

COUNTRY ANALYSIS BRIEFS

European Union

Last Updated: January 2006

The European Union is comprised of 25 countries, with Bulgaria and Romania to be added in 2007.

Background

The European Union (EU) is comprised of 25 independent countries that have united under one European institutional structure, while maintaining national sovereignty. The 1957 Treaty of Rome established the European Economic Community (EEC), which consisted of six-member countries. The purpose behind the treaty was to create a free trade zone where the movement of goods, capital, workers and services was unrestricted. Since 1957, the accession of 19 additional countries has increased EU membership to the current total. Candidate countries scheduled to accede to the EU in 2007 include Bulgaria and Romania, while Turkey and Croatia are currently negotiating for membership.



The EU's original objective was to oversee the economic operations of the member countries' single internal market. Each member country delegates a degree of sovereignty to the EU's network of institutions. National governments are represented in the Council of the European Union, and citizens of the member states are elected to the European Parliament. The 1993 Maastricht Treaty created European citizenship, strengthened the power of the European Parliament, and generated plans for the Economic and Monetary Union (EMU). Within the EMU, 12 EU member states adopted a common currency, the euro. EMU monetary policy of the euro area is administered by the European Central Bank in Frankfurt, Germany. With some exceptions, goods, capital, and labor can move freely between member states. In addition to internal economic dealings, the EU's large, unified market has led to greater economic leverage internationally.

The EU has seen a decline in real gross domestic product (GDP) growth rates over the past decade. The 2001 – 2005 average GDP growth rate was 1.6 percent per year. By comparison, the 1996 – 2000 period registered an average yearly GDP growth rate of 2.9 percent. The decline exhibited in GDP growth rates over the last five years has been attributed to member countries' national governments failing to complete reforms set forth in the Lisbon Agenda. The Lisbon Agenda was created in 2000 to stimulate economic growth by encouraging flexibility, innovation, entrepreneurship and e-commerce within the EU. In March 2005, the European Commission re-launched the Lisbon Agenda, seeking to increase the EU's GDP growth rate to 3.0 percent and to create six million new jobs by 2010.

Energy

The European Union

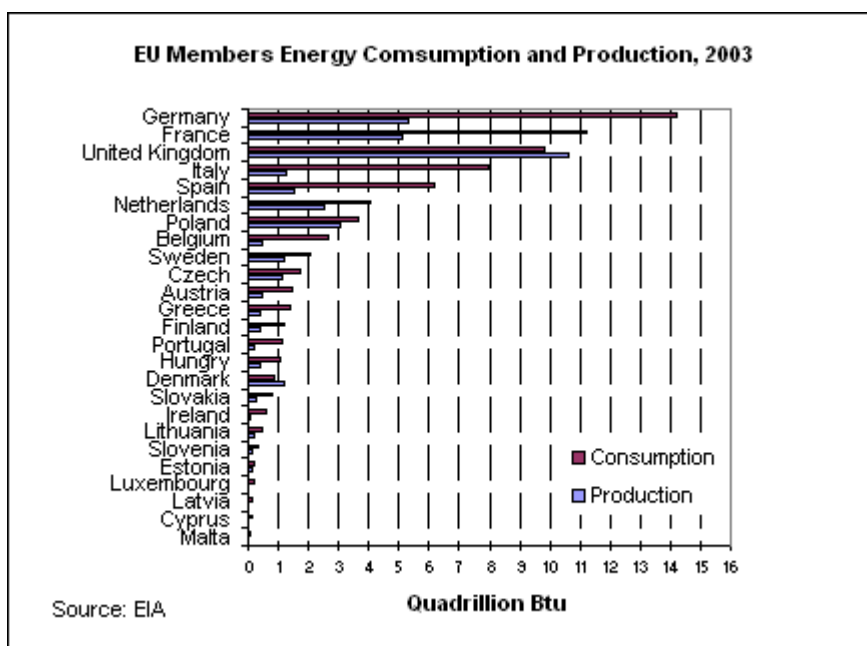
is a net importer of energy.

