



Home > Country Analysis Briefs > **Iberian Peninsula Fact Sheet**

PDF version

July 2005

[Background](#) | [Oil](#) | [Natural Gas](#) | [Coal](#) | [Electricity](#) | [Profile](#) | [Links](#)

Iberian Peninsula

Consisting of Spain and Portugal, the Iberian Peninsula has limited energy resources. Both countries must import almost all of their energy needs.

Note: The information contained in this report is the best available as of July 2005.



BACKGROUND

Both Spain and Portugal have been members of the European Union (EU) since 1986. EU membership has led to increased standards of living and economic growth in the Iberian Peninsula, including billions of dollars worth of EU structural funds. Nevertheless, both countries continue to face economic challenges. Spain's unemployment rate remains stubbornly high, while Portugal has

repeatedly exceeded the EU's limits on budget deficits.

Economic growth spurred by EU membership has led to corresponding increases in energy consumption. For example, Spain's energy demand has increased over 100 percent since the mid-1970s. The Iberian Peninsula has limited energy resources, so both Spain and Portugal must depend upon imports for the bulk of their energy needs. There have been attempts to develop domestic energy sources, though, focusing on hydropower and renewables. In addition, both countries have sought greater integration of the Iberian energy sector through policy coordination and infrastructure projects. The two announced in 2001 that they would create a single Iberian electricity market without limits on transnational ownership or participation. However, repeated delays have pushed implementation of this market, called Mibel, until the end of 2005.

OIL

According to *Oil and Gas Journal (OGJ)*, the Iberian Peninsula had a combined 158 million barrels of proven oil reserves in 2005. Oil consumption in 2004 stood at 1.89 million barrels per day (bbl/d), with Spain contributing the bulk (83 percent) of that amount. Even though oil consumption has increased in absolute terms over the past two decades, its percentage of total

energy consumption has declined. Due to the lack of significant domestic oil production, Spain and Portugal depend upon oil imports, with the largest suppliers including Russia, Nigeria, Libya, and Saudi Arabia.

Sector Organization

The largest oil company in Spain is Repsol-YPF, created in 1999 through the merger of Repsol, the former, state-owned oil company of Spain, and Yacimientos Petroliferos Fiscales (YPF), formerly owned by the Argentine government. The combined group is one of the world's largest integrated oil operators, with activities in over 28 countries and proven oil and gas reserves of 5.4 million barrels of oil equivalent (boe). Despite its overall global presence, Latin America contains the bulk of Repsol-YPF's operations, with Argentina alone providing some two-thirds of the group's total hydrocarbon production. After Repsol-YPF, Cepsa is the second-largest oil company in Spain. Cepsa has exploration and production activities in Algeria and Colombia, with future expansion planned in Yemen and Iran. The Compania Logistica de Hidrocarburos (CLH) is a private holding company for the domestic oil and petroleum products transportation system. Ten oil and gas companies hold shares in CLH, the largest being Enbridge, Repsol-YPF, and Cepsa.

The largest oil company in Portugal is Petrogal, a wholly-owned subsidiary of Galp Energia. Galp Energia is owned by the Portuguese government and a collection of international oil and gas operators. Petrogal controls the domestic midstream and downstream oil sectors in Portugal, and it also maintains modest production activities in Angola and Brazil.

Exploration and Production

Spain produced only 5,980 bbl/d of crude oil in 2004, while Portugal had no commercial production. Spain has seven active fields, all operated by Repsol-YPF: Alga, Ayoluengo, Barracuda, Boqueron, Casablanca, Chipiron, and Rodaballo.

