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# Indonesia

Indonesia is important to world energy markets because of its OPEC membership and substantial, but declining, oil production. Indonesia also is the world's largest liquefied natural gas (LNG) exporter.



The information contained in this report is the best available as of July 2004 and can change.

**GENERAL BACKGROUND** Indonesia's economic growth surpassed expectations in 2003, largely fueled by consumer spending. Indonesia's real gross domestic product (GDP) grew at a rate of 4.1% in 2003, up from 3.7% in 2002. Real GDP growth is forecast to be 4.7% for 2004, although imbalances in the macroeconomic picture, such as increasing budget deficits caused by

oil price subsidies on the local market, could lead to future problems.

Last year was the final year of the IMF assistance program designed to pull Indonesia's economy out of the emergency situation that had developed during the 1997/98 Asian financial crisis. In March 2003, the IMF disbursed the scheduled \$469 million tranche of its bailout package after reporting that Indonesia had made good progress instituting reforms. The IMF review cited Indonesia's continued economic growth, decreasing inflation rates, and strengthened banking sector as examples of progress made, while mentioning that more reforms were still necessary. Conditions of the \$43 billion bailout agreement included improving the transparency of government financing and especially the operation of government-owned enterprises such as the state-run PT Pertamina oil monopoly. The government of Megawati Sukarnoputri expressed a commitment to reforms when it took office in 2001, but progress has been limited since then, with the April 2004 ouster of reform-minded Pertamina head Baihaki Hakim renewing concerns – especially among urgently needed foreign investors – that Indonesia's efforts to improve transparency have faltered.

President Megawati has been in power since July 2001, assuming the presidency after her predecessor, President Abdurrahman Wahid, was removed from office by the national legislature. The regional challenges facing the Indonesian government remain the same: a separatist movement in Aceh, an oil and gas rich province in north Sumatra which abuts the strategically important Strait of Malacca; and a separatist movement in Irian Jaya, a gas-rich province at the eastern end of the country. The government is also managing threats posed by an Al Qa'ida-linked terrorist group, called Jemaah Islamiyah. Jemaah Islamiyah was responsible for the 2001 nightclub bombing in

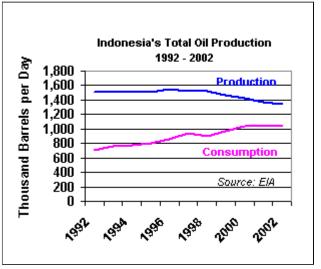
Bali, a 2003 hotel bombing in Jakarta, and is now targeting Western business and political figures in Indonesia, according to recent reports. Jemaah Islamiyah is seeking to undermine foreign economic interests in the country, according to Western security officials.

Tension exists between the central government in Jakarta and leadership at the regional level. The distribution of oil and gas revenues between the central government in Jakarta and regional governments in areas which produce oil and gas has been regularly disputed. Since Indonesia's transition to democracy in 1999, the country's regional governments have been pressing for a greater share of oil and gas revenues. In particular, the separatist movement in Aceh continues to cause security problems for oil and gas companies in that region, despite the government's energetic offensive against the separatists this year.

#### OIL

Indonesia currently holds proven oil reserves of 4.7 billion barrels, down 13% since 1994. Much of Indonesia's proven oil reserve base is located onshore. Central Sumatra is the country's largest oil producing province and the location of the large Duri and Minas oil fields. Other significant oil field development and production is located in accessible areas such as offshore northwestern Java, East Kalimantan, and the Natuna Sea. Indonesian crude oil varies widely in quality, with most streams having gravities in the 22° to 37 ° API range. Indonesia's two main export crudes are Sumatra Light, or Minas, with a 35 ° API gravity, and the heavier, 22° API Duri crude. A study released in August 2002 by Indonesia's Directorate General of Oil and Gas shows that oil reserves in the Cepu block alone, located in Central/East Java, are close to 600 million barrels, about half of which is considered recoverable.

In 2003, Indonesian crude oil production averaged 1.02 million barrels per day (bbl/d), down from the 2002 average of 1.10 million bbl/d and continuing the decline of the past several years. The decline is due mainly to the natural fall off of aging oil fields, a lack of new investment in exploration and regulatory hurdles unlikely to be addressed until after the 2004 elections. Besides crude oil, Indonesia also produces approximately 133,800 bbl/d of natural gas liquids and lease condensate, which are not part of its OPEC quota. Indonesia is the only Southeast Asian member of OPEC, and its current OPEC crude oil production quota is 1.22 million bbl/d.



