



BRIEF FOR THE
PACIFIC ENERGY
SUMMIT
May 2016

INDONESIA'S GAS CHALLENGE

CAN THE FORMER LNG CHAMPION REGAIN ITS LEADERSHIP?

By Donald Hertzmark



Indonesia faces falling output of easily accessible and marketed natural gas supplies from its domestic market. Nevertheless, the government has placed its bet on improving liquefied natural gas (LNG) supplies to the Asia-Pacific market for the next ten years; it has “gone long” in Asia-Pacific gas as traders would say. Increasingly, the country plans to direct much of the gas formerly destined for LNG exports to domestic users, especially those in the power sector. Pertamina, the sole seller of Indonesia’s LNG, will turn to spot markets to fulfill contractual obligations to its external customers—Japan, South Korea, Taiwan, and China—if need be, a course already taken numerous times. The Indonesian government believes that Asia-Pacific gas markets will remain soft until the middle of the next decade. Until then, the country will be able to purchase LNG from an increasingly competitive supplier group at reasonable prices.

THE STATE OF REGIONAL GAS MARKETS—WHY INDONESIA BELIEVES GAS WILL REMAIN PLENTIFUL

In 2014, world LNG trade totaled some 241 million tonnes per year (mtpa), 180 mtpa of which took place in Asia-Pacific markets.¹ Total liquefaction capacity exceeds trade by about 25% (301 mtpa), while regasification capacity is about 3 times that of total LNG trade. The forecasted demand for 2020 will amount to about 1.4 times the current liquefaction capacity, which is equal to roughly all existing capacity plus capacity under construction and high probability projects, and the commissioning of new capacity in Australia and the United States has more than kept pace with demand. By 2025, demand for LNG is expected to go up another 30% to about 570 mtpa, and projects currently under development or awaiting final investment decisions equal about 280 mtpa, all this notably without the liquefaction projects on the U.S. gulf coast or Canada’s west coast.

Long-term contracts account for more than two-thirds of LNG traded, and three-quarters of the remaining spot market LNG is traded in Asia-Pacific markets. Spot market transactions continue to rise as a proportion of the total world trade. The biggest development in regional LNG markets on the consumer side is the increasing trend toward

¹ The data in section is drawn from the International Gas Union, “World LNG Report - 2015 Edition,” November 2015, especially sections 3, 4, 6, and 7.

Donald Hertzmark is Principal at DMP Resources. He has worked on Indonesian energy issues since the early 1980s and has also worked extensively on Indonesian and regional gas value-chain investments for private clients and for international financial institutions.

smaller regasification facilities, especially floating storage and regasification. This trend promises to bring the benefits of natural gas to smaller, more remote markets.²

The confluence of all these market and technology trends—more suppliers, more LNG on offer, more flexible purchasing arrangements, and improved technology for smaller users—portends increasingly cost-effective end uses of natural gas throughout Indonesia. In the longer term, Indonesia expects to be able to exploit its vast coalbed methane and possibly shale gas resources, thought to exceed 400 trillion cubic feet (tcf).³ However, significant output from these sources is not expected until the middle or end of the next decade.

THE CURRENT GAS SITUATION IN INDONESIA

Natural gas currently accounts for 15% of Indonesia's total energy consumption, about 1.4 tcf per year. Total gas production is currently 2.5 tcf per year and falling.⁴ The differential between production and domestic use, 900 billion cubic feet per year, is currently exported (16 mtpa) and is expected to turn negative early in the 2020s, with Indonesia becoming a net importer of gas just as it is with oil. Current regasification capacity for Indonesia is 6 mtpa, rising to three or four times that level by 2020.⁵ The country represents an almost ideal test-bed for the efficacy of

smaller-scale LNG solutions.

Unlike the crude oil outlook, Indonesia expects to return to higher gas production levels later in the 2020s. More gas output is essential to Indonesia's push for greater energy supply security, a recurring subject for both government officials and Indonesia's international development partners. Moreover, greater gas output, identified by a recent report on Indonesia by the National Bureau of Asian Research, as well as more detailed planning work, represents the country's only real hope of offsetting the decline in oil output.

THE OPPORTUNITIES

There are two main opportunities for expanding the use of gas in Indonesia. In the major markets, current gas supplies are not sufficient to allow many industries to convert to natural gas; these companies continue to use middle distillate oil products or even coal for process energy and backup power. By any reasonable accounting, replacement of these refined oil products can represent a significant improvement in economic efficiency for the country.

In smaller markets, power generation relies almost entirely on middle distillate oil products. Even with current low prices for oil and refined products, the national electric utility, Perusahaan Listrik Negara (PLN), incurs high generation costs for its substantial array of smaller generating units outside the major islands of Java, Kalimantan, Sumatra, and Sulawesi. As a matter of national policy, all of those expensive kilowatt hours generated with oil must sell for the same retail price as the much less costly generation from coal and natural gas in the heavily populated cities. Increasing natural gas use outside the major urban markets could reduce PLN's losses from small-market electricity sales, improving the company's financial stability and increasing power supplies in those markets. Enlarging the footprint of natural gas in smaller-generation markets could act as a hedge for the country as well, protecting against both lower prices for its LNG exports in the coming years due to increased supply and higher prices for refined products as oil markets recover from today's bottom.

² International Gas Union, "World LNG Report—2014 Edition," March 2014, section 8.

