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COUNTRY ANALYSIS BRIEFS

Vietnam

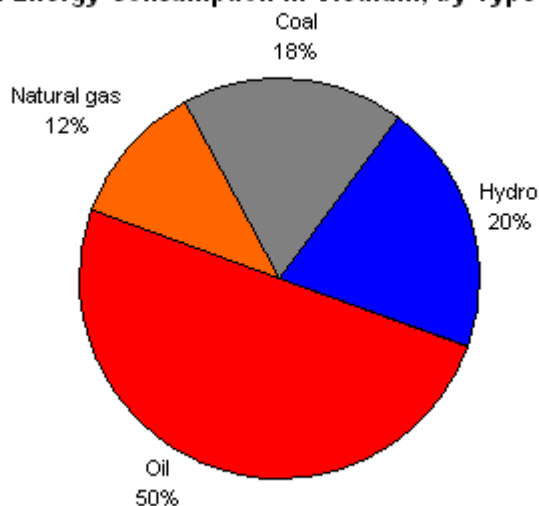
Last Updated: July 2007

Background

Vietnam is increasingly an important supplier of oil to regional markets and may emerge as a significant natural gas exporter in the future.

Over the course of two decades Vietnam has emerged as an important regional producer of oil and natural gas in Southeast Asia. The country has boosted exploration activities, allowed greater foreign company involvement in the oil and natural gas sectors, and introduced market reforms aimed at strengthening Vietnam's energy industry. While these efforts have helped Vietnam expand production of oil and natural gas, domestic consumption of these resources has also increased as a result of rapid economic growth. The country's real gross domestic product (GDP) has grown by an average 7.3 percent over the last ten years. Half of Vietnam's domestic energy consumption comes from oil, with hydropower (20 percent), coal (18 percent), and natural gas (12 percent) supplying the remainder.

Total Energy Consumption in Vietnam, by Type (2004)



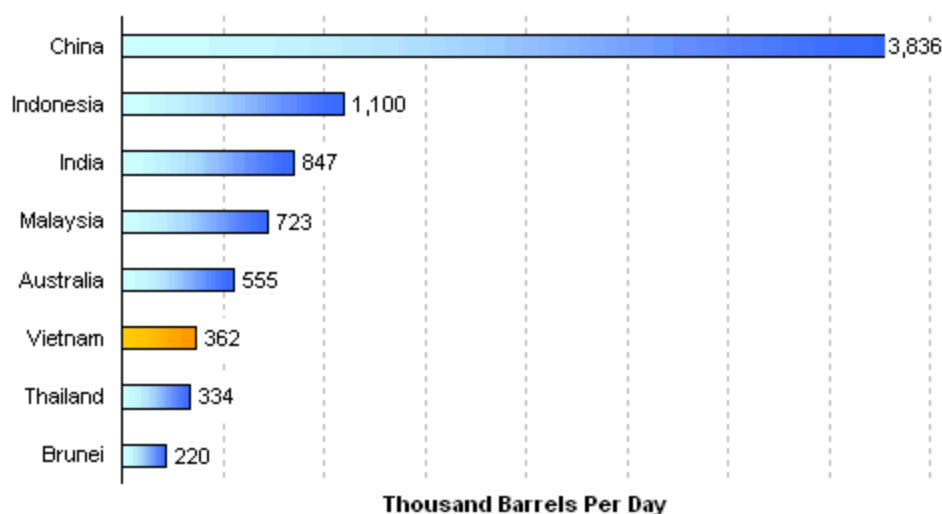
Source: EIA International Energy Annual 2004



Oil Overview

Vietnam's oil production fell in 2005 and 2006, after several years of steady increases.

According to *Oil & Gas Journal (OGJ)*, Vietnam held 600 million barrels of proven oil reserves as of January 2007, all of which are located offshore. Ongoing exploration activities are likely to increase this figure in the future, as Vietnam's waters remain relatively underexplored. Vietnam's oil production has increased steadily over the last two decades, although oil output declined in 2005 and 2006 after peaking above 400,000 barrels per day (bbl/d) in 2004. In 2006, Vietnam produced an estimated 362,000 bbl/d of oil. EIA forecasts that the country's oil production will rise above 400,000 bbl/d again in 2008, based on new production projects that are expected to come online. In 2006, Vietnam consumed an estimated 276,000 bbl/d of oil, and EIA expects this figure to rise to about 332,000 bbl/d in 2008. Although it is a significant net oil exporter, Vietnam relies on imports of petroleum products due to a lack of refining capacity.

