



CIGS Energy and Environment Seminar (Jane Nakano)

**U.S. Energy and Climate Policy: the status, opportunities, and
challenges in the second year of the Trump Administration**

(Speech summary)

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Tight oil production is burgeoning in the United States. The production of unconventional oil has become a vital part of the U.S. crude oil output. The United States has not seen that type of crude oil output since the 1970s (slides 2-3). According to the U.S. Energy Information Administration (EIA), crude oil output seems strong this year. We are finding tight oil sources in multiple places throughout the country. This is interesting because these sources are being found in areas of dense population near the East Coast as well as the traditional oil and gas producing areas. The Permian Basin, which is the most active area, produces both conventional and unconventional oil. Crude oil production is expected to continue to grow there. There are many factors at play that can influence this production, however. Methane emissions, water management, and seismicity are just a few things that have to be closely watched going forward as they can affect the scope and pace of oil production activities in the United States. An appropriate level of regulations is actively being debated at the moment. (slide 4).

Shifting the discussion to exports, until about two years ago, the United States did not allow its domestically produced crude oil to be exported. In December 2015, the Congress lifted the ban on the export of the US-produced crude oil. In 2017, the export of US-produced crude oil exceeded 1 million barrels per day. In the first quarter of this year, exports went over 1.5 million barrels per day, and it is expected to remain strong. Now, crude oil is the third largest category of petroleum exports by the United States, behind hydrocarbon gas liquids (HGL) and distillate; crude oil exports will continue to be important (slide 5). Canada imports about a third of the U.S. crude exports and the country remains to be an important energy trading partner of the United States. However, Canada's share declined the export ban was lifted, from about two-thirds of the U.S. crude oil exported in 2016 to less than one-third in 2017, now other countries have opportunities to buy US-produced crude oil. China is rising as a very important market for the U.S. crude. (slide 6). The difference between the global oil benchmark prices and the U.S. crude oil benchmark prices has been quite big in recent months, making the U.S. crude oil highly attractive to other oil importing countries.

Similar to how tight oil production reversed the decline in U.S. crude oil output, shale gas production is reversing the decline of U.S. natural gas output. Shale gas accounts for

roughly half of the natural gas produced in the United States today. The Marcellus Shale now produces more than Canada, Iran, or Qatar individually. This shows that the United States is becoming a major global natural gas exporter. Together with Australia, the United States will be the top liquefaction capacity holders in the world by 2020. About half of the new global liquefied natural gas (LNG) export capacity will be in the United States. U.S.LNG exports are projected to grow as there will be more export capacity online that will enable the plentiful of shale and natural gas resources available in the United States to leave the country. . The United States exports lots of natural gas to Mexico, not only via pipelines but also in the form of LNG today. U.S. gas trade with Mexico could be affected by the Trump administration's desire to reform the North American Free Trade Agreement, the recent election of Lopez Obrador to become the new Mexican president, and how Mr. Obrador chooses to do with the ongoing reform of Mexico's energy sector to allow for more foreign investments in the country's oil and gas production. Meanwhile, U.S. LNG reached 25 different countries in 2017, and Asia is becoming a popular destination for US LNG. (slides 7-10).

The electricity sector is also important to watch as new technologies and government support for renewable energy are driving major transformation in this sector. Thanks to the shale revolution, natural gas and renewables are fast-growing sources of electricity in the United States. Coal is no longer the dominant fuel in the U.S. power supply mix and its use is expected to decline. Since 2011, 50 gigawatts of coal capacity have been retired. According to the U.S. Energy Information Administration, another 25 gigawatts is planned for retirement by 2020. Nuclear energy is also struggling mainly because natural gas has been so cheap. Due to economic factors, and not safety concern, five nuclear power plants have retired in the last 5 years, and nine additional plants (11 gigawatt capacity) are expected to retire by 2025. Some states are starting to subsidize utilities that have nuclear assets because nuclear energy is a zero-carbon emitting power generation technology and plays a vital role in states' effort to reduce carbon emissions (slides 11-12).

Climate policy is another area which has seen a major change although the U.S. withdraw from the Paris Agreement will not happen immediately; the earliest the U.S. can withdraw will be around the time of the next presidential election. Like the Paris Agreement, many of the major climate regulations introduced by President Barack Obama are being rolled back. It may appear as if U.S. climate regulations are dead. For the federal government, climate change is a much lower priority issue. However, there

still is a lot happening at the sub-national level and climate is still a focus for many states. For example, there are nine states have strengthened renewable portfolio standards since 2015. Also, six states have renewables mandate that are 50% or above. Also, the private sector is becoming more involved in renewables related projects. Many of the Fortune 500 companies are increasing their commitments to use clean energy. In 2017 alone, 19 companies reportedly made deals with energy providers to build what amounts to be one-sixth of renewable energy capacity nation-wide. The climate issue is still political, but it is becoming less politicized. Some of the Republican leaders talk about the economic benefit of having a carbon tax. There are Republican members of the U.S. Congress that do not believe human activities are accountable for greenhouse gas emissions, but there are also Republicans who think climate change should be discussed more (slide 13-14).

