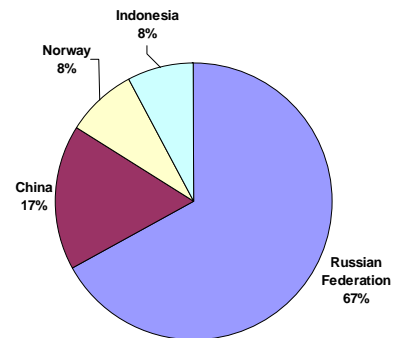
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

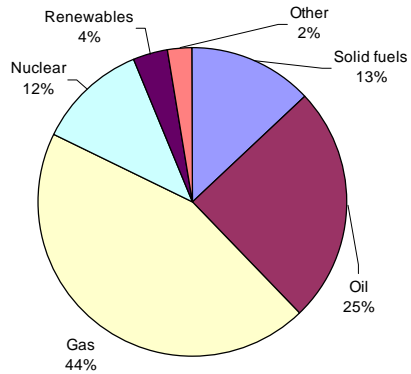


IMPORTS OF HARD COAL

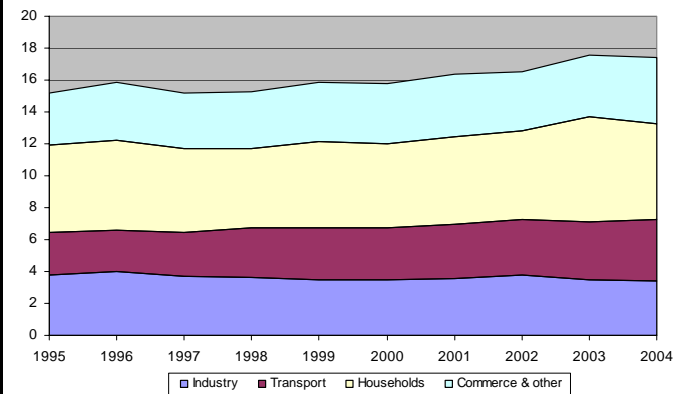


HUNGARY

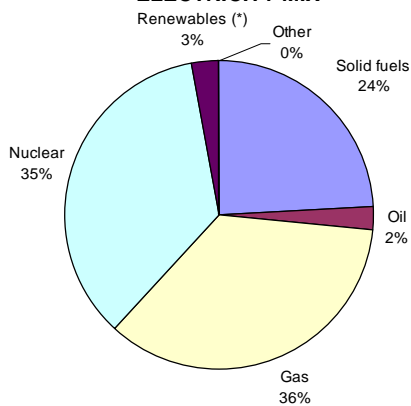
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



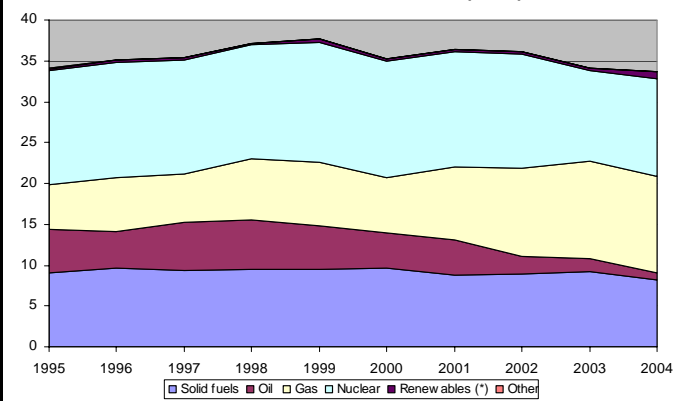
TOTAL FINAL CONSUMPTION (Mtoe)



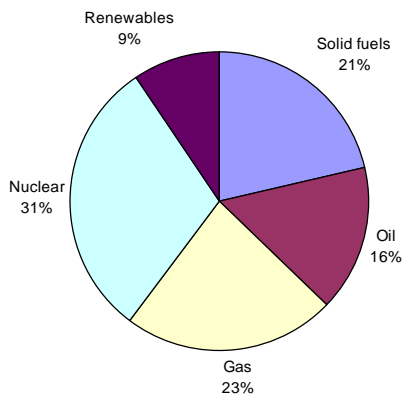
ELECTRICITY MIX



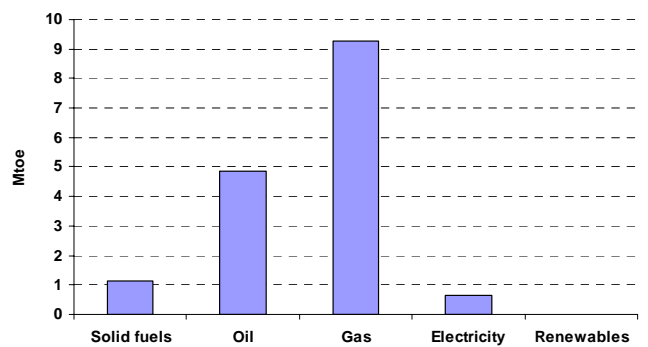
ELECTRICITY GENERATION (TWh)



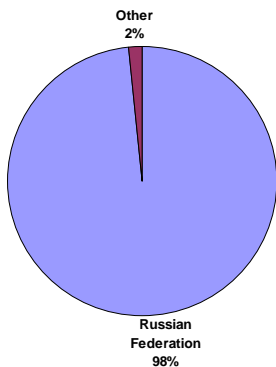
INDIGENOUS PRODUCTION



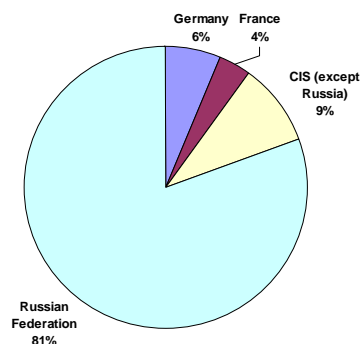
NET IMPORTS BY FUELS



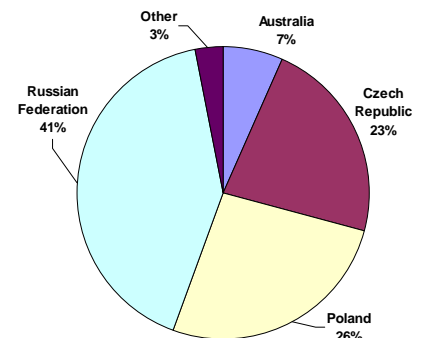
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

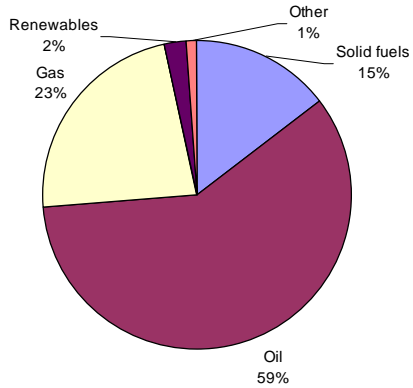


IMPORTS OF HARD COAL

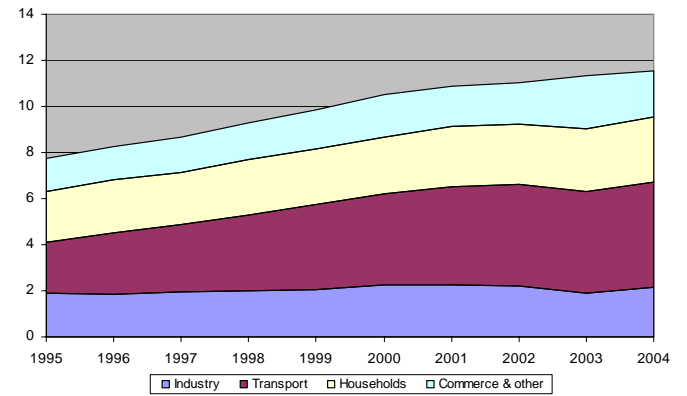


IRELAND

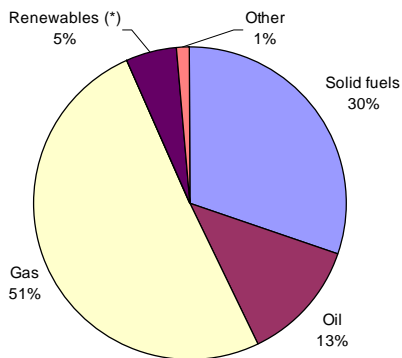
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



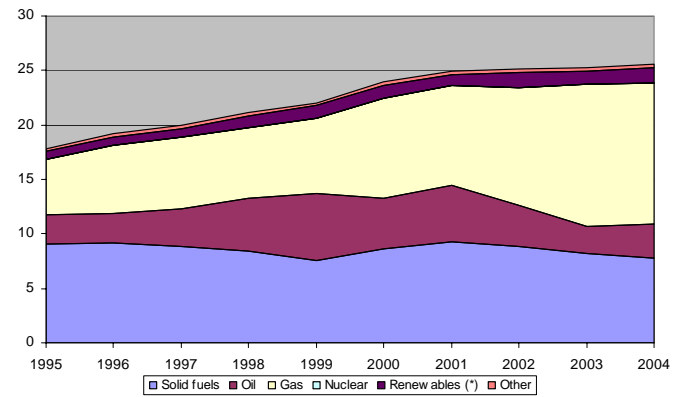
TOTAL FINAL CONSUMPTION (Mtoe)



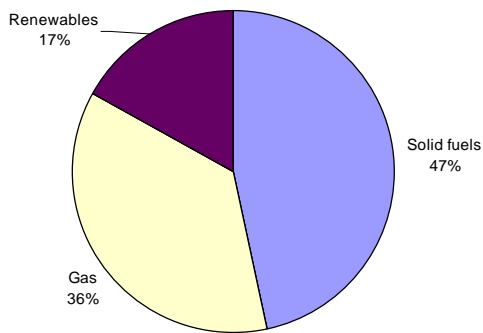
ELECTRICITY MIX



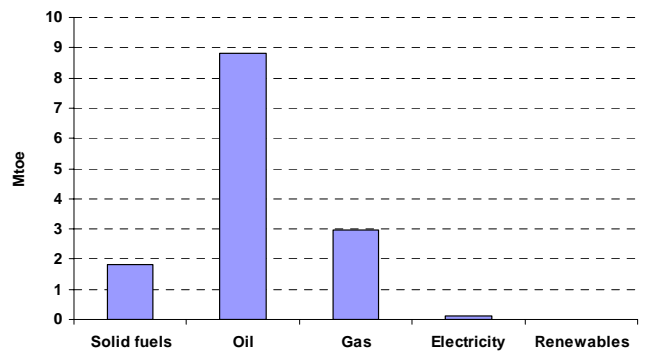
ELECTRICITY GENERATION (TWh)