Top Asia-Pacific Oil Producers, 2006*

Source: EIA Short-Term Energy Outlook (June 2007)

*estimate

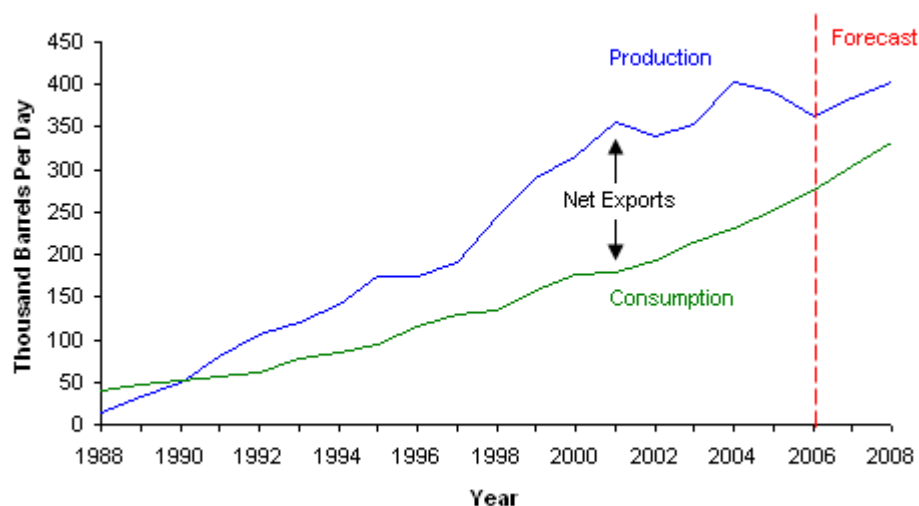
Sector Organization

Vietnam's oil sector is dominated by the state-owned Vietnam Oil & Gas Corporation (Petrovietnam). Petrovietnam is under the control of the Ministry of Industry, although in practice the national oil company (NOC) is also directed by the Politburo and other central government planning agencies. All oil production in the country is carried out by Petrovietnam itself, or through production sharing contracts (PSCs) or joint-ventures in which the national oil company has an equity stake. The largest oil-producing company in Vietnam is Vietsovpetro (VSP), which is a joint-venture between Petrovietnam and Zarubezhneft of Russia. Petrovietnam also has formed partnerships with other international oil companies (IOCs) and NOCs, including BP, ConocoPhillips, Korea National Oil Corporation (KNOC), Malaysia's Petronas, Nippon Oil of Japan, and Talisman. Petrovietnam also controls Vietnam's downstream oil sector through various subsidiaries, such as Petechim and Petrovietnam Oil Processing and Distribution Company. The Vietnamese government has begun to privatize the national oil company's non-oil-related business units in 2006, although industry analysts expect that hydrocarbon activities will remain under state control.

Exploration and Production

Vietnam currently produces oil from nine offshore fields, the largest of which is the Bach Ho (White Tiger) field operated by Vietsovpetro. Vietnam also receives about 27,000 bbl/d of oil from the shared PM-3 Commercial Arrangement Area between Vietnam and Malaysia (see the [Malaysia Country Analysis Brief](#) for more information). Vietnam's oil production has decreased over the last two years primarily as a result of declining output at Bach Ho, which accounts for about half of the country's crude oil production. Several new projects are expected to come online in the next two years, which EIA expects will raise Vietnam's oil output even as Bach Ho and other mature oil fields continue to decline.

