

FINLAND – Energy Mix Fact Sheet

Policy Background

A European energy policy must pursue the objective of a sustainable, competitive and secure supply of energy. If the EU continues on its present course, this key objective will not be attained. In January 2007, the European Commission adopted an energy policy for Europe. This was supported by several documents on different aspects of energy and included an action plan to meet the major energy challenges Europe faces. Each European citizen must be informed of these challenges and the role they should play in meeting them.

A diversified mix of energies will increase security of supply.

Key Issues

Primary energy supply in Finland is quite diverse with five different fuels each contributing more than 10% each to total supply. Domestic production is largely based on renewable sources, with significant nuclear energy production. Energy import dependency is slightly above EU-25 average. Imports consist mainly of oil, gas and solid fuels, with the Russian Federation being a major supplier for all three fuels. Electricity generation is also diverse in terms of fuels used, with renewable energy contributing the largest share and natural gas exhibiting the largest increase in recent years. Energy consumption and CO₂ emissions per capita are higher than EU-27 average.

Key Figures (2004)

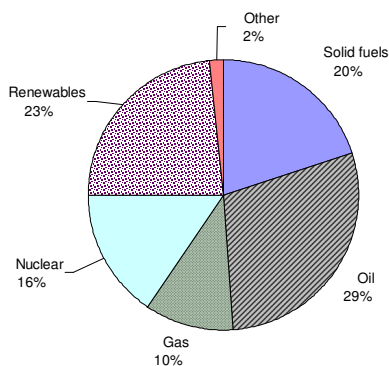
Mtoe	Primary Energy Supply	Domestic Production	Net Imports	Final Energy Consumption	Electricity Generation (TWh)
Solid fuels	7.5	0.8	5.5	1.0	23.0
Oil	10.9	0.2	11.0	8.2	0.6
Gas	4.0		4.0	1.3	13.3
Nuclear	5.9	5.9			22.7
Electricity			0.4	7.1	
Renewables	8.8	8.9	-0.1	5.3	25.7
Other	0.6	0.2		3.6	0.5
Total	37.7	15.9	20.8	26.5	85.8

The source for all data is the European Commission, unless otherwise stated

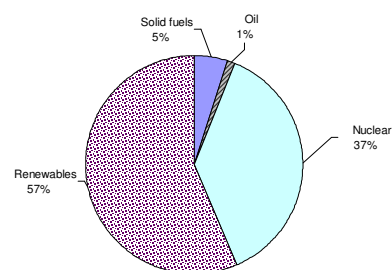
Key Indicators (2004)

	FINLAND	EU-27
Energy per capita (kgoe/cap)	7 214	3 689
Energy intensity (toe/MEUR '00)	263	185
Energy import dependency %	54.4	50.1
CO ₂ Emissions (Mt)	68	4 004
CO ₂ intensity (tCO ₂ /toe)	1.8	2.2
CO ₂ per capita (kg/cap)	12 964	8 180

2004 Primary Energy Supply



2004 Domestic Production

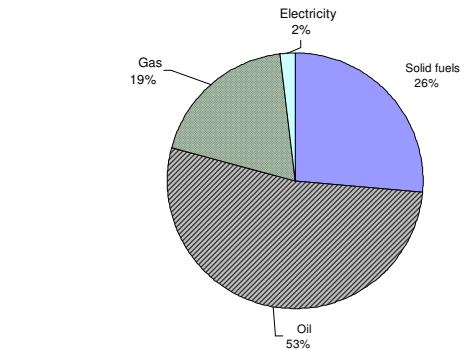
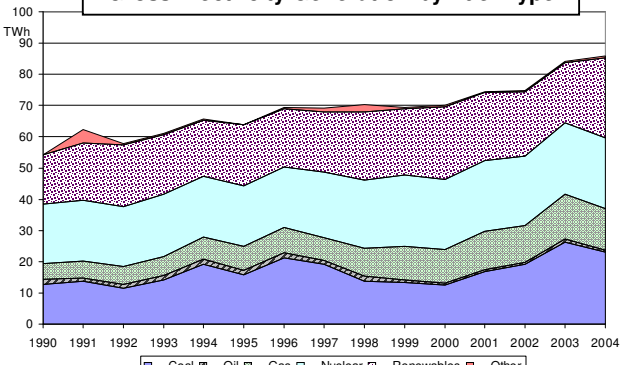
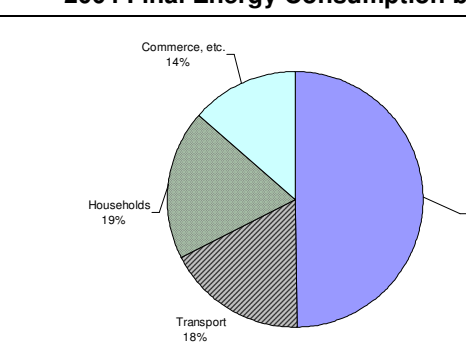


Primary Energy Supply

Primary energy supply has been steadily increasing since 1990. Oil is the most important energy source, although at a share much lower than the EU-27 average of 38%. On the other hand, the share of renewable energy sources, which is also significant in Finland, is much higher than the EU-27 average of 6%. The supply of natural gas has shown the largest increased of 75% over the period 1990-2004, although share in total supply is still at low levels. Solid fuels and nuclear also have significant shares, contributing to a diverse primary energy supply.

