

**EU-25**

**Energy Fiches**

**TREN C1**

## Legend:

1. **Gross Inland Consumption – (Mtoe)** – Gross inland consumption is the quantity of energy consumed within the borders of a country. It is calculated using the following formula: primary production + recovered products + imports + stock changes - exports - bunkers (i.e. quantities supplied to sea-going ships)
2. **Indigenous Production - (Mtoe)** - Primary energy production is the extraction of energy from a natural source. The precise definition depends on the fuel involved.

**Coal** - Quantities of fuels extracted or produced, calculated after any operation for removal of 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) as well as any quantities supplied to other on-site producers of energy for transformation 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. The production includes only marketable production, and excludes any quantities re-injected, vented and flared, and any extraction losses. The 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.

**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 case 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. The 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, the production is the heat content (NCV) of the fuel. In the case of biofuels, the production is the heat content (NCV) of the fuel.
3. **Net Import – (Mtoe)** - All energy sources imported, excluded all nuclear set as indigenous.
4. **Import dependency - (%)** - Import dependency shows the extent to which a country relies upon imports in order to meet its energy needs. It is calculated using the following formula: net imports / (gross inland consumption+bunkers).
5. **RES-E 2010 target – (%)** – MS target for the share of electricity production from renewables according to directive 2001/77/EC
6. **RES-E 2004 status – (%)** – Share of electricity produced from RES by MS in 2004. Counted from Eurostat data for 2004, which are - 12b Power generation.
7. **Renewables**
  - a. **Production**
    - i. **RES-E - (GWh)** – All known RES electricity generation. Summary of all GWh figures, except “Small HPP” and “Biogashere are used all known data related to renewables for 2004 year. This figure sometimes differs of the figure “12b Power Generation - for RES”. (See 12b).
      1. **Hydro - (GWh)** – 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.
        - a. **Tide, Wave, Ocean – (MW)** - summary of electricity generated by power plants using Tide, Wave and Ocean energy
      2. **Wind – (GWh)** - 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.
      3. **Biomass el - (GWh)** - electricity generated by all types of biomass plants includes biogas.
      4. **Solar PV – (GWh)** – electricity generated by photovoltaic
      5. **Geothermal el - (GWh)** –electricity generated by geothermal power plants
    - ii. **RES Heat - (TJ)** - All known RES heat production. Summary of all TJ figures, except “Biogas”
      1. **Biomass th - (TJ)** - heat produced by all types of biomass plants includes biogas.
      2. **Solar Heating – (TJ)** - heat produced by all types of solar thermal devices
      3. **Geothermal th – (TJ)** - heat produced by all types of geothermal heating devices, exclude heat pumps
      4. **Heat Pumps – (TJ)** - heat produced by Heat Pumps
  - b. **Installed Capacity - (MW)**
    - i. **Total RES – (MW)** – summary of installed capacity of renewables
    - ii. **Hydro – (MW)** – summary of installed capacity of Hydro power plants includes Small HPP and Pumping HPP as well. Tide, Wave and Ocean power plants are included as well, because Eurostat is using it in this way.
      1. **Tide, Wave, Ocean – (MW)** - summary of installed capacity of power plants using Tide, Wave, Ocean energy
    - iii. **Wind – (MW)** – summary of installed capacity of Wind power plants
    - iv. **Total Biomass – (MW)** – summary of installed capacity of Biomass plants
    - v. **Solar PV – (MW)** – summary of installed capacity of PV plants
    - vi. **Solar Heating – (MW)** – summary of installed capacity of Solar Thermal Collectors
      1. **Solar Thermal Collector’s Surface - (m<sup>2</sup>)** – Surface of Solar Thermal Collectors, which are installed in Member States
    - vii. **Geothermal el – (MW)** – summary of installed capacity of Geothermal power plants