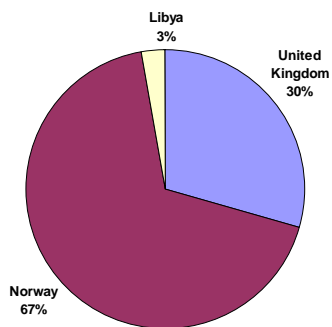
INDIGENEOUS PRODUCTION



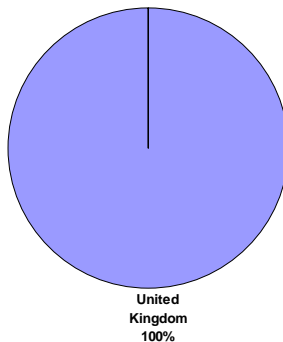
NET IMPORTS BY FUELS



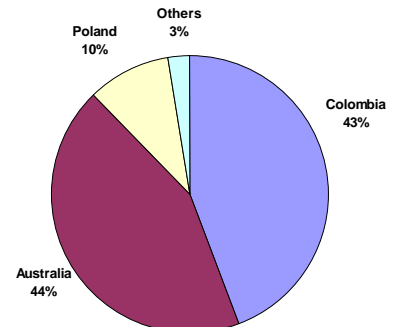
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

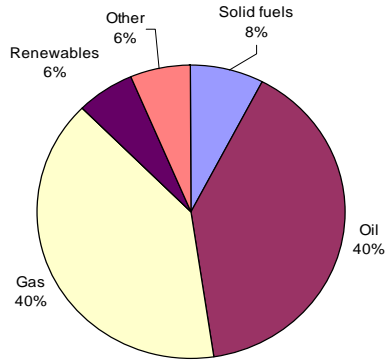


IMPORTS OF HARD COAL

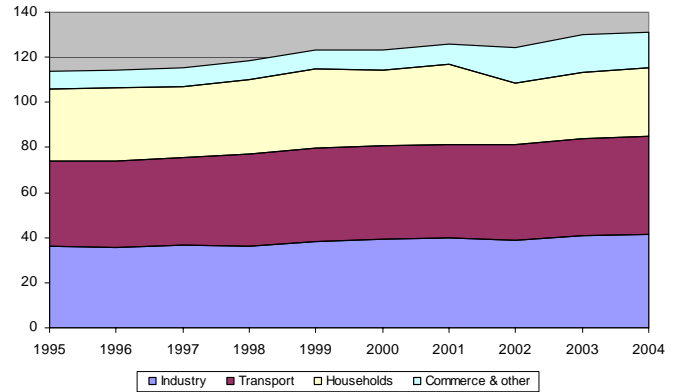


ITALY

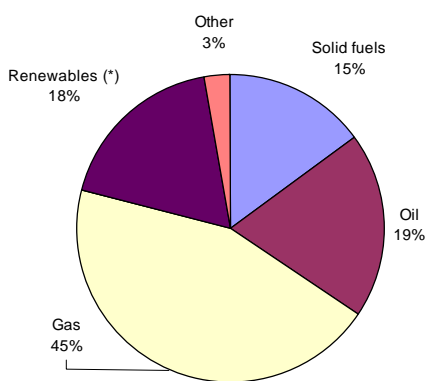
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



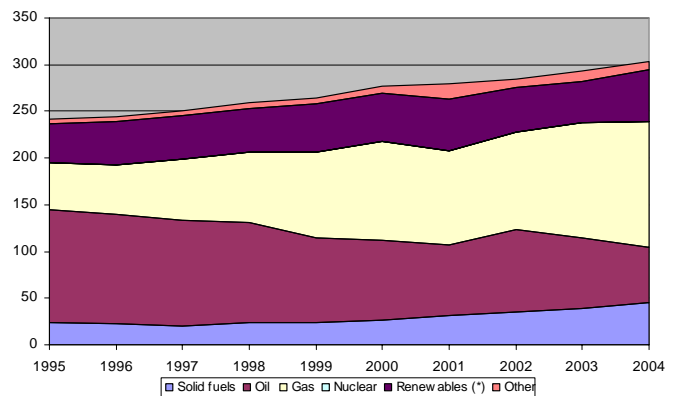
TOTAL FINAL CONSUMPTION (Mtoe)



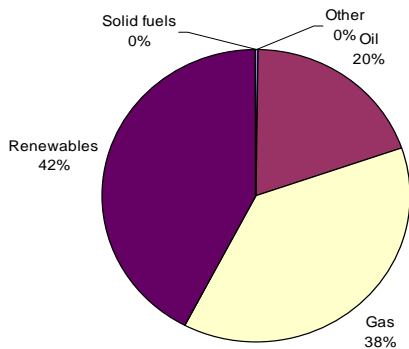
ELECTRICITY MIX



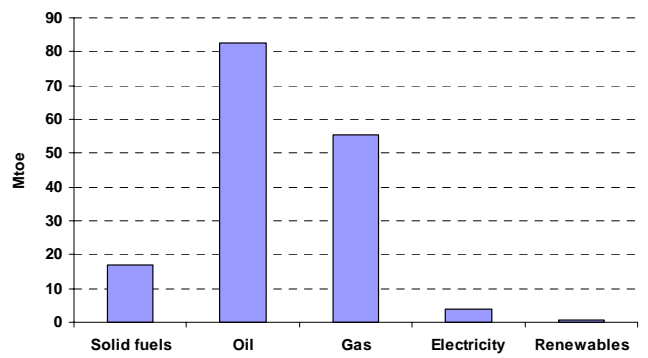
ELECTRICITY GENERATION (TWh)



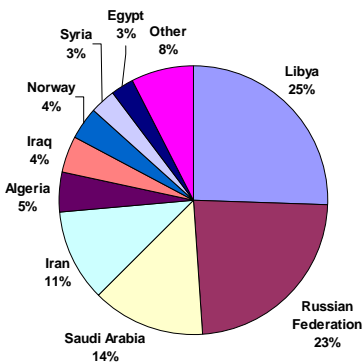
INDIGENOUS PRODUCTION



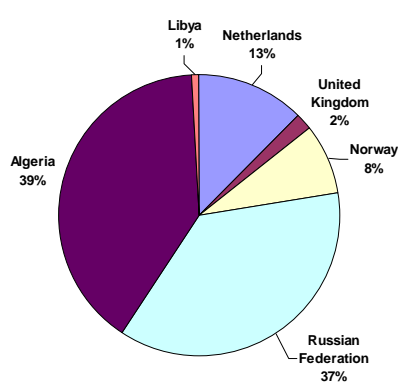
NET IMPORTS BY FUELS



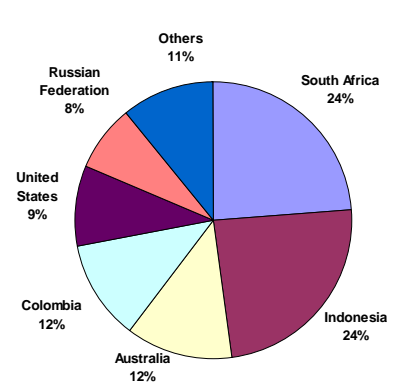
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

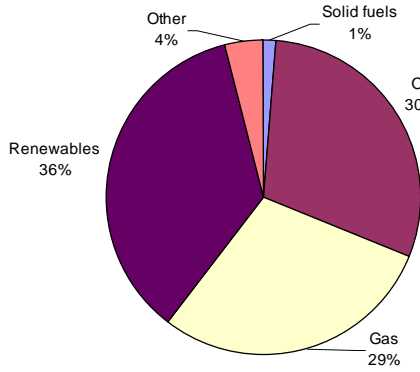


IMPORTS OF HARD COAL

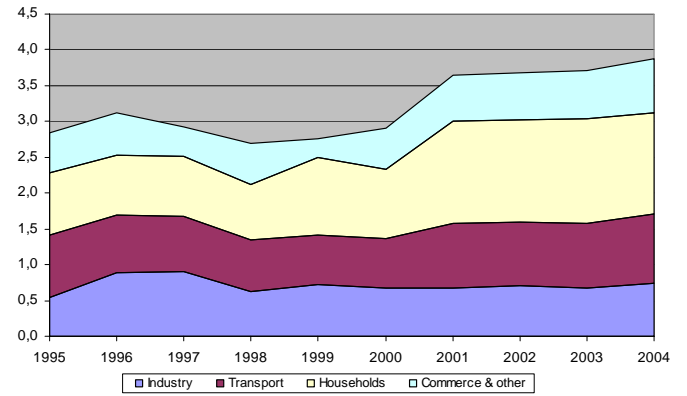


LATVIA

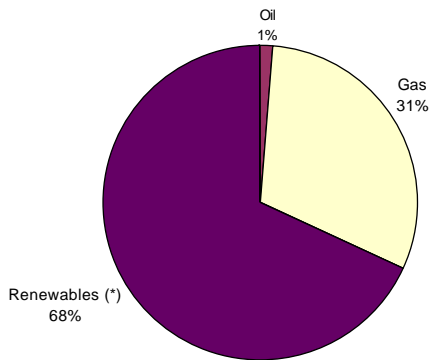
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



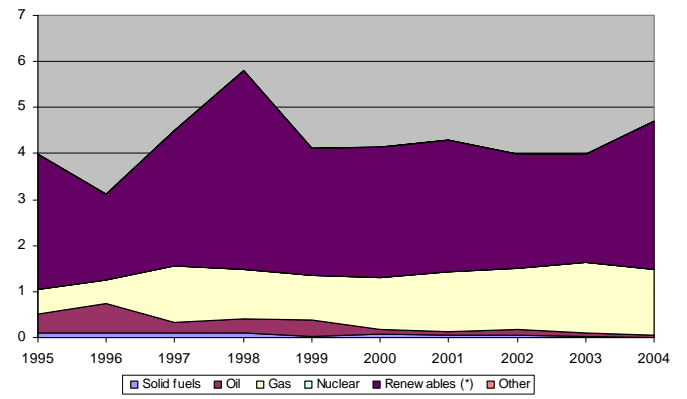
TOTAL FINAL CONSUMPTION (Mtoe)



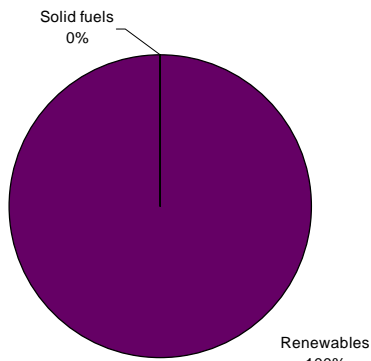
ELECTRICITY MIX



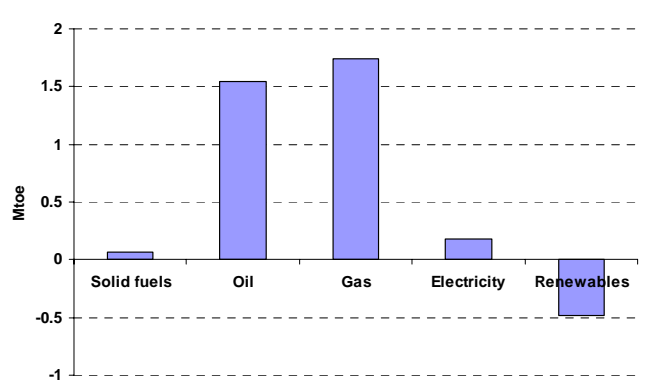
ELECTRICITY GENERATION (TWh)



