

ENERGY DIALOGUES SUMMARY

WASHINGTON, DC EXECUTIVE SUMMARY

Prepared by: Douglas Hengel

Professor, Energy, Resources and Environment Program

Johns Hopkins University School of Advanced International Studies

Corporate partners **Schlumberger, Sempra LNG & Midstream, and Boston Consulting Group**



2018

INTRODUCTION

On October 18, 2018, Energy Dialogues and Johns Hopkins School of Advanced International Studies hosted representatives from government, industry, academia, and NGOs to examine pathways towards achieving a lower carbon, cleaner energy future. This edition of the City Series organized by Energy Dialogues continued discussions held earlier in the year in Houston and in Boulder, Colorado to address challenges and opportunities for the natural gas industry from the perspectives of shareholders in those parts of the country.

The dialogue in Washington centered on three themes - the trade agenda, with a focus on domestic and global energy movements and LNG exports; the energy transition, in particular public acceptance and the social license to operate for the natural gas industry; and the implications of energy storage for the industry. Under “trade” participants addressed the potential impact of global trade tensions on U.S. LNG projects and energy trade in general. “Energy transition” looked at the role of natural gas in decarbonization scenarios and changing perceptions of gas as a clean fuel. Under “energy storage” participants reviewed technology advancements in storage and how that may impact renewable electricity generation and the role of natural gas in supporting renewables.

The participants were organized into several working groups that convened at different times during the day to discuss the thematic elements of the Dialogues. Panel discussions preceded two of the working group discussions to frame the issues under consideration. The Dialogues opened with a greeting by Vali Nasr, Dean of the Johns Hopkins School of Advanced International Studies (SAIS).

Theme 1 - Trade

The Dialogues began with a panel discussion on trade and how tariffs and potential trade wars might impact global energy dynamics and trade flows.

Panelists noted that energy exports are a priority for the Trump Administration and that the potential for a very mutually beneficial relationship in particular between the United States, as a rapidly growing exporter of oil and gas, and China, with growing needs for these fuels. U.S.-China trade tensions, however, cloud the outlook. While current Chinese tariffs of 10 percent on U.S. natural gas imports may not have a significant impact, the freeze on long-term contracts by Chinese buyers with U.S. LNG project developers, and investment in the projects themselves, is worrisome. U.S. projects have been counting on signing long-term contracts with Chinese companies to help finance their projects and there are signs the Chinese are turning to other sources of LNG (e.g., Canada) to meet their rapidly growing import requirements. Other markets, such as India and Southeast Asia, are also expected to grow strongly and continue to show great interest in U.S. LNG, but they cannot substitute for Chinese demand. If the United States and China are not able to solve their trade disagreements soon, there is a real risk that some U.S. LNG projects that otherwise might have proceeded may be delayed, perhaps seriously so, while projects from other countries (e.g., Russia, Qatar, Canada) move forward. This, in turn, could impact upstream U.S. natural gas production over time.

The Section 232 tariffs imposed by President Trump on imports of steel and aluminum could also have a major impact on the economic viability of U.S. LNG projects. According to one participant, the Section 232 tariffs add roughly 10 percent to the cost of an LNG project, if exclusions are not granted, which could make the difference between a profitable or a loss-making investment. These tariffs also raise the cost of the major infrastructure investments needed to bring U.S. oil and gas to the Gulf coast and for export. Most U.S. LNG industry players are downplaying the impact of tariffs for now to avoid a negative impact on market sentiment or on negotiations with buyers. Some are looking at prefabricating components abroad in an effort to circumvent tariffs. One participant observed that the industry's general view is "don't panic, wait it out." That said, several participants were of the view that tariffs and U.S.-China trade tensions present substantial headwinds to President Trump's "energy dominance" agenda.

On the other hand, the conclusion of the USMCA (or NAFTA 2.0) was seen as positive for continued progress towards an integrated North American energy market. While the policies of the incoming Mexican government are somewhat vague and potentially of concern for U.S. energy exporters and investors, the updated NAFTA agreement removes an important source of uncertainty.

LNG demand is growing strongly in many emerging economies as it offers improved air quality and has become more affordable with technology advances (e.g., floating storage and regasification units or FSRUs) and U.S. LNG shipments being linked to Henry Hub rather than oil-linked prices. The need for better infrastructure in many emerging economies presents a barrier to faster uptake of natural gas, however. Gas still faces stiff competition from coal and increasingly from renewables. This is particularly true in the power sector but gas use in industry and other sectors is growing quickly. Shipping could present an interesting market for natural gas going forward.

Participants noted that while LNG is moving natural gas towards becoming a globalized market, many local issues impact gas demand. The positive narrative for natural gas is very strong in China, India and other emerging economies afflicted with serious air pollution. Meanwhile Europe sees renewables as the answer to address climate change and seeks to reduce gas use as much and as fast as possible. Energy security also plays a role in European thinking as Europe wishes to lessen its dependence on natural gas imports from Russia. In the United States, California also talks of eliminating the use of natural gas for climate change reasons.

There was limited discussion of other markets for LNG. The Caribbean and Central America were seen as small but interesting markets, especially where power grids can be connected.

Theme 2 - The Energy Transition

This discussion focused on the role that natural gas can play in the transition to a lower carbon energy future. It was noted that global energy demand is forecast to grow by 25 percent over the next 20-25 years due to population growth, addressing energy poverty, and increasing affluence as more people in emerging economies enter the middle class.

The roles of markets, policies, and technology were cited as key factors in how the fuel mix will evolve. In the United States, gas continues to replace coal in power generation thanks to low natural gas prices and environmental policies adopted at the national and state levels. Technological change is an unknown but the expectation is that progress will continue in energy storage and lowering the cost of renewable technologies that could impact how, and how much, natural gas is used.