EU members possess approximately 0.6 percent of the world's proven oil reserves and 2.0 percent of the world's proven natural gas reserves. The EU holds 4.0 percent of proven coal reserves, and 18.0 percent of the world's electric generating capacity.

The EU is a net importer of energy. According to a report published by the European Commission, (*European Union Energy Outlook to 2020*), two-thirds of the EU's total energy requirements will be imported by 2020. Eurogas expects that the EU will import up to 75 percent of its natural gas requirements by 2020. EU member countries import oil predominately from Russia, Norway, Africa and the Middle East.

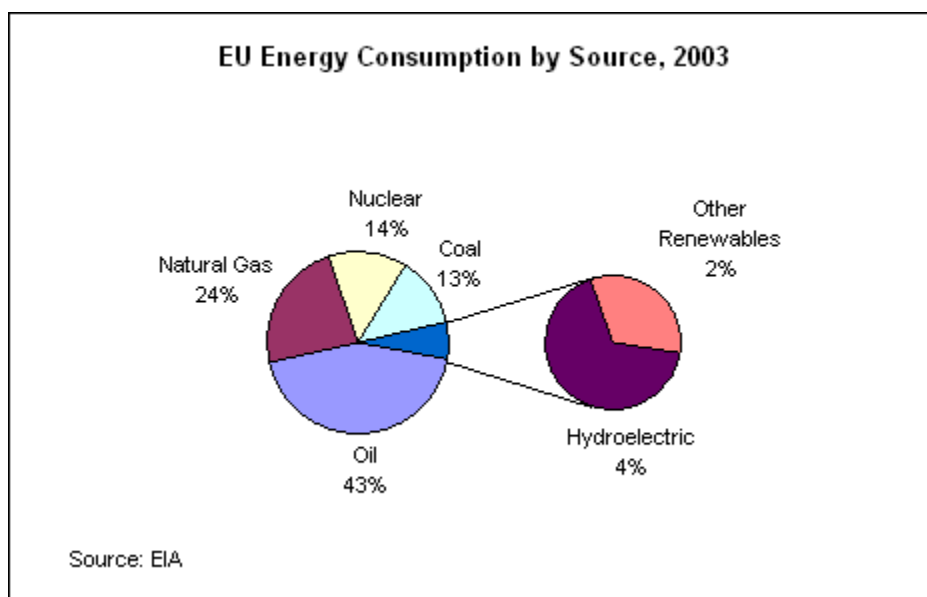
Energy Consumption

In 2003, the EU consumed 73.7 quadrillion British thermal units (Btu) of energy, 17 percent of the world's total energy consumption. In comparison, the United States consumed 98.8 quadrillion Btu (23 percent of world total) in 2003.



The EU's dominant fuel in 2003 was oil, accounting for 40 percent of total EU energy consumption. Over the past decade, natural gas has been the fastest growing fuel source in the EU. In 2003, natural gas accounted for 24 percent of EU energy consumption. The increase in natural gas consumption has been mainly at the expense of coal, whose share declined from 20 percent in 1991 to 13 percent in 2003.

Environmental concerns are a major reason for the decline in the use of coal, most evident in the EU's [Directive 2001/80/EC](#), which seeks to limit air pollutants produced from large coal-fired combustion plants. The Directive requires all thermal power generators with at least 50 MW of capacity to reduce their nitrogen oxides (NO_x) and sulfur dioxide (SO₂) emissions or face closure. Generators deciding not to comply will only be allowed to operate for 20,000 hours after the Directive comes into force in 2008. The EU carbon emissions trading scheme, which began in January 2005, limits the amount of carbon dioxide (CO₂) power generators can emit, further decreasing the probability of expanded coal use in current EU member countries. Other factors in coal's decline include the increased availability of natural gas supplies from Russia, Norway, and Algeria by pipeline, as well as increased liquefied natural gas (LNG) imports from Nigeria.