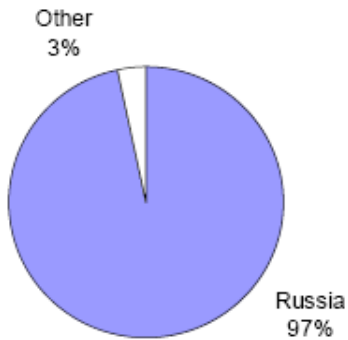
INDIGENOUS PRODUCTION



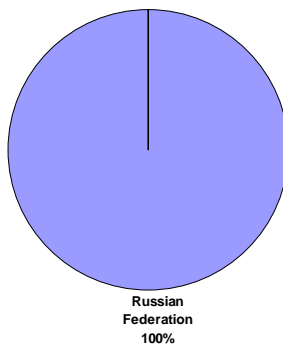
NET IMPORTS BY FUELS



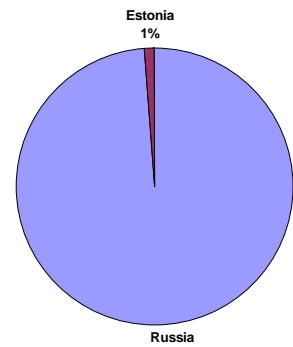
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

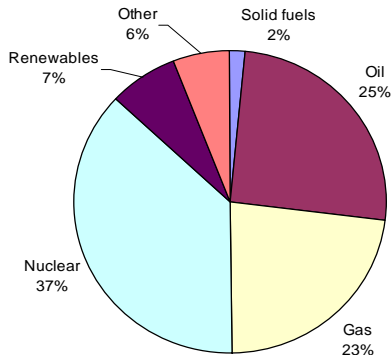


IMPORTS OF HARD COAL

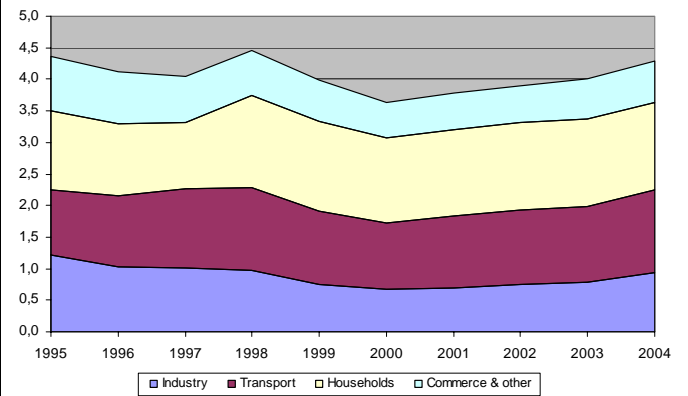


LITHUANIA

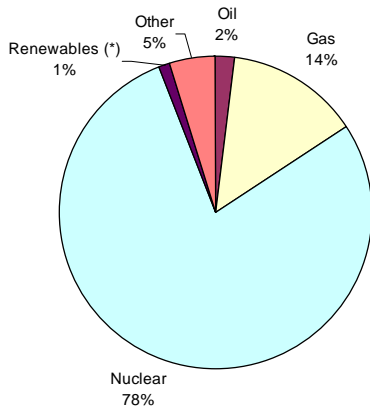
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



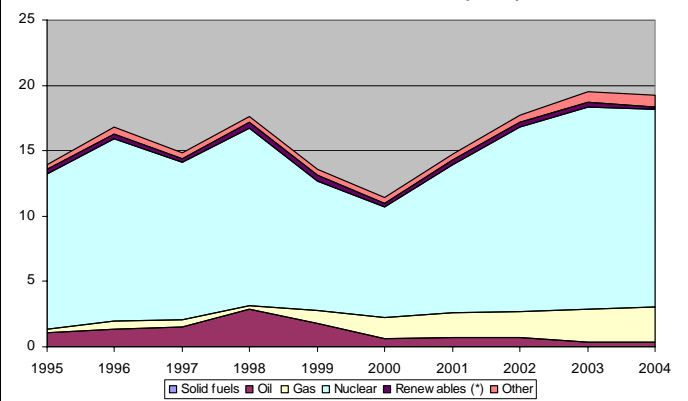
TOTAL FINAL CONSUMPTION (Mtoe)



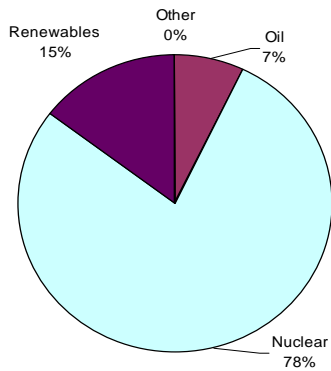
ELECTRICITY MIX



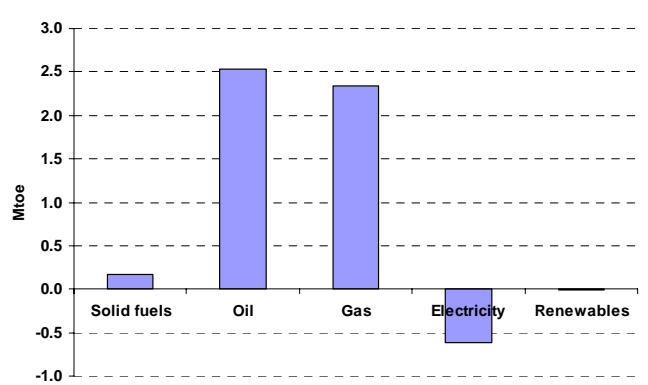
ELECTRICITY GENERATION (TWh)



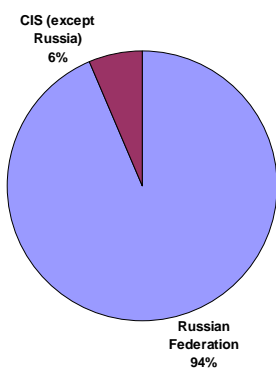
INDIGENEOUS PRODUCTION



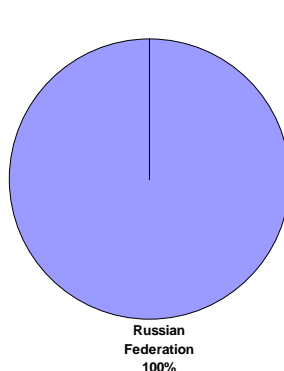
NET IMPORTS BY FUELS



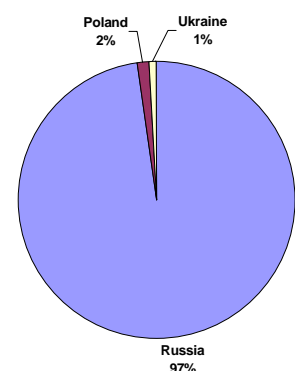
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

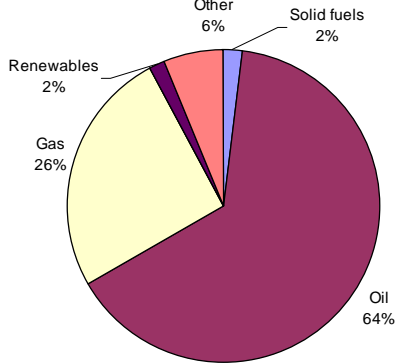


IMPORTS OF HARD COAL

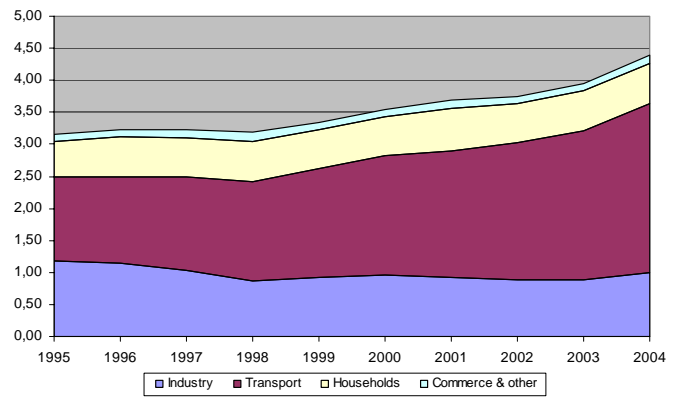


LUXEMBOURG

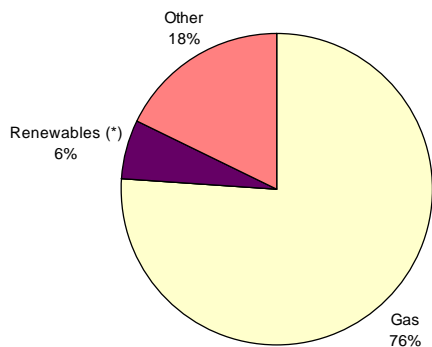
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



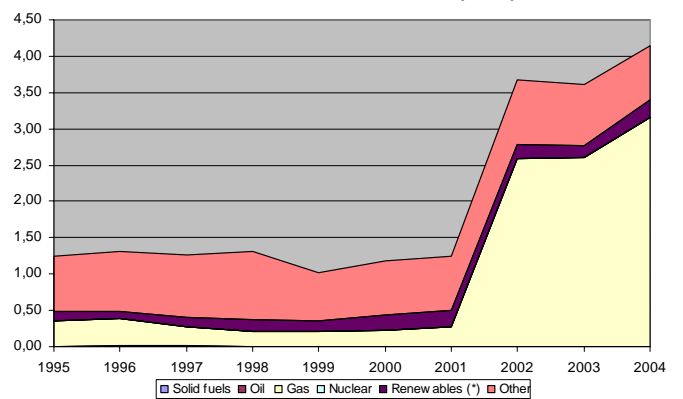
TOTAL FINAL CONSUMPTION (Mtoe)



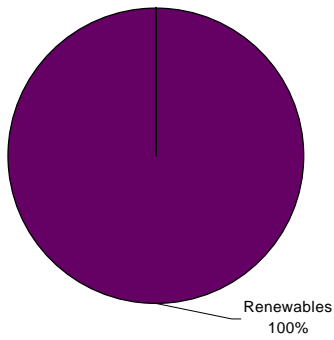
ELECTRICITY MIX



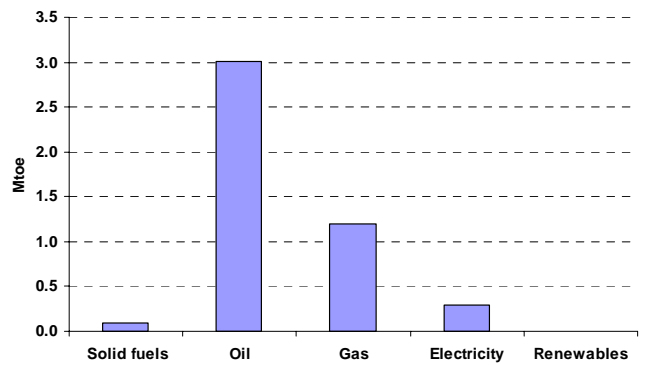
ELECTRICITY GENERATION (TWh)