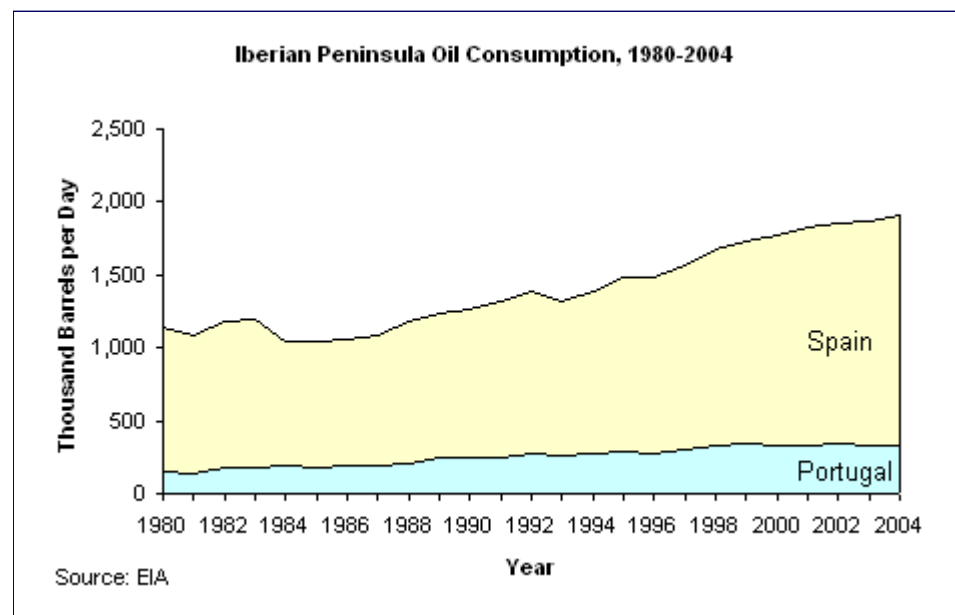
Downstream Activities

Spain has nine oil refineries, with a combined capacity in 2004 of 1.27 million bbl/d. The largest facility in the country is Cepsa's Cadiz refinery (240,000 bbl/d), though Repsol-YPF controls the largest refining capacity (520,000 bbl/d) of any single company. Repsol-YPF and Cepsa also have joint ownership of a bitumen plant, Asesta, located at the Tarragona refinery.

Portugal has two refineries, both operated by Petrogal. Located in Sines and Porto, the facilities have a combined capacity of 304,000 bbl/d. Petrogal also controls the retail market for refined oil products and operates the country's oil pipeline network.

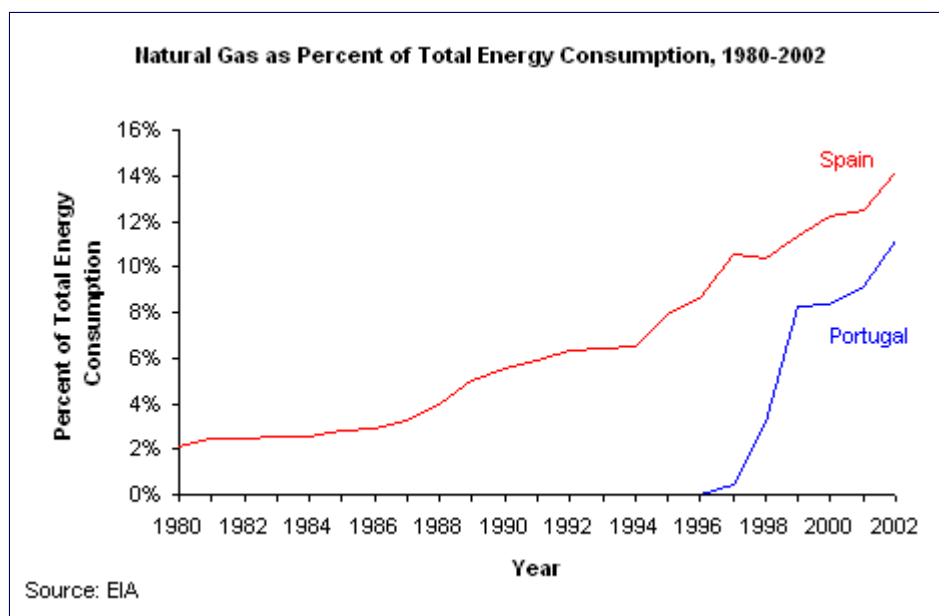
NATURAL GAS

Overview



There are no significant natural gas reserves in the Iberian peninsula. Spain only produced 7.3 billion cubic feet (Bcf) of natural gas in 2003, mostly from a single offshore field, Poseidon, operated by Repsol-YPF. Portugal does not have any commercial natural gas production, though there have been repeated exploration attempts in its offshore basins.

