

COUNTRY ANALYSIS BRIEFS

Philippines

Last Updated: November 2006

The Philippines has limited oil and natural gas resources.

Background

Under the leadership of President Gloria Macapagal Arroyo, the Philippines has undergone an economic transformation, deregulating its energy sector and offering new incentives for foreign investment. President Arroyo came into power when former President Joseph Estrada was forced to resign in 2001, and in May 2004, she was reelected to another six-year term. Her tenure has not been without controversy, however. Most recently, in February 2006, President Arroyo decided to invoke a week-long state of emergency after an apparent coup attempt. President Arroyo has also survived two impeachment attempts over alleged corruption.



Despite some political instability, the Philippines has experienced strong economic growth over the last two years. Real gross domestic product (GDP) grew at 5.0 percent in 2005, down somewhat from the 15-year high growth rate of 6.2 percent seen in 2004. The country is currently experiencing a minor cyclical downturn, driven by high global oil prices and a slowing world economy. However, growth remains strong, with the Philippine economy growing an estimated 5.5 percent during the first half of 2006. A key driver of continued economic growth is overseas workers' remittances, which help sustain strong private consumption in the Philippines. During 2005, total remittances from approximately seven million overseas workers stood at \$10.7 billion, or about 11 percent of nominal GDP.

The Philippines is one of the claimants, along with China, Taiwan, Malaysia, and Vietnam, to the Spratly Islands, located in the South China Sea. Potential oil and natural gas reserves surrounding the islands have sparked the interest of all the littoral states. In September 2004, the

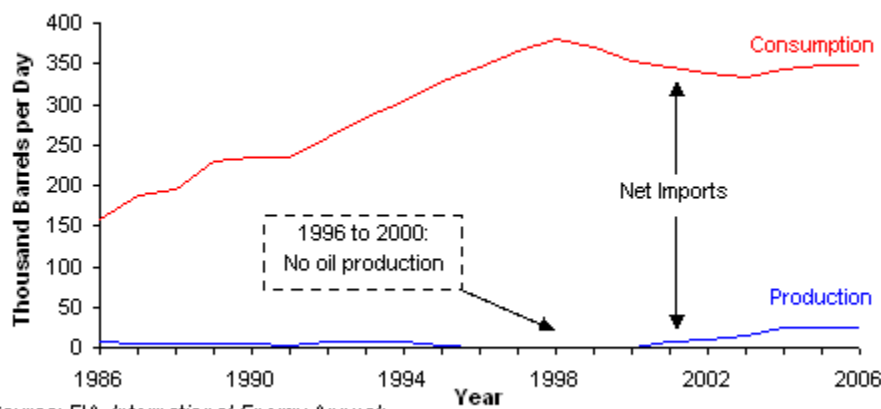
Chinese and Philippine governments reached an agreement to jointly pursue seismic survey work in the Spratlys, but without giving up their respective territorial claims. Vietnam joined the agreement in March 2005, and it was formalized with a memorandum of understanding between the three governments (see the [South China Sea Regional Analysis Brief](#) for more information).

Oil

New projects have revived oil production over the last several years, although domestic oil resources remain modest compared to the country's needs.

According to *Oil and Gas Journal (OGJ)*, the Philippines had 138 million barrels of proven oil reserves in January 2006. The country's oil production is limited, averaging just over 25,000 barrels per day (bbl/d) during the first nine months of 2006. Between 1996 and 2000, the Philippines had no oil production. During the last several years, production has increased primarily due to the development of new offshore deepwater oil deposits. The increased production volume is still modest, however, in relation to the country's needs. EIA estimates that the Philippines will consume 349,000 bbl/d of oil during 2006.