INDIGENOUS PRODUCTION



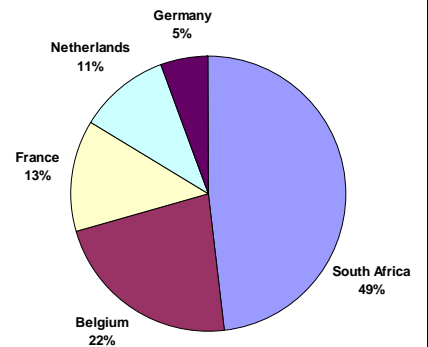
NET IMPORTS BY FUELS



IMPORTS OF CRUDE OIL
No crude import

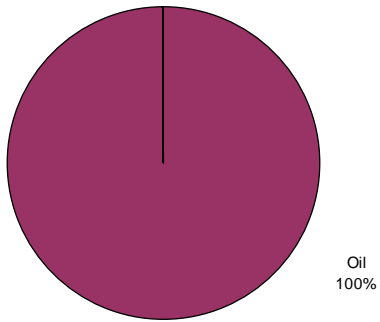
IMPORTS OF NATURAL GAS
Member State declares imports of natural gas only as a total non broken down by country of origin (Eurostat)

IMPORTS OF HARD COAL

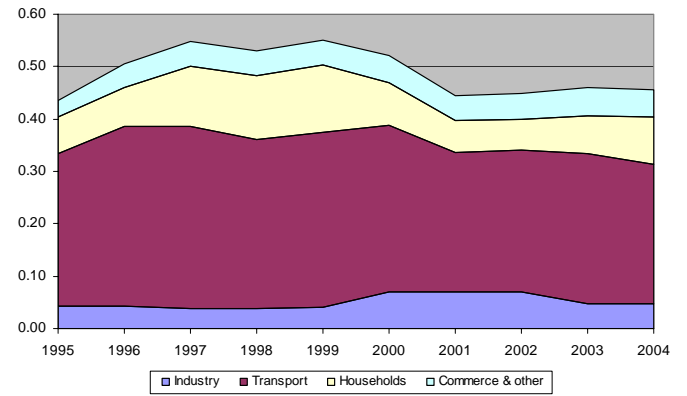


MALTA

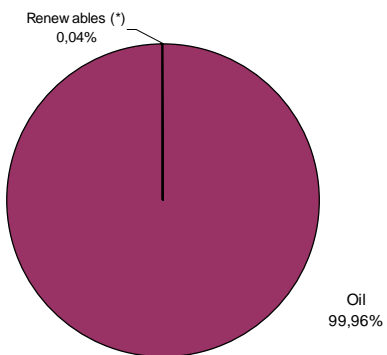
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



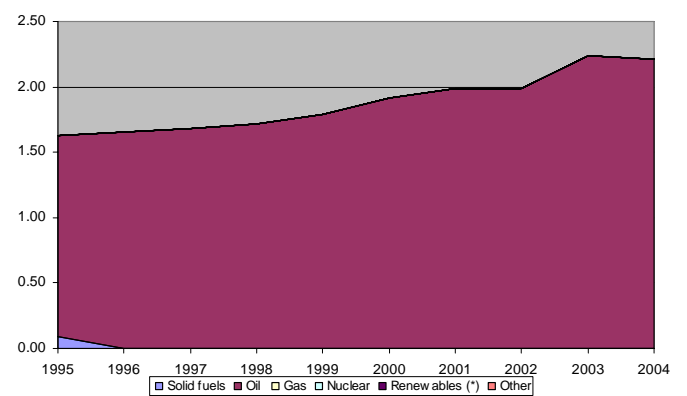
TOTAL FINAL CONSUMPTION (Mtoe)



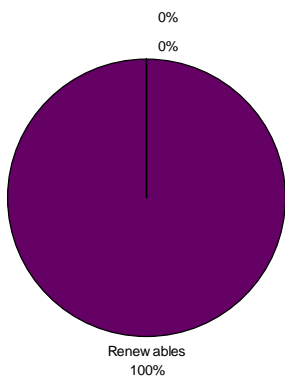
ELECTRICITY MIX



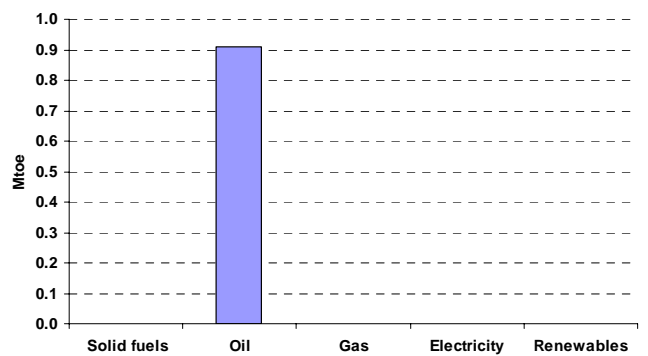
ELECTRICITY GENERATION (TWh)



INDIGENOUS PRODUCTION



NET IMPORTS BY FUELS



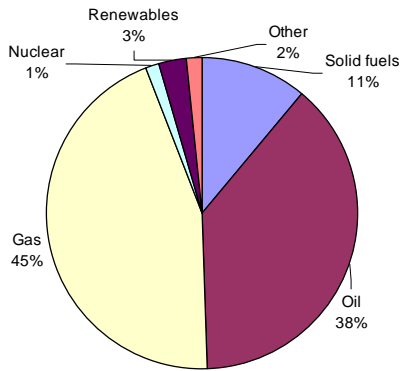
IMPORTS OF CRUDE OIL
No Crude Import

IMPORTS OF NATURAL GAS
No imports

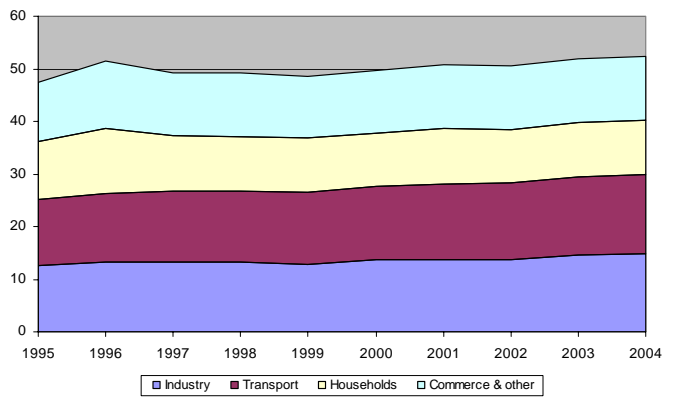
IMPORTS OF HARD COAL
No imports

NETHERLANDS

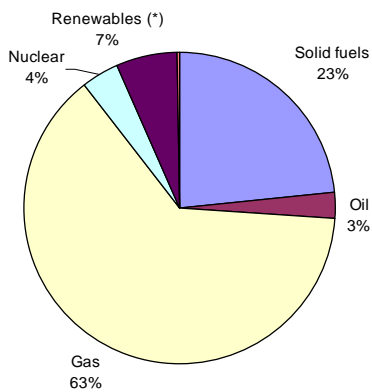
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



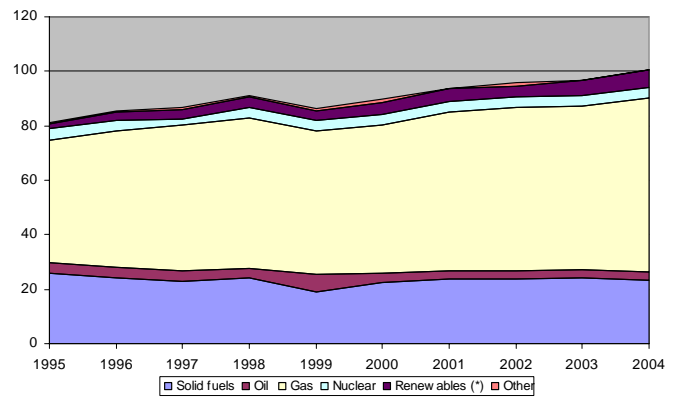
TOTAL FINAL CONSUMPTION (Mtoe)



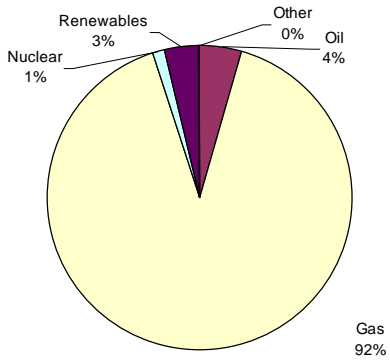
ELECTRICITY MIX



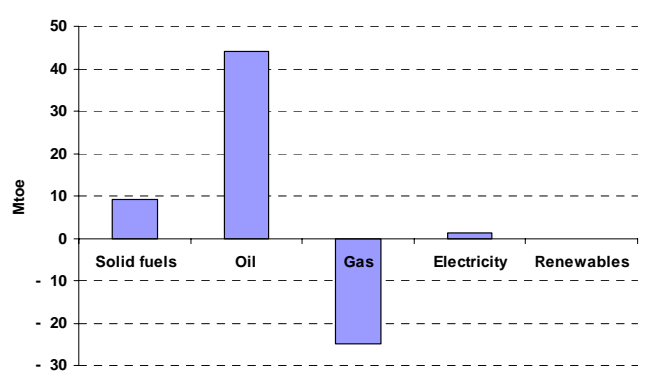
ELECTRICITY GENERATION (TWh)



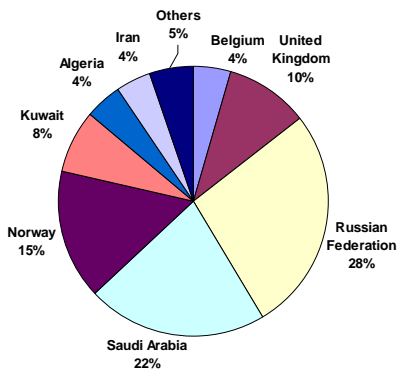
INDIGENEOUS PRODUCTION



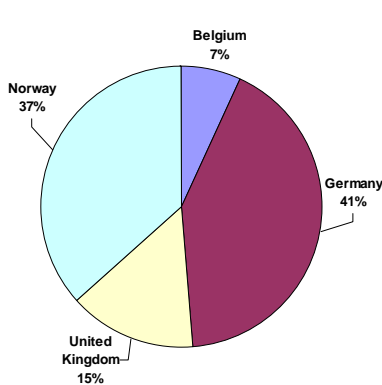
NET IMPORTS BY FUELS



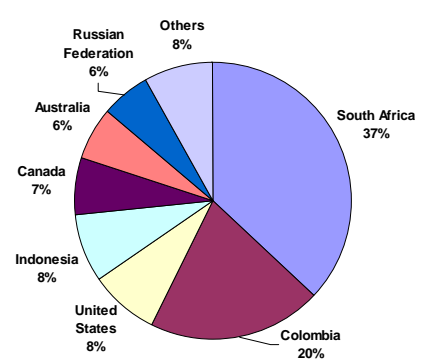
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

