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The Geopolitical Imperatives of Expanded U.S. Natural Gas Production and Infrastructure Investment

Mr. Chairman, Ranking Member Lowenthal and Members of the Subcommittee, it is an honor to speak with you today about the role that U.S. liquefied natural gas (LNG) production, exports and investment plays in bolstering the global leadership of the United States and the safety and security of our allies.

Recent years have brought tremendous change across global energy markets, including the dramatic expansion of the LNG trade. The U.S. shale gas revolution has been a boon for the American people as the application of new technologies has opened trillions of cubic feet of clean-burning natural gas for U.S. consumption.

Exporting natural gas as LNG continues to benefit the American people by creating thousands of jobs and stimulating economic expansion. We expect our Driftwood LNG project alone to create at least another 13,000 jobs while supporting manufacturing jobs in 18 U.S. states. U.S. LNG exports advance American geopolitical interests and leadership by strengthening the energy security of our allies and improving air quality through clean-burning natural gas. The U.S. is positioned to lead a global energy transformation as countries around the globe grapple with an array of energy modernization and climate challenges.

These benefits can only be achieved through a continued partnership of all public and private constituents that support American LNG’s cost-competitiveness. Other nations such as Russia and Qatar continue to grow their LNG export capacity, expanding their financial, geopolitical, and industrial influence. Timely infrastructure investment for pipelines and export facilities will be essential to support continued U.S. leadership in the global LNG market. Our team at Tellurian can support U.S. geopolitical goals by offering low-cost gas supply and flexible terms, but even our plans to invest \$29 billion in American infrastructure are insufficient to meet this growing challenge. With more investment in American energy infrastructure, the United States is uniquely positioned to support global energy security and air quality through a leadership position in LNG markets for decades.

I. A Changing Market

The LNG market is rapidly commoditizing. Traditionally, LNG has been traded through rigid, long-term contracts with large volumes at a price indexed to oil. Today, LNG is increasingly traded in short-term and spot markets, with prices reflecting global supply and demand

balances. This price transparency has supported natural gas demand growth in financially challenged regions and countries, providing nations with an environmental and cost-competitive alternative to coal.

These changes support a new wave of LNG buyers worldwide and create an advantage for suppliers who can compete with low-cost supply. The development of a spot market enables countries with varying degrees of credit worthiness to access LNG supplies without signing long-term contracts. The world has seen a rapid increase in LNG importers in recent years, with 10 new importers entering the market between 2011 and 2016 and a total of 38 countries importing LNG at the end of 2017.

LNG exports from the U.S. lower-48 began from Sabine Pass in 2016, with cargoes destined for emerging importers in our own hemisphere, such as Brazil, Chile, and Argentina, which rely almost exclusively on the spot markets. Some buyers purchase on a seasonal basis based on hydroelectric variability, others as a backup for renewables, and still others to deal with disruptions in supply. The rise of floating storage and regasification units (FSRUs) has made it easier for other countries to quickly access low-cost LNG supplies. FSRUs enable gas buyers to access LNG supplies within months rather than years while minimizing the cost to build infrastructure. By year-end 2017, 40% of LNG importers used FSRUs, and IHS forecasts that over 50% of import markets will use FSRU terminals by 2025.

The U.S. is uniquely positioned to supply this heterogeneous market. With a stable and reliable regulatory environment, low-cost gas, skilled labor, and flexible contract terms, we can be the preferred supplier to the world. Indeed, Tellurian is pioneering a low-cost, flexible and reliable LNG supply model ideal for a maturing commoditized market. Customers have the opportunity to invest in Driftwood LNG to access gas at cost for approximately \$3/mmBtu on the beach. Tellurian stands at the forefront of the LNG revolution, positioned to compete in a rapidly evolving market.

II. Geopolitical Impacts of the New Market

The United States has played a key role in driving this transition of an LNG market dominated by a few powerful, inflexible suppliers to a commoditized, integrated global gas market. The management team at Tellurian includes in its ranks the first innovators of destination-flexible contracts. This feature of U.S. LNG exports has helped bolster the energy security of our allies on every continent and disempower unfriendly and hostile regimes which seek to use vital energy resources as bargaining chips or outright pressure.