Vietnam's Oil Production and Consumption, 1998-2008*



Source: EIA International Energy Annual 2004;
Short-Term Energy Outlook (June 2007)

*2006 is estimate;
2007-2008 are forecasts

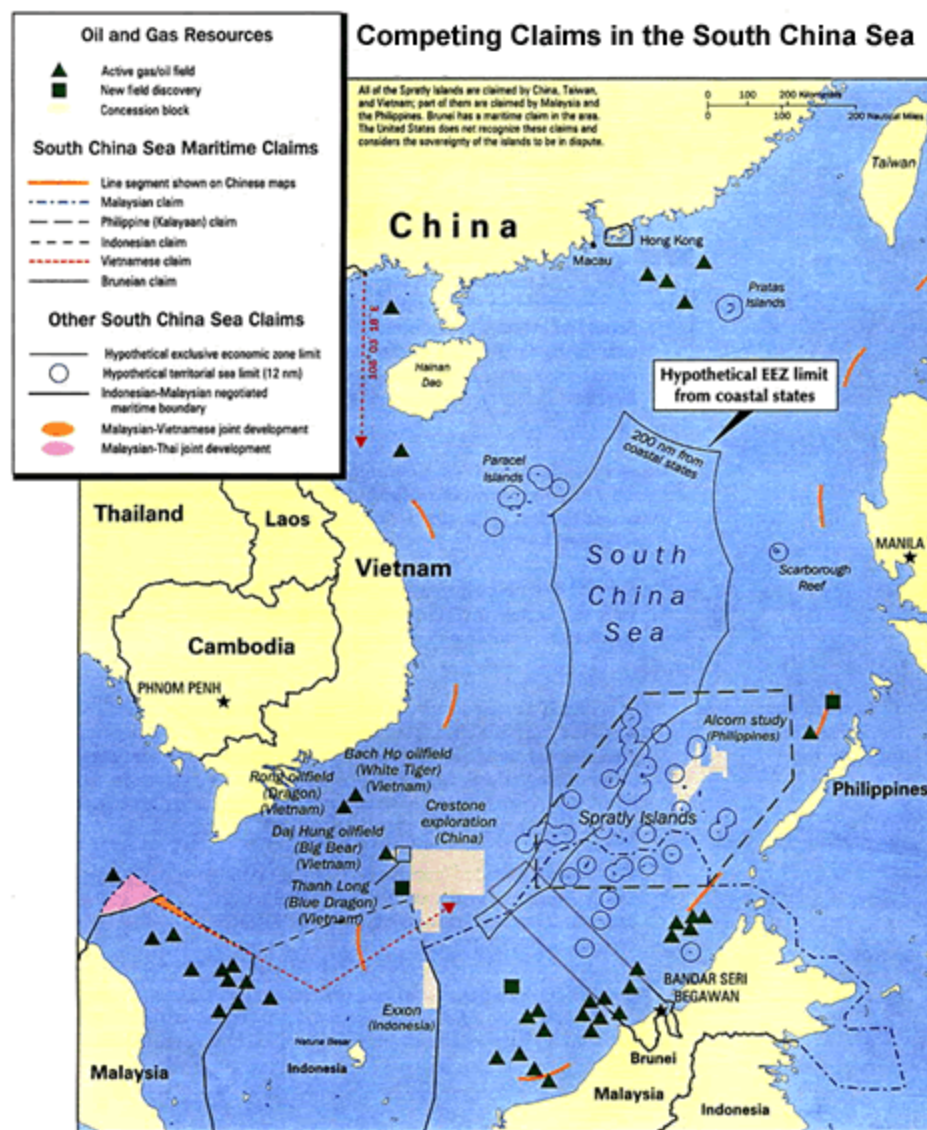
One of the most active areas for ongoing exploration and production (E&P) activities in Vietnam is the offshore Cuu Long Basin (see map below). One of the most important new developments in this area will be the Su Tu Vang (Golden Lion) field, which field operator Cuu Long Joint Operating Company (CLJOC) expects to add 100,000 bbl/d of oil production in late 2007 or early 2008. The CLJOC consortium includes Petrovietnam (50 percent), ConocoPhillips (23.25 percent), KNOC (14.25 percent), SK Corp. (9 percent), and Geopetrol (3.5 percent). There are several other fields in the Cuu Long Basin that are expected to come onstream by 2008. The Phuong Dong field, which is being developed by the Japan Vietnam Petroleum Company (JVPC), is expected to start production in the third quarter of 2008 at a rate of 23,000 bbl/d. The Ca Ngu Vang field is expected to start producing 20,000 bbl/d plus associated natural gas in the second quarter of 2008. There are also extensive E&P activities ongoing in the Malay and Nam Con Son Basins.