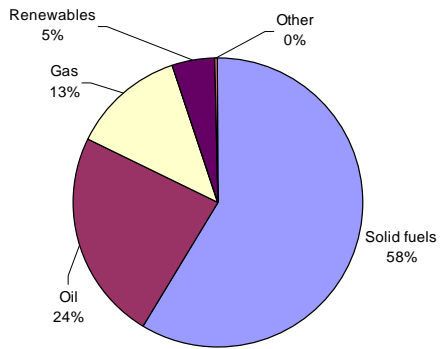


IMPORTS OF HARD COAL

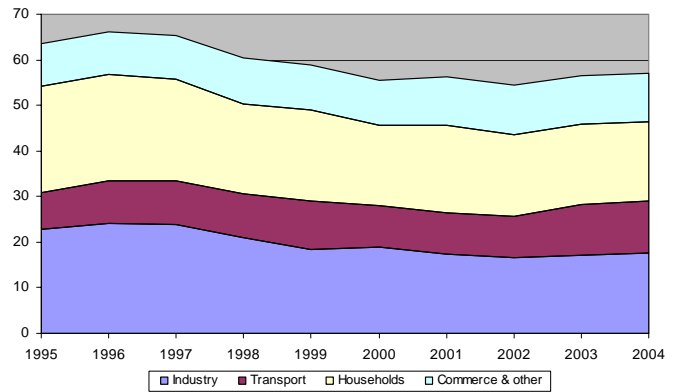


POLAND

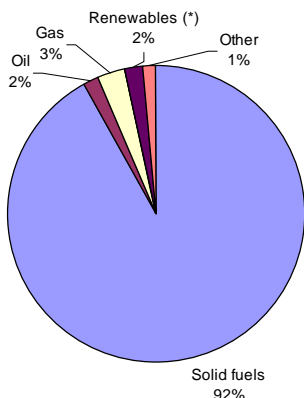
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



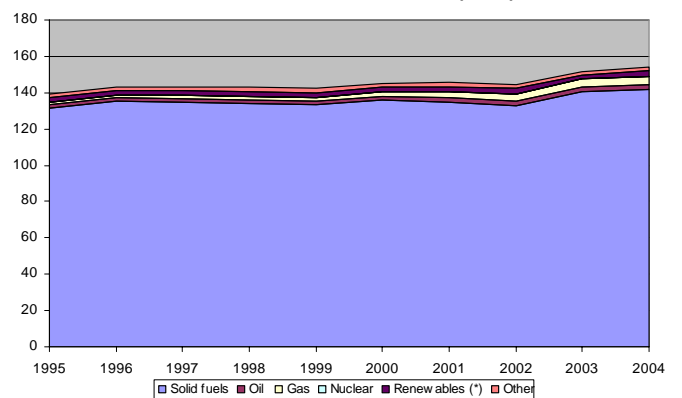
TOTAL FINAL CONSUMPTION (Mtoe)



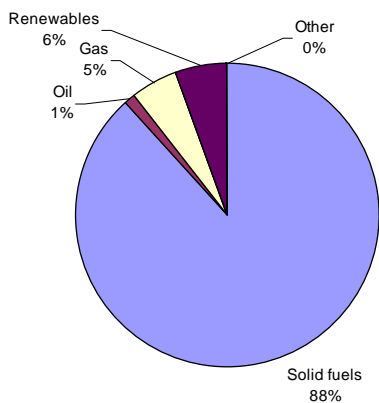
ELECTRICITY MIX



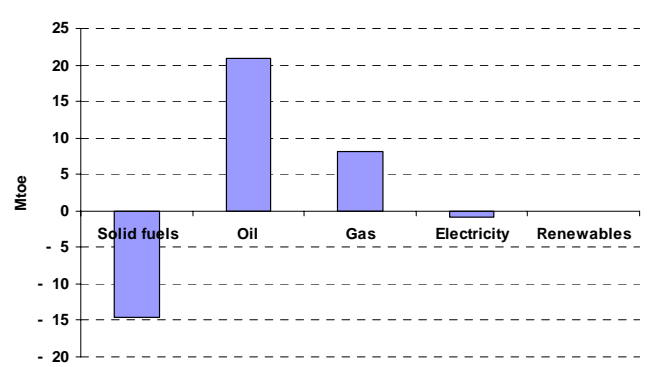
ELECTRICITY GENERATION (TWh)



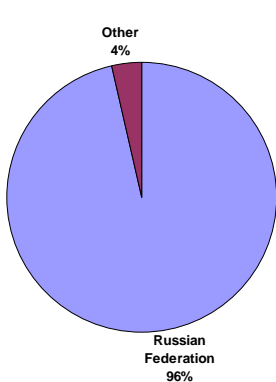
INDIGENEOUS PRODUCTION



NET IMPORTS BY FUELS



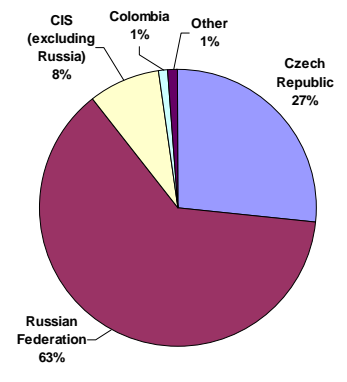
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

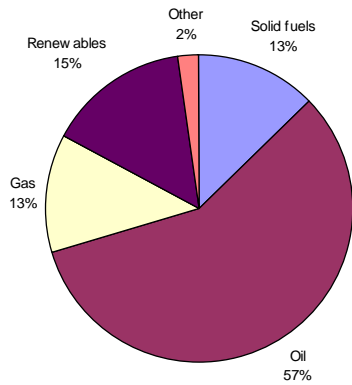


IMPORTS OF HARD COAL

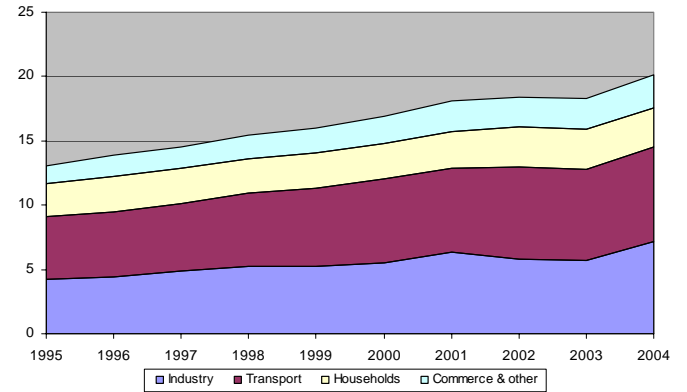


PORTUGAL

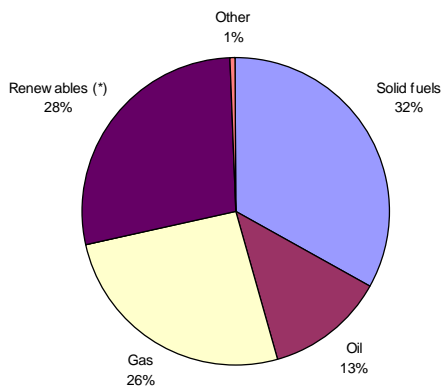
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



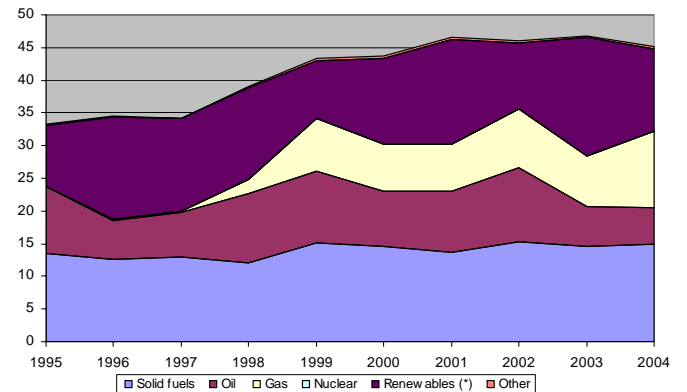
TOTAL FINAL CONSUMPTION (Mtoe)



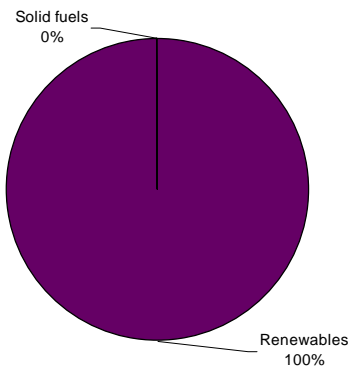
ELECTRICITY MIX



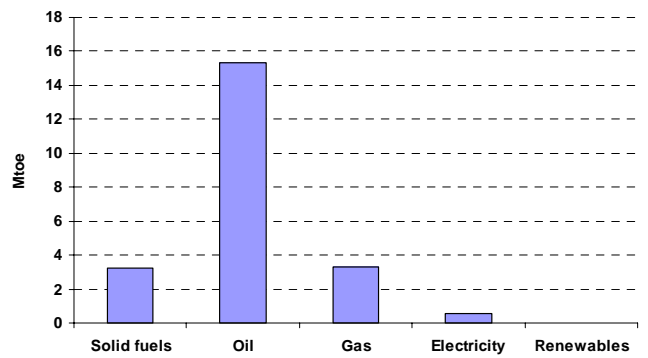
ELECTRICITY GENERATION (TWh)



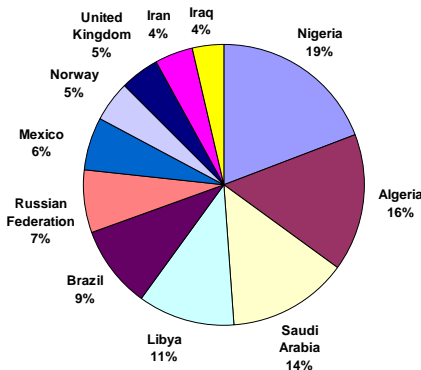
INDIGENEOUS PRODUCTION



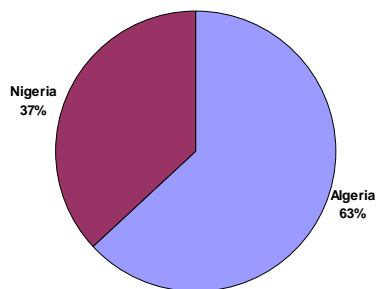
NET IMPORTS BY FUELS



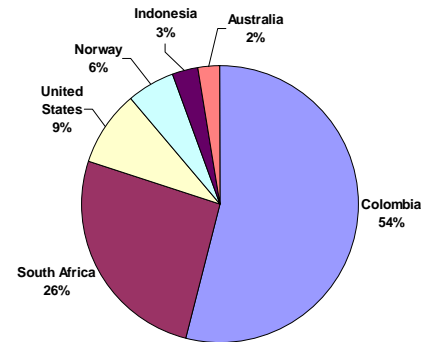
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

