

# COLUMBIA GLOBAL ENERGY DIALOGUES

## ENERGY AND GEOPOLITICS IN AN UNCERTAIN WORLD

*Our current geopolitical environment can be characterized as a “mega-VUCA” world. In this volatile, uncertain, complex, and ambiguous environment, energy and geopolitics remain closely intertwined. The fate of the North American Free Trade Agreement (NAFTA) or Brexit could have significant energy market implications. Similarly, US sanctions policy could have an impact on energy supply and European energy security. Tensions between Qatar and its partners in the Gulf Cooperation Council could disrupt global LNG markets. And fragmenting relations among nations could disrupt energy trade flows around the world.*

*On October 11–12, 2017, Columbia University’s Center on Global Energy Policy, in collaboration with Statoil’s Global Strategy and Business Development unit, hosted a workshop at the Columbia Global Center in Paris to explore the intersection of energy and geopolitics in oil and gas markets, in climate policy, and across a range of cross-cutting topics, such as national security and cybersecurity. This summary highlights the main points of discussion during the two-day workshop, which was conducted under the Chatham House Rule on a non-attribution basis.*

### ENERGY AND GEOPOLITICS—IMPLICATIONS OF REORIENTED US PRIORITIES

The Trump administration’s declared policies, including its “America first” foreign policy and its stated goal of “energy dominance,” collectively represent a major departure from the policies of previous US administrations. Workshop participants devoted a significant share of their attention to prospects that declared policies will translate into reality. Some national security experts asserted that despite the Trump administration’s rhetoric about US energy dominance, it would be highly impractical for America to try to use energy for geopolitical aims.

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At the heart of the Trump administration's goal of energy dominance lies the notion that the United States can gain concessions in trade relations by leveraging US energy exports or withholding equal access to the US market as a bargaining strategy. Workshop participants expressed a variety of perspectives on this idea; a number of speakers expressed the view that it could prove counterproductive in the long term, as it would sacrifice traditional US soft power in exchange for short-term gains in trade.

Major import-dependent countries, such as India and Japan, are once again considering the benefits of self-reliance, an objective that they reluctantly gave up decades ago in favor of a rules-based international system and free energy trade guaranteed by the United States. Some participants suggested that as a consequence of its policy reorientation, America is now seen as a source of potential energy insecurity and geopolitical uncertainty.

## SAUDI-RUSSIA “MARRIAGE OF CONVENIENCE” IS MORPHING INTO A STRATEGIC ALLIANCE

Some participants noted that Saudi-Russia relations, which not too long ago were characterized by tensions and policy divergences, now seem to have moved to at least a short-term tactical alliance—a “marriage of convenience”—and perhaps even to a longer-term strategic alignment. Oil policy is only one part of this deepening geopolitical relationship. Russian interests in the Middle East and Saudi uncertainties regarding the future of US commitment to the region are additional drivers of the Saudi-Russia rapprochement. With the United States increasingly perceived as an unpredictable ally, Europe perceived as inward looking, and Asian powers perceived as only lightly engaged in the Middle East, many participants expressed the view that Saudi Arabia was left with Russia as a vital partner for collaboration on issues ranging from oil market management to conflicts across the Middle East. Some participants stated that the new alliance is not likely to last over the longer term.

## REALITY IS CATCHING UP WITH THE US SHALE OUTLOOK

Participants focused considerable attention on whether US tight oil, the source of major oil production growth over the past decade, may be reaching an inflection point. Many expressed skepticism about past notions that US shale can perform as a highly elastic source of supply—a “swing producer”—in the global oil market. Much of the discussion focused instead on the recent underperformance of US shale production, which was attributed to overly optimistic assumptions about production efficiency gains and service cost reductions. Many participants concluded that “peak shale” is not yet imminent, but for the first time, sentiment seems to be shifting to a negative direction about the long-term potential of US tight oil plays.