In 2003, Spain consumed 822 Bcf of natural gas. Natural gas consumption in the country has risen dramatically since the 1980s, and Spain has one of the fastest-growing natural gas markets in the world. Between 1993 and 2003, Spain's natural gas consumption grew by 266 percent, driven mostly by the large-scale introduction of gas-fired power plants. The Portuguese natural gas sector has also grown considerably over the past few years. Consumption was nearly non-existent prior to 1997, but in 2003, consumption of natural gas reached 105 Bcf. The increase in natural gas consumption can be attributed to the construction of import infrastructure, namely the Sines liquefied natural gas (LNG) import terminal and Maghreb-Europe pipeline (see below), which connects the Iberian Peninsula to Algerian natural gas sources.



Sector Organization

The largest natural gas supplier in Spain is Gas Natural (GN), the result of a 1992 merger between Catalana de Gas, Gas Madrid, and the gas infrastructure assets of Repsol Butano. Gas de Portugal (GdP), a wholly-owned subsidiary of Galp Energia, dominates Portugal's natural gas sector. GdP directly controls natural gas importation, transportation, and

supply, while it indirectly controls distribution through its stakes in Portugal's six regional distribution companies. Because Portugal's natural gas market is still in its infancy, it has been exempted from EU liberalization directives.

Pipelines

Enagas operates most of Spain's domestic natural gas transportation system. Half of the company's shares float on the open market, the rest being held by GN (25 percent) and several other natural gas companies (25 percent). Enagas controls 4,050 miles of pipelines in Spain, consisting of six main trunk lines that connect Spain's liquefied natural gas (LNG) and pipeline import terminals with the country's interior. The company also maintains 49.9 Bcf of working gas storage capacity.

As mentioned above, GdP owns and operates Portugal's natural gas transportation system. Portugal imports its natural gas needs via Spain, and Enagas operates two pipeline connections with Portugal, Tarifa (1.08 Bcf/d) and Tuy (40.6 Mmcf/d).

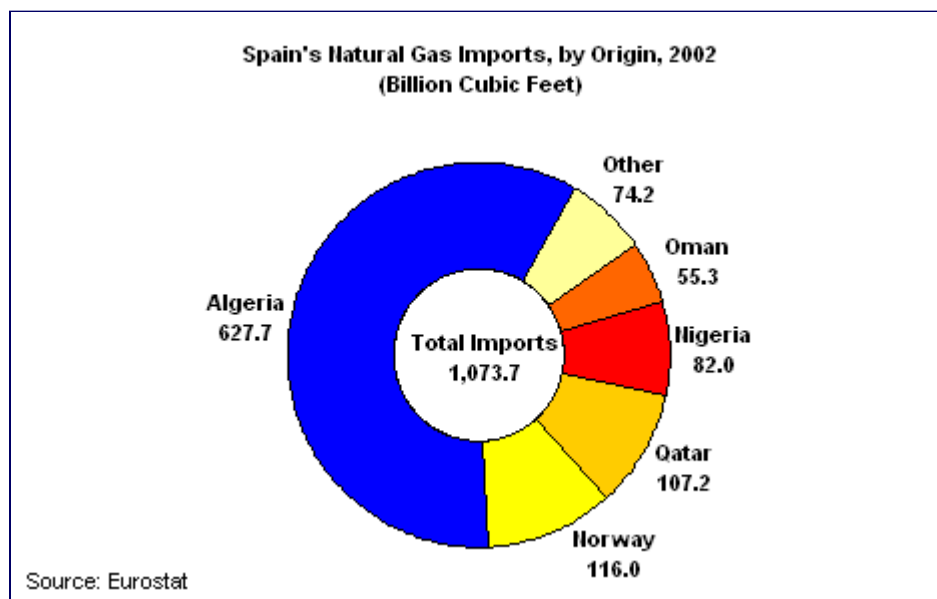
International Pipelines

Spain imports natural gas through two international pipelines. The Trans-Pyrenean pipeline, linking Calahorra, Spain to Lacq, France, began operations in 1993. This pipeline has a capacity of

330 million cubic feet per day (Mmcf/d), allowing Spain to import natural gas from Norway via France. The second import pipeline is the the 1,000-mile, 820-Mmcf/d Maghreb-Europe Gas (MEG, also called Pedro Duran Farell). MEG, completed in 1996, connects Algeria's Hassi R'mel gas field with Cordoba, Spain, via Morocco. In August 2001, Algeria's Sonatrach, part owner of MEG, awarded ABB a \$93 million contract to build a natural gas compressor station on MEG in order to increase the line's capacity to 1.78 billion cubic feet per day (Bcf/d) by 2006.