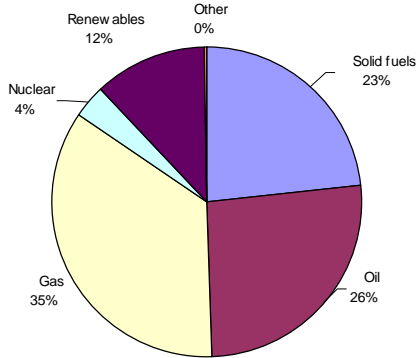


IMPORTS OF HARD COAL

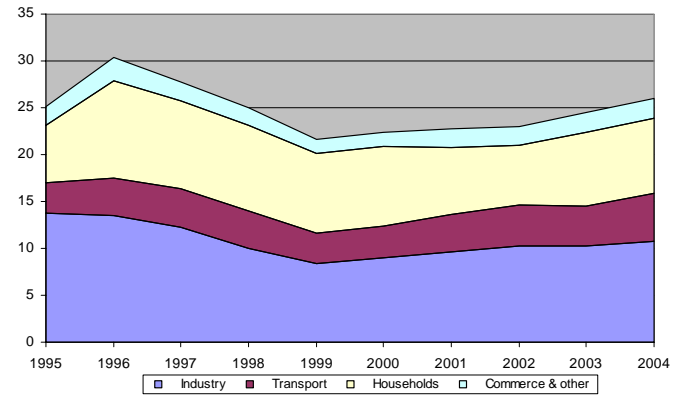


ROMANIA

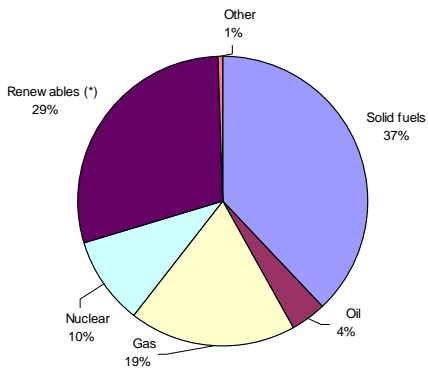
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



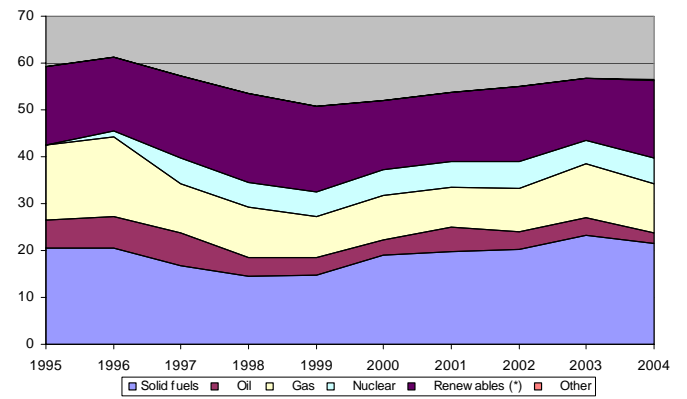
TOTAL FINAL CONSUMPTION (Mtoe)



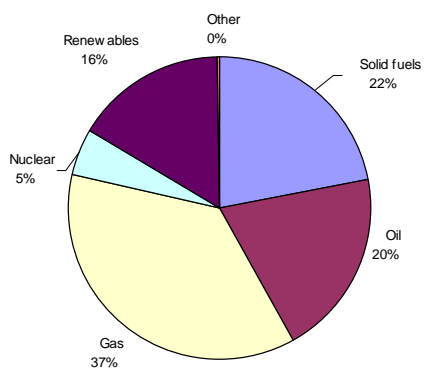
ELECTRICITY MIX



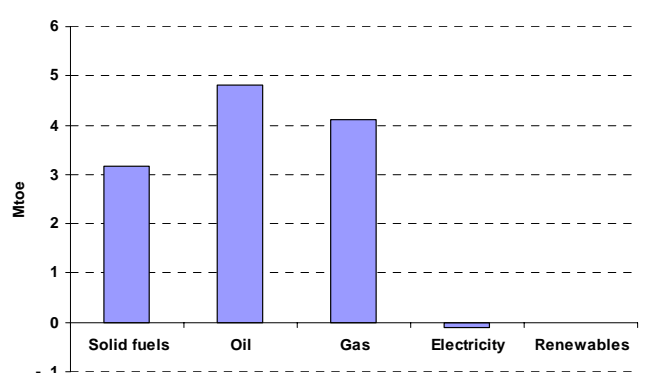
ELECTRICITY GENERATION (TWh)



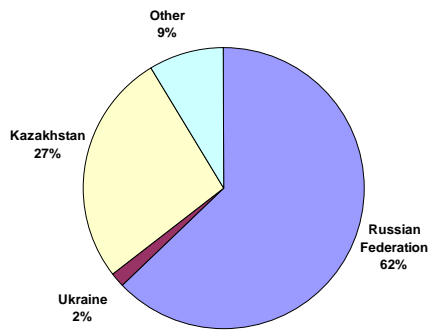
INDIGENOUS PRODUCTION



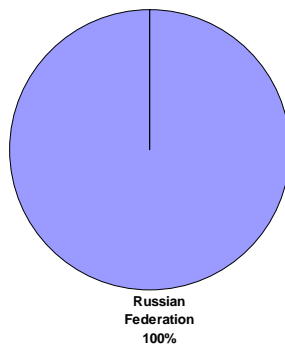
NET IMPORTS BY FUELS



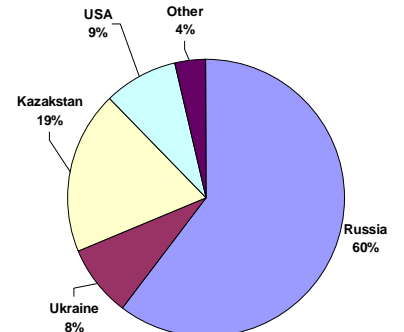
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

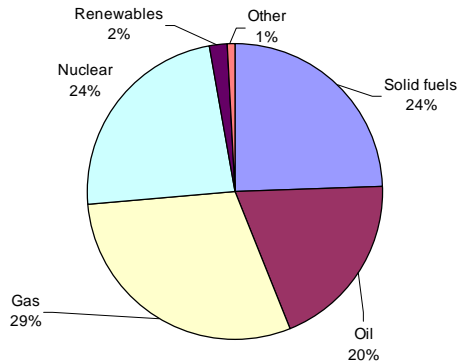


IMPORTS OF HARD COAL

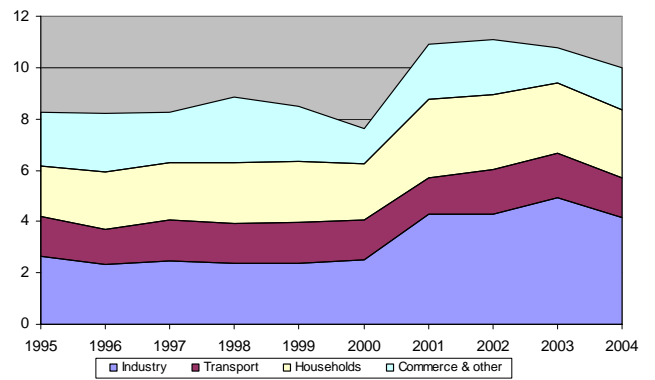


SLOVAKIA

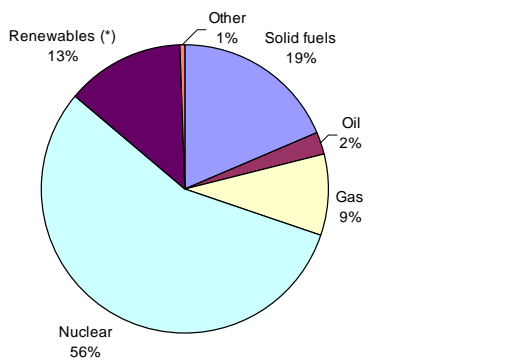
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



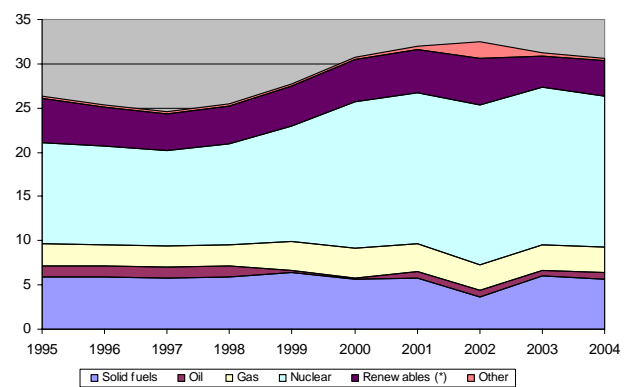
TOTAL FINAL CONSUMPTION (Mtoe)



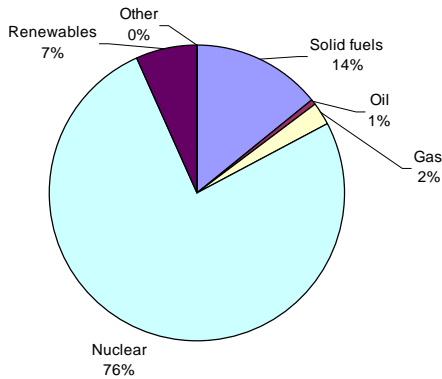
ELECTRICITY MIX



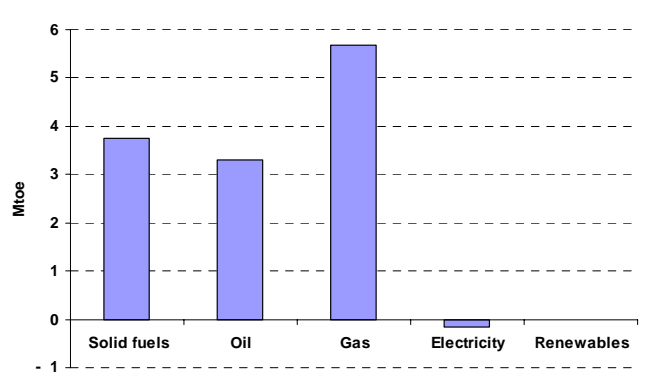
ELECTRICITY GENERATION (TWh)



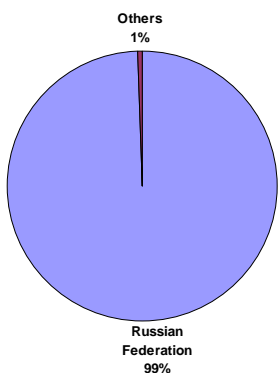
INDIGENOUS PRODUCTION



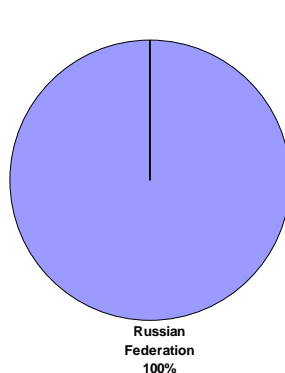
NET IMPORTS BY FUELS



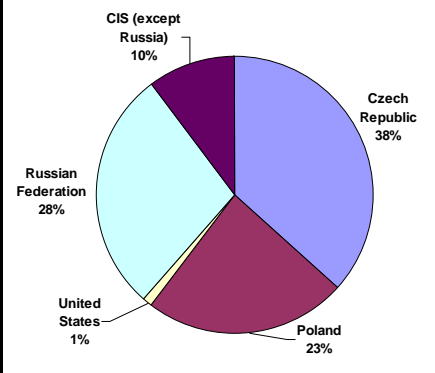
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