2007 Licensing Round

Amendments to Vietnam's Petroleum Law in 2000 paved the way for a more open and transparent licensing round scheme through which E&P projects would be offered to international investors. Continued exploration in offshore Vietnam is crucial to increasing oil production in the future, and Petrovietnam believes that the country holds substantial untapped hydrocarbon resources. Vietnam held its first licensing round during 2004-2005, although the endeavor did not receive significant attention from international oil companies (IOCs). Petrovietnam launched the second bidding round in April 2007 with improved terms for potential investors, hoping to lure IOCs to draw on their superior technical expertise. The 2007 round includes 7 blocks in the Song Hong Basin, which Petrovietnam claims hold oil and gas reserves of 5 billion barrels of oil equivalent in place.

Territorial Disputes

Vietnam claims ownership of a portion of the potentially hydrocarbon rich Spratly Islands in the South China Sea, as do the Philippines, Malaysia, China, and Taiwan (see the [South China Sea Fact Sheet](#) for more information). In June 2007, BP abandoned plans to conduct exploration activities in Block 5-2 between Vietnam and the Spratly Islands, citing ongoing uncertainty over competing ownership claims between Vietnam and China. Vietnam and several of its neighbors have reached agreements in principle in the past to conduct joint exploration for oil and natural gas resources in the area, although continued territorial disagreements have hindered these efforts. Vietnam also claims the Paracel Islands in the South China Sea, which China first occupied in 1974.



Source: Central Intelligence Agency

Oil Exports and Imports

According to data from the International Energy Agency (IEA), Vietnam exported about 125,000 bbl/d of crude oil to Australia, 40,000 bbl/d to the United States, and 30,000 bbl/d to Japan in 2006. Industry sources report that Vietnam also exports oil to regional refining centers in Singapore and Thailand, although this data is not reported in the IEA figures. Vietnam imports refined petroleum products since the country lacks refining capacity. Petrolimex, a unit of Petrovietnam, is the primary company charged with importing petroleum products, accounting for about 60 percent of the country's imports. Petrolimex also operates 300 miles of petroleum product pipelines, although much of the country's fuel supply is transported by road.

Refining

Vietnam is in the process of developing the country's first refinery, the planned \$2.5-billion, 140,000-bbl/d facility at Dung Quat. After several years of delays as a result of problems securing financing for the project, construction finally began in November 2005. One of the main reasons for hesitation by foreign investors was the planned Dung Quat location, which is more than 600 miles from the Bach Ho oil field and far from the population centers of Hanoi and Ho Chi Minh

City. Petrovietnam plans to begin commercial operations at the Dung Quat facility in early 2009. A second refinery project is under consideration at Nghi Son in the north of the country, which would be located much closer to end-users but far from the country's main oil-producing areas. The facility is planned to have a capacity of 150,000 bbl/d. Petrovietnam hopes to build the plant by 2010, although financing for the Nghi Son refinery has not been finalized. The government has also initiated a feasibility study for a possible third refinery to be located at Vung Ro in southern Vietnam, although no specific plans regarding the size and timeline of such a plant have been finalized.

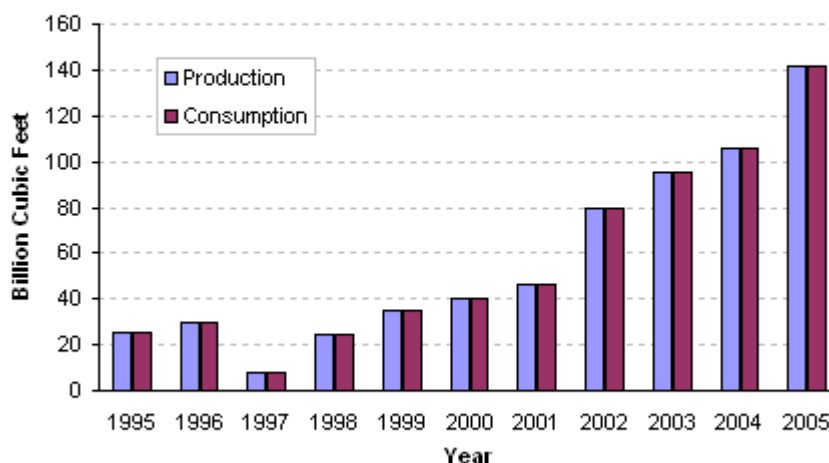
Natural Gas

Vietnam's natural gas production has risen rapidly since the late 1990s, and is used for domestic consumption.