Energy innovation is another area which has seen less partisan divide. The Trump administration sees a smaller role for government spending on research and development, including that related to energy R&D at the Department of Energy. The Congress is controlled by the Republicans now, but they have been allocating money in effort to keep many of energy R&D programs funded at the level similar to that since before the Trump administration. For example, the Trump administration wants to eliminate the ARPA-E, which is a U.S. government agency that promotes and funds R&D of advanced energy technologies. However, the Congress has continued to fund the agency at the similar level as before. Many states benefit from economic growth opportunities from advanced energy research and development being funded and such benefits make support for ARPA-E less driven by partisan politics.

While energy and climate agenda in the first year of the Trump administration were characterized by deregulation, energy and climate agenda in his second year of presidency are characterized by their entanglement with trade policies and sanctions. One example is the Trump administration decision to re-impose Iran sanctions. The United States is hoping to have close allies, such as Japan, South Korea, and the EU, to cease crude oil import from Iran. These governments will likely comply with the U.S. request, whether completely zero or a reduction, but such compliance would not necessarily stop the flow of Iranian crude oil. It will likely continue to go to countries that may have a strong appetite for crude oil to sustain economic growth. Also, refineries around the world are configured differently, so just because the United States is a rising global exporter of crude oil does not mean that importers would switch to U.S.

crude oil without economic or qualitative compromise. So, the story is a lot more complex than how the American political narratives may try to present it.

With regards to trade, the North American Free Trade Agreement is in a spotlight. It warrants close attention as to how the Trump administration interest to re-negotiate NAFTA may impact the role of the U.S. oil and gas in North America and intra-regional energy trade. For example, Mexico is an important market for U.S. natural gas exports. If the NAFTA re-negotiation has negative impact on U.S.-Mexico energy trade ties and reduces Mexican import of U.S. natural gas, U.S. gas producers might see the price depress and thus spoil the incentive to drill more, which in turn affects gas exports to other countries. The steel and aluminum tariffs are another major trade issue. Of course, the U.S. oil and gas industry heavily relies on imported steel for pipelines and drilling equipment. Therefore, the industry is very concerned about how the steel tariff may increase the cost of production and in turn make U.S. oil and gas less competitive against that from competing exporters (slide 15).

A perfect example of how confusing the energy policy and diplomacy can be is the role of energy in the ongoing trade tension between the United States and China (slide 16). Currently, the United States has a \$375 billion trade deficit with China (in goods) and the Trump administration wants to reduce it by \$200 billion. The United States has energy to export and China needs energy to sustain its economic growth. So, energy seems to be a perfect commodity to help reduce the U.S. trade deficit with China. However, as the US-China trade tension increases, energy is caught in the crossfire. Following the U.S. government determination that China had been violating U.S. intellectual property rights and stealing U.S. technologies, the Trump administration announced in mid June decision to impose a 25% tariff on Chinese exports to the United States worth \$50 billion pursuant to Section 301 of the 1974 Trade Act. Immediately after the U.S. announcement, the Chinese government announced retaliatory tariffs on U.S. exports to China, that would include energy commodities. In particular, the second phase—which would entail US\$16 billion of the \$50 billion package—is designed to target U.S. crude oil, coal, refined products, and several things from the energy field. However, interestingly enough, the retaliatory list does not include LNG. What this suggests is that China is strongly interested in U.S. LNG as the global LNG market has a limited number of suppliers. As for the United States, China's strong gas demand makes it an important market for its LNG. China, which saw its LNG import rose by 40% last year, is said to surpass Japan and become the largest LNG importer in the

world by 2030. More importantly, Chinese business is very important for U.S. LNG exporting companies as it can underpin their ability to reinvest in liquefaction capacity and continue to grow their LNG export business. There are a few different things that could happen: the two countries could proceed with the first phase of the tariffs and relation and there could be a trade war; the trade tension could cool down;; the U.S. Congress could intervene and deescalate the trade tension. Whatever the case may be, this issue is a good example of how energy could be win-win, but vulnerable to trade war (slide 17).