In Europe, the transformative effect of LNG imports has been enormous. Poland's ability to import LNG forced Russia to cut its export prices before a single molecule had been imported. Russia had little choice, as Gazprom depends on the Western European market for 80% of its gas revenues and transits much of that gas through Poland. As recently as 2016, Gazprom reported that it delivered 146.2 billion cubic meters of gas to markets to Western Europe alone. Likewise, in 2014 Lithuania successfully negotiated cheaper gas from Gazprom

just days after announcing talks with Norwegian and Qatari LNG suppliers. Lithuanian President Dalia Grybauskaitė has said the ability to import LNG would put an end to the “existential threat” of relying on Gazprom. Yet Russian gas still supplies 40% of all of Europe’s supply and exported 8.1% more gas to Europe last year than in 2016.

Russia seeks to expand its influence to growing markets in Asia, notably through the \$55 billion Power of Siberia pipeline to China, a \$13 billion pipeline to Turkey, and the new Yamal LNG export terminal in its far east. In 2014, China and Russia concluded \$400 billion in gas supply agreements and Russia intends to build additional pipelines to serve growing Chinese demand. The International Energy Agency (IEA) has estimated that Russian gas exports could grow by two-thirds by 2040. Low-cost LNG supplies from the U.S. offer gas buyers in Europe and Asia an enticing alternative to Russia, which has demonstrated willingness to use energy as a geopolitical tool to bully its neighbors.

U.S. LNG exports can also fuel economic development and help meet basic human needs for many of our allies and friends around the world. Hundreds of millions of people remain without access to reliable and cleanly-produced electricity, including nations in the Middle East, Asia, Latin America, and Sub Saharan Africa. Even those with access to electricity often face severe air pollution, harmful to human health and the global environment. Low-cost, clean, and reliable LNG can help tackle these issues and improve diplomatic relationships with our allies.

The Middle East, including our allies in the region – Kuwait, the UAE, Israel, Egypt, and Jordan – has started importing LNG in the last eight years to produce electricity and potable water. The IEA noted in its 2017 World Energy Outlook that next to Asia-Pacific, the Middle East region will experience the greatest total gas demand growth in coming decades, consuming an additional 318 bcm in the period to 2040, equivalent to a fifth of global growth in that timeframe. The power sector drives the bulk of this growth; UN data shows that our allies in the Middle East burned around 168 TWh of oil to generate electricity, equivalent to all the electricity consumed in the great state of Ohio in 2016. Natural gas demand to fuel desalination facilities is also a key demand driver, as the water-scarce region requires more water to support its growing population. Supplying LNG to this dynamic region directly supports our allies’ energy security and, by extension, our military and diplomatic presence.

The same is true in Asia, where hundreds of millions of people remain without access to reliable and cleanly-produced electricity. A CSIS analysis “U.S. Natural Gas in the Global Economy,” produced from a joint CSIS-IEA workshop in May 2017, noted “Asian countries including India will continue to be the dominant forces globally in terms of demand growth for LNG.” Among these are Japan and Korea, critical U.S. allies in the region that consumed a combined 42% of global LNG in 2017.

China has relied on LNG to address grave air quality concerns; in this winter alone, China installed gas heaters in 5.54 million households in northern China to reduce particulate emissions. The environmental impacts were immediate, as residents reported cleaner air and blue skies atypical of Chinese winters. However, 426,000 of these households reported gas

shortages despite record purchases of LNG to satisfy this increased demand for cleaner burning fuels. Not surprisingly, the IEA estimates that China will account for 40% of total global natural gas demand growth between now and 2022 – but China must have ample supply to meet its ambitious coal-to-gas switching targets.

India, similarly, will be the other major driver of global economic growth; despite similar air pollution and public health problems as those facing China, Bloomberg New Energy Finance notes that in 2016 India added 16 GW of new coal-fired generation – nearly double the total amount of renewable capacity added that year. Natural gas is well-suited to meet India's energy modernization challenges and bridge the gap between its stated climate and pollution goals and its tremendous need for more power. Its government has invested accordingly: this month, the Indian government announced that its current four LNG terminals will be augmented by 11 new terminals over the next seven years as part of plans to have natural gas contribute 15 percent of its energy mix by 2020. Spot LNG supplies will be vital for these new terminals, many of which will support India's enormous and growing coastal cities.