Overview

According to OGJ, Vietnam had 6.8 trillion cubic feet (Tcf) of proven natural gas reserves as of January 2007. In 2005, Vietnam produced and consumed 141 billion cubic feet (Bcf) of natural gas, a 33-percent increase from 2004 and about three-and-a-half times the 2000 output of 41 Bcf.

Vietnam's Natural Gas Production and Consumption, 1995-2005



Source: EIA International Energy Annual 2005

Sector Organization

As with the oil sector, Petrovietnam dominates the natural gas sector. Petrovietnam's main foreign partners involved in the production and development of natural gas resources are BP, Chevron, ConocoPhillips, KNOC, Petronas, Thailand's PTTEP, and Talisman. Most natural gas production in Vietnam is processed and then sent directly to industrial and power sector end-users, such as the Phu My power complex. Natural gas is not widely used outside of the industrial and power generation sectors. This may change in the future if significant additional natural gas resources are located.

Exploration and Production

Several of Vietnam's largest oil fields, such as Bach Ho, also produce a significant amount of associated natural gas. To date, there are only a handful of fields to be developed solely for their natural gas potential, the largest of which are the Lan Tay and Lan Do fields.

Nam Con Son Gas Project

The Lan Tay/Lan Do natural gas fields are the centerpiece of the \$1.3-billion Nam Con Son Gas Project (NCSGP). The NCSGP is an integrated gas-to-power project that delivers natural gas supplies from the offshore fields to the Phu My power complex via a 230-mile subsea pipeline. The project is operated by a consortium of Petrovietnam (51 percent), BP (32.67 percent), and ConocoPhillips (16.33 percent), and represents the largest foreign investment in Vietnam's energy sector to date. Petrovietnam reports that the Lan Tay/Lan Do fields hold more than 2 Tcf of recoverable natural gas reserves, and in March 2007 BP announced that the consortium would raise output from the fields to 530 million cubic feet per day (MMcf/d, or about 193 Bcf/y) by the

end of 2007, representing a 14 percent increase from current levels.

In November 2006, KNOC and Petrovietnam started natural gas production at two new fields in the Nam Con Son Basin, the Rong Doi (Twin Dragon) and Rong Doi Tay (Twin Dragon West) fields. As of May 2007, the Rong Doi/Rong Doi Tay fields were producing at a rate of 130 MMcf/d (47.5 Bcf/y). The fields hold estimated reserves in place of 856 Bcf, and KNOC is also drilling several other exploratory wells in the area. Most of the production is sent to the Phu My power complex. There are also several smaller fields under development in the Nam Con Son Basin.

