

## Indonesia's Natural Gas Opportunities and Challenges

**Summary.** Indonesia's natural gas opportunities are exceeded only by its challenges. Production rose a modest four percent in 2003 -- natural gas exports to Singapore and new domestic household use accounted for much of the growth. Liquefied natural gas (LNG) exports remained stable, making up 55 percent of the country's total gas production and generating over \$6 billion in revenue. The gas sector's potential is bright; domestic, regional and international demand for natural gas is expected to rise dramatically over the next decade. To capitalize on this opportunity, Indonesia must improve its gas infrastructure, expand power capacity and attract new investment that will create new sources of production. However, regulatory delays, contract sanctity concerns and poor terms and conditions are some of the obstacles the government must overcome. **End summary.**

### Overview of Natural Gas Industry

Indonesia has about 178 trillion cubic feet (TCF) of proven (91 TCF), probable (43 TCF) and possible (44 TCF) natural gas reserves, the twelfth largest in the world. In 2003, the country produced 3.15 trillion cubic feet (TCF) of gas, number six in world gas production. Indonesia currently supplies 26 percent of the world's LNG from two production centers at Arun in Aceh and Bontang in East Kalimantan. Remaining proven and probable gas reserves are located far from the Java-Bali demand centers, in East Kalimantan (32 TCF) and Sumatra (22 TCF). Large uncommitted reserves remain in Papua (15 TCF) as well as Natuna Sea (52 TCF), though not all of the latter is commercially viable at this time. The industry is dominated by seven major companies, which account for 90 percent of all production (see below).

### Natural Gas Production Statistics

Natural Gas Production (Million SCF)

Company	2001	2002	2003	%Change
TotalFinaElf	880,237	835,031	877,529	5.1
ExxonMobil	268,109	558,170	601,673	7.8
Vico	464,049	437,386	392,625	-10.2
Pertamina	276,791	257,994	336,966	30.6
ConocoPhillips	205,129	232,332	281,212	21
BP	294,964	268,410	245,295	-8.6
Unocal	159,313	149,317	144,843	-3
CNPC (PetroChina)	45,091	59,015	75,563	28
Premier/Amoseas	29,238	40,371	51,254	27
Exspan	40,990	41,676	47,475	13.9
Caltex	50,306	44,825	40,640	-9.3
CNOOC	27,611	27,258	21,526	-21
Kodeco	11,034	23,570	7,559	-67.9
Others	54,281	60,998	31,083	-49

TOTAL	2,807,143	3,036,353	3,155,243	3.9
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Source: Oil and Gas Directorate (MIGAS)

### LNG Remains Primary Gas Product

Exported LNG continues to be the country's main gas product and a principle source of revenue. LNG accounts for 55 percent of the country's total natural gas production and is exported to Japan, South Korea and Taiwan. The country also exports natural gas via pipeline to Singapore and Malaysia, reaching 118 BCF last year. Revenues from gas exports are substantial, climbing 16 percent in 2003 to \$6.5 billion, or about 12 percent of Indonesia's total export revenues. Fertilizer and petrochemical plants lead domestic gas users at nine percent of total demand, followed by the power industry at six percent. According to state-owned gas distribution company PGN, household gas use doubled in 2003 to 20 percent of domestic gas demand.

### Natural Gas Use Statistics

Marketed Natural Gas (Million SCF)

	2001	2002	2003	%Change
LNG Export	1,489,935	1,656,472	1,719,127	11.2
Fertilizer	211,730	244,445	256,741	5
Electricity	254,237	195,300	187,187	-4.2
City Gas	78,389	82,743	157,478	90.3
Nat Gas Export	31,967	82,619	118,112	43
LPG Export	2,410	2,474	5,655	128.6
Petrochemical	29,437	30,892	22,773	-26.3
LPG/LEX Plants	10,397	26,611	32,008	20.3
Cement Plants	3,420	2,751	2,872	4.4
Other Industry	132,964	159,509	146,912	-7.8
Total	2,263,297	2,505,072	2,648,973	5.7

Source: MIGAS

Note: figures do not include own use and flares/losses, which account for 16 percent of total production.

### Regional Gas Growth Potential

Given Indonesia's sizable reserves, the country should be well poised to capitalize on regional natural gas growth. According to the Institute for Southeast Asian Studies, LNG consumption in the Asia-Pacific region could double over the next decade. In 2003, Asia consumed 77.5 MT of LNG at a value of \$20 billion. Helped by the addition of new markets in India, China, and the U.S. West Coast, regional LNG demand could exceed 150 MT by 2015. Indonesia is also part of an Association of Southeast Asian Nations (ASEAN) effort called the Trans-ASEAN gas pipeline (TGAP) project. This ambitious, 4500-kilometer, \$7 billion project would create a natural gas supply network to improve regional power generation and economic development.