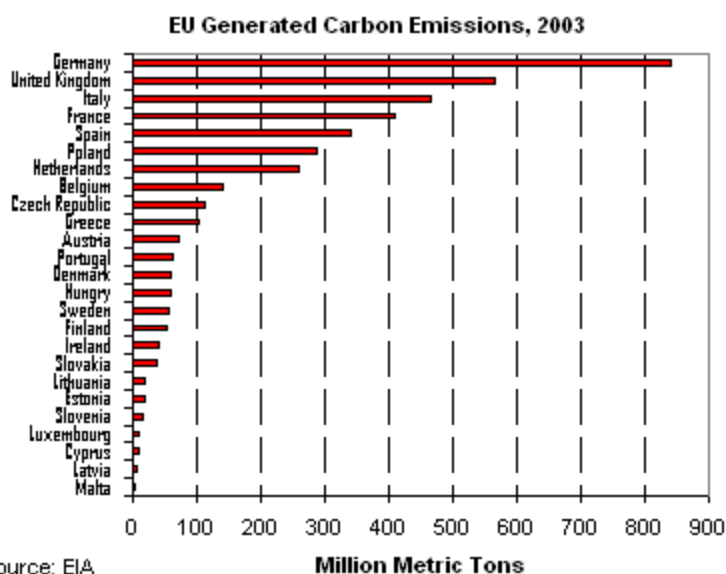
Nuclear power currently accounts for 14 percent of total EU energy consumption. The future of nuclear power in Europe is unclear; some countries have begun to move away from this source of energy, while others have launched programs to build new capacity. With no economical alternatives, Sweden decided to postpone the closing of its second reactor in 2003. Similarly, the Dutch government decided in May 2003 to postpone closure of its only nuclear power plant, Borssele, until 2013. Although Belgium decided in January 2003 to phase out its seven reactors by 2025, the government has faced opposition from the industry. Conversely, Finland plans to bring a new 1,600-MW reactor online by 2009, and a new French reactor is being planned.

In 2003, hydroelectric power accounted for approximately 4 percent of total EU power consumption. Although other "renewables" (geothermal, biomass, solar, and wind) constituted only 2 percent of total EU energy consumption in 2003, wind power has made great strides over the past decade. At the end of 2004, the EU had installed wind capacity of over 34,000 MW, according to the data published by the European Wind Energy Association (EWEA). Denmark's 166-MW Nysted wind farm, the largest such development in the EU, started to produce electricity in December 2003. Wind energy is playing a critical role in EU attempts to generate 22 percent of the region's electricity from renewables and to reduce carbon emissions by 2020. EWEA expects installed wind capacity in the EU to reach 75,000 MW by 2010.

Carbon Emissions

In 2003, the EU member countries emitted 16 percent of the world's total energy-related carbon dioxide.

Under the 1997 Kyoto Protocol, the EU is obligated to reduce its greenhouse gas emissions 8 percent from 1990 levels by 2008-2012. All members of the EU-15, countries which were in the EU prior to May 2004, signed the Kyoto Protocol on April 29, 1998 and subsequently ratified it on May 31, 2002. In 2003, EU members generated 4,048 million metric tons (Mmt) of energy-related carbon dioxide emissions, 16 percent of the world total. Germany emitted the most carbon dioxide (842 Mmt) of the EU countries, followed by the United Kingdom (565 Mmt), Italy (465 Mmt) and France (409 Mmt).



EU Carbon Emissions Trading Program

In October 2003, the EU Parliament and Council issued [Directive 2003/87/EC](#), establishing an emissions trading scheme which became operational in January 2005. According to the Directive, no installation undertaking activities are permitted to emit CO₂ unless the operator of the facility holds a permit from its government. Under the Directive, member state governments allocate annual emission allowances to companies, which have to meet their allowance by either reducing CO₂ emissions or acquiring emission rights from other companies. If a company emits less than its quota, it can either sell the remainder or save them for future use. Members of the EU-15 were required to submit plans to the European Commission (EC) containing a list of installations and proposed allocations for each site. New members as of May 2004 were required to submit plans with their accession.