Other Developments

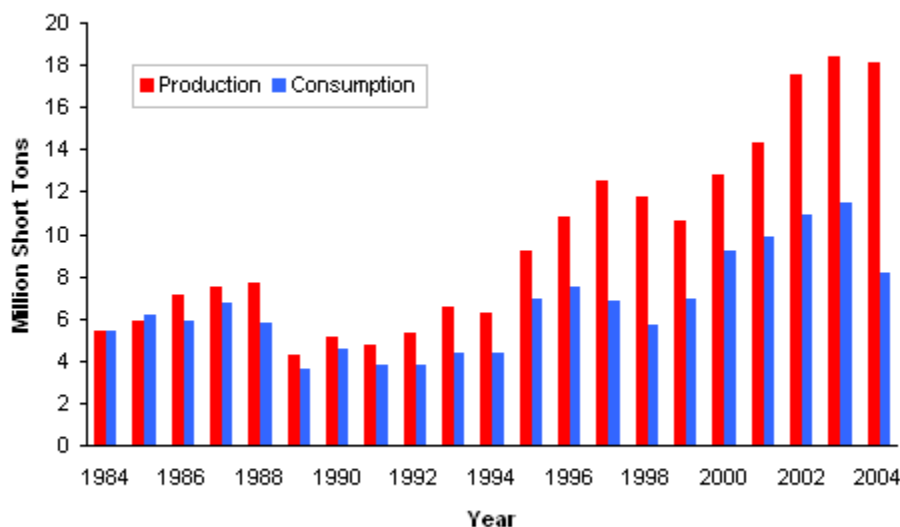
Besides the Nam Con Son Basin developments, there are only a small number of fields expected to bring significant new natural gas production onstream in the next few years. The largest expected addition will come from the Hoang Vu Joint Operating Company (a consortium of Petrovietnam, Soco International, and PTTEP), which expects to bring 450 MMcf/d (165 Bcf/y) of new natural gas production onstream in late 2007 or early 2008. Most of this production will come from Blocks 9-2 and 16-1 in the Cuu Long Basin. Besides these projects, numerous companies are carrying out exploration activities to prove additional natural gas reserves in offshore Vietnam. One of the most promising and underexplored areas is the Song Hong Basin, which is the subject of the latest licensing round announced by Petrovietnam. Final results from this bidding round have yet to be formally released.

Coal

Coal is a modest but growing part of Vietnam's energy mix.

In 2004, Vietnam had recoverable coal reserves of 165 million short tons (MMst), the majority of which was anthracite. Production has increased considerably over the last decade, with Vietnam producing over 18.1 MMst in 2004, about 42 percent higher than in 2000. In 2004, Vietnam consumed 8.1 MMst of coal, with net exports of about 10 MMst. Vietnam exports most of its coal to Japan and China (see the [Japan](#) and [China Country Analysis Briefs](#) for more information). In the last several years, Vietnam has started to promote the construction of new coal-fired power plants to diversify energy sources and utilize domestic supplies. EVN, the national electric utility, has outlined plans to build 17 new coal-fired power stations by 2020. At present, industry sources estimate that coal accounts for 12 percent of Vietnam's electricity generation, although some expect that this figure will rise to 25 percent in the future.

Vietnam's Coal Production and Consumption, 1984-2004



Source: EIA International Energy Annual 2004

Electricity

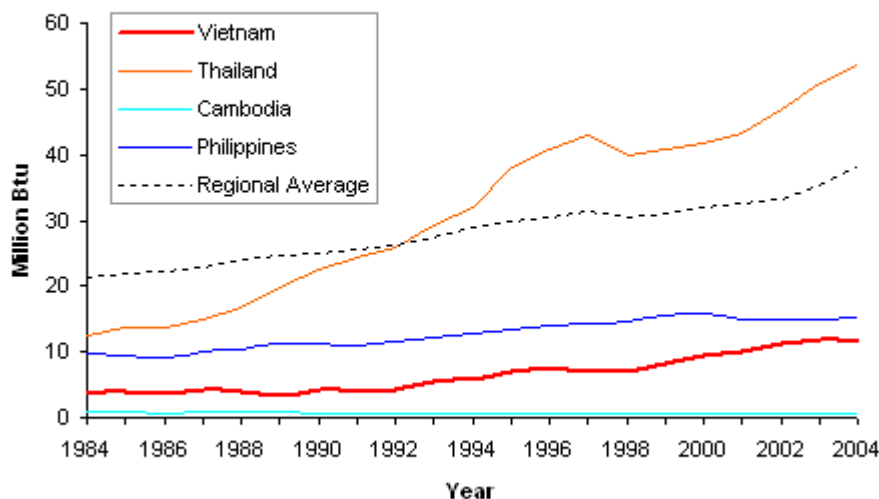
Vietnam's per capita electricity consumption is among the lowest in Asia, although

In 2004, Vietnam had 9.0 gigawatts (GW) of installed electric generating capacity. Vietnam generated 40.1 billion kilowatthours (Bkwh) of total electricity, of which 52 percent was supplied by conventional thermal sources and 48 percent came from hydroelectric sources. Electricity demand has increased steadily in Vietnam during the last decade, but the country's per capita

demand has risen in recent years.

energy consumption remains one of the lowest in Asia. Vietnam imports small amounts of electricity from China in the north to avoid shortages, and the country has plans to import electricity from Laos beginning in 2008.