Oil Production and Consumption in the Philippines, 1986-2006*



Source: EIA, *International Energy Annual*; *Short-term Energy Outlook*

*Jan-Sep only

Sector Organization

The Philippine National Oil Company (PNOC) has historically dominated the country's oil sector. However, market reforms beginning in 1998 aimed at deregulation of the oil industry have brought many new oil companies to the Philippines. PNOC remains the primary player in upstream oil market activities, although it frequently partners with foreign companies on its major projects. The principal government agency charged with monitoring the oil sector is the Department of Energy (DOE), which holds responsibility for issuing exploration and production licenses and ensuring compliance with relevant regulations.

Exploration and Production

Historically, the Philippines has not had significant domestic oil production. Recently, exploration and production activities in deepwater areas off the Philippines have increased the country's domestic petroleum resources. This increase was due primarily to the development of new deep-sea oil deposits in the Malampaya Oil Rim, which are found underneath the large Malampaya natural gas field. The Malampaya project is the country's largest oil-producing area. Other recent exploration and production activities have also focused on offshore oil prospects, and during 2005 the DOE awarded eleven Service Contracts, mostly concentrated in the Mindoro, Salawan, and Sulu Sea basins.

The Malampaya project was inaugurated in October 2001, with Shell as the operator (45 percent stake), and Chevron (45 percent) and PNOC (10 percent) as project partners. While natural gas production from the Malampaya area is significant, associated oil production in the deepwater structure has been difficult to exploit. After committing \$2 billion in exploration and development costs, Shell and Chevron relinquished their right to develop the oil rim project to PNOC in 2004, citing lack of sufficient oil reserves and concerns over possible damage to the overlying natural gas-producing reservoir. In June 2006, PNOC awarded a contract to Malaysia's Mitra Energy to develop the Malampaya Oil Rim. However, on August 10, 2006, President Gloria Macapagal-Arroyo issued executive order 556, which declared that oil exploration and production activities

must occur through a strict bidding process rather than the farm-in deal that Mitra had won. A spokesman for the Philippine DOE declared in September 2006 that PNOC will open a new bidding round for the Malampaya oil rim project, which Mitra estimates put recoverable oil reserves at 35 to 40 million barrels. While Philippine authorities hope to conclude the new bidding round by year-end 2006, companies interested in the oil rim have expressed concern that the project's oil reserves are shrinking, as continued natural gas production reduces the quantity of recoverable oil deposits.

PNOC has also engaged in exploration activities in the South China Sea, where longstanding territorial disputes among countries in the region have limited development of oil deposits. PNOC, the Chinese National Offshore Oil Corporation (CNOOC), and PetroVietnam have signed an agreement to jointly explore the Joint Marine Seismic Undertaking (JMSU) area (see PNOC's latest [Exploration and Production Map](#) for more details). The companies have acquired initial seismic data, and will reportedly decide whether or not to pursue the next phase of the JMSU project after results from initial tests are released in November 2006.

Downstream/Refining

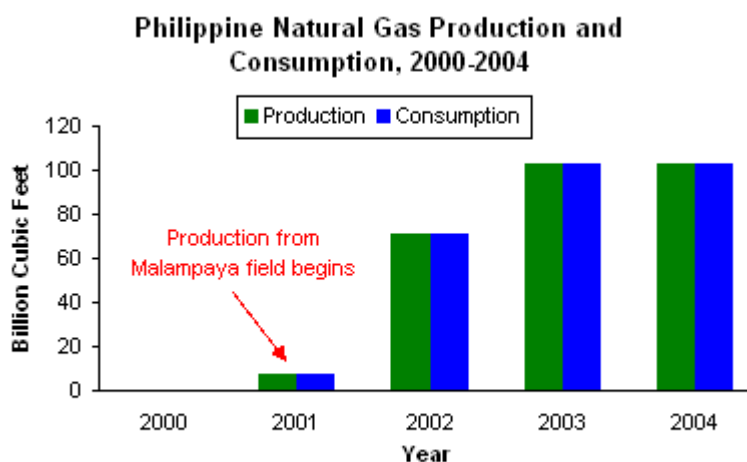
According to *OGJ*, the Philippines had 333,000 bbl/d of crude oil refining capacity at two facilities: Petron Corporation's 180,000-bbl/d plant in Limay, Bataan; and Shell's 153,000-bbl/d Tabango refinery. Petron, the Philippines' largest oil refining and marketing company, is formerly a state-owned enterprise. Since privatization efforts began in the 1990s, PNOC and Saudi Aramco each acquired a 40 percent equity stake in the company, and the remaining 20 percent is owned by stockholders.