In July 2001, a consortium led by Spain's Cepsa (20 percent) and Algeria's Sonatrach (20 percent) agreed to build the Medgaz natural gas pipeline, a second link between Algeria and Europe. The 120-mile, \$1.3 billion Medgaz will link Beni Saf, Algeria to Almeria, Spain, with an eventual extension to France. In September 2002, the consortium completed a study of the line's

feasibility, but delays have pushed initial construction on the project to July 2005. Medgaz should be completed by 2008 and will have an initial capacity of 390 Mmcf/d, increasing to a maximum of 1.55 Bcf/d. There are also plans to run a parallel power cable. In November 2002, Cepsa said that it had signed a letter of intent to purchase 35 Bcf/y of natural gas via Medgaz, and in 2004, Iberdrola also agreed to purchase 35 Bcf/y from the line.



Spain's Gas de Euskadi and France's Total planned to construct the Euskadour pipeline linking the LNG terminal in Bilbao, Spain to Lussagnet, France. The 19-mile pipeline, running along the Bay of Biscay, will have an initial capacity of 48 Mmcf/d. The two companies planned to have gas flowing through the line by 2006.

Liquefied Natural Gas (LNG)

In 2002, Spain was Europe's second largest LNG importer, behind France. Enagas operates three LNG receiving terminals in Spain: Barcelona (1.12 Bcf/d), Cartagena (760 Mmcf/d), and Huelva (760 Mmcf/d). The Bahia de Bizakaia Group, a consortium of BP, Repsol-YPF, Iberdrola, and Ente Vasco de la Energia (EVE), operates an LNG terminal at Bilbao, with a regasification capacity of 740 Mmcf/d. The consortium also owns an 800-megawatt (MW) power plant fed by the terminal.

Union Fenosa, Iberdrola, and Endesa are currently building the Sagunto LNG terminal in Valencia. The Sagunto terminal will have an initial capacity of 640 Mmcf/d, increasing to a maximum capacity of 870 Mmcf/d. The three companies will use gas from the terminal to feed their gas-fired power plants in the region, and both Union Fenosa and Iberdrola plan to also construct additional power plants near the terminal. The companies expect first production at the terminal to occur in early 2006. Union Fenosa and Endesa are also leading construction of the El Ferrol LNG terminal in northwest Spain. Slated for completion in 2006, the El Ferrol plant will produce 350 Mmcf/d of

natural gas using LNG supplied by Algeria's Sonatrach.

In October 2003, Portugal completed its first LNG terminal in Sines, with an output capacity of 530 Mmcf/d of natural gas. The Sines terminal, operated by Galp Energia subsidiary Galp Atlantico, allows Portugal to seek greater independence of its natural gas supply, which is dependent on Spain's natural gas network to process and transport natural gas to the country.

COAL

Coal is Spain's most plentiful indigenous energy source, with reserves of 584 million short tons (Mmst) in 2003. The country produced 22.7 Mmst in 2003, while consuming 45.6 Mmst, relying on imports for the balance. Overall coal consumption has remained relatively flat over the past decade, with Spain's electricity sector constituting the largest share. Private companies produce most of the coal in Spain, though the single-largest company is Hunosa, owned by the government through the Sociedad Estatal de Participaciones Industriales (SEPI) holding company. Similar to other EU members, Spain's coal industry has struggled to remain competitive vis-à-vis imported coal and other energy sources.

Portugal has not produced coal since its last mine closed in 1994. In 2003, Portugal consumed 5.9 Mmst of coal, mostly for electricity generation.

ELECTRICITY

Overview

Spain has the fifth-largest electricity market in the EU. The country produced 247.3 billion kilowatthours (Bkwh) in 2003, while consuming 231.2 Bkwh. The largest share of Spain's electricity generation came from conventional thermal plants, followed by hydroelectricity. Both Spain's electricity generation and consumption have grown considerably in recent years, nearly double the growth rate experienced in Western Europe as a whole. The rising electricity consumption has strained Spain's electricity infrastructure, with several major blackouts attributed to supply shortages or transmission grid malfunctions.