- viii. **Geothermal th – (MW)** – summary of installed capacity of geothermal devices used for heating, exclude Heat pumps
- ix. **Heat Pumps – (MW)** - summary of installed capacity of Heat pumps
  - 1. **HP installed – (pc)** - Number of Heat Pumps installed in Member States
- 8. **Biofuels: Biodiesel – (tons), Bioethanol – (tons), ETBE – (tons)**
- 9. **CHP-E** – Share of electricity generated by CHP in 2002, published in January 2006 by Eurostat
- 10. **Investment in Research** – total amount used by MS in mEUR, and as a share in per cent of GDP.
- 11. **Final Energy Consumption – (Mtoe)** - Final energy consumption is the energy finally consumed in the transport, industrial, commercial, agricultural, public and household sectors. It excludes deliveries to the energy transformation sector and to the energy industries themselves.
  - a. **Subdivision by Sector**
  - b. **Subdivision by Energy Source**
- 12. **Electricity** – all 2004 data according Eurostat
  - a. **Installed Capacity (MW)**
  - b. **Power generation (TWh)** – For Renewables, these figures are preliminary figures from Eurostat for 2004.
- 13. **Liberalisation of electricity and gas markets** – 2005 data
  - a. **Market opening (%)**
  - b. **Transmission System Unbundling** – mode of Transmission System Unbundling of each Member State. Not possible for EU-25 table
  - c. **Distribution System Unbundling** - mode of Distribution System Unbundling of each Member State. Not possible for EU-25 table
- 14. **GIC per capita – (kgoe/cap)** - Gross Inland Consumption per capita
- 15. **Energy Intensity (toe/M€95)** - energy intensity gives an indication of the effectiveness with which energy is being used to produce added value. It is defined as the ratio of Gross Inland Consumption of energy to Gross Domestic Product.
- 16. **CO<sub>2</sub> Emissions per capita - (kg/cap)**
- 17. **Carbon Intensity – (tCO<sub>2</sub>/toe)**
- 18. **CO<sub>2</sub> Emissions – (Mt)**
- 19. **Kyoto Target – (%)** -Target set in Annex 1 of the Kyoto Protocol
- 20. **Proved reserves**
  - a. **Crude Oil – (bbl)** - from Oil and Gas Journal for 1.1.2006
  - b. **Natural gas – (bcm)** from IEA, end of 2004
  - c. **Nuclear – (Mt)** – all raw uranium, informational number from WEC from 2000
  - d. **Hard Coal – (Mt)** – from IEA 2004
  - e. **Brown Coal – (Mt)** – from IEA 2004
  - f. **Peat – (Mt)** - only proved reserved, which are set as exploitable, informational number from WEC from 2000
- 21. **Oil Stocks – (tons)** - According to DG TREN, at 30.9.2005, resp. 31.10.2005 (PT, CZ, LV, SK, MT, SI), 31.8.05 (AT)
- 22. **Gas Stocks – (bcm)** - according to IEA, end of 2004
- 23. **Oil Storage Capacity**
- 24. **Gas Storage Capacity – (bcm)** - according to IEA in 2004

## Comments

- (e) - estimated
- (p) – provisional value
- (s) – estimated by Eurostat

## Abbreviations

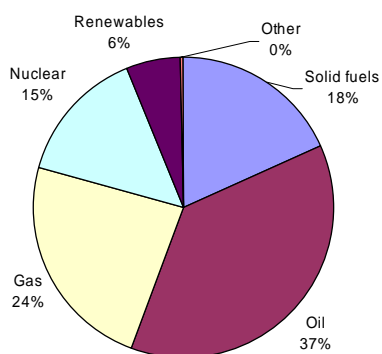
- bbl - barrel
- bcm – billion cubic metres
- cap – capita
- GDP – Gross Domestic Product
- GWh – Gigawatt hours
- HPP – Hydro Power Plant
- kg – kilogram
- kgoe – kilogram of oil equivalent
- ktoe – thousand tons of oil equivalent
- m<sup>2</sup> – square metres
- mEUR – million EUR
- Mt – million tons
- Mtoe – million tons of oil equivalent
- MW – Megawatts
- M€95 – million EUR in 1995 currency
- n.a. - not available
- pc – pieces
- PV – photovoltaic
- tCO<sub>2</sub> – tone of CO<sub>2</sub>
- TJ – Terajoule
- TWh – Terawatt hours

## Sources

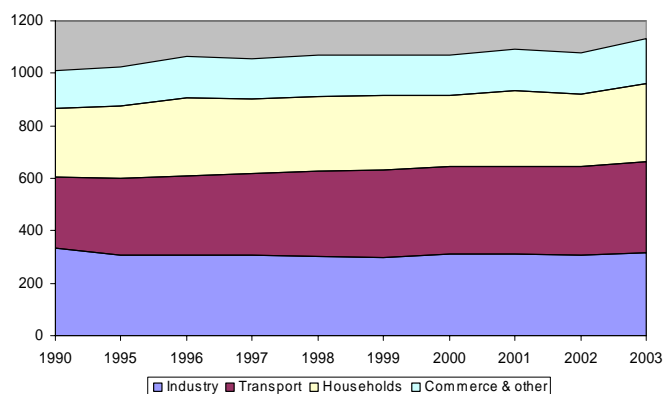
Data are mainly from DG TREN Pocket book and Eurostat if there were available. Some of data are from IEA, WEC and Oil and Gas Journal. All data are at least for 2003 include the basic statistic (Gross Inland Consumption, Indigenous Production, Net Import, Final Energy Consumption and Sustainable Development Indicators). Power Generation, Installed capacity and RES data are of 2004 data. Liberalisation market data are of 2005.

