Statement before the House Foreign Affairs Subcommittee on Asia and the Pacific

"ENERGY NEEDS IN ASIA: THE U.S. LIQUEFIED NATURAL GAS OPTION"

A Statement by

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Good afternoon, Chairman Chabot, Ranking Member Faleomavaega, and members of the Committee. Thank you for the opportunity to testify about the future of liquefied natural gas (LNG) demand in Asia and the role of U.S. LNG supplies. It is an honor to appear before the Subcommittee and address this important topic.

Asia is already the largest LNG importing region in the world, accounting for two thirds of the global trade in LNG today. It is expected that the region will maintain this share for some decades to come. The United States is poised to be an important player in enhancing the security of energy supplies in Asia due to robust U.S. production of shale gas and the LNG export capacity expected to come online in the near future. In the testimony that follows, I will provide some insights as to the nature of the U.S.-Asia LNG trading relationship and what it may portend for bilateral and regional relations.

Question 1: Which Asian countries are expected to be the largest buyers of U.S. LNG and how will these economic ties affect our bilateral relationships?

In my judgment, Japan will be the largest buyer of U.S. LNG. The factors that lead to this judgment are Japan's existing large LNG import capacity, its continued need for cleaner fossil-based fuel in light of nuclear energy uncertainty, and its robust investment commitment in U.S. shale and LNG export projects.

First, with 30 LNG receiving terminals in place, Japan has been the largest importer of LNG in the world for some decades. Japan's geographical feature of being an island country propelled Japan to turn to LNG in the late1960s, when it began importing LNG from Alaska. Five additional LNG terminals are now under construction—anticipated to come online by 2016—to further the country's import capacity (350 bcf/y or 7.19 mmt/y).[1]

Second, the post-Fukushima closure of 54 nuclear power reactors has resulted in surging natural gas demand in Japan to avert a shortfall of 49 gigawatts of electricity supply. Japan's LNG demand increased 24 percent between 2010 and 2012.[2] The country's LNG import volume of 4.3 trillion cubic feet or tcf (or 87 million metric tons or mmt) in 2012 represented 37 percent of the global volume of LNG demand that year and was double the volume imported by the second largest importer of LNG in the world, South Korea.[3] While the Japanese political leadership strives to restart at least some nuclear power plants, the high level of public anxiety over the safety of existing nuclear power plants limits the prospect for a robust return of nuclear power generation in Japan. LNG will thus likely remain a major power source for Japan for some decades to come.

Third, meeting the surge in natural gas demand led Japan to pay $67.7 billion for LNG in 2012, about double the amount spent in 2010. Not surprisingly, Japan ran a large trade deficit of $78 billion that year—170 percent higher than in 2011. Continued nuclear outage and LNG import

[1] U.S. Energy Information Administration, 2013. http://www.eia.gov/countries/cab.cfm?fips=ja
[2] Ibid.
[3] Ibid.

reliance further raised Japan's annual trade gap in JFY 2013 to $112 billion—a 40 percent increase year-on-year—and the highest in its history.[4]

The fiscal burden from rising LNG import costs has driven Japan to seek access to competitively priced natural gas supplies around the world, but particularly in the United States, where natural gas prices are deregulated and natural gas is sold through a series of pricing points or hubs, most notably Henry Hub in Louisiana. Current price differentials between the U.S. and Japanese gas markets—about $4-5 per million British thermal unit in the United States and $15–$18 per million British thermal unit in Japan—make U.S. LNG imports commercially viable even after costs are added for liquefaction and shipping. A few major Japanese companies are investing in U.S. shale production projects in places such as the Marcellus shale and the Eagle Ford shale to secure access to cheaper supply at source. Also, Japanese companies have significant investment commitments in U.S. LNG export projects—such as Freeport, Cove Point and Cameron. For example, the total volume of U.S. LNG contracted by the Japanese through 2013—if materialized—would amount to roughly 20 percent (17 mmt/y) of the Japanese imports today.

Also, Japanese companies have had a decades-long LNG trade relationship with Alaska. Although the Alaskan LNG supplies would not likely be shale-based, Japan will most likely be the primary importer of Alaskan LNG once there is a commercial breakthrough in LNG projects there.