The EC has been reviewing the progress of the emission trading plan since January 2005 and plans to release a report during 2006. Specifically, the EC's report will focus on how the plan affects the EU's international competition, how it impacts electricity prices in the EU and the possibility of extending the plan to include additional greenhouse gases listed in [Annex II](#). Under Article 30 (3), the EU Parliament Directive could eventually allow companies to achieve reductions through emissions-reducing projects carried out anywhere in the world, as long as those reductions can be verified under the Kyoto Protocol's Joint Implementation and/or Clean Development Mechanism. The reductions could then be converted into allowances and traded within the EU.

Phase I, which the EU considers a "warm-up" phase, began in 2005 and will run until 2007. The second phase will run from 2008 to 2012, corresponding with the first Kyoto commitment period. The EU anticipates that the program will be run in five-year phases after 2012 as well.

Profiles

Table 1: Economic Profile

Country	Real Gross Domestic Product (GDP) Growth Rate 2005E	Real GDP Growth Rate 2006F	Nominal GDP 2005E (\$Billions)	Nominal Per Capita, 2005E (U.S.Dollars)	Population 2005E (Millions)
Austria	1.7	1.8	307.6	37,242.6	8.2
Belgium	1.3	1.9	370.5	35,047.4	10.4
Cyprus	3.5	3.4	16.8	20,634.2	0.8
Czech Republic	4.6	4.5	122.2	12,004.4	10.2
Denmark	2.5	2.0	255.2	47,360.0	5.3
Estonia	7.8	6.5	12.6	9,332.0	1.3

Finland	1.6	3.1	191.5	36,945.9	5.2
France	1.5	1.8	2,113.3	35,171.7	60.7
Germany	1.0	1.4	2,806.2	34,297.8	82.6
Greece	3.5	3.3	221.1	19,628.1	11.2
Hungary	3.8	4.0	110.5	11,020.0	10.0
Ireland	4.1	4.7	198.7	49,805.0	4.0
Italy	0.2	1.0	1,726.1	30,037.9	57.4
Latvia	9.1	7.0	15.2	6,638.2	2.3
Lithuania	7.0	6.2	25.5	7,354.2	3.4
Luxembourg	3.8	4.0	34.8	74,847.1	0.5
Malta	1.3	2.1	5.5	13,736.0	0.4
Netherlands	0.8	2.2	623.4	37,446.3	16.2
Poland	3.1	4.5	289.0	7,464.5	38.5
Portugal	0.6	1.0	180.4	17,281	10.4
Slovakia	5.1	5.4	46.5	8,707.7	5.4
Slovenia	4.4	4.0	34.6	17,229.9	2.0
Spain	3.3	2.8	1,123.4	27,056.9	41.8
Sweden	2.4	2.8	352.8	39,613.0	9.0
United Kingdom	1.6	2.2	2,207.2	36,769.2	60.0
Total/Average	1.6	2.0	13,390.7	29,327.0	457.5

Source: Global Insight

Table 2: Energy Profile (Countries and European Union Total Proven Reserves)

