CONSENSUS

U. S.-China Track II Energy Dialogue

ENERGY OUTLOOK FOR CHINA AND THE UNITED STATES 2020: IMPLICATIONS FOR U. S.-CHINA RELATIONS

September 11-12, 2014
New York City

SUMMARY

Dramatic changes in American energy production, Asian energy consumption, and climate change awareness across the world have altered the global energy landscape during the past decade, including significant developments in the past year. To explore the implications of these shifts on Sino-American relations, the National Committee on U. S.-China Relations and the China Energy Fund Committee convened the second U. S.-China Track II Energy Dialogue in New York City on September 11 and 12, 2014. With generous support from the Starr Foundation and the China Energy Fund Committee, the dialogue brought together 21 Chinese and American experts from academia, think tanks and industry for off-the-record discussions and a public program. Starting with the estimated energy outlook for both countries through the rest of this decade, the group explored implications and policy recommendations for economics and business, the environment and climate change, geopolitics and security, and prospects for greater Sino-American energy cooperation. One year earlier, the first Energy Dialogue focused on the implications for Sino-American relations of North America’s shale revolution. During the past year, one of the main implications has become clear: the unconventional energy boom creates important opportunities for China and the United States to cooperate.

2013-14 has been a year of significant change in both energy and the U. S.-China relationship. This past year included unexpected challenges in Sino-American relations; a 30-year $400Bn gas deal signed by China and Russia in May; disruptions in Iraq, Venezuela and other energy producing countries; and China’s announcement in November, 2013 (at its Communist Party’s Third Plenum) of potentially transformative reforms and economic rebalancing for the decade ahead. In late 2013, China’s total energy consumption (22.4 percent of the world’s energy consumption) surpassed that of the United States (22 percent), making China the world’s largest energy producer and consumer, and the largest emitter of greenhouse gases. Global awareness of the urgency of climate change accelerated, while public pressure over air pollution in China reached a new level, prompting changes to China’s Environmental Law and new initiatives to reduce air pollutants and coal burning. Taking into account these shifts and challenges, we expect increased Sino-American cooperation in energy and climate change because the two nations’ interests increasingly align. Pragmatic collaboration and leadership at the top in these two areas – like the joint announcement in November, 2014, that both nations would reduce carbon emissions by 2030 – will make a truly global threat more manageable, and will generate opportunities for concrete progress on many fronts.
ENERGY OUTLOOK TO 2020/2040 – HIGHLIGHTS

• **U. S. Energy Outlook:** American primary energy consumption will grow very slowly, with domestic coal consumption falling and the retirement of about 1/6 of U. S. coal capacity (although production and export of coal are not falling), and the share of renewables rising. Production of NG is likely to continue to grow very rapidly and outpace American consumption, so the U. S. will become a net exporter. Electricity generation will be the largest market for gas. Unknown factors will affect supply, including the future quantity and quality of U. S. resources, trade-offs between oil and gas production, global gas prices, and policy decisions related to greenhouse gases and subsidies. Crude oil and tight oil production will continue to increase, perhaps leveling out between 2020 and 2040 at around 14 million bpd. Net imports are expected to be about 20 percent of U. S. liquids consumption for 2015, but the U. S. has also become the largest exporter of liquid products. The United States continues to be highly active in global energy trading as an exporter and importer, and may soon relax its current limitations on crude oil exports. Five nuclear plants are now under construction, however current NG prices limit the economic viability of domestic nuclear power. Renewables are increasing their share of the overall American energy mix; solar power, especially, has grown tremendously as individual and consumer use grows quickly and costs fall, supported by a tax credit – although it is still a small percentage.

• **China Energy Outlook:** The government’s energy strategy calls for “revolutionary” progress in consumption, supply, technology, energy governance and international cooperation (as stated by President Xi Jinping to the Central Financial Work Leading Group, June 13, 2014). Energy development should emphasize environmental over economic goals and – like the U. S. – will follow an “all of the above” approach to energy sources, including a rapidly rising share by nuclear, solar and other renewables. Despite increasingly serious policies to address environmental and climate change goals, coal will remain the dominant energy source through 2030 (perhaps even to 2050), with priority given to finding better technologies and cleaner ways to burn coal. Coal’s share is predicted to decline from 66 percent of demand in 2014 to 60 percent in 2020 and below 50 percent by 2050. Electricity generation and use will greatly expand, from 5000 to 9000 terawatt hours between 2014 and 2030. The long-time, one-to-one ratio of GDP growth to electricity generation is expected to diverge (possibly as much as 7 percent GDP growth and 4 percent electricity generation growth), with slowing energy growth due to higher energy efficiency, new technologies and the shift toward a services economy. Renewables (particularly solar energy, as China absorbs excess manufacturing capacity of solar panels) could be as important an energy source as gas. China’s demand for natural gas is “almost limitless” and will more than double by 2020. NG is viewed as the best alternative to coal, but is far more expensive at current Asian prices. China has worked to increase domestic NG production and to diversify sources of imported NG (more than 30 percent of consumed gas in 2013 was imported) including via pipelines and sea transport, from Central Asia, Qatar and Russia. While hopes are high for domestic production, most will be imported. China and the United States use energy differently: 70 percent of China’s electricity generation goes to industry and only 5 percent each to farming and individual consumers. In the United States, 60 percent goes to commercial and residential use and 30 percent to industry.