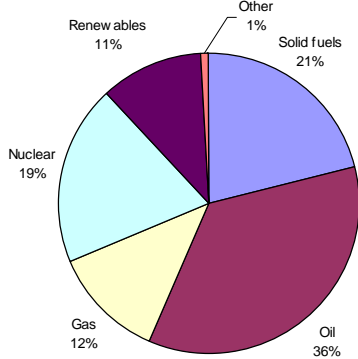


IMPORTS OF HARD COAL

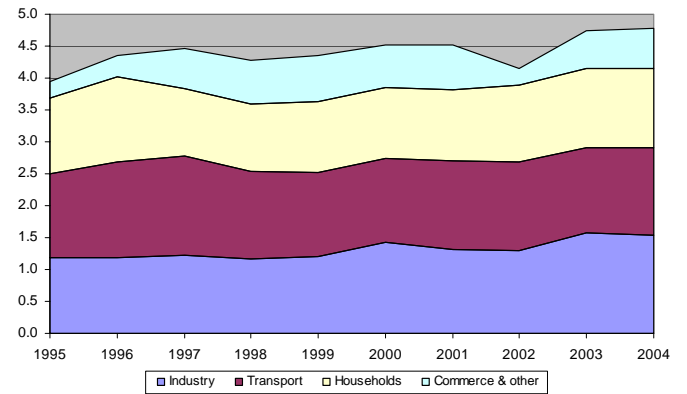


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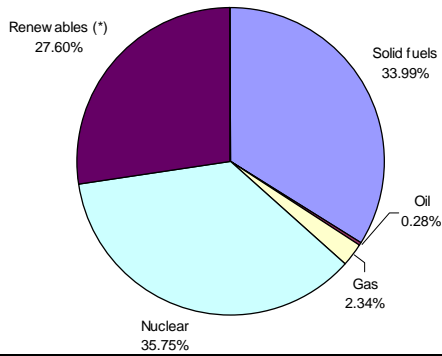
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



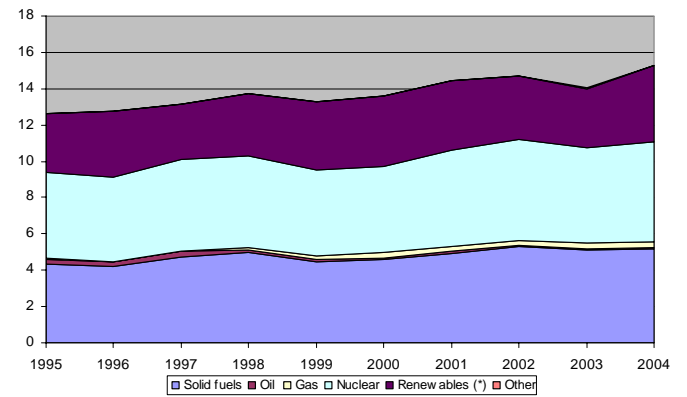
TOTAL FINAL CONSUMPTION (Mtoe)



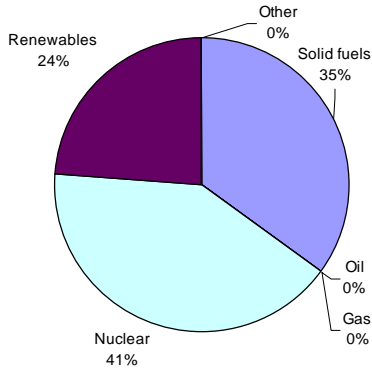
ELECTRICITY MIX



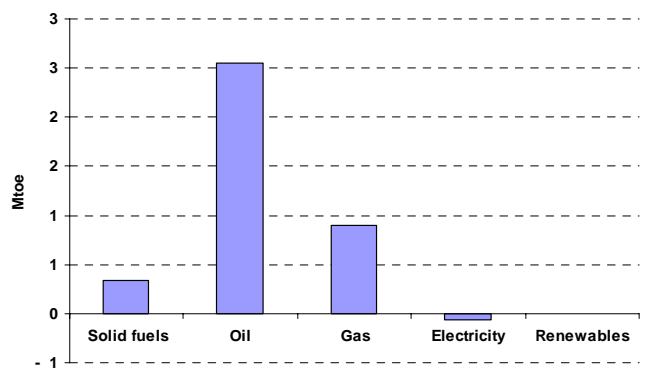
ELECTRICITY GENERATION (TWh)



INDIGENOUS PRODUCTION

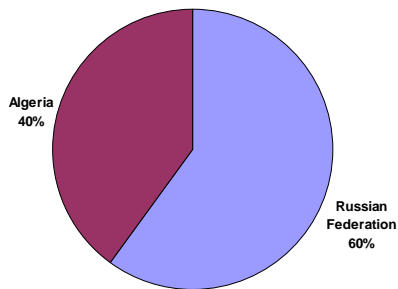


NET IMPORTS BY FUELS

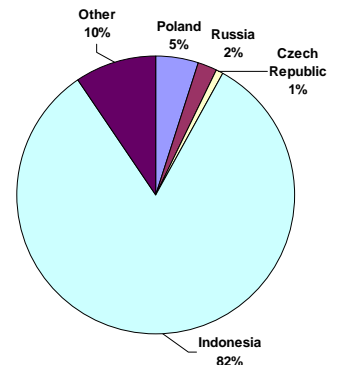


IMPORTS OF CRUDE OIL
No crude imports

IMPORTS OF NATURAL GAS

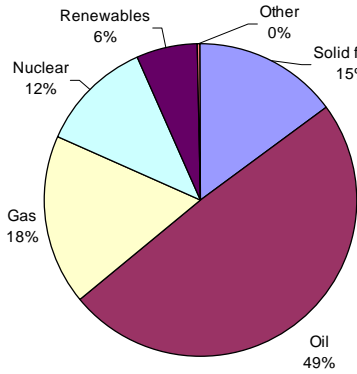


IMPORTS OF HARD COAL

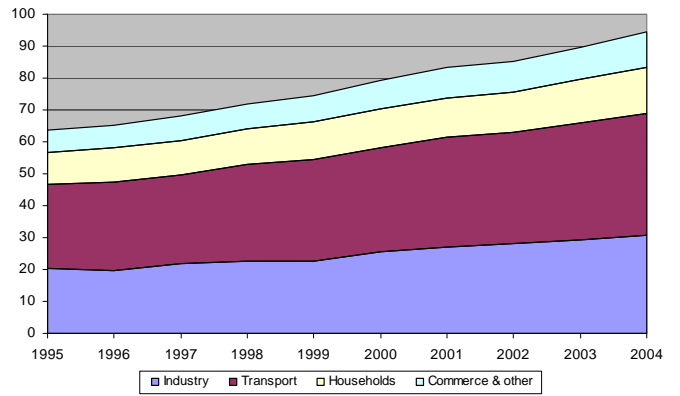


SPAIN

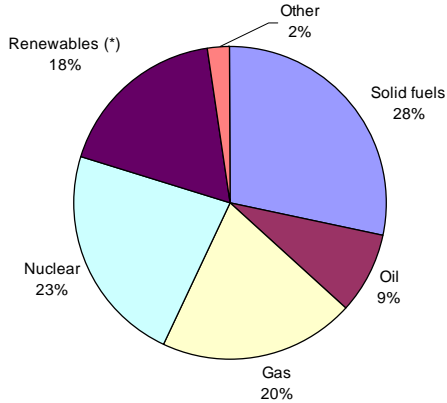
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



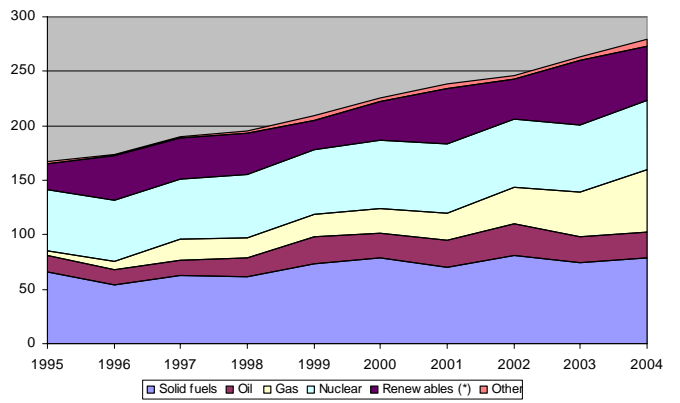
TOTAL FINAL CONSUMPTION (Mtoe)



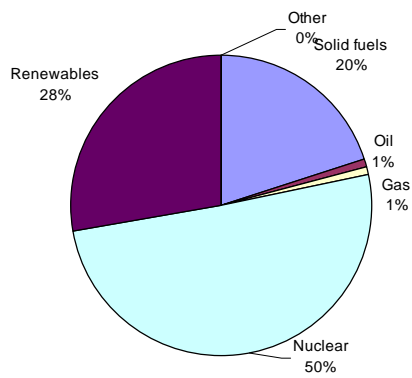
ELECTRICITY MIX



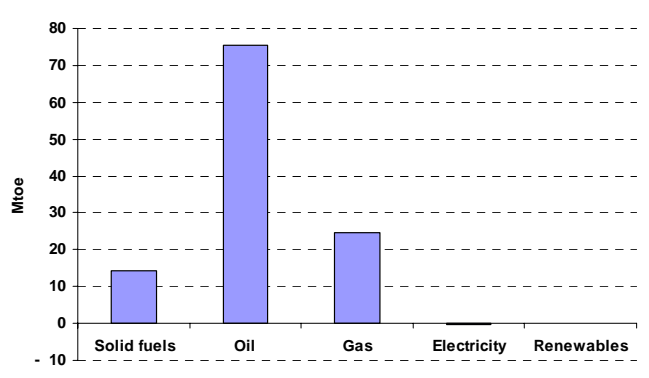
ELECTRICITY GENERATION (TWh)



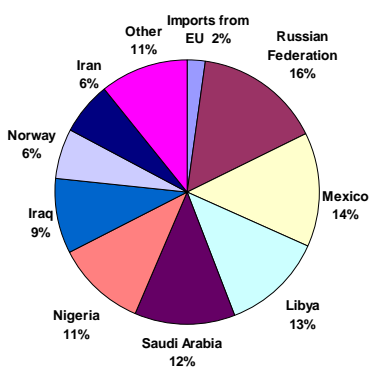
INDIGENOUS PRODUCTION



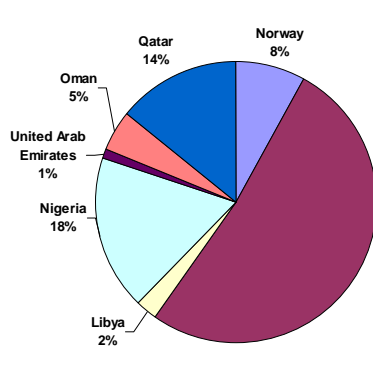
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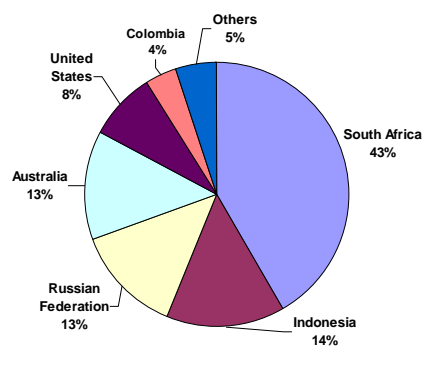
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