The majority of Indonesia's producing oil fields are located in the central and western sections of the country. Therefore, the focus of new exploration has been on frontier regions, particularly in eastern Indonesia. Sizable, but as of yet unproven, reserves may lie in the numerous, geologically complex, pre-tertiary basins located in eastern Indonesia. These regions are much more remote and the terrain more difficult to explore than areas of western and central Indonesia.

China National Offshore Oil Corporation (CNOOC) became the largest offshore oil producer in Indonesia in January 2002, after purchasing nearly all of Repsol-YPF's assets in the country for \$585 million. Pertamina is a CNOOC partner in each Production Sharing Contract (PSC). However, in 2003 CNOOC's production dropped 20,500 bbl/d, or 17.5%, from its 2002 level. Companies producing from existing fields are attempting to increase recovery rates and to prolong the life of the fields. Caltex, which has the largest operation of any multinational oil company in Indonesia, undertook a steam injection project at the Duri field on Sumatra, but nonetheless experienced a drop of about 71,000 bbl/d in production in 2003 over 2002. Half of the drop is attributed to natural depletion.

The country's declining oil production could be turned around once the new Cepu field in Java comes online. The field, estimated to hold reserves of at least 600 million barrels of oil, is being developed by ExxonMobil in partnership with Pertamina. However, the two oil giants have been unable to reach an agreement over profit sharing, with Pertamina demanding half the field's output and ExxonMobil demanding that Pertamina cover half the field's production costs. Additionally, ExxonMobil wants Jakarta to extend its technical assistance contract, due to expire in 2010, for 20 years. ExxonMobil officials have indicated that the field could be operational in 2006 and could produce up to 180,000 bbl/d, according to recent reports.

Smaller fields could help boost production numbers if they become fully operational in 2004 and 2005. Unocal's West Seno field, under development offshore from East Kalimatan, is producing 40,000 bbl/d and is expected to produce up to 60,000 bbl/d when the second phase of development is completed in early 2005. ExxonMobil's Banyu Urip field, in Java, is expected to come onstream in 2006, according to the company, and reach its peak production capacity of 100,000 bbl/d soon after. Even with these new fields, though, Indonesia's oil production is not likely to rise markedly, due to the continuing decline of mature fields.

#### **Oil Sector Reforms**

The liberalization of Indonesia's downstream oil and gas sector has been under discussion for several years. In October 2001, the Indonesian legislature passed the much-vaunted Oil and Gas Law 22/2001 which limited Pertamina's monopoly on upstream oil development (which requires it to be included in all PSCs) by the end of 2003. Also, Pertamina's regulatory and administrative functions were transfered to other entities, while its regulatory role was spun off to a new body, BP Migas. Reports from foreign firms are that BP Migas is proving to be even less efficient than the original Pertamina entity. Almost three years after the law was passed, several regulations have still not been finalized and are unlikely to be before a new government is elected in July.

Pertamina maintained its retail and distribution monopoly for petroleum products, until July 2004 when the first licenses for a foreign firm to retail petroleum products are due to be awarded to BP and Petronas of Malaysia. The government is still promising to open the sector to full competition by 2005, although progress has been very slow to date. Political interests with ties to Pertamina are likely reluctant to see the state-run firm lose its assured revenue streams. Pertamina itself was changed to a limited liability company by presidential decree in 2003, and is slated to be fully privatized by 2006.

Indonesia's Ministry of Mines and Energy has taken over the function, formerly carried out by Pertamina, of awarding and supervising PSCs with foreign oil companies. Foreign firms also are to be freed from some of the regulatory approval requirements which they argue hinder their efficiency. One concern foreign oil companies have with the new law is the granting of a limited authority to regional governments to tax oil companies' profits.

# Refining

Indonesia has seven refineries, with a combined capacity of 992,745 bbl/d. The largest refineries are the 348,000-bbl/d Cilacap in Central Java, the 240,920-bbl/d Balikpapan in Kalimantan, and the 125,000-bbl/d Balongan, in Java.

PT Kilang Minyak Intan Nusantara, a joint venture of Al-Banader International Group of Saudi Arabia (40%), China National Electrical Equipment Corporation (40%) and PT Intanjaya Agromegah Abadi (20%), are investing a total of \$6 billion to build two Indonesian oil refineries -one in Pare-Pare, South Sulawesi and the other in Batam Island, Riau. Both projects are expected to be operational in 2005, with crude refining capacities of 300,000 bbl/d. The refineries will be export-oriented, taking Saudi crude and refining it for sale primarily to the Chinese market.