• **Sino-American Energy Cooperation Will Grow, and Not Only at the Central Level.** China and the United States already cooperate in clean energy, including a Clean Energy Center and numerous initiatives. A good proportion of the agreements reached at the 2014 S&ED meetings focused on clean energy and environmental collaboration. China has become a leader in clean energy technology and manufacturing, and the U. S. is a rapidly growing market. Solar, nuclear, and other renewables should be opportunities for investment, scientific sharing and mutual benefit. There are also many opportunities at state-provincial levels, as has happened, for example, in California and Zhejiang Province in recent years.

• **Energy & Urgent Environmental Challenges:** China and the United States will continue to be major coal producers – even with their climate change commitments. Given China’s and America’s roles as leading global carbon emitters, there is tremendous upside to collaboration. While these are currently limited, promising areas for cooperation include energy efficiency, research toward “cleaner coal,” shale gas, tidal power generation, and emissions reduction. The American experiences in setting standards for vehicles and heavy-duty trucks (the largest source of pollution), alternative fuel and better engine technologies, could have a large impact. Another opportunity for collaborative research is small industry boilers, since half of China’s coal burning occurs in small-scale industries across China. The Air Pollution Reduction Action Plan (September 2013), commitments to reduce coal burning (August 2014) and significant changes in its National Environmental Law (2014) demonstrate real commitment by the Chinese leadership.
CONSENSUS VIEWS

1. Moment of Alignment & Opportunity
   - **American and Chinese interests converge** on many issues of energy, climate change and environment. Moreover, many of the reforms and macroeconomic objectives set forth at the Communist Party’s Third Plenum – such as the increase in value-added services and a less-planned, more market-driven economy – align well with American policy goals. Both sides need to send explicit signals that the two most significant energy and climate change nations can work together and make progress when there is trust. This will only occur with leadership from the very top of both governments.
   - **China is already a major beneficiary of the North American unconventional energy boom**, which has kept global energy prices low and stable during a period of turmoil in many oil producing regions and soaring Asian energy demand.
   - **Long-Term Shale Revolution**: Most experts predict rising oil and gas production in the United States in the years ahead. The same techniques used in producing oil and gas from shale can be employed in countries around the world, although depth and type of shale deposits, water resource availability and other factors may require modifications to existing techniques. China’s shale gas production appears likely to develop slowly at first – due to both above-ground and geological factors – but has strong potential in the middle and longer term, as the current challenges are overcome and technologies improve.
   - **Direct Energy Sales**: China and the United States have a one-hundred year history of energy cooperation, since Standard Oil made initial forays into China oil exploration in the early 20th century. These have never included direct sales until now, but direct commercial sales of crude oil and LNG based on complementary needs could strengthen the bilateral relationship and be beneficial to the American trade deficit.
   - **Climate Change Moment of Opportunity**: There is a window of opportunity to make significant progress between the Xi-Obama summit meeting in November 2014 and the United Nations Conference of Parties meeting in Paris in December 2015 that will seek a viable global regime to encourage ambitious post-2020 greenhouse gas emissions reduction targets from every nation in the world. Without leadership and strong action from the United States and China, the prospects for these initiatives are far darker. A major impediment to U.S.-China progress to date was mutual suspicion that the other country would fail to make comparably significant commitments.