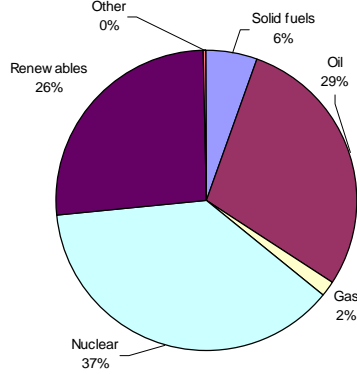


IMPORTS OF HARD COAL

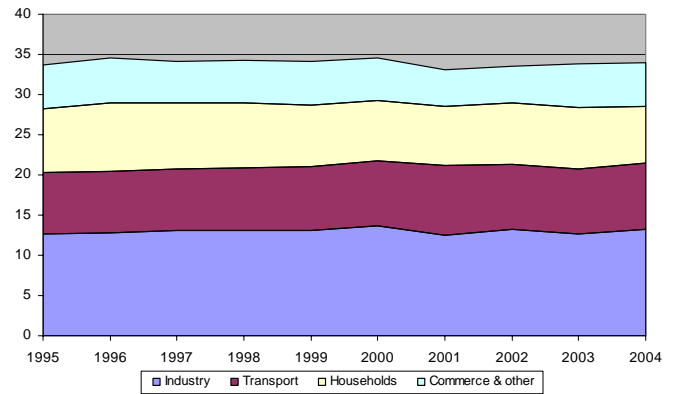


SWEDEN

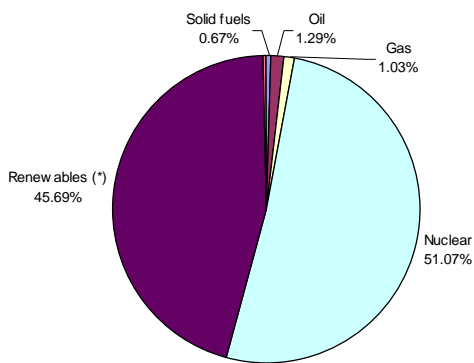
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



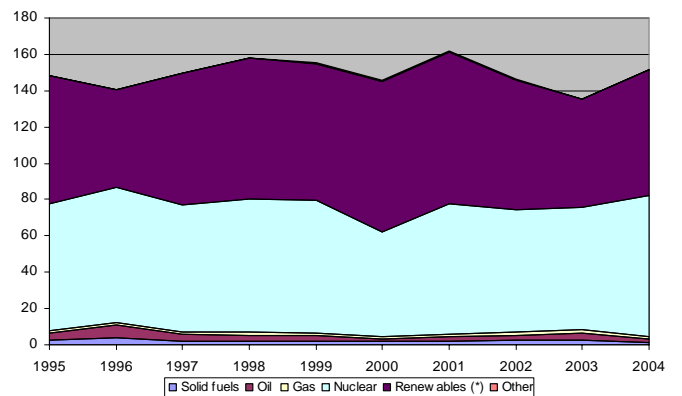
TOTAL FINAL CONSUMPTION (Mtoe)



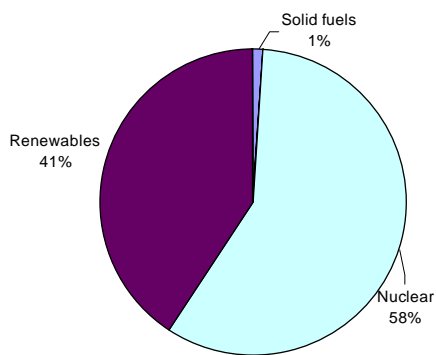
ELECTRICITY MIX



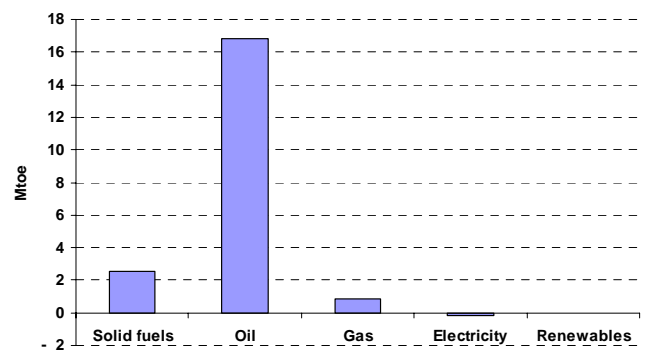
ELECTRICITY GENERATION (TWh)



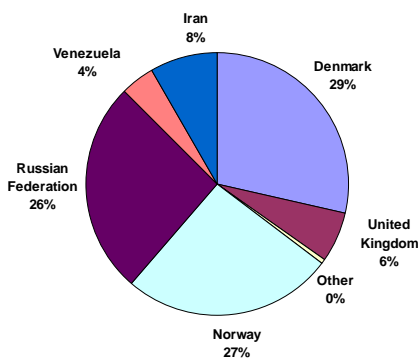
INDIGENOUS PRODUCTION



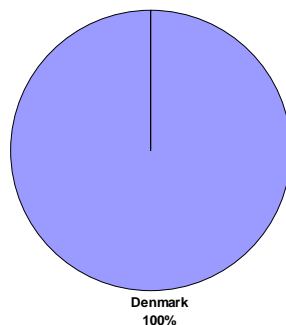
NET IMPORTS BY FUELS



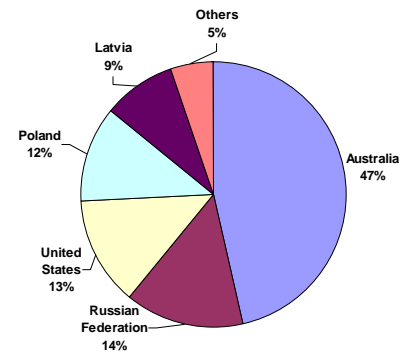
IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS

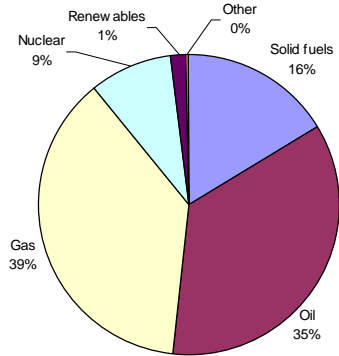


IMPORTS OF HARD COAL

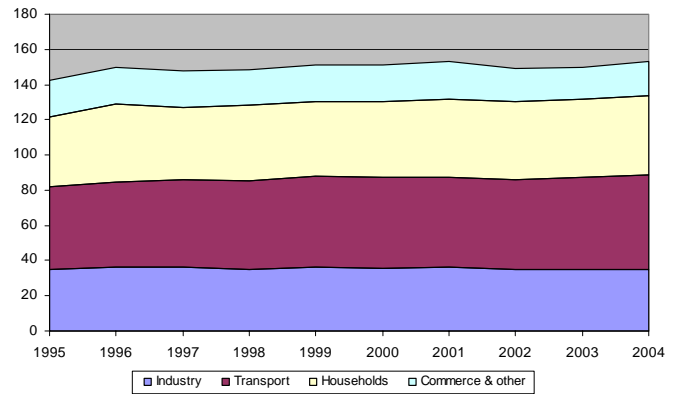


UNITED KINGDOM

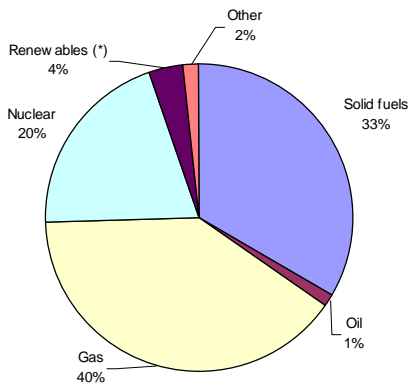
TOTAL PRIMARY ENERGY SUPPLY (ENERGY MIX)



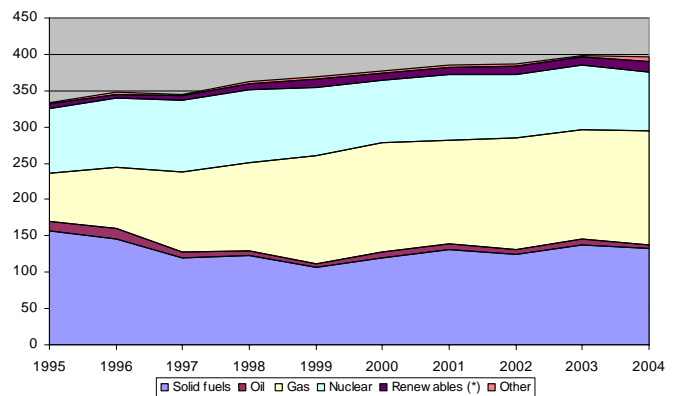
TOTAL FINAL CONSUMPTION (Mtoe)



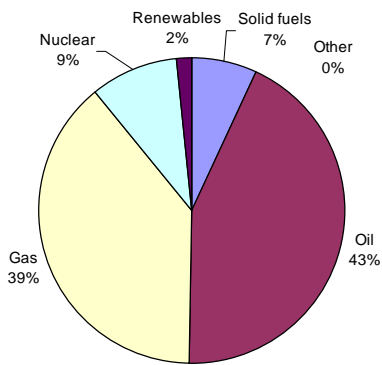
ELECTRICITY MIX



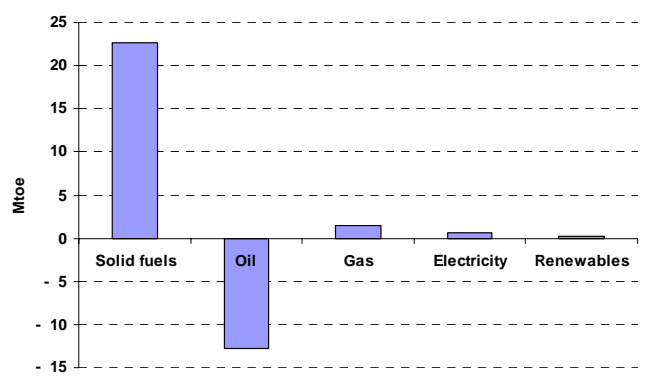
ELECTRICITY GENERATION (TWh)



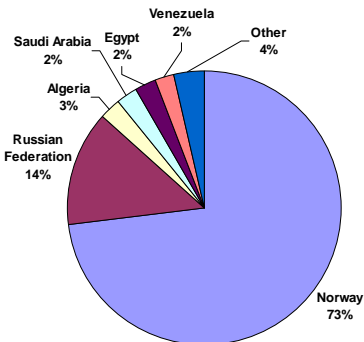
INDIGENEOUS PRODUCTION



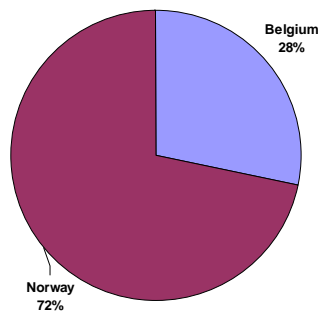
NET IMPORTS BY FUELS



IMPORTS OF CRUDE OIL



IMPORTS OF NATURAL GAS



IMPORTS OF HARD COAL