Oil market deregulation, beginning in 1998, continues to have a significant effect on the industry. Since deregulation started, more than 60 new firms have entered the retail oil sector in the Philippines. Petron, Shell, and Chevron remain the dominant industry players, but new entrants have increased their downstream market share from 10 percent in 2000 to 20 percent in 2005.

Natural Gas

The Philippines has one significant natural gas field, Malampaya, which began production in 2001.

OGJ reported that the Philippines had 3.9 trillion cubic feet (Tcf) of proven natural gas reserves as of January 2006, almost all of which is located in the Malampaya natural gas field. The country had no significant natural gas production until 2001. During 2004, natural gas production and consumption in the Philippines stood at 102 billion cubic feet (Bcf). Although natural gas consumption has ballooned in recent years, in 2004 natural gas supplied less than 8 percent of the Philippines' total energy consumption.



Source: EIA *International Energy Annual*

A major impetus for changes in the country's natural gas sector has been the Malampaya offshore natural gas field. Shell (the operator of the project, with a 45 percent stake), Chevron (45 percent), and PNOC (10 percent) have come together to form the \$4.5-billion Malampaya Deepwater Gas-to-Power Project (see the [Malampaya Project homepage](#) for more information). The project is the largest natural gas development project in Philippine history, and one of the largest-ever foreign investments in the country. The Malampaya Project was officially inaugurated

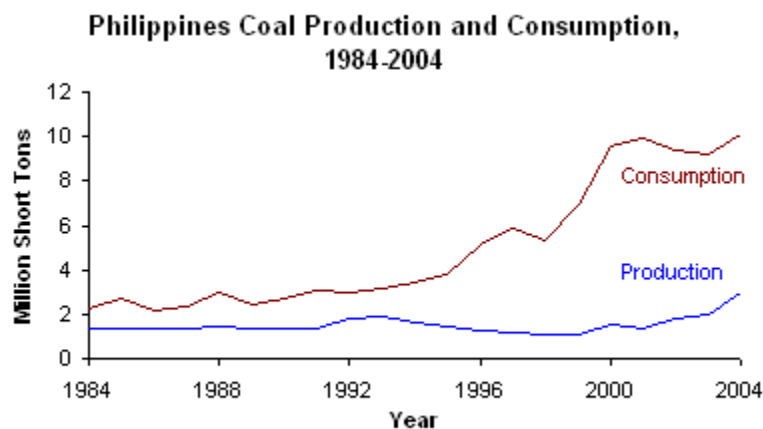
on October 16, 2001 and holds an estimated 3.7 Tcf of natural gas reserves. Natural gas from Malampaya is pumped via a 312-mile sub-sea pipeline to a natural gas processing facility and three power plants in Batangas with a combined generating capacity of 2,700 megawatts.

In October 2006, Forum Energy announced that a natural gas prospect at the Sampaguita field could hold up to 20 Tcf of possible natural gas reserves, based on seismic data retrieved from the Sampaguita natural gas field. The field was originally discovered in 1976, but never pursued because companies believed it to hold few reserves. Some industry analysts question the 20 Tcf figure, saying that previous exploration work at Sampaguita revealed a more likely range of 3.5 to 5 Tcf of natural gas reserves. Forum Energy plans to test drill at Sampaguita in the future, and if testing confirms substantial natural gas reserves, the company will reportedly consider a liquefied natural gas (LNG) project.

Coal

The Philippines relies on imports for much of its coal consumption.