2. Recommendations for Reform
   - **Break the Oil-Indexed Price of Gas**: Given big shifts in oil and gas production and demand, which have made trend lines diverge, it is time to break the oil indexation for pricing gas. This linkage has kept Asian gas prices high. It also benefits large traditional gas producers (such as Russia and Iran), rather than the rising new producers. Delinking these prices is in the U.S. interest, because Americans want to see greater use of gas in China for climate change reasons. Since this is an issue where China and Japan are in agreement, energy pricing could be an area for Sino-Japanese collaboration.
   - **Data Sharing**: Both countries will benefit from making energy data far more accessible. Progress on data sharing may require changes of practice and culture (particularly by China’s three NOCs) and more mutual trust. Better data exchange would benefit China’s quest for increased shale oil and gas production. Data sharing in the shale and climate change contexts will help both sides better understand each other’s trends, and may have global importance leading to the 2015 Paris climate talks.
   - **USD Pricing**: There is increasing discussion of whether the practice of pricing global energy in U.S. dollars will continue. While this change is not imminent, both countries should study the implications.
   - **Market-based reforms would speed China’s shale gas development**:
     - China should continue reforms to allow market-driven energy prices that will increase incentives to develop unconventional gas and stimulate technologies appropriate to China’s shale conditions;
     - China can create an oil services market by opening up the current oligopoly to new domestic and international actors;
     - The State should revisit mineral rights (currently largely sewn up by the three NOCs) in order to reallocate or otherwise provide access to promising resource blocks to those willing to develop them;
     - Further reform the pipeline network regulations to give increased access to more companies and open investment opportunities.
• **Improving Investment Access in both Countries:** China has now invested approximately $8 billion in American shale plays. In addition to financial returns, many observers believe that the objectives of these investments are to gain experience and understanding of the technology, regulatory and environmental issues that may be relevant to future shale development in China. The United States should welcome these collaborations as openings to future commercial cooperation, and to encourage learning especially in environmental practices. There is a misperception in China that American CFIUS reviews rule out Chinese investment in energy. This misperception should be addressed by both governments. Mechanisms and expertise exist in the Department of Commerce on how to structure investments, and the Chinese are encouraged to use them. Broader access for American investment in Chinese energy plays will be mutually advantageous and will stimulate China’s development of its non-coal energy resources. Both countries currently face hurdles investing in the other country directly, in part because of lack of clarity about the rules. This underscores the need to push forward negotiations to conclude the Bilateral Investment Treaty (BIT), with energy investment emphasized as a significant benefit for both countries.

• **Role of Government Policies in Improving Commercial Environment:** The American shale gas revolution has prompted the Chinese government to take a number of actions, including exploration of domestic shale production, and investment in American shale gas. Further, more innovative policies are needed. An idea was proposed to build on earlier successful strategies, such as “Special Extraction Zones” for shale gas (following the experience of Special Economic Zones), that would encourage foreign companies to collaborate with Chinese partners in commercial ventures. This might prove mutually beneficial. In the United States, policy directives from the White House will be vital to keep the focus on climate and clean air goals.

3. **Energy Security**

• **Energy Security is an increasingly important driver of China’s foreign policy.** Despite limited domestic supplies of oil and gas, China should have adequate access to global markets and diverse sources. Since oil is a global commodity, oil security is best achieved by being a sophisticated global market participant, rather than by owning equity oil in places distant from China. The idea was raised that China and the United States may not share the same definition of energy security.

• **Keeping Mutual Interests in Sight:** As Mr. Zhang Guobao noted in the public program accompanying the Dialogue (Sept. 11, 2014), tensions over solar tariffs are hurting both sides. Long-term mutual benefits – economic, commercial and environmental – must be kept in mind by both governments as short-term trade disputes are resolved.

• **Russia – China – U.S. Relationship:** The timing and communication of China’s gas deal with Russia in May 2014 made that announcement look political, strategic and anti-American. This overshadowed China’s commercial rationale for the deal – one that had long appeared inevitable between the region’s most important energy supplier and its biggest consumer. Politicization of energy and lack of communication will further reduce trust and undermine the opportunity for energy to be an important sphere of pragmatic collaboration. Chinese participants cited Xi Jinping’s comment at the time, “China-Russia is a regional relationship; China-America is a global relationship for China” – which was meant to signal that the pipeline deal was “only business.” There is an alternative argument that the shale gas revolution will create more imbalance in the Russia-China relationship by strengthening China’s hand – giving China more options for meeting energy (especially gas) needs than reliance on Russia.

• **China’s Energy Diversification Strategy:** China has already made significant strides to diversify its energy supply sources. This is reflected in China’s plan for natural gas imports through land pipelines and transport by sea. The China-Russia gas deal was a significant step to address China’s energy security, and North America’s “Shale Revolution” adds a new option to help lessen concerns about over-reliance on Russian natural gas.
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Dialogue members agree with the broad conclusions of the consensus document, although this should not be interpreted as each participant's full agreement with every point made in the document.