Countries	Proven Oil Reserves, 1/1/05 (Million barrels)	Proven Natural Gas Reserves, 1/1/05 (Trillion cubic feet, Tcf)	Proven Coal Reserves, 2003 (Million short tons, Mmst)	Installed Electricity Generation Capacity, 2003 (Million Kilowatts)
Austria	62	0.53	22	15
Belgium	0	0	0	14.2
Cyprus	0	0	0	1
CzechRepublic	15	0.14	6,120	16.2
Denmark	1,320	3.53	0	13.3
Estonia	0	0	0	3.3
Finland	0	0	0	17
France	146	0.45	17	112
Germany	394	9.86	7,428	120
Greece	7	0.04	4,299	11
Hungary	102	1.21	3,700	9
Ireland	0	0.7	15	5.1
Italy	622	8.0	37	70
Latvia	0	0	0	2.2
Lithuania	12	0	0	6
Luxembourg	0	0	0	0.1
Malta	0	0	0	0.6
Netherlands	106	62.0	548	21
Poland	96	5.82	15,432	29.5
Portugal	0	0	40	11
Slovakia	9	0.53	190	7.2
Slovenia	0	0	303	3
Spain	158	0.09	584	58

Sweden	0	0	1	33.2
United Kingdom	4,487	20.8	243	74
European Union Total	7,527	113.69	38,979	652.9

Sources: *Oil and Gas Journal*, Energy Information Administration

Table 3: European Union Production and Consumption of Energy

Countries	Oil Production, Thousand bbl/d, 2005	Oil Consumption, Thousand bbl/d, 2005	Natural Gas Production, Tcf, 2003	Natural Gas Consumption, Tcf, 2003
Austria	17	290	0.07	0.32
Belgium	0	633	0	0.55
Cyprus	0	54	0	0
CzechRepublic	12	206	0.01	0.34
Denmark	378	184	0.28	0.18
Estonia	0	19	0	0.05
Finland	0	221	0	0.18
France	73	1,971	0.06	1.55
Germany	172	2,636	0.78	3.32
Greece	5	428	0	0.09
Hungary	45	129	0.1	0.52
Ireland	0	187	0.02	0.15
Italy	155	1,831	0.48	2.72
Latvia	0	25	0	0.06
Lithuania	13	96	0	0.11
Luxembourg	0	65	0	0.04
Malta	0	18	0	0
Netherlands	87	1,069	2.58	1.78
Poland	34	447	0.2	0.53
Portugal	8	360	0	0.11
Slovakia	11	71	0.01	0.25
Slovenia	0	51	0	0.04
Spain	21	1,614	0.01	0.82
Sweden	2	365	0	0.04
United Kingdom	1,882	1,822	3.63	3.36
European Union Total	2,911	14,738	8.22	17.07

Sources: Energy Information Administration

Table 4: European Union Production and Consumption of Energy

Countries	Coal Production Mmst, 2003	Coal Consumption, Mmst, 2003	Electricity Generation, Billion Kilowatthours, 2003	Electricity Consumption, Billion Kilowatthours, 2003
Austria	1.3	6.6	55.8	57.5
Belgium	0.2	9.7	78.8	80.0
Cyprus	0	0.1	3.8	3.5
CzechRepublic	70.4	65.3	78.2	56.5
Denmark	0	10.4	43.3	31.7
Estonia	16.2	16.7	9.0	7.0
Finland	0	6.2	79.6	78.9
France	1.9	21.4	536.9	433.3
Germany	229.1	273.1	558.1	510.4

Greece	75.3	76.0	54.6	52.8
Hungary	14.5	16.2	32.2	37.0
Ireland	0	2.8	23.4	23.0
Italy	0	24.2	270.1	302.2
Latvia	0	0.1	3.6	5.8
Lithuania	0	0.3	18.6	9.1
Luxembourg	0	0.1	2.8	6.1
Malta	0	0	2.1	2.0
Netherlands	0	15.7	91.0	101.6
Poland	177.8	152.6	141.3	121.3
Portugal	0	5.9	44.3	44.0
Slovakia	3.4	10.0	29.7	25.2
Slovenia	5.4	6.0	13.2	12.5
Spain	22.7	45.6	247.3	231.2
Sweden	0	3.8	127.9	131.8
United Kingdom	30.6	68.8	369.9	346.1
European Union Total	648.8	837.7	2911.6	2706.7

Sources: Energy Information Administration

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