US shale will certainly not disappear from the supply mix, in the view of most workshop participants. But previous expectations of its long-term growth potential are probably due for a downward revision. The majority of US shale producers probably need higher oil prices than \$50 per barrel to produce adequate returns on a sustained basis. In the words of one participant, “US shale is in its rambling teenage years right now, and it has to calm down a bit” to be sustained. Technology and productivity remain key uncertainties that can still change the outlook in either direction in the near term, and digitalization holds the potential for another boom period further down the road.

## PEAK OIL DEMAND REMAINS TOP OF MIND, BUT NO CONSENSUS ABOUT TIMING

Despite the recent underperformance of US shale, expectations of a “lower for longer” price environment still persist among oil market analysts. But the “lower for longer” narrative is now driven less by notions of supply abundance and more by questions about the possibility of peak oil demand—in some forecasts occurring as soon as within the next 10 years.

Participants noted that consensus around possible peak demand remains elusive. One key challenge lies in the fact that traditional projections tend to emphasize continuity, and models are generally not well suited to predict inflection points. Participants noted that peak demand detractors and promoters seem to agree on a couple points: Asia and the petrochemical sector will most likely remain strong drivers of global oil demand growth in the foreseeable future, according to both camps. The International Maritime Organization's stricter bunker fuel standards that are taking effect in 2020 could also boost demand for low-sulfur fuels and act as a catalyst for higher crude prices over time.

A key area of disagreement regarding future oil demand is the potential demand impact of electric vehicles (EVs). Participants noted that analysts who predict an imminent oil demand peak believe that EVs can be expected to disrupt road transportation in the same way that digital photography and smartphones disrupted preceding generations of technology in the past. The majority of participants expressed the view that EVs will only have a material impact on oil demand outlook after 2030.

## CYCLICALITY IN OIL MARKETS IS DOWN BUT NOT OUT

Participants discussed whether the cyclical nature of oil markets has changed fundamentally as a result of recent developments such as the growth of shale. In recent years, many oil market analysts have emphasized the notion of a two-speed oil market, where short-cycle US shale can respond much faster to market signals than traditional long-cycle sources of supply that require larger investment increments and longer lead times. A number of workshop participants questioned the validity of the two-speed oil market paradigm and expressed the view that the traditional oil market cycles could still reassert themselves. The main problem, according to one panelist, is that “people have too short memories” to recognize the cyclicity of markets and investments.

Premature expectations of peak oil demand could raise investor concerns about stranded assets and lead to a substantial investment shortfall in new supply. This—combined with underperforming US shale—could very well set the stage for a supply crunch and higher, more volatile prices down the road. Participants noted that decline rates at existing producing fields are a key variable to watch. We need to understand decline rates much better to be able to assess whether underinvestment should be a real concern. So far, the relatively steep base decline rates suggest that we will need substantial upstream investments in the foreseeable future, regardless of peak oil demand.

## GAS MARKETS FACE DEEP UNCERTAINTIES

Another key topic of discussion at the Paris workshop was the development of global gas markets. Following the first major wave of LNG supply from Qatar in the previous decade, a second wave is now underway, primarily driven by the United States, Australia, and Russia. But there are great uncertainties on the demand side, especially in China, India, and a host of emerging LNG importers, which can greatly impact the timing of the rebalancing in the LNG market. Participants noted that in major developing countries like China and India, natural gas use—and LNG demand as one portion thereof—is driven primarily by air quality concerns. But air quality can be improved by other means as well, such as flue gas desulfurization and other clean coal technologies. Therefore, air quality can continue to be a “natural ally” of gas in these countries, but there is no guarantee that it will remain so over the longer term.

Another major uncertainty for future LNG demand growth comes from a group of new and small LNG markets, which have surprised most market observers with their rapid growth over the past two years and which are credited with delaying the projected oversupply in the LNG market to date. The baseline expectation is of a well-supplied market through 2022 and beyond, but supply (e.g. from Qatar) as well as demand (from large and small importers alike) can still surprise in either direction.