Participants observed that natural gas could play a major role in addressing energy poverty. More than 1 billion people still do not have access to electricity, and another 3 billion have at least some access to electricity but lack true modern energy services, including clean cooking. Natural gas is well suited to meeting these needs, especially via growing global trade of LNG. Good policy frameworks are needed in these countries to stimulate market growth.

A key challenge for natural gas is public acceptance in some markets. Participants discussed polling indicating the public perception of gas is dropping in the United States. Some environmental groups are targeting natural gas as just another fossil fuel we need to stop using. Millennials in particular hold a negative view of natural gas. Millennials tend to be passionate about renewable energy and the use of new technologies. Part of the challenge, according to several participants, is that the description of natural gas as a bridge fuel to a renewables-dominant future has shifted to gas as a destination fuel. This is not helpful to the image of natural gas. Sharp differences were noted with attitudes in China where cleaner air is a critical factor supportive of increased use of gas. In China, public support for natural gas is strong.

The idea of finding a compelling narrative for gas generated much discussion. One participant advocated for an emotional, value-based message that grabs people's attention (e.g., natural gas/LNG = cleaner air abroad). Another talked about making the industry "cool and sexy." If the audience is seized emotionally, then they will stay for the compelling economic arguments which they might not otherwise pay attention to if they are the lead message. The goal for the industry should be to embrace the benefits of gas, while acknowledging the negative impacts of the natural gas production and use cycle. The gas industry, in this view, is on the back foot and needs to be proactive or face even more challenges, such as the industry is facing in Europe.

One participant recounted how the public perception of exporting LNG from Dominion Energy's Cove Point facility in Maryland was extremely negative when the company started the approval process for its project. However, a messaging campaign emphasizing the export of clean energy while importing prosperity turned around the debate. Strategies must be based on local issues and bottom-up coalition building.

In this regard, there was significant debate about the importance of methane leakage. Some thought stories of methane leakage were having a substantial negative impact on views of the gas industry. One participant argued that methane leakage is responsible for 25 percent of greenhouse gas emissions (GHG) - close to the impact of carbon emissions from burning coal. More could be done to reduce methane leakage. Others doubted methane leakage was a major problem but recognized that the industry was losing the public relations contest. Some participants were of the view that the Trump Administration is contributing to negative views of natural gas (and other fossil fuels) by avoiding serious discussion of mitigating climate change. Some participants felt that self-regulation for methane leakage is a major mistake - this leaves the industry hostage to the worst actors and significant reputational risk. Trump Administration officials rarely speak about the role of natural gas in reducing GHG emissions from coal which could help with public opinion regarding gas. There was some support for a carbon tax as something that would help the conversation, as well as benefit the gas industry.

Participants engaged in a lively dialogue about whether the role of renewable energy in the energy future is being oversold. Companies saying they are, or will be sourcing 100 percent of their energy from renewable sources do not explain the costs or how they buy renewable energy credits. Companies and governments have a responsibility to inform the public about the tradeoffs with use of renewables. The public also needs to understand there cannot be a renewable future without petrochemicals and plastics for which oil and gas are the raw materials. Some thought there are growing public acceptance issues for renewable energy projects, e.g., people often do not like seeing or hearing wind turbines, which could help the image of gas.

Participants considered issues related to the license to operate in developing countries - extractive infrastructure in pristine areas vs. positive economic impacts, improved living standards and better health. There was a strong view that better stakeholder engagement was essential, and that engineers (generally not the best communicators) should not be in the lead. Convincing foreign landowners to accept extractive infrastructure can be more difficult than in the U.S. since in most countries below-ground natural resources are state-owned.

Theme 3 - Energy Storage

Much uncertainty remains about when progress in battery storage will lead to less reliance on fossil-fuel based power generation to back up intermittent renewables. Participants raised questions (often without good answers) regarding how much storage on the grid will be needed, the pros and cons of centralized vs. decentralized storage, how greater electrification might impact demand for natural gas vs. renewables, what to do with old batteries, and how states and regulators might incentivize storage.

Several participants considered battery storage to be more of a “game modifier” than a “game changer.” Battery prices still need to come down a lot (at least 50 percent according to one participant) before storage could be considered as true backup to renewables. New business models also are needed. Therefore, in this view, gas power generation, including as back-up for renewables, will be with us for a long time. Peaker gas-fired plants may become the norm instead of combined cycle plants, even if peakers are less efficient. Others were more optimistic that renewables will be able to push gas out of power generation in the medium-term in developed economies. Some thought China and perhaps India could leapfrog to very high penetration of renewables for power with back-up battery storage on smart grids.

Participants observed that natural gas could play a major role in addressing energy poverty. More than 1 billion people still do not have access to electricity, and another 3 billion have at least some access to electricity but lack true modern energy services, including clean cooking. Natural gas is well suited to meeting these needs, especially via growing global trade of LNG. Good policy frameworks are needed in these countries to stimulate market growth.

There was an interesting discussion about how a move to micro-grids might accelerate use of battery storage and bring those costs down. Micro-grids make much sense in parts of the world where energy access remains a challenge, but also in more developed countries where consumers want more control over their energy supply. Blockchain technology could accelerate a move to micro-grids.

Electric vehicles were also part of this discussion as a potential source of storage and for charging during peak times of renewable power generation. Electric vehicles could contribute to balancing the grid or, in the worst case, add demand when renewables production is low. Taking advantage of the opportunities presented by electric vehicles requires more cooperation among stakeholders, including regulators.

The general feeling was that as storage options improve, less natural gas will be needed for back-up power generation, but that there are many variables and much will depend on market developments and government policies.