Selected Regional Per-Capita Total Primary Energy Consumption, 1984-2004



Source: EIA International Energy Annual 2004

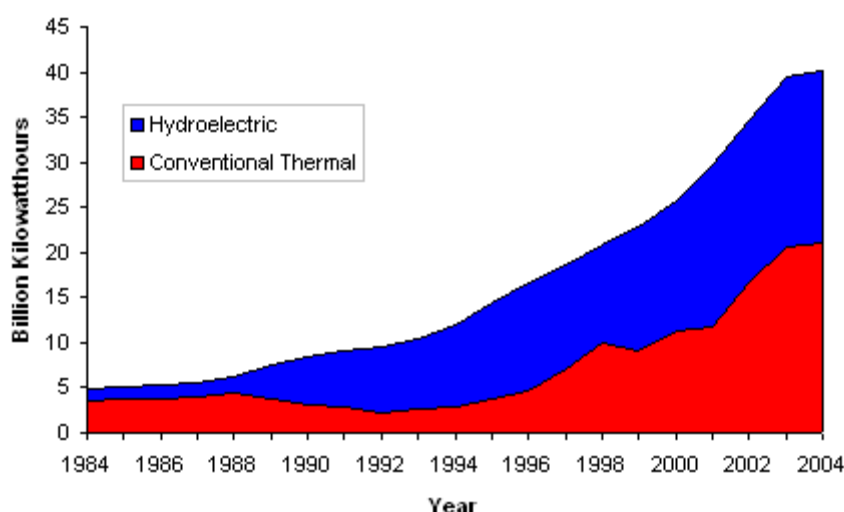
Sector Organization

State-owned Electricité de Vietnam (EVN) dominates generation, transmission, distribution, and sales of electricity in Vietnam. Foreign and private company participation has been permitted since 2002, but lack of a regulatory regime previously inhibited investment. Global Insight estimates that independent power producers (IPPs) currently account for 19 percent of electricity generating capacity in Vietnam.

Electricity Generation

Historically, coal-fired and hydroelectric power plants have supplied the vast majority of electricity in Vietnam. These sources continue to be important, but natural gas-fired power plants have emerged in the last several years as a major new source of electricity supply. At last count, EVN reported that 29 percent of its generating capacity came from natural gas-fired power stations. The rise of gas-fired electricity is mostly due to the development of the Phu My power complex, which consists of five natural gas-fired generating units with a combined capacity of 3,900 megawatts (MW). If substantial additional natural gas resources are located in Vietnam, the country may promote additional integrate gas-to-power projects such as the Nam Con Son Gas Project.

Vietnam's Electricity Generation, by Source, 1984-2004



Source: EIA, International Energy Annual 2004

There are a number of power plants planned or proposed in Vietnam. The government has plans to increase Vietnam's total installed generating capacity to 81 GW by 2020, or 9 times the 2004 capacity. As part of this effort, EVN has outlined plans to build 74 new power stations by 2020. Of these, 48 are slated to hydroelectric facilities, which has led some in the Vietnamese government to express concern about the country's reliance on hydropower. Among the planned facilities is the Song La plant, which at 2,400 MW will make it Vietnam's largest hydroelectric power station when completed. To diversify the country's electricity supply, Vietnam has reportedly considered adding nuclear power to its generation mix.

Profile

Country Overview

President	Nguyen Minh Triet
Prime Minister	Nguyen Tan Dung
Location	Southeastern Asia, bordering the Gulf of Thailand, Gulf of Tonkin, and South China Sea, alongside China, Laos, and Cambodia
Independence	2 September 1945 (from France)
Population (2007E)	85,262,356

Economic Overview

Currency/Exchange Rate (June 15, 2007)	1 US Dollar = 16,126.5 Vietnamese Dong
Inflation Rate (2006E)	7.4%
Gross Domestic Product (GDP, 2006E)	\$60.5 billion
Real GDP Growth Rate (2006E)	8.2%
Exports (2006E)	\$50.9 billion
Exports - Commodities	crude oil, marine products, rice, coffee, rubber, tea, garments, shoes
Exports - Partners (2005E)	US 18.3%, Japan 13.6%, China 9%, Australia 7.9%, Singapore 5.6%
Imports (2006E)	\$32.8 billion
Imports - Commodities	machinery and equipment, petroleum products, fertilizer, steel products, raw cotton, grain, cement, motorcycles
Imports - Partners (2005E)	China 15.6%, Singapore 12.4%, Taiwan 11.7%, Japan 11.1%, South Korea 9.7%, Thailand