Participants also discussed the prospects for new LNG projects. New liquefaction projects that are not yet under construction face substantial headwinds, in the consensus view of most participants. Spot LNG demand is high, but buyers remain reluctant to sign new long-term contracts in the current market environment. Success in unlocking new LNG supply will depend on the viability of new business models that are now being tested, such as offering fixed prices or equity stakes in new US LNG projects to prospective buyers. One participant said that the Golden Pass LNG project (led by ExxonMobil and Qatar Petroleum) in the US Gulf Coast could be the canary in the coalmine, indicating the arrival of the next wave of US LNG. If the project goes ahead with balance-sheet financing (i.e. as an alternative to setting up a separate project company and raising debt on a project-finance basis) and relatively little long-term offtake coverage, then other projects with IOC sponsors may follow suit.

Participants discussed whether the Trump administration's declared support for coal and nuclear energy could hurt gas demand growth in the United States. Another topic of focus was the administration's protectionist trade rhetoric, which triggered questions regarding prospective US gas exports, particularly to FTA partners. Some participants suggested that dependence on US LNG could become a source of uncertainty in Europe, just like dependence on Russian gas has been for a long time.

Despite the flat overall gas demand outlook in Europe, participants agreed that European gas import needs are set to rise rapidly in the foreseeable future, driven by continuing declines in European gas production. Short of a massive increase in CO<sub>2</sub> prices, there is little scope for gas demand growth in the power generation sector in continental Europe. An accelerated retirement of the coal-fired generation fleet in Germany could create some room for gas in the electricity sector, but this objective remains politically challenging, and the phaseout of coal will likely proceed much more slowly than the phaseout of nuclear. The space-heating sector offers more promising opportunities for structural gas demand growth in Europe, according to participants from the energy industry, although some policymakers called for the electrification of space heating and the use of renewable energy sources instead. Workshop participants expressed an expectation that gas prices in Europe will stay comparatively low for some time, at close to the short-run marginal cost of the marginal supplier in the region. Ukraine remains a key—albeit highly uncertain—part of the European energy security landscape. The majority of participants did not anticipate major gas market implications from Brexit.

Participants agreed that it is difficult but necessary to have a well-grounded, analytical discussion on methane emissions. The US experience demonstrates that fugitive methane emissions are a real problem, but they are manageable with targeted measures and existing technologies at a lower cost than initially expected. Similar pressures to measure and mitigate methane emissions will soon be coming in the rest of the world as well, and the industry would be wise to stay ahead of it, as many major operators did in the United States. A number of participants expressed the view that Russian methane emissions are problematic; some participants argued that European officials should pay more attention to the methane footprint of Russian gas than to that of US shale gas imported in the form of LNG.

## MOMENTOUS CHANGES ARE TRANSFORMING THE ENERGY LANDSCAPE IN CHINA

The Chinese energy sector is undergoing a rapid transformation, driven mainly by policy rather than market forces, and participants devoted significant attention to this topic during the workshop. Energy and climate policies in China, which were initially introduced to address air pollution concerns, are now starting to have a material impact on energy use patterns. The overall growth of energy consumption is slowing down as GDP growth decelerates. Coal demand appears to have peaked in 2014, and the share of coal in the primary energy mix is declining rapidly. At the same time, the growth of non-fossil energy sources is accelerating, and their share in the primary mix is set to reach 20 percent by 2020. Oil consumption has grown rapidly in recent years, thanks mainly to the low oil price environment, and China remains one of the most important markets to watch for signals of peak oil demand. Gas will be the fastest-growing fossil fuel in the Chinese energy mix, but decision makers in China believe that not enough LNG is available at the right price under long-

term contracts, even though spot prices are attractive at the moment. US LNG is not economical for China on a full-cycle basis at the moment, although greater LNG imports from the United States is one of the few areas where bilateral trade could be increased on mutually beneficial terms. China also appears to attach great significance to having a diversified portfolio of gas imports.