The Japanese investment in U.S. shale development and export projects as well as the actual LNG trade would strengthen economic relations between the United States and Japan. Also, LNG supplies would help Japan address its energy security and economic security challenges and the improved economic health of Japan—a key U.S. ally in the region—in turn would further the U.S. ability to advance national security objectives in Asia.

One country in Asia that serves as a significant variable is China. China is forecast to overtake South Korea as the second largest LNG importer by 2020, but it remains highly uncertain how much U.S. LNG would go to China. China's natural gas consumption is forecast to become about three times larger than that of Japan in 2020 and more than four times that of Japan in 2040.[5] But unlike Japan, which needs to import almost all of the natural gas it consumes, China has a notable volume of domestic gas output, which currently meets about two-thirds of its domestic consumption.[6] Also, home to the largest volume of technically recoverable shale gas resources in the world at 1,115 trillion cubic feet,[7] China now targets shale gas production levels of 2.12 tcf to 3.53 tcf (60 bcm to 100 bcm) per year by 2020.[8] The pace of shale gas development can significantly alter the current pattern of its gas consumption. Moreover, unlike

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[4] "Japan's 2013 LNG imports hit record high-MOF," *Reuters*, January 27, 2014, http://uk.reuters.com/article/2014/01/27/energy-japan-mof-idUKT9N0GJ03120140127

[5] Institute for Energy Economics—Japan, *Asia/World Energy Outlook 2013*.

[6] U.S. Energy Information Administration, 2014. http://www.eia.gov/countries/analysisbriefs/China/china.pdf

[7] U.S. Energy Information Administration (EIA), "Technically Recoverable Shale Oil and Shale Gas Resources: An Assessment of 137 Shale Formations in 41 Countries Outside the United States," June 13, 2013, http://www.eia.gov/analysis/studies/worldshalegas/

[8] Government of the People's Republic of China, 2012. http://www.gov.cn/zwgk/2012-03/16/content_2093263.htm

Japan or South Korea, China is able to import natural gas via pipelines. China's import volume today is roughly split half-and-half between pipeline gas from Central Asia and Myanmar, and LNG from Asia and Middle Eastern producers like Australia, Qatar, Indonesia and Malaysia. The freshly inked pipeline gas agreement with Russia will further the share of pipeline gas imports by China. Additionally, while China's LNG demand is expected to continue growing, the notable absence of Chinese investment commitment to U.S. LNG projects to date renders it difficult to envision China becoming one of the largest importers of U.S. LNG anytime soon.

Question 2: In the immediate future, what portion of U.S. LNG will be supplied to Japan, in particular?)

As noted earlier, the total volume of U.S. LNG contracted by the Japanese through 2013—if materialized—would amount to roughly 20 percent (17 mmt/y or 828 bcf/y or 2.27 bcf/d) of the Japanese imports today.[9] This volume is equivalent to about one-quarter of the accumulative volume from the seven U.S. LNG export licenses to the countries without a Free Trade Agreement with the United States (9.27 bcf/d) that have been approved to date.

However, it is important to note that not all of the volume contracted by Japanese companies need to be sold to buyers in Japan. Several Japanese companies have reportedly been in talks with buyers from other countries about a potential purchase agreement.

Question 3: How can the United States best leverage its LNG resources to bolster U.S. influence in Asia?

The ascent of the United States as a major natural gas producer has already demonstrated U.S. strength to the regional players—albeit quietly.

For example, the robust production of shale gas has led to a 28 percent decline in the U.S. natural gas import level since 2005. This increasing self-sufficiency in natural gas consumption has freed up supplies that were once destined for the United States—particularly from Qatar, Western Africa and Trinidad—to reach other markets around the world, including Asian countries. Specifically, during the supply uncertainty after the Fukushima nuclear disaster, re-directed LNG supplies from the Persian Gulf prevented a serious supply shortage in Asia.