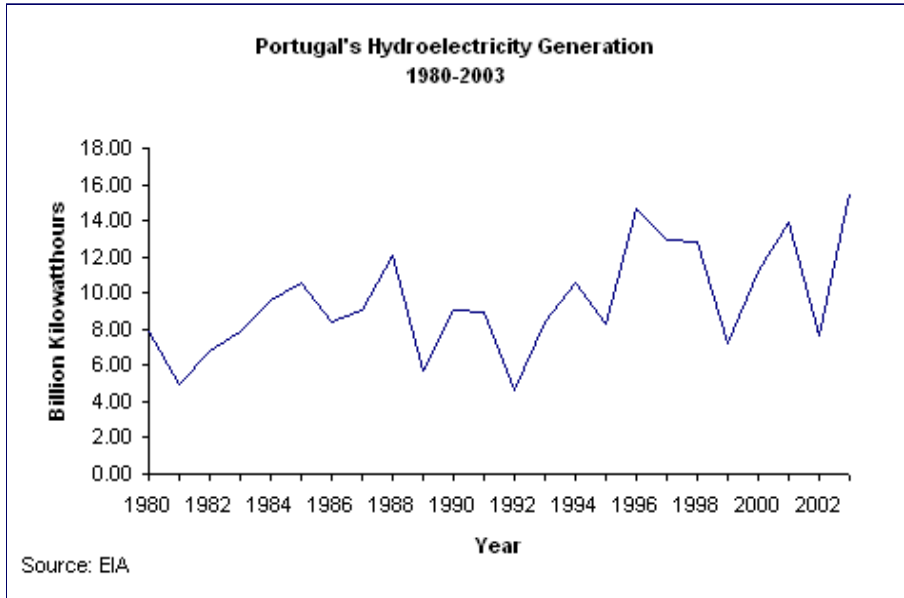
In 2003, Portugal consumed 44.3 Bkwh and generated 44.0 Bkwh of electricity. Portugal has long depended upon hydropower to provide a large part of its electricity needs; however, hydropower's share of total electricity generation has declined from 53 percent in 1980 to 35 percent in 2003. The volatility and unpredictability of hydropower (see chart) has caused the Portuguese government to promote thermal generating capacity, especially natural gas-fired, as an alternative to hydroelectricity.

Sector Organization

Endesa is the largest power generating and distributing company in Spain, with over 21,600 megawatts (MW) of installed generating capacity. The company controls 45 percent of the regulated electricity market and 36 percent of the liberalized market. The largest source of Endesa's generating capacity are coal-fired plants (42 percent), followed by nuclear (28 percent). Spain's second-largest power utility overall is Iberdrola, though the company controls the largest share (38 percent) of the deregulated portion of the market. Other important players in Spain's electricity sector include Union Fenosa, Hidrocanabrico, and Gas Natural. Red Electricia de Espana (REE), owned by the Spanish government and numerous electricity companies, owns and operates Spain's electricity grid.

There are two electricity markets in Portugal, the Public Electricity System (PES) and the Independent Electricity System (IES). PES is the regulated market with power supplied at fixed

rates under long-term contracts. The IES consists of smaller producers and consumers that allows unrestricted access by generators and distributors. Formerly state-owned Electricidade de Portugal (EdP) maintains a dominant position in both markets. EdP controls some 80 percent of the