In January 2004, the state-owned National Iranian Oil Co. and Pertamina announced that they will consider cooperating in a \$1 billion venture to build and operate an oil refinery in East Java. The facility is expected to process up to150,000 bbl/d of crude oil mainly from the Cepu block, according to local press reports. As of June 2004, however, the feasibility study was still not finalized.

Pertamina has decided to resume construction of the partly built petrochemical facility in Tuban, East Java. The project has stalled since 1998. By the terms of the agreement, Pertamina will guarantee \$400 million in loans from foreign banks and supply inputs to the plant. Domestic investors in the project include several men with close ties to former Indonesian leader Suharto. Pertamina's partnership with Saudi Arabia's Hi-Tech International Group collapsed in 2002 when the Saudi firm failed to raise enough money to finance its portion of the plant. Another attempt to restart the project failed when the World Bank and IMF informed the Indonesian government in 2003 that Pertamina's attempt to finance the project alone, using collateralized revenue from the Cilcap refinery, was forbidden under the terms of their respective lending programs. When complete, the plant is expected to produce 1 million tons of aeromatic, 1 million tons light naptha, and 1.6 million tons of kerosene and diesel annually.

#### NATURAL GAS

Indonesia has proven natural gas reserves of 92.5 trillion cubic feet (Tcf). Most of the country's natural gas reserves are located near the Arun field in Aceh, around the Badak field in East Kalimantan, in smaller fields offshore Java, the Kangean Block offshore East Java, a number of blocks in Irian Jaya, and the Natuna D-Alpha field, the largest in Southeast Asia. Despite its significant natural gas reserves and its position as the world's largest exporter of liquefied natural gas (LNG), Indonesia still relies on oil to supply about half of its own energy needs. About 70% of Indonesia's LNG exports go to Japan, 20% to South Korea, and the remainder to Taiwan. As Indonesia's oil production has leveled off in recent years, the country has tried to shift towards using its natural gas resources for power generation. However, the domestic natural gas distribution infrastructure is inadequate. The main domestic customers for natural gas are fertilizer plants and petrochemical plants, followed by power generators.

Indonesia is facing a declining share of global LNG markets, despite its past status as the world's leading LNG and dry gas exporter. The decline can be attributed to questions over the reliability of Indonesian supply and lower investment in the Indonesian energy sector. Uncertainties over political support for the sanctity of contracts, regulatory transparency, and unfavorable PSC terms have undermined investment support. As a result, Indonesian LNG exports have been partially replaced by exports from Oman, Qatar, Russia, and Australia on world markets. The sector has also faced restructuring under the terms of Indonesia's



World Bank and IMF lending agreements, with BP Migas taking over the supervisory and

management roles formerly filled by Pertamina.

Despite Pertamina's reduced authority, the company's key role in the gas sector was reinforced in early June when BP Migas announced that PT Pertamina has been appointed as the sole sales agent for LNG sales to South Korea and Taiwan. Pertamina will negotiate sales for Total, Unocal, Vico and BP Indonesia. Current contracts with South Korea and Taiwan are due to expire in 2007 and 2009, respectively.

One project that holds tremendous promise for Indonesia's future in worldwide LNG markets is BP's Tangguh project in Papua province (also known as Irian Jaya), based on over 14 Tcf of natural gas reserves found onshore and offshore the Wiriagar and Berau blocks. The project will involve two trains with a combined capacity of 7 million tons per annum (tpa), expandable to 14 million tpa. BP's current plans call for the project to be completed by 2007. Initial planning was stalled when BP lost the bids to supply Guandong Province and Taiwan in early 2003. However, in late 2003 and early 2004, BP secured supply agreements with Fujian, China for 2.6 million tpa, with leading Korean steel producer POSCO for 1.5 million tpa, and with Sempra Energy for 3.7 million tpa over 15 years to begin in 2007. These supply agreements made possible the \$2.2 billion investment to develop the fields. Talks are underway for BP's Tangguh to supply 5 million tpa to Jiangsu, China beginning in 2007.