Also, many Asian stakeholders see supply security value in the U.S. shale gas revolution and U.S. LNG supplies. Asia's heavy reliance on the Middle East and Southeast Asia for natural gas makes their imports susceptible to supply disruption from conflicts in such geopolitically contentious areas like the Straits of Hormuz or the South China Sea. In contrast, U.S. LNG supplies—much of which would be loaded in tankers in the U.S. Gulf of Mexico—would presumably travel through the open sea after transiting through the Panama Canal, thus avoiding these global chokepoints. U.S. LNG supplies, therefore, strengthen their sense of energy security by diversifying both the sources of supplies and the associated transportation routes.

Additionally, the robust development of shale gas—together with tight oil—has dampened the "United States in decline" narrative that emerged after the economic recession of 2008,

[9] The Office of the Prime Minister, Japan, 2014. http://www.kantei.go.jp/jp/singi/keikyou/dai10/siryou.pdf

especially in China.[10] By delivering a range of macroeconomic benefits like GDP growth and job creation, the U.S.'s new energy posture has challenged the view held by many Chinese elites that the economic recession pointed to a waning U.S. global influence. The "declining U.S." narrative was further contradicted by the prospect of U.S. LNG exports to Asia.

Moreover, the ascent of the United States as a major energy supplier is starting to defuse the geopolitical undertone in East Asian gas importers' relationships with Russia. Russia's desire to enhance its Asian market share, coupled with growing Japanese demand, has suggested growing synergy between the two countries. Several gas export proposals are currently on the table for negotiation. Russia, whose LNG supply currently accounts for about ten percent of Japanese import, is the most—if not the only—viable candidate for supplying pipeline gas to Japan. Some in Japan see that the potential for stronger U.S.-Japanese energy ties would provide both security and leverage for the Japanese as they pursue negotiations with Russia despite a high degree of skepticism that Russia can deliver a fair deal. In fact, the U.S. LNG export potential could curtail temptations for those within Russia who may be inclined to use its energy resource wealth as a tool to advance its geopolitical objectives vis-à-vis Japan.

Meanwhile, there is an inherent danger in extrapolating that LNG resources accord significant geopolitical leverage to the United States. There is a limit to which privately held and market allocated resources, such as oil and gas, could be successfully employed by a democratic government to deliver a specific geopolitical or strategic outcome. In fact, energy-related geopolitical rhetoric can generate expectations that are unrealistic or too costly for the United States to fulfill.

The most significant and lasting way in which our LNG resources can bolster U.S. influence in Asia, therefore, is for the United States to demonstrate its commitment to upholding institutional norms and capacity that ensure the free flow of oil and gas. In other words, presented before the United States is an opportunity to distinguish itself from many traditional energy supplier countries and governments that are demonstratively inclined to wield energy supplies as a foreign policy weapon. The United States has long served as the torchbearer for free trade and the key founder of transparent energy market architecture. The stability that U.S. LNG supplies can induce and/or enhance in Asia is an understated yet significant asset that can underpin the continued U.S. leadership in the region.

<u>Question 4: How will an increased supply of U.S. LNG affect the demand for Malaysian, Australian, and Qatari LNG supplies in the region?</u>

The robust production of shale gas has led to the 34 percent increase in U.S. natural gas production between 2005 and 2014.[11] For example, the shale gas supplies from the Marcellus

[10] While many Chinese thinkers adhered to the view that U.S. power had waned, they were not the primary authors of the argument. Instead, they pointed to multiple assessments, to include those done by entities such as the U.S.'s own National Intelligence Council that the relative advantage in global power the U.S. had enjoyed was shrinking. DNI, "Global Trends 2025," November 2008.

[11] Calculations based on U.S. Energy Information Administration (EIA), *Annual Energy Outlook (AEO): 2014 Early Release*, 2014. http://www.eia.gov/forecasts/aeo/er/pdf/tbla14.pdf.

shale alone equal the entire natural gas export capacity of Qatar, which is the second largest natural gas exporter in the world.

The growing U.S. natural gas supply challenges the economics of many LNG export projects outside the United States. Developing an LNG terminal is a hugely capital-intensive undertaking, in the order of several billion dollars. The LNG projects currently being built outside the United States generally require infrastructure development from the start. In contrast, many of the proposed U.S. LNG export projects are designed to capitalize on LNG terminals designed or built in the last decade to prepare for LNG imports. The only major addition required to ready these U.S. LNG terminals for exporting natural gas is liquefaction capacity. Therefore, U.S. LNG export projects have economic advantage over new projects abroad.