³ There are numerous estimates of Indonesia's coalbed methane and shale potential. The U.S. Energy Information Agency (EIA) identified about 48 trillion tcf of risked recoverable shale gas, while Indonesia Investments.com cited recoverable coalbed methane reserves of 453 tcf. See R. Sukhyar and R. Farkhrudin, "Unconventional Oil and Gas Potential in Indonesia with Special Attention to Shale and Coalbed Methane," Geological Agency, Ministry of Energy and Mineral Resources (Indonesia), May 7, 2013; U.S. EIA, "Technically Recoverable Shale Oil and Shale Gas Resources: Indonesia," 2015, xxiii–2; and Indonesia-Investments, "Coalbed Methane," 2015, <http://www.indonesia-investments.com/business/commodities/coalbed-methane/item269>.

⁴ U.S. EIA, "Indonesia Energy Profile," 2015. See also Natalie Bravo et al., "Indonesia: A Regional Energy Leader in Transition," National Bureau of Asian Research (NBR), NBR Special Report, no. 55, December 2015, <http://www.nbr.org/publications/issue.aspx?id=326>. This recent report by NBR highlights the complex nature of Indonesia's fall from gas industry dominance and identifies some of the elements needed to improve the country's energy supply security.

⁵ "What Is the Status of Various Indonesian LNG Projects?" Gas Tech News, February 22, 2016, <http://www.gastechnews.com/lng/what-is-the-status-of-various-indonesian-lng-projects>.

In order to take advantage of this moment in regional gas markets, Indonesia will need to move quickly to enlarge and improve its gas infrastructure. This means more pipelines and low-pressure distribution in major markets, including additional regasification of domestic and imported supplies. In smaller markets this opportunity will require facilities to handle more than 1 mtpa in 30 locations—a “milk run” for larger LNG tankers to small regasification facilities throughout the country. The opportunity also requires repowering or replacing more than 1.8 gigawatts of PLN generation plants in smaller markets.

THE RISKS

Indonesia’s planners and regulators have identified a wide array of potential risks, ranging from several market-related risks (e.g., capacity commitments, prices, and financing) to engineering, design, and construction risks for small facilities to environmental risks of exposure to weather and waves at many locations. In addition, the financing required cannot come from state-owned companies, so terms will need to be attractive enough to lure private investors in these smaller, fixed facilities.

The potential pitfalls are many: Indonesia currently uses an allocation model for gas biased toward specific industries, which may leave other willing gas buyers out in the cold; the country’s state-owned gas suppliers do not have a strong track record in building gas supply infrastructure quickly; and regulatory red tape⁶ may yet thwart the best intentions of repowering electricity generation and industrial energy in both large and small markets.

⁶ Donald I. Hertzmark, “Midstream Gas Governance: Lessons from International Experience” (conference presentation, Special Task Force for Upstream Oil and Gas Business Activities, Indonesia, January 2016).

GRASPING THE OPPORTUNITY

The current era of low gas prices in the Asia-Pacific market represents a unique opportunity for Indonesia to greatly improve the cost-effectiveness of its power-generation business and the competitiveness of many local industries. The window for this opportunity is likely relatively short—seven to ten years—after which Indonesia will need to have re-established its production capabilities for gas, albeit from unconventional sources.

In this relatively short time frame, the state companies in gas and oil, Perusahaan Gas Negara and Pertamina, will need to build a great deal of infrastructure for gas transmission, distribution, and storage. Regulators will need to establish rather quickly a pricing and allocation regime that attracts private investors and end users in major markets. Other private investors will be called upon to construct regasification and new or repowered power plants at more than 30 locations in smaller markets.

Will all of these regulatory, governance, engineering, logistical, and operational activities be completed in time to yield the benefits to Indonesia of the current gas market conditions? Time will tell, but presently there is a high-priority effort across several government agencies, state-owned energy suppliers, and international lenders to establish the appropriate environment in institutional governance, regulation, pricing, and investment climate. ~

SINGAPORE  JUNE 22–24, 2016

Sustainable Futures

Energy and Environmental Security in Times of Transition



This publication is part of a series of briefs commissioned on the sidelines of the Pacific Energy Summit.

The seventh annual invitation-only Pacific Energy Summit will be held in Singapore on June 22–24, 2016, and will convene 200 leaders from government, industry, and research from across the Asia-Pacific. Delegates will address how countries in the Asia-Pacific can foster more robust, collaborative approaches to sustaining economic growth and advancing much-needed access to energy while achieving the ambitious environmental goals outlined in the Paris Agreement.

The 2016 Pacific Energy Summit will be co-chaired by Admiral Dennis C. Blair (former Director of National Intelligence; Chairman of the Board and CEO, Sasakawa Peace Foundation USA; and Member, NBR Board of Directors) and Professor Tan Eng Chye (Provost and Deputy President of the National University of Singapore). To request an invitation, please email pacificenergy@nbr.org.

THE NATIONAL BUREAU OF ASIAN RESEARCH (NBR) is a nonprofit, nonpartisan research institution headquartered in Seattle, Washington, with a second office in Washington, D.C. For more information about NBR, please visit www.nbr.org.

Media inquiries may be directed to media@nbr.org or (202) 347-9767.

Join the NBR community: [Facebook.com/NBRnews](https://www.facebook.com/NBRnews) Twitter: @NBRnews



THE NATIONAL BUREAU of ASIAN RESEARCH

1414 NE 42ND STREET, SUITE 300
SEATTLE, WA 98105 • 206-632-7370

1819 L STREET NW, NINTH FLOOR
WASHINGTON, D.C. 20036 • 202-347-9767

WWW.NBR.ORG [@NBRNEWS](https://twitter.com/NBRNEWS)