The Philippines has recoverable coal reserves of 260 million short tons (Mmst). In 2004, the country consumed 10.1 Mmst of coal, up 45 percent since 1999, while producing only 2.9 Mmst. The Philippines relies on imports for much of its coal consumption, primarily from Indonesia, China, and Australia.



Source: EIA *International Energy Annual*

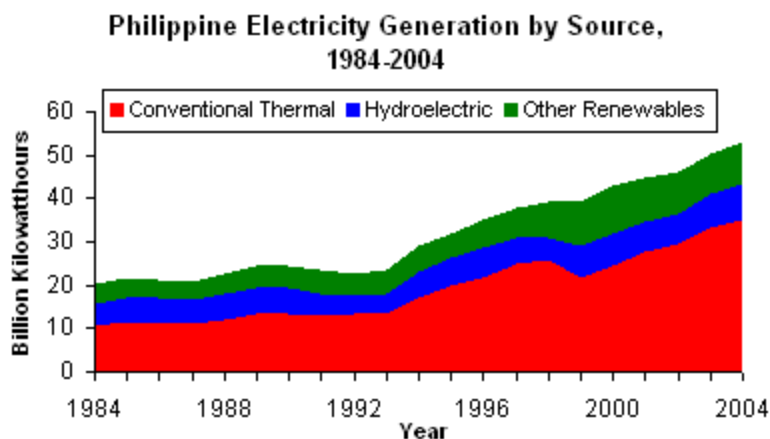
Electricity

Although conventional thermal sources make up the largest share of electricity supply in the Philippines, the country is the second-largest producer of geothermal energy in the world.

In 2004, the Philippines had total installed electricity generating capacity of 15.1 gigawatts (GW). The country produced 53.1 billion kilowatthours (Bkwh) of electricity in 2004, while consuming 49.4 Bkwh. Conventional thermal sources make up the largest share of Philippine electricity supply, comprising more than 65 percent of the total in 2004. However, the Philippines is also the world's second-largest producer of geothermal energy.

Sector Organization

The Philippine Department of Energy sets overall policy goals in the energy industry, while the Energy Regulatory Commission (ERC) is charged with regulating the electricity sector. After experiencing a severe power crisis in the early 1990s, the Philippine government set out to restructure and privatize the power sector with the aim of ensuring adequate electricity supply and increasing investment in energy infrastructure. After several years of legislative debate, the Electric Power Industry Reform Act (EPIRA) of 2001 was enacted. Among other things, EPIRA set into motion the deregulation of the power industry and the breakup and eventual privatization of state-owned enterprises. EPIRA required the state-owned utility, National Power Corporation (Napocor), to break up its vertically integrated assets into separate units for electricity generation, transmission, and distribution. The Act also mandated the eventual sell-off of most of the company's transmission and generation assets.



Napocor's assets designated for privatization were organized into two state holding companies: the National Transmission Corporation (TransCo), which took on much of the company's transmission assets, and the Power Sector Assets and Liabilities Management (PSALM) Corporation, which assumed control of Napocor's power plants. Under EPIRA measures, the government was also required to sell off its equity stake in the Manila Electric Company (Meralco), the country's largest electricity distribution company that serves the island of Luzon and the metropolitan Manila area.

The government set an initial goal of selling TransCo assets by mid-2005, but this process has been delayed as previous bidding rounds failed to yield an acceptable proposal. PSALM began selling off Napocor's power generation assets in 2004, although the effort has also proceeded more slowly than the government had hoped. PSALM originally set a target of privatizing 70 percent of its generation assets by the end of 2005. However, a progress report dated April 2006 noted that PSALM had only sold off 14 percent of its power stations, well short of its goal.