Participants expressed the expectation that climate and environmental policies will play an even more prominent role in shaping China's future energy use. America's apparent intention to withdraw from the Paris Agreement was not expected to have an impact on Chinese commitments to reduce air pollution. China is currently preparing to roll out an economy-wide emission trading scheme, which some participants expected to create new trading opportunities and incentivize further energy efficiency improvements across the energy sector. However, one participant emphasized that clean coal technologies have also been developing rapidly in China, with conversion efficiencies, costs, and pollution levels now rivaling those of gas-fired power plants. Some participants worried that advances in clean coal technology could enable air quality improvements without CO<sub>2</sub> emission reductions—with potentially profound negative implications for China's carbon emission targets.

## THE PARIS AGREEMENT WILL SURVIVE US EXIT, BUT LONG-TERM DECARBONIZATION CHALLENGES REMAIN

Participants noted that the United States has not yet withdrawn from the Paris Climate Agreement, although none expected the US administration's plans to change. Participants did suggest that the agreement will survive America's departure. The structure of the agreement is resilient, commitments can be scaled down within the treaty, and most of the large emitters signed up for self-interested reasons. Moreover, the nationally determined contributions (NDCs) remain achievable in the medium term, and China and India will likely exceed their targets, compensating for any shortfall in America. However, it will be much harder to raise ambitions post-2020 without US climate leadership and ambition. Several participants noted that America's diplomatic clout and convening power were instrumental in crafting the Paris deal in the first place, and some expressed the view that neither Europe nor China is capable of playing a similar role at the moment.

Some participants noted that the climate policy debate frequently ignores the fact that we are far from reaching the long-term decarbonization goals set in Paris. No major economy is on track to achieve the Paris Agreement's goal of limiting surface warming to two degrees Celsius above preindustrial levels. Through 2020, many countries can meet their climate goals with relatively small steps. But by 2030, we will need more significant emission reduction measures, and by 2040, we will need negative emissions and zero carbon energy systems in parts of the world to remain on track for a two-degree scenario, which seems implausible today.

Participants also warned that the low-carbon energy transition will probably not be an “energy security nirvana,” as environmentalists like to imagine. A transition away from fossil fuels could have a huge disruptive impact on major oil- and gas-producing countries with potential consequences for supply security. Moreover, a more electrified, more interconnected, and more decentralized energy system could increase exposure to cybersecurity threats significantly.

## CYBERSECURITY RISKS ARE ON THE RISE

Cybersecurity was another important component of the workshop discussion. The United States and other Western democracies are major targets for cyberattacks, and participants noted that cyber threats are a “great leveler” that certain adversaries seek to exploit. The “rules of engagement” remain largely undefined, and representatives of the national security community generally agreed that we need clear rules for responding to future cyberattacks. Some participants, however, argued that a certain degree of ambiguity about the response could be desirable in some circumstances. Others cautioned that nations that are ill prepared to deal with large-scale cyberattacks run the risk of stumbling into a kinetic war inadvertently.

Vulnerability to cyberattacks is large and growing. In the case of the United States, about 85 percent of the digital infrastructure is in private hands, where the level of protection is thought to be insufficient. Participants noted that many companies are less prepared to tackle cybersecurity risks than physical risks. The frequency and severity of cyberattacks will probably intensify as cybercrime migrates from government-sponsored groups to organized criminal networks.

Participants debated whether the evolution of the energy sector would improve or worsen exposure to cyber threats. Some said that as we move toward more decentralized, more electrified, and more interconnected energy systems (with distributed solar panels, power walls, electric heat pumps, smart gadgets, EVs, the Internet of Things—and millions more access points for cybercriminals), our exposure to cybersecurity threats will grow exponentially. The digitization of oilfields poses additional cybersecurity risks for the oil and gas sector. The cybersecurity community will need to start thinking now about how to make this new decentralized and digitalized energy system more resilient against cybersecurity threats.



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