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A photograph of an offshore oil rig at night, illuminated by blue and white lights against a dark sky.

# JAPAN'S ENERGY SECURITY IN THE AGE OF LOW OIL PRICES

*By Shoichi Itoh*

The 2011 Fukushima Daiichi nuclear disaster and the ensuing nuclear shutdown called into question the future of Japan's energy landscape. Given the slow progress of restarting its nuclear reactors in recent years, today's low-price era has given Japan the opportunity to rebuild its own energy security.

Energy costs in post-Fukushima Japan soared mainly due to increased imports of liquefied natural gas (LNG), which replaced most of the nuclear power that went offline. The subsequent tightening of the global LNG market boosted Japan's annual natural gas import price from \$10.91 per million British thermal units (mmbtu) in 2010 to \$16.75 per mmbtu in 2012.<sup>1</sup> To compare, U.S. Henry Hub gas prices stayed below \$3 per mmbtu amid the shale gas revolution.<sup>2</sup> Due to these surging prices, Japan's annual trade deficit—recorded in 2011 for the first time since 1981—hit historical highs for the next three years. As late as 2014, the cost of Japan's LNG imports increased by about 2.3 times that of 2010.<sup>3</sup> Since the purchasing price of this LNG is indexed mostly to crude oil, the collapse of oil prices has benefited Japan's budget considerably.

In the long term, however, history tells us that the world is never free from volatile energy prices. Physical constraints—including the accessibility and safe transportation of energy—that affect energy security need to be steadily reduced in a timely manner. Japan is completely dependent on crude oil and LNG imports, and diversifying the supply sources has remained a crucial strategy for the country. Although reducing dependence on Middle Eastern oil has been Japan's primary policy challenge—ever since the first oil shock of 1973 rocked the Japanese economy—Japan has achieved very limited success to date, with an overwhelming 82% of its total crude imports still originating from the Middle East as of 2015.<sup>4</sup>

<sup>1</sup> BP plc, "BP Statistical Review of World Energy 2014," 2014, <http://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/natural-gas-review-by-energy-type/natural-gas-prices.html>.

<sup>2</sup> "Henry Hub Natural Gas Spot Price," U.S. Energy Information Administration (EIA), <http://www.eia.gov/dnav/ng/hist/rngwhhdm.htm>.

<sup>3</sup> Ministry of Finance (Japan), "Trade Statistics of Japan," 2016, [http://www.customs.go.jp/toukei/info/tsdl\\_e.htm](http://www.customs.go.jp/toukei/info/tsdl_e.htm).

<sup>4</sup> Ibid.

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In the past several years, however, new crude oil supplies have emerged from the Russian Far East. Russia, accounting for 9% of Japan's crude imports in 2015,<sup>5</sup> may increase this share depending on market prices but on a limited scale due to tremendous investment costs and risks for further project development. In the meantime, however, Japan should remind itself of its responsibility to toe the line with the other group of seven (G-7) nations with regard to economic sanctions on Russia given the latter's unquestionably illegal annexation of Crimea.

It is such a great fortune for Japan that the United States lifted its ban on crude oil exports in December 2015. Japan should be naturally interested in maximizing crude oil imports from North America, including the United States, as a part of a long-term national strategy of relaxing the dependence on the Middle East, though the scale of future export volumes from this prospective route still remains to be seen. In contrast to the Middle East—where there is perennial anxiety about supply disruption due to regional political turmoil and transport routes that cut through the contentious South China Sea—maritime routes across the North Pacific Ocean are free from this geopolitical threat.

Compared with crude oil, Japan's LNG import structure is more diversified, but it still depends on the Middle East for 27% of total imports as of 2015.<sup>6</sup> Starting in 2016, however, Japan's LNG imports from the U.S. lower 48 states are expected to increase.<sup>7</sup> Apart from the clear benefit of diversifying import origins, LNG from the United States also expands Japan's portfolio of LNG pricing mechanisms since the new U.S. supplies are basically indexed to Henry Hub gas prices. Even if the merit of the traditional crude-indexed LNG pricing mechanism is revisited

in the age of low oil prices, Japan is the biggest buyer of LNG in today's world and is still keen on increasing gas-indexed contracts to account for future hikes in oil prices.

With Japan's limited prospect of diversifying its hydrocarbon import routes in the coming decades and in anticipation of increased energy flows from North America, the sustainable growth of shale production is of particular significance for Japan. Although shale producers are currently forced to cut production because of the collapse of oil prices, shale should remain a top priority for Japan's energy security policy. Given that concerns about an oil and gas supply crunch in the future due to near-term underinvestment are globally rising, Japan should continue to highlight the importance of engagement in shale-related projects from a long-term perspective.

Meanwhile, given that low oil prices may reduce developing nations' incentives to reinforce countermeasures against climate change, it is important for Japan to continue its commitments to improving energy efficiency and mitigating emissions by disseminating its experiences and environmentally friendly technologies. It is in Japan's interest to synergize efforts to stabilize the global energy market and implement climate commitments in accordance with the Paris Agreement. ∞

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<sup>5</sup> Ministry of Finance (Japan), "Trade Statistics of Japan."

<sup>6</sup> Ibid.

<sup>7</sup> *Nihon Keizai Shimbun*, February 25, 2016, [http://www.nikkei.com/article/DGXLASGM25H2Q\\_V20C16A2EAF000/](http://www.nikkei.com/article/DGXLASGM25H2Q_V20C16A2EAF000/); and "Asia/World Energy Outlook 2015," Institute of Energy Economics, Japan, October 2015, 58–59.

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# 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](mailto:pacificenergy@nbr.org).

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