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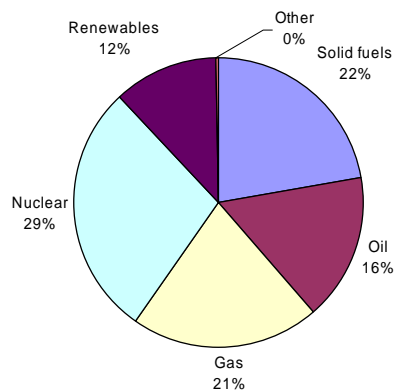
### GROSS INLAND CONSUMPTION (Mtoe)



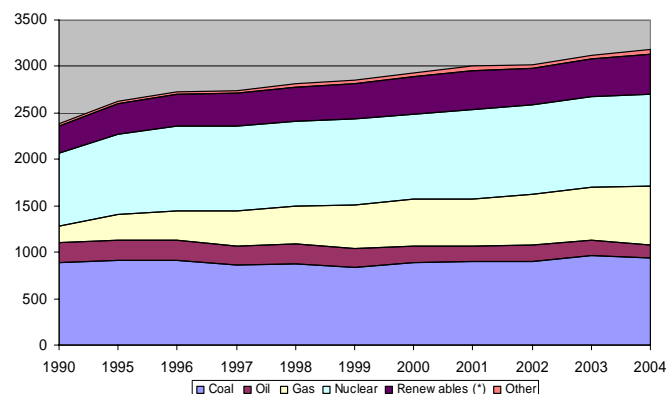
### FINAL ENERGY CONSUMPTION (Mtoe)



### INDIGENEOUS PRODUCTION (Mtoe)



### ELECTRICITY GENERATION (TWh)



Gross Inland Consumption (Mtoe)		Total		1726,03		Final Energy Consumption (Mtoe)		
Solid	314,38	Nuclear	251,16	Industry	317,18	Solid	51,16	
Oil	645,85	Renewables	103,40	Transport	344,38	Oil	476,43	
Gas	408,08	Others	3,16	Households	300,53	Gas	275,17	
<b>Indigenous Production (Mtoe)</b>		<b>Total</b>		<b>888,17</b>		Commerce	129,00	
Solid	196,64	Nuclear	251,16	Others	40,48	Electricity	224,55	
Oil	145,12	Renewables	103,11	<b>Total</b>	<b>1131,56</b>	Renewables	48,16	
Natural Gas	189,39	Other	2,74			Other	56,10	
<b>Net Import (Mtoe)</b>		<b>Total</b>		<b>875,47</b>		<b>Electricity</b>		
Solid	111,30	Electricity	0,41	Thermal	407 709	Coal	936,72	
Oil	547,29	Renewables	0,30	Nuclear	132 985	Oil	142,81	
Natural Gas	216,16	Derived Heat	0,00	Hydro	131 440	Gas	631,85	
<b>Import dependency</b>				Of which pumping	30 191	Nuclear	986,10	
				Wind	33 566	Renewables	436,86	
<b>Renewables</b>	2010 target	21%	2004 status	13,74%	Geothermal	695	Other	44,82
<b>RES Production</b>		<b>RES Installed capacity</b>		<b>Total</b>	<b>706 396</b>	<b>Total</b>	<b>3179,16</b>	
<b>RES-E</b>	<b>437 225 GWh</b>	<b>Total RES</b>	<b>196 802 MW</b>	<b>Liberalisation</b>		<b>Electricity</b>		
Hydro	303 883 GWh	Hydro	131 440 MW	<b>Opening</b>		90 %		
Of which SmallHPP	n.a.	Of which Small HPP	11 598 MW	<b>Transmiss. unbundling</b>				
Tide, Wave, Ocean	518 GWh	Tide, Wave, Ocean	241 MW	<b>Distribut. unbundling</b>				
Wind	58 521 GWh	Wind	33 566 MW	<b>GIC per capita</b>		3773 kgoe/cap		
Biomass el	68 565 GWh	Total Biomass	11 549 MW	<b>Energy intensity</b>		208 toe/M€95		
Of which biogas	10 895 GWh	Of which biogas	1 899 MW	<b>CO<sub>2</sub> emissions per capita</b>		8428 kg/cap		
Solar PV	735 GWh	Solar PV	1 010 MW	<b>Carbon intensity</b>		2,23 tCO <sub>2</sub> /toe		
Geothermal el	5 521 GWh	Solar Heating	10 754 MW	<b>CO<sub>2</sub> emissions</b>		3853 Mt		
<b>RES Heat</b>	<b>589 075 TJ</b>	Geothermal el	695 MW	<b>Kyoto target</b>		- %		
Solar Heating	23 995 TJ	Geothermal th	2 059 MW	<b>Estimated Proved Reserves</b>				
Biomass th	522 354 TJ	Heat Pumps	4 531 MW	Crude Oil	7 072 261 bbl	Hard Coal	17 424 Mt	
Of which biogas	5 271 TJ	Solar Collector's Surface -Thermal	15 361 824 m <sup>2</sup>	Natural Gas	3 217 bcm	Brown Coal	18 482 Mt	
Geothermal th	25 272 TJ	HP installed	379 183 pc	Nuclear	66,7 Mt	Peat	2 478 Mt	
Heat Pumps	n.a.	<b>Biodiesel</b>	1 933 400 t	<b>Oil Stocks</b>	141 744 000 t	118 days		
<b>CHP-E</b>	9,9 %	<b>ETBE</b>	626 300 t	<b>Gas Stocks</b>	n.a.			
<b>Investment in research</b>	195 042 mEUR	1,90% of GDP		<b>Oil Storage capacity</b>	n.a.			
				<b>Gas Storage capacity</b>	n.a.			