The 400-mile Natuna pipeline is one of the longest undersea gas pipelines in the world, bringing gas from blocks operated by Premier Oil, ConocoPhillips, and Star Energy to customers in Singapore. Singapore is a major consumer of Indonesian natural gas, which it uses for its growing electricity generation needs. New pipeline proposals that would link East Natuna with the Phillipines are under consideration, but the high financing costs and security concerns in regions to be traversed by the lines make the projects unlikely.

In another possible use for Indonesia's gas resources, Shell is examining the possibility of building a gas-to-liquids (GTL) plant in Indonesia. The plant, if the project goes forward, would produce 70,000 bbl/d of diesel and other middle distillates using the Fischer-Tropsch GTL process.

# COAL

Indonesia has 5.9 billion short tons of recoverable coal reserves, of which 58.6% is lignite, 26.6% is sub-bituminous, 14.4% is bituminous, and 0.4% anthracite. Sumatra contains roughly two-thirds of Indonesia's total coal reserves, with the balance located in Kalimantan, West Java, and Sulawesi. According to U.S. Embassy reports, Indonesia produced 114 million metric tons of coal in 2003, up 11% from 2002. The entire increased production was exported, primarily to Japan and Taiwan, but also South Korea, the Philippines and Hong Kong.

Indonesia plans to double coal production over the next five years, mostly for export to other countries in East Asia and India. The new capacity will come primarily from private mines. The Clough Group of Australia was awarded a \$215 million contract for improvements at the Indonesian firm GBP's Kutai mine in East Kalimatan. Another foreign firm with major interests in Indonesian coal mining is Australia's Broken Hill Proprietary (BHP).

July, 2003 saw the divestment of Australian mining company Rio Tinto and BP from their joint venture in Kaltim Pima Coal (KPC). The shares were sold to Indonesian firm, PT Bumi Resources for \$500 million. According to several reports, the divestment was prolonged and acrimonious as the government objected to Rio Tinto's divestment plan, and threatened to mobilize public action to block the mine's operations. Ultimately, Rio Tinto and partner BP sold their combined 100% stake

for about half of its assessed value.

# **ELECTRICITY GENERATION**

Indonesia has installed electrical generating capacity estimated at 21.4 gigawatts, with 87.0% coming from thermal (oil, gas, and coal) sources, 10.5% from hydropower, and 2.5% from geothermal. Prior to the Asian financial crisis, Indonesia had plans for a rapid expansion of power generation, based mainly on opening up Indonesia's power market to Independent Power Producers (IPPs). The crisis led to severe financial strains on state-utility Perusahaan Listrik Negara (PLN), which made it difficult to pay for all of the power for which it had signed contracts with IPPs. PLN has over \$5 billion in debt, which has grown markedly in terms of local currency due to the decline in the value of the rupiah. The Indonesian government has been unwilling to take over the commercial debts of PLN.

Indonesia is facing an electricity supply crisis, with some observers predicting that PLN may be unable to take on any new customers by 2005. Intermittent blackouts are already an issue across Java. Demand for electrical power is expected to grow by approximately 10% per year for the next ten years. The majority of Indonesia's electricity generation is currently fueled by oil, but efforts are underway to shift generation to lower-cost coal and gas-powered facilities. Geothermal energy and hydropower are also being investigated.

In January 2003, the World Bank announced that it was planning to build three micro-hydropower plants in the Indonesian province of Papua (Irian Jaya). A feasibility study on all of the area's water sources has already been conducted by the Bank, and the results are being studied. By building these facilities, the World Bank hopes to improve services to the local population as well as to encourage development activities in the province.

In October 2003, the World Bank approved a \$141 million loan to Indonesia for the purpose of improving the power sector on Java-Bali, which uses approximately 80% of Indonesia's power generation capacity. The project includes support for a corporate and financial restructuring plan for PLN and technical assistance for a restructuring program for state gas company, Perusahaan Gas Negara (PGN), that will provide for increased natural gas supplies for electricity generation. The restructuring plan requires that PLN must restructure two of its subsidiaries, PT Indonesia Power and PT Pembangkit Jawa Bali (PJB). The two together supply about 80% of the power supply for Java and Bali, according to reports.

Also in 2003, the government renegotiated 26 power plant projects with the IPPs. Of those, five projects will be assumed by the government, in cooperation with PLN and Pertamina. The government foresees inviting private investors to participate in some electricity generation development projects, according to the U.S. Embassy.