Domestic Production

Renewable sources dominate Finland's domestic production, accounting for a 57% of total (significantly higher than the EU-27 average of 12%). Nuclear energy production is also significant, with an increasing rate over recent years. Total domestic production exhibited an increase of 36% since 1990.

<p>Imports</p> <p>Finland exhibits an energy import dependency slightly above EU average. More than half of energy imports are crude oil. Solid fuels account for over a quarter of total imports, with gas accounting for 19%. The Russian Federation provides all of the natural gas and most of the crude oil and hard coal imports into Finland.</p>	<p>2004 Net Imports by Energy Product</p>  <table border="1"> <caption>2004 Net Imports by Energy Product</caption> <thead> <tr> <th>Energy Product</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Oil</td> <td>53%</td> </tr> <tr> <td>Solid fuels</td> <td>26%</td> </tr> <tr> <td>Gas</td> <td>19%</td> </tr> <tr> <td>Electricity</td> <td>2%</td> </tr> </tbody> </table>	Energy Product	Percentage	Oil	53%	Solid fuels	26%	Gas	19%	Electricity	2%																																																																																																						
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<p>Electricity Generation</p> <p>Electricity generation has increased significantly since 1990 (nearly 60% increase). Renewable sources, including hydro generation, accounted for almost 30% of electricity in 2004. They cover an important (although fluctuating) share in total generation. Significant shares of generation are also covered by hard coal and nuclear energy. The largest increase in recent years has been from natural gas.</p>	<p>Gross Electricity Generation by Fuel Type</p>  <table border="1"> <caption>Gross Electricity Generation by Fuel Type (TWh)</caption> <thead> <tr> <th>Year</th> <th>Coal</th> <th>Oil</th> <th>Gas</th> <th>Nuclear</th> <th>Renewables</th> <th>Other</th> </tr> </thead> <tbody> <tr><td>1990</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1991</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1992</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1993</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1994</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1995</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1996</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1997</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1998</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>1999</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>2000</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>2001</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>2002</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>2003</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> <tr><td>2004</td><td>10</td><td>10</td><td>5</td><td>5</td><td>15</td><td>5</td></tr> </tbody> </table>	Year	Coal	Oil	Gas	Nuclear	Renewables	Other	1990	10	10	5	5	15	5	1991	10	10	5	5	15	5	1992	10	10	5	5	15	5	1993	10	10	5	5	15	5	1994	10	10	5	5	15	5	1995	10	10	5	5	15	5	1996	10	10	5	5	15	5	1997	10	10	5	5	15	5	1998	10	10	5	5	15	5	1999	10	10	5	5	15	5	2000	10	10	5	5	15	5	2001	10	10	5	5	15	5	2002	10	10	5	5	15	5	2003	10	10	5	5	15	5	2004	10	10	5	5	15	5
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<p>Final Energy Consumption</p> <p>Industry is the single most important energy-consuming sector with a share well above EU-25 average of 28%. Growth mainly in the industrial and commercial sectors over the past 8 years has led to a 23% growth of final energy consumption in Finland. In terms of types of energy consumed, oil, electricity and renewable sources dominate.</p>	<p>2004 Final Energy Consumption by Sector</p>  <table border="1"> <caption>2004 Final Energy Consumption by Sector</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Industry</td> <td>49%</td> </tr> <tr> <td>Households</td> <td>19%</td> </tr> <tr> <td>Transport</td> <td>18%</td> </tr> <tr> <td>Commerce, etc.</td> <td>14%</td> </tr> </tbody> </table>	Sector	Percentage	Industry	49%	Households	19%	Transport	18%	Commerce, etc.	14%																																																																																																						
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<p>For further information</p> <p>If you want to find more data on Finland or other Member State energy markets, go to http://epp.eurostat.ec.europa.eu/http://ec.europa.eu/dgs/energy_transport/figures/pocketbook/2006_en.htm</p> <p>Further fact sheets on Finland and other Member States can be found on: http://ec.europa.eu/energy/energy_policy/facts_en.htm</p>																																																																																																																	
<p>What is meant by.....?</p> <p><i>Energy Import Dependency</i> 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 / (primary energy supply+bunkers)</p> <p><i>Energy Intensity</i> gives an indication of the effectiveness with which energy is being used to produce added value. It is defined as the ratio of Primary Energy Supply to Gross Domestic Product</p> <p><i>Final Energy Consumption</i> 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</p> <p><i>Primary Energy Supply</i>: The quantity of energy consumed within the borders of a country: primary production + recovered products + imports + stock changes - exports - bunkers (i.e. quantities supplied to sea-going ships)</p>																																																																																																																	
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