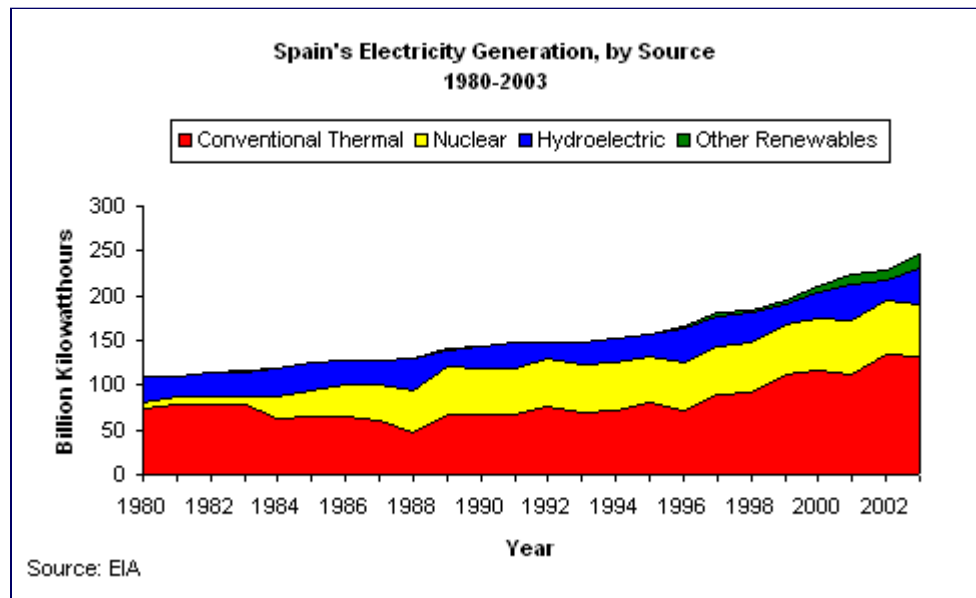


generating capacity in the PES and holds significant stakes in generating capacity in the IES. EdP's wholly-owned subsidiary, EdP Distribuicao, controls distribution in the PES. Electricity transmission in both markets is controlled by national grid operator Rede Electrica Nacional (REN), majority-owned by the Portuguese government.

Single Iberian Electricity Market (Mibel)

In January 2004, Spain and Portugal formally signed an agreement to create a pan-Iberian electricity market (Mibel). The new market will allow generators in the two countries to sell their electricity on both sides of the border. OMEL and Portugal's equivalent, OMIP, will merge in April 2006 to create a single operator for the integrated electricity market. However, the election of the new Spanish government in 2004 postponed the creation of Mibel, and Spain's Socialist government announced that it would be unable to meet a June 2005 deadline for the implementation of Mibel.

Despite administrative delays, there has been physical evidence of integration, namely, a new 40-kilovolt transmission line between the prospective countries at Cartelle-Lindosa. In January 2005, OMIP oversaw the cancellation of long-term power contracts between EdP and REN, which will open up access to the grid to third-party generators.



Conventional Thermal

Spain's conventional thermal generating capacity contributes over half of the country's total power supply. Over the past several years, this capacity has begun to shift from an emphasis on coal

towards natural gas, specifically combined-cycle, gas-fired turbines (CCGFT). Spain has promoted CCGFTs in order to increase existing generating capacity and reduce its carbon dioxide emissions. Natural gas accounted for 30 percent of Spain's conventional thermal capacity in 2004, and its share is likely to rise in coming years as additional CCGFTs come on-line. Iberdrola announced in late 2004 that it would build an 800-MW CCGFT in Murcia, with completion scheduled for 2006. In addition, Endesa announced the construction of two 230-MW CCGFTs for the Spanish islands of Mallorca and Gran Canaria. Union Fenosa expected two CCGFTs to come online in 2005, at Palos and Toledo, joining the four existing CCGFTs operated by the company. As mentioned above, Union Fenosa also plans to build a 1,200-MW power facility near its new LNG terminal at Sagunto, consisting of three, 400-MW CCGFTs build by Siemens. Construction of the Sagunto plant should be completed by 2007.

Portugal has invested into CCGFTs as a means to remove dependence upon hydropower. In April 2004, EdP completed its Central Termoelectrica do Ribatejo, a 1,200-MW CCGFT that will focus upon the liberalized IES market. In March 2005, the Portuguese Ministry of Finance approved licenses for five new CCGFT projects, with total generating capacity of 2,870 MW.

Nuclear Power

Spain has nine operating nuclear reactors, while Portugal has none. Spain decommissioned the Vandellos I reactor in July 1990, and Union Fenosa announced that it would close the Jose Cabrera plant in April 2006. Nevertheless, the output of the nuclear power sector in Spain has remained stable despite the closures, as upgrades and efficiency gains at existing plants replace retired capacity. Nuclear power generates a significant portion of Spain's power supply, but Prime Minister Zapatero has announced that Spain will gradually replace nuclear power with energy from renewable sources.

Other Renewables

Spain was the world's second-largest producer of wind power in 2004, behind Germany, with the energy source meeting 6 percent of Spain's total electricity demand. Spain has some 8,300 MW of installed wind capacity, with an additional 57,000 MW in various stages of planning, development, and regulatory approval. Endesa plans to invest over \$2 billion on renewable generating capacity in Spain in the next four years, adding to the wind farms already operated by the company in Portugal and Italy.