Conventional Thermal

Conventional thermal sources of electricity generation have grown in importance, especially as the Philippine government promotes the increased usage of natural gas-fired power plants. As oil prices have risen over the last two years, the country has looked to promote the development of domestic energy sources to displace oil imports. The largest projects to come onstream in recent years are connected to the Malampaya Deepwater Gas-to-Power Project, which began commercial operations in late 2001 (see the Natural Gas section for additional information). Natural gas from the large Malampaya field is pumped ashore to supply three combined cycle power plants totaling 2,700 megawatts (MW): the 1,000-MW Santa Rita plant, the 500-MW San Lorenzo facility, and the 1,200-MW Ilijan power station. The Ilijan power plant is owned by Napocor and operated by the Korea Electric Power Corporation (KEPCO), while the other two facilities are owned and operated by the First Gas Power Corporation.

There are various other conventional thermal power plants under construction or consideration in the Philippines, although most companies are concerned with the restructuring and sell-off of Napocor's existing power plants rather than the construction of additional capacity. One large project that is planned is the GNPowder Energy Park, currently being developed by GNPowder. GNPowder led the construction of the Philippines' first large-scale IPP project with its 470-MW coal-fired facility in Quezon. The Energy Park project is being developed in the Bataan province, and envisions the eventual establishment of 1,900 MW in new generating capacity, including a 600-MW coal-fired power station, 1,200-MW natural gas-fired plant, and a 100-MW wind farm.

Geothermal

The Philippines is the second-largest producer of geothermal energy in the world behind the United States, with more than 1,900 MW of installed geothermal capacity. The government has set a goal of increasing this figure to 3,100 MW within a decade, which would make the Philippines the largest geothermal energy producer, surpassing the United States. Most geothermal power projects were developed by a division of PNOC, while two of the country's largest projects were originally developed by Philippine Geothermal, Inc. (today known as

Chevron Geothermal Philippines Holdings, Inc., or CGPHI, and formerly Unocal Philippines, Inc.).

Geothermal Power Plants in the Philippines			
Field	Installed Capacity (MW)	Field Operator	Power Plant Operator(s)
Tiwi	330	CGPHI	Napocor
Makban	425	CGPHI	Napocor, Ormat
Tongonan I, II, III	112, 210, 386 (Total 784)	PNOC	Napocor, Cal Energy
Palinpinon I, II	115, 80 (Total 195)	PNOC	Napocor
Bacman I, II	110, 40 (Total 150)	PNOC	Napocor
Mindanao I, II	52, 48 (Total 100)	PNOC	Oxbow, Marubeni
Source: Philippines Department of Energy			

In March 2004, the Philippines kicked off the Department of Energy Geothermal Contracting Round (known as GEOTHERMAL 1), in an effort to sell off Napocor's geothermal assets and attract private investors to new projects. As part of this process, there are currently a number of new geothermal power projects in the development pipeline.

Hydroelectric

Hydroelectric sources made up approximately 2,900 MW of the Philippines' installed electricity generation capacity, or 19 percent of the total, in 2004. The country has not seen a significant expansion in hydroelectric capacity during the last two decades, although some new projects are currently being developed, particularly small-scale hydroelectric facilities.

Profile

Country Overview

President	Gloria Macapagal-Arroyo (since 20 January 2001)
Location	Southeastern Asia, archipelago between the Philippine Sea and the South China Sea, east of Vietnam
Independence	12 June 1898 (from Spain)
Population (2005E)	87,857,473

Economic Overview

Currency/Exchange Rate (October 20, 2006)	\$1 = 50.12 Philippines Pesos
Inflation Rate (2005E)	7.6%
Gross Domestic Product (GDP, 2005E)	\$98.4 billion
Real GDP Growth Rate (2005E)	5.0%
Unemployment Rate (2005E)	8.7%
External Debt (2005E)	\$66.4 billion
Exports (2005E)	\$46.4 billion
Exports - Commodities	electronic equipment, machinery and transport equipment, garments, optical instruments, coconut products, fruits and nuts, copper products, chemicals
Exports - Partners (2004E)	US 17.5%, Japan 15.8%, China 11.4%, Hong Kong 8.3%, Singapore 7.7%, Taiwan 6.4%, Netherlands 6%, Malaysia 5.5%, Germany 4.2%
Imports (2005E)	\$51.1 billion
Imports - Commodities	raw materials, machinery and equipment, fuels, vehicles and vehicle parts, plastic, chemicals, grains
Imports - Partners (2004E)	Japan 20.6%, US 16%, Singapore 8.4%, China 7.4%, Hong Kong 5.3%, South Korea 5.2%, Taiwan 4.5%, Malaysia 4.4%