Competition for power generation will be open on the islands of Batam, Java, and Bali by 2007. In 2008, retail competition in the electricity market will begin under the terms of the nation's new electricity law, approved in September 2002. The law requires an end to PLN's monopoly on electricity distribution within five years, after which time private companies (both foreign and domestic) will be permitted to sell electricity directly to consumers. However, all companies will need to use PLN's existing transmission network.

#### **ENVIRONMENT**

Indonesia's major environmental challenges involve supporting its large population. <u>Air</u> and <u>water</u> pollution have reached critical levels, especially on the most populated island of Java. Indonesia's

<u>carbon emissions</u> remain low, but there is concern that an increase in the use of indigenous coal will increase Indonesia's carbon emissions in the coming years. Indonesia is well endowed with <u>renewable energy</u> potential, especially geothermal energy. Indonesia's renewable resouces are not yet fully exploited.

In March 2003, the Asian Development Bank approved a \$600,000 grant to help combat Jakarta's air pollution problem. The technical assistance grant will be used primarily to promote a clean vehicle fuel program, known as the "Blue Skies" project. Indonesia is also phasing out the use of leaded gasoline, with a complete ban set to come into force in 2005.

Sources for this report include: AFX Asia; Asia Times; APS Review Oil Market Trends; CIA World Factbook 2003; Dow Jones News Wire service; Economist Intelligence Unit ViewsWire; Energy Intelligence Group; Financial Times; Global Insight World Overview; The Jakarta Post; Mining Magazine; Oil & Gas Journal; Petroleum Economist; Petroleum Intelligence Weekly; Platt's International Coal Report; Platt's Oilgram News; Reuters News Wire; U.S. Energy Information Administration; U.S. Department of State; Wall Street Journal; World Bank Group; World Gas Intelligence; World Markets Analysis.

# **COUNTRY OVERVIEW**

**President:** Megawati Sukarnoputri (since July 2001)

**Independence:** Proclaimed independence on August 17, 1945. On December 27, 1949, Indonesia became independent from the Netherlands.

Population (2004E): 238.5 million

Location/Size: Southeastern Asia/735,310 sq. mi., slightly less than three times the size of Texas Major Cities: Jakarta (capital), Surabaya, Bandung, Medan, Semarang, Palembang, Ujung Pandang Languages: Bahasa Indonesia (official), English, Dutch, local dialects including Javanese Ethnic Groups: Javanese (45%), Sundanese (14%), Madurese (7.5%), coastal Malays (7.5%), other (26%)

**Religions:** Muslim (88%), Protestant (5%), Roman Catholic (3%), Hindu (2%), Buddhist 1%), other (1%)

# **ECONOMIC OVERVIEW**

Minister for Economic Affairs: Kuntjoro-Jakti Dorodjatun Currency: Rupiah Exchange Rate (06/30/04): US\$1 = 9,399 rupiah Gross Domestic Product (2003E): \$208.3 billion (2004F): \$225.0 billion Real GDP Growth Rate (2003E): 4.1% (2004F): 4.7% Inflation Rate (Consumer Price Index) (2003E): 6.8% (2004F): 5.8% Merchandise Exports (2003E): \$63.2 billion Merchandise Imports (2003E): \$63.2 billion Merchandise Trade Balance (2003E): \$25.2 billion Major Export Products: Manufactured goods, petroleum, natural gas and related products, foodstuffs, raw materials Major Import Products: Capital equipment, raw and intermediate materials, consumer goods, petroleum products Major Trading Partners: Japan, United States, Singapore, Hong Kong, Britain, Australia

# **ENERGY OVERVIEW**

Energy Minister: Purnomo Yusgiantoro Proven Oil Reserves (1/1/04E): 4.7 billion barrels Oil Production (2003E): 1.26 million barrels per day (bbl/d), of which 1.02 million bbl/d was crude oil

OPEC Production Quota (since 4/01/04): 1.218 million bbl/d (as of 7/01/04): 1.32 million bbl/d Oil Consumption (2003E): 1.13 million bbl/d

Net Oil Exports (2003E): 130,000 bbl/d (2004F): 16,000 bbl/d

**Major Oil Customers:** Japan, United States, South Korea, China, Australia, Taiwan, Singapore, Thailand

Crude Oil Refining Capacity (1/1/04E): 992,745 bbl/d

Natural Gas Reserves (1/1/04E): 90.3 trillion cubic feet (Tcf)