## **Power, Industry Drive Domestic Gas Growth**

The forecast for Indonesia's domestic natural gas growth is similarly bright. Upstream oil and gas authority BP MIGAS estimates that domestic natural gas demand will average 9-11 percent per year. Fed by new power generation and industry, natural gas use could jump from 0.83 billion cubic feet per day (bcfd) currently to 3.7 bcf by 2015. The country's power needs are acute; according to Cambridge Energy Research Associates, Indonesia needs over 10,000 megawatts of new capacity by 2015 in order to prevent a long-term power crisis. State-owned electricity company PLN wants to reduce costs and harmful emissions by increasing the sector's natural gas use from 21 percent to 40 percent by 2015, a volume increase of 1.3 bcf. (Note: PLN lost \$382 million in 2003, due in large part to fuel oil costs of \$1.46 billion, a 61 percent increase from 2002.)

## **LNG Challenges**

These regional opportunities come at a critical time for the Indonesian LNG industry. ExxonMobil Aceh's four-month security shutdown in 2001, gas production problems at Arun and Bontang, and the GOI's apparent support for the fertilizer industry over its LNG customers has raised concerns about Indonesia's reliability as an LNG supplier. Indonesia lacks the spare LNG capacity to supply potential new markets until BP's Tangguh LNG plant in Papua comes on line in 2007-2008. The country also lacks a coordinated LNG marketing strategy, following the transfer of this function from Pertamina to BP MIGAS in 2002. At the same time, new LNG suppliers in Qatar, Russia and Australia offer buyers alternate sources of LNG. New technology, economies of scale in production and shipping, and more flexible contracts are changing the industry, forcing existing suppliers like Indonesia to adapt quickly.

## **Domestic Gas Challenges**

The domestic gas industry faces challenges as well. Indonesia has an inadequate gas transmission and distribution network, with a total pipeline length of 2547 kilometers and a total capacity of 830 million cubic feet per day (mmscfd). State-owned gas utility PGN plans three more transmission projects to meet rising power sector demands for gas, as follows:

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Project	Length	Capacity	Estimated Completion
a. Grissik-Jakarta	606 km	400 mmscfd	2006
b. E.Kalimantan-Java	1620 km	1500 mmscfd	2010
c. E.Java-W.Java	680 km	350 mmscfd	2010

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Gas producers cite financing limitations as an obstacle to improving the domestic gas infrastructure. According to a Wood Mackenzie gas and power study, most export credit agencies (ECAs) remain wary of large, domestic-oriented projects in Indonesia. Until domestic gas offtakers like PLN become creditworthy, future financing will be largely limited to offshore-structured, export-oriented projects. This minimizes political risk and generates dollar revenues. Financing is also more likely if companies with hard currency offshore accounts participate.

## **New Gas Production Tied to Investment Climate**

Lastly, Indonesia requires new gas production in order to meet the growing regional and domestic demand. Last year's four percent gas production increase falls well short of the GOI's predicted demand growth of 9-11 percent annually. Private investment will be the key to new gas production. Unfortunately, investment in new oil/gas exploration and development averaged \$1.2 billion for 2001-2003, down from a peak of \$2.1 billion in 1998. Although the GOI awarded 15 new exploration tenders in 2003, up from 1 in 2002 and 6 in 2001, major international and U.S. companies were largely absent from the bidding on these new oil/gas blocks.

Contract sanctity concerns, regulatory delays and weak terms and conditions are some of the key reasons for the weak investment climate. The GOI has yet to produce implementing regulations for the 2001 Oil and Gas Law. In them, the industry wants the government to clarify the sanctity of pre-existing production sharing contracts (PSCs) so that the 2001 law does not adversely affect them. The industry is also concerned about provisions in the draft regulations that would require PSCs to offer to transfers of participating interest to a national company first. It also worries about the lack of detail regarding a new domestic market obligation (DMO) for gas that requires PSCs to surrender up to 25 percent of its natural gas share to "fulfill domestic needs." Finally, existing oil and gas producers believe the current PSC terms and conditions do not offer sufficient investment returns to make most greenfield or brownfield gas development worthwhile.

## **Comment – Trapped in Transition?**

Indonesia is uniquely poised to take advantage of the expected huge jump in global natural gas consumption. Untapped domestic gas demand offers another growth outlet and can provide a bulwark against international market forces. However, Indonesia risks being left behind by the slow pace of liberalization in the country's oil and gas industry, which began in 2001. The industry seems "trapped in transition," while oil and gas companies sense indecision and even indifference from government policymakers. Decisions such as fertilizer industry support at the risk of Indonesia's LNG contracts appear to be smart politics, but hurt the country's long-term interests. Indonesia needs sound leadership and political will to push through this transition and enact policies that strengthen natural gas development and in turn, the country's economic well-being. @