For example, the Australians are acutely aware how the U.S. LNG supplies can compound economic challenges faced by many of their LNG projects under development. Australia currently has nearly $200 billion worth of LNG projects under construction and many of the projects have experienced some degree of cost overruns due to acute capital cost escalation stemming from a combination of factors like labor shortages, greater environmental hurdles, and the remote locations of some projects. Also, U.S. shale gas has likely contributed to Gazprom's decision to delay the Arctic Shtokman LNG project indefinitely.

However, caution is warranted in extrapolating the extent to which the U.S. LNG supplies may fundamentally alter the energy relationship between importer countries in Asia and their traditional gas suppliers. In fact, the scope of U.S. LNG influence on Asian demand for supplies from other countries is difficult to ascertain.

First, by the early part of next decade, the global LNG market and Asian LNG market are expected to see new volumes of supplies from new LNG projects in places like Australia and fierce competition may emerge among LNG suppliers. The pace of U.S. LNG export approval to the countries without a Free Trade Agreement with the United States, combined with the commercial viability of a specific project, greatly influences the degree to which U.S. LNG supplies can gain a foothold in Asia.

Second, cost advantage from Henry Hub based trade is far from assured on a long-term basis. As a series of export projects come to fruition later this decade, Henry Hub price levels will likely come under upward pressure to reflect the rising level of demand even if an adequate level of domestic supply continued.[12] Consequently, the gap between the Henry Hub price and delivered prices of LNG supplies from non-U.S. sources may narrow to the point where the price differential no longer offsets the costs of liquefaction and transportation from the United States.

Third, energy export is central to the economic health of many of the traditional supplier countries and many Asian stakeholders believe that the centrality of energy revenue combined with their vast resource levels continue to make them important trade partners. For example, the energy sector accounts for roughly 60 percent of the total government revenue for Qatar while

[12] As suggested by several studies on the economic impacts of LNG exports on the U.S. economy, including *Macroeconomic Impacts of LNG Exports from the United States* (Washington, DC: NERA Economic Consulting, December 2012), http://www.fossil.energy.gov/programs/gasregulation/reports/nera_lng_report.pdf.

energy export revenue accounts for over 70 percent of the total export revenue and half of the federal budget revenue for Russia.[13]

Finally, there are factors exogenous to the U.S. energy posture that are likely to greatly influence the level of LNG supplies from Qatar and Malaysia in the future. In case of Qatar, new projects are currently on hold in the North Field, where nearly all of Qatar's natural gas reserves are, while operators examine ways of sustaining high levels of production. Moreover, Qatar's North Field and Iran's South Pars constitute one of the largest natural gas deposits in the world. The pace at which Iran's natural gas production may ramp up pending the resolution of its conflict with the West would greatly influence the Qatari determination on the level of its production and export as over-supply could drive down the price of gas exports. As for Malaysia, economic development and modernization trends are driving domestic energy consumption growth. The country appears to be striving to maintain its natural gas production level through the development of new fields to meet the domestic demand as well as to fulfill its external obligations.

Closing

A range of factors renders it difficult to forecast the future composition of LNG suppliers to Asia. These factors include the pace of energy related infrastructure development and the scope of environmental regulations within the United States, as well as the impact of U.S. LNG supplies on the natural gas production profile of traditional gas supplier countries. Aside from these supply-side variables, moreover, the trajectory of future LNG demand outlook for individual countries in Asia is far from certain as it will be influenced by a mixture of factors, such as the role of nuclear energy in Japan, the pace of shale development in China and the potential of pipeline gas to Japan and South Korea, as well as the trajectory of the economic slowdown in China. Meanwhile, the U.S.'s new energy posture has already yielded both economic and energy security benefits for LNG importer countries in Asia. The United States has a further, important role to play for the greater security of energy supply in Asia and around the world by continuing to espouse principles such as free trade and transparency that are essential for the sound working of the international energy marketplace and the resultant free flow of oil and gas.

Thank you for your time and the opportunity to address the Subcommittee. I look forward to your questions.

[13] U.S. Energy Information Administration, 2014. http://www.eia.gov/countries/cab.cfm?fips=rs