Current Account Balance (2005E)	\$2.4 billion
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Energy Overview

Secretary of Energy	Raphael P.M. Lotilla
Proven Oil Reserves (January 1, 2006E)	138 million barrels
Oil Production (2006E)	25,000 barrels per day, of which 98% was crude oil.
Oil Consumption (2005E)	349,000 barrels per day
Crude Oil Distillation Capacity (2006E)	333,000 barrels per day
Proven Natural Gas Reserves (January 1, 2006E)	3.9 trillion cubic feet
Natural Gas Production (2004E)	102 billion cubic feet
Natural Gas Consumption (2004E)	102 billion cubic feet
Recoverable Coal Reserves (2003E)	260 million short tons
Coal Production (2004E)	2.9 million short tons
Coal Consumption (2004E)	10.1 million short tons
Electricity Installed Capacity (2004E)	15.1 gigawatts
Electricity Production (2004E)	53.1 billion kilowatt hours
Electricity Consumption (2004E)	49.4 billion kilowatt hours
Total Energy Consumption (2004E)	1.3 quadrillion Btus*, of which Oil (54%), Coal (16%), Other Renewables (16%), Natural Gas (8%), Hydroelectricity (7%), Nuclear (0%)
Total Per Capita Energy Consumption (2003E)	15.7 million Btus
Energy Intensity (2004E)	5,080.7 Btu per \$2000-PPP**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2003E)	72 million metric tons, of which Oil (66%), Coal (26%), Natural Gas (7%)
Per-Capita, Energy-Related Carbon Dioxide Emissions (2003E)	0.9 metric tons
Carbon Dioxide Intensity (2004E)	0.3 Metric tons per thousand \$2000-PPP**
Environmental Issues	uncontrolled deforestation especially in watershed areas; soil erosion; air and water pollution in major urban centers; coral reef degradation; increasing pollution of coastal mangrove swamps that are important fish breeding grounds
Major Environmental Agreements	party to: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Dumping, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetlands, Whaling signed, but not ratified: Air Pollution-Persistent Organic Pollutants

Oil and Gas Industry

Organization	The Philippine National Oil Company (PNOC) is the country's state-owned energy company responsible for oil and development of local energy resources. Petron, privatized in 1994, is the country's largest oil refining company. Private companies play an important role in both upstream and downstream oil and gas activities. National Power
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	Corporation (Napocor) is the state-owned electric company.
Foreign Company Involvement	BP, Chevron, CNOOC, Forum Energy, Marubeni, Mitra Energy, PetroVietnam, Royal Dutch Shell, Saudi Aramco
Major Natural Gas Fields	Malampaya
Major Refineries (capacity, bbl/d)	Petron Corp. Limay, Bataan (180,000); Shell Tabango (153,000)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.
 **GDP figures from OECD estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA - Country Information on the Philippines](#)

U.S. Government

[CIA World Factbook - Philippines](#)

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

[U.S. Embassy in the Philippines](#)

Foreign Government Agencies

[Philippine Department of Energy](#)

[Philippine Department of Foreign Affairs](#)

[Philippine Department of Trade and Industry](#)

[Philippine Department of Environment and Natural Resources](#)

Oil and Natural Gas

[Malampaya Deepwater](#)

[Petron Corporation](#)

[Philippine National Oil Company \(PNOC\)](#)

Electricity

[National Power Corporation \(Napocor\)](#)

[National Transmission Corporation \(TransCo\)](#)

[Power Sector Assets and Liabilities Management Corporation \(PSALM\)](#)

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Upstream

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