In order to attract investment in renewables projects, the Portuguese government established a new tariff regime, which awards higher rates per kilowatthour depending on technology and monthly usage. Iberdrola is developing a 75-MW wind farm and is negotiating permits to install another 174 MW at the site. In May 2004, Iberdrola also acquired an 18-MW wind farm in Catefica from Spain's Gamesa. In June 2004, Portugal's Ministry of Economy provided a reported \$51.4 million grant to fund 20 wind park projects, with a combined installed capacity of 244.5 MW. Portugal has also invested into solar power, taking advantage of natural conditions in the country. Construction began in 2004 by BP Solar on a 64-MW solar power plant in Moura, majority owned by the municipal government; BP Solar expects to complete the project by 2009. In 2005, a consortium led by Siemens announced that it would build a solar plant on the site of an old pyrite mine near Beja; with an installed capacity of 116-MW, the facility would be the largest solar power plant in the world. Portugal has also been on the forefront of wave generation. Portugese energy group Enersis planned to install the world's first commercial wave power generators off the coast of Povoia de Varzim by the end of 2006.

Sources for this report include: Asia Africa Intelligence Wire; BBC Worldwide Monitoring;

Direccao-Geral de Energia; Dow Jones International News; CIA World Factbook; Economist; Economist Intelligence Unit; Electric Utility Week; Electricidade de Portugal; El Pais; Energy Compass; Europe Information Service; European Commission; Eurostat; Financial Times; Gas Natural; Galp Energia; Global Insight; Global Power Report; International Energy Agency; International Oil Daily; National Energy Regulatory Commission (Spain); Oil and Gas Journal; Oil Daily; Petroleum Economist; Platts International Gas Report; Platts Oilgram News; Platts Power in Europe; Platts Renewable Energy Report; Power; Power Engineering International; Power News; Red Electrica de Espana; Rede Electrica Nacional; Repsol-YPF; Reuters; Utility Week; U.S. Census Bureau; U.S. Department of Commerce; U.S. Department of State; U.S. Energy Information Administration; World Gas Intelligence; World Markets Analysis.

LINKS

For more information from EIA, please see:

[Spain Country Data](#)

[Portugal Country Data](#)

Links to other U.S. Government Sites:

[CIA World Factbook - Spain](#)

[U.S. State Department Background Notes - Spain](#)

[U.S. State Department Consular Information Sheet - Spain](#)

[U.S. State Department Country Commercial Guide - Spain](#)

[U.S. Department of Labor, Bureau of Labor Statistics, International Section](#)

[U.S. Embassy in Spain](#)

[CIA World Factbook - Portugal](#)

[U.S. State Department Consular Information Sheet - Portugal](#)

[U.S. State Department Background Notes - Portugal](#)

[U.S. Embassy in Portugal](#)

The following links are provided solely as a service to our customers and should not be construed as advocating or reflecting any position of the Energy Information Administration (EIA) or the United States Government. EIA does not guarantee the content or accuracy of any information in linked sites.

Coal

[Antracitas de Gillon, S.A.](#)

[Aragon Minero, S.A.-SAMCA](#)

[Coto Minero del Narcea, S.A.](#)

[Hulleras del Norte, S.A.](#)

[Promotora de Minas de Carbon](#)

[S.A. Hullera Vasco Leonesa](#)

Government

[Comision Nacional de Energia](#)

[Ministry of Energy and Mines](#)

[Direccao-Geral de Energia](#)

Oil and Natural Gas

[Cepsa](#)

[Compania Logistica de Hidrocarburos](#)

[Enagas](#)

[Gas Natural Group](#)
[Petroleos del Norte \(Petronor\)](#)
[Repsol-YPF](#)
[GalpEnergia](#)
[Lusitaniagas](#)
[Portgas](#)
[Galp Atlantico](#)

Electricity

[Endesa](#)
[Hidrocantabrico](#)
[Iberdrola](#)
[REE](#)
[Union Fenosa](#)
[Electricidade de Portugal](#)
[Energy Services Regulatory Authority - ERSE](#)
[Tejo Energia](#)
[Generg](#)

You may be automatically notified via e-mail of updates to this or other Country Analysis Briefs. To join any of our mailing lists, go to http://www.eia.doe.gov/listserv_signup.html and follow the directions given.

[Return to Country Analysis Briefs home page](#)

Last Updated: July 1, 2005

Contact: Charles Esser
charles.esser@eia.doe.gov
Phone: (202) 586-6120
Fax: (202) 586-9753

EIA Home
Contact Us

URL: <http://www.eia.doe.gov/emeu/cabs/iberian.html>