Natural Gas Production (2002E): 2.48 Tcf

Natural Gas Consumption (2002E): 1.20 Tcf

Net Gas Exports (2002E): 1.28 Tcf

Major LNG Customers (2003): Japan, South Korea, Taiwan

**Coal Reserves (2002E):** 5.92 billion short tons of recoverable reserves of which 85% is lignite and 15% is anthracite

Coal Production (2002E): 144 million short tons (Mmst)

Coal Consumption (2002E): 31.1 Mmst

Net Coal Exports (2002E): 112.8 Mmst

Major Coal Customers (2002): Japan, Taiwan, South Korea, the Philippines

Electric Generation Capacity (2002E): 25.6 gigawatts

Electricity Production (2002E): 99.3 billion kilowatt hours

**Electricity Consumption (2002E):** 92.4 billion kilowatt hours

# **ENVIRONMENTAL OVERVIEW**

**Total Energy Consumption (2002E):** 4.45 quadrillion Btu\* (1.0% of world total energy consumption)

**Energy-Related Carbon Dioxide Emissions (2002E):** 299.8 million metric tons (1.2% of world total carbon dioxide emissions)

**Per Capita Energy Consumption (2002E):** 20.5 million Btu (vs U.S. value of 339.1 million Btu) **Per Capita Carbon Dioxide Emissions (2002E):** 0.38 metric tons (vs U.S. value of 5.45 metric tons)

**Energy Intensity (2002E):** 5,870 Btu/ \$ nominal-PPP (vs. U.S. value of 9,344 Btu/\$ nominal-PPP) **Carbon Dioxide Intensity (2002E):** 0.40 metric tons/ \$ nominal-PPP (vs. U.S. value of 0.17 metric tons/thousand \$ nominal)

**Fuel Share of Energy Consumption (2002E):** Oil (48.5%), Natural Gas (29.2%), Coal (16.1%) **Fuel Share of Carbon Dioxide Emissions (2002E):** Oil (52.8%), Natural Gas (25.8%), Coal (22.0%)

**Status in Climate Change Negotiations:** Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified August 23rd, 1994). Signatory to the Kyoto Protocol (signed July 13th, 1998 - not yet ratified).

**Major Environmental Issues:** Deforestation; water pollution from industrial wastes, sewage; air pollution in urban areas.

**Major International Environmental Agreements:** A party to Conventions on Biodiversity, Climate Change, Endangered Species, Hazardous Wastes, Law of the Sea, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94 and Wetlands. Has signed, but not ratified, Desertification and Marine Life Conservation.

\* 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 based on CIA World Factbook estimates based on purchasing power parity (PPP) exchange rates.

# **OIL AND GAS INDUSTRIES**

**Organizations:** Perusahaan Pertambangan Minyak dan Gas Bumi Negara (Pertamina) - oil exploration, production, transportation, and marketing; Perum Gas Negara (PGN) -gas distributor and transmission company

Major Producing Oil Fields: Duri, Minas, Belida, Ardjuna, Arun, KG/KRA, Widuri, Nilam, Attaka

**Oil Refineries** (1/1/04): Cilacap, Central Java (348,000 bbl/d); Pertamina-Balikpapan, Kalimantan (240,920 bbl/d); Musi, South Sumatra (109,155 bbl/d); EXOR-1, Balongan, Java (125,000 bbl/d); Dumai, Central Sumatra (114,000 bbl/d); Sungai Pakning, Central Sumatra (47,500 bbl/d); Pangakalan Brandan, North Sumatra (4,750 bbl/d); Cepu, Central Java (3,420 bbl/d)

Product Pipelines: Trans-Java (serving the Surabaya market)

**Oil Tanker Terminals: Java:** Cilegon, Cilacap, Surabaya, Ardjuna B (offshore) **Sumatra:** Pangkalan Brandan, Belawan, Dumai, Musi, Perlak, Palembang, Tanjung Uban (offshore) **Kalimantan:** Balikpapan Sulawesi: Ujung Pandang **Irian Jaya:** Sorong, Jaya Seram: Bula Natuna Sea: Ikan Pari

Major Gas Fields: Sumatra: Arun, Alur Siwah, Kuala Langsa, Musi, South Lho Sukon, Wampu East Kalimantan: Attaka, Badak, Bekapai, Handil, Mutiara, Nilam, Semberah, Tunu Natuna Sea: Natuna Java: Pagerungan, Terang/Sirasun Irian Jaya: Tangguh

Major Gas Pipelines: Sumatra: Pangkalan Brandan-Dumai

LNG Plants: Bontang, Arun

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