U.S. exports to Asia can fill the gap and help meet future energy demand growth – but natural gas must be cost competitive and widely available to compete with coal in this region. If this massive continent continues to rely on coal to generate its accelerating power demand, these nations will not meet their targets under the Paris climate agreement and the global climate consequences could be grave. Indeed, the U.S. is in a historic position to be a world leader in reducing pollution and improving air quality around the world, saving millions from dying from preventable environmental diseases. For many governments facing these public health threats, air quality is the driver for a coal-to-gas transition, more than climate change alone. One study last year suggested that Sub Saharan Africa alone saw over 175,000 preventable deaths in the region due to air pollution. Positioning the U.S. as a leading supplier of a fuel resources which could dramatically improve these problems is more than just good business – it's good policy. It is the essence of "smart" power, leveraging America's energy abundance help meet basic humanitarian needs throughout the world.

III. Investment in Infrastructure

The prolific U.S. natural gas resource base can support American geopolitical, environmental and economic goals, but only through sustained investment, initially totaling \$170 billion over five years in U.S. natural gas infrastructure to support expected production growth. Earlier this month, the Energy Information Agency (EIA) forecasted that natural gas production will reach 80.3 Bcf/d in 2018, establishing a new record. We expect natural gas production to grow 20 Bcf/d by 2025 from five shale basins alone.

However, this natural gas is at risk of being stranded or flared without additional investment in pipeline and LNG infrastructure. There are six U.S. LNG export terminals approved by the Federal Energy Regulatory Commission (FERC), under construction, and existing, providing over 9 Bcf/d of LNG export capacity. Based on the pace of natural gas production, the U.S. requires 13 bcf/d of new natural gas transportation and export infrastructure to support incremental gas

output. Indeed, a recent BTU Analytics report noted that U.S. gas production growth may be limited to the total capacity and utilization of LNG export facilities, suggesting that the U.S. can produce as much LNG as the global gas market can absorb.

Typically, LNG infrastructure operates under a long multi-year development cycle, where the speed at which decisions are made today will impact the ability of the U.S. to supply low cost gas five years from now. We are far from the only ones with an eye to the future. Qatar recently announced that it will increase LNG output by 30%, Australia is moving ahead with new LNG export infrastructure, and Russia is planning new liquefaction plants while laying miles of pipelines across Eurasia. Perhaps most importantly, our allies want to buy our gas. The same CSIS analysis mentioned earlier also notes “Many already well-established LNG import markets in Asia have looked toward U.S. LNG for diversification of both supplies and contractual terms... Asian importers seem to recognize that the value of U.S. LNG goes beyond price; it alleviates the region’s heavy reliance on the Middle East and the Asia-Pacific for LNG and attendant maritime chokepoints, such as the Straits of Hormuz and Malacca.” The U.S. clearly enjoys many advantages, but our valuable supply stands at risk of being left behind if we don’t build infrastructure now.

Tellurian plans to invest \$29 billion in natural gas and LNG infrastructure, but we need additional infrastructure across the value chain to ensure American energy remains competitive on a global basis. In addition to laying the literal groundwork for U.S. gas exports, the importance of a supportive, efficient policy and regulatory environment for natural gas cannot be overstated. The potential is undeniably there, but the U.S. must make deliberate decisions today to realize the opportunity before it as we pursue “energy dominance” in the years to come.

IV. Conclusion

The U.S. is well positioned to help make the global LNG market more competitive by providing low-cost supply on flexible terms to buyers everywhere while empowering our friends and allies to have greater control over their energy security. Tellurian stands firmly behind supporting expanded access to American energy, enhancing diversity and security of supply, ending price discrimination and undermining those who would practice it, and enabling energy transitions to lower carbon fuels throughout the world. To reach this goal we must make investments today that will enable our leadership in global markets in the years ahead. We encourage policymakers to advance the supportive dialogue regarding infrastructure development and investments which will help the energy industry play a leading role in supporting America’s international and geopolitical goals.