6.5%

Current Account Balance (2006E)	-\$0.7 billion
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Energy Overview

Minister of Industry	Hoang Trung Hai
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Proven Oil Reserves (January 1, 2007E)	600 million barrels
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Oil Production (2006E)	362,000 barrels per day
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Oil Consumption (2006E)	276,000 barrels per day
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Crude Oil Distillation Capacity (January 1, 2007E)	None
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Proven Natural Gas Reserves (January 1, 2007E)	6.8 trillion cubic feet
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Natural Gas Production (2005E)	141 billion cubic feet
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Natural Gas Consumption (2005E)	141 billion cubic feet
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Recoverable Coal Reserves (2004E)	165 million short tons
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Coal Production (2004E)	18.1 million short tons
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Coal Consumption (2004E)	8.1 million short tons
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Electricity Installed Capacity (2004E)	9.0 gigawatts
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Electricity Production (2004E)	40.1 billion kilowatt hours
---------------------------------------	-----------------------------

Total Energy Consumption (2004E)	0.95 quadrillion Btus*, of which Oil (50%), Coal (18%), Hydroelectricity (20%), Natural Gas (12%)
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Total Per Capita Energy Consumption (2004E)	11.5 million Btus
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Energy Intensity (2004E)	4,080 Btu per \$2000-PPP**
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Environmental Overview

Energy-Related Carbon Dioxide Emissions (2004E)	57.5 million metric tons, of which Oil (59%), Coal (30%), Natural Gas (11%)
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Per-Capita, Energy-Related Carbon Dioxide Emissions (2004E)	0.7 metric tons
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Carbon Dioxide Intensity (2004E)	0.25 Metric tons per thousand \$2000-PPP**
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Environmental Issues	logging and slash-and-burn agricultural practices contribute to deforestation and soil degradation; water pollution and overfishing threaten marine life populations; groundwater contamination limits potable water supply; growing urban industrialization and population migration are rapidly degrading environment in Hanoi and Ho Chi Minh City
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Major Environmental Agreements	party to: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Ozone Layer Protection, Ship Pollution, Wetlands signed, but not ratified: none of the selected agreements
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Oil and Gas Industry

Organization	State-owned Petrovietnam reports to the Industry Ministry after a May 2003 reorganization that removed Petrovietnam's independent ministerial ranking. The company was
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reorganized in 1990 and now oversees the activities of eight subsidiaries that control functions such as administration, exploration and production, marketing (Petrovietnam Processing and Distribution Company (PVPDC)), training, gas production and distribution (Vietgas), petrochemicals, and information collection.

Selected Foreign Company Involvement

BP, Chevron, ConocoPhillips, ExxonMobil, Idemitsu Kosan, KNOC, Mitsubishi, Nexen, Nippon Oil, ONGC Videsh, Petronas Carigali, Premier Oil, PTTEP, Santos, Statoil, Talisman, Total, Zarubezhneft

* 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

U.S. Government

[American Chamber of Commerce in Vietnam](#)

[CIA World Factbook - Vietnam](#)

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

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

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[BP in Vietnam](#)

[Vietnam Oil & Gas Corporation \(Petrovietnam\)](#)

[Vietsovetro](#)

Electricity and Coal

[Electricite de Vietnam](#)

[Vinacomin](#)

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BBC Monitoring International Reports

CEDIGAZ

CIA World Factbook

Economist Intelligence Unit

Global Insight

IHS Energy

International Energy Agency

NewsBase Asia Oil & Gas Monitor

Oil & Gas Journal

Petroleum Economist

Petroleum Intelligence Weekly

Platts Oilgram News

Saigon Times

Upstream

U.S. Department of State

U.S. Energy Information Administration

Vietnam Investment Review

Vietnam News Briefs
World Gas Intelligence

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