Prospects for China-U.S. Cooperation on Clean Energy

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I. Necessity of strengthening Sino-U.S. Cooperation on Clean Energy

First of all, the U.S. and China are the two largest oil importers in the world; almost half of the oil consumed in both countries is from abroad. Therefore, the fluctuation of oil prices has a large impact on both countries’ economies. Last year, the rising price of oil, exceeding $147 per barrel for the first time, hurt both countries. The question of how to get rid of dependence on foreign oil and develop alternative energy sources has become an urgent task on the energy development agenda.

Second, energy consumption in these two countries mainly depends on coal; their coal-based economies contribute significantly to global greenhouse gas emission, which leads to climate change and environmental issues. Discovering how to steer away from high-carbon investments and channel them towards a low-carbon energy sector has been regarded as the sole choice for future sustainable development.

Third, in the face of the financial crisis, the context for economic development has changed dramatically. Both countries need to establish a new economic security system and avoid a repeat of the current economic turmoil. In the meantime, they need to capitalize on the opportunity to lay the foundation for the next wave of economic growth. Expanding investments in the development of clean energy is promising, and could build robust green infrastructure and boost jobs.

In addition, these two countries’ economies are increasingly interdependent. They have to be bound together to deal with common challenges. Cooperation on clean energy could become a key link in their close economic ties.

II. Feasibility of advancing cooperation on clean energy

1. Advantages

First, both countries are endeavoring to advance a green economy. On the American side, President Barack Obama lists clean energy policy as one of his top priorities. His fiscal stimulus package has an ambitious plan with billions of dollars of investment to strengthen the clean energy industry. This project will first and foremost help to reduce America’s voracious energy appetite as well as help to restore the U.S. economy. It can also set the stage for Chinese energy companies to expand business
opportunities in the U.S. Meanwhile, the Congress is also advancing clean energy
bills. Right now, the Waxman-Markey draft of “The American Clean Energy and
Security Act of 2009” is under discussion in the House. It says “the renewable
electricity requirement begins at 6 percent in 2012 and gradually rises to 25 percent in
2025.”

On the Chinese side, its 11th 5-year plan calls for a 10 percent reduction in
certain emissions between 2006 and 2010, and a 20 percent reduction in energy
intensity (the amount of energy it takes to produce a unit of GDP) from 2005 levels by
2020. Local leaders are now accountable for reaching these targets. Within the 586
billion yuan stimulus package, 12 percent will be invested in energy conservation,
emission control and environmental protection projects. Over the past two quarters, of
the 230 billion yuan the central government has approved on stimulus spending, over
10 percent has been given to clean energy and related projects. China is making
efforts to expand international collaboration on clean energy, seeking expertise,
training and technology.

Second, both sides are mutually complementary in terms of technology and
market. In terms of utilizing clean energy, China is a large potential market for
American businesses. China is being urbanized; over the next 20 years, 350 million
people will move from the rural regions to urban areas. This means a huge
construction market is awaiting American green building expertise and products. In
addition, China has begun to turn to the development of smart grid technology as a
way to improve energy efficiency. Last year, China invested $35 billion in new power
grid construction. In the stimulus package, there will be $70 billion for smart grid
technology.

On the American side, its advanced energy technology is complementary to
China's huge energy demand. The U.S. has taken the lead on some clean energy
technologies, which have tremendous commercial value. With China’s energy growth,
it hopes to get more technical help from the U.S., especially, in clean energy
technology. Traditionally, the U.S. is strong in service and knowledge-based industries.
China welcomes them to provide assistance in technical education and training.
In addition, both sides have shared experience in clean energy cooperation. So far, a dozen cooperative agreements have been signed in this field. Among them, the “Cooperation Protocol for Clean Energy Tech for the 2008 Beijing Olympics,” signed by China’s Science Technology Department and the U.S. Department of Energy, is one of best examples. The agreement sets up the basic framework for clean energy technology cooperation. Taiyanggong Thermal Power Plant, China’s first tri-generation facility in the city center, is the showcase of this U.S.-China partnership on clean energy. GE provided two 9FA gas turbines and has won long-term contracts with the plant.

Other bilateral cooperation fields include: co-research on the clean coal technology such as Integrated Gasification Combined Cycle; in order to efficiently utilize natural gas, including the technology for coal bed methane exploitation and use; new petroleum exploitation and recycling technology; fuel battery technology; intelligent traffic and so on. In the field of multilateral cooperation, both are members of the International Thermonuclear Experimental Reactor Project and joined the International Partnership for Hydrogen Economy.

2. Issues

First, there are still strategic suspicions on both sides. Both countries feel very strongly about ensuring energy security, but consider different factors in defining “energy security” and determining how to achieve it. There are still quite a few people on both sides who worry about their counterparts’ strategic intentions. In the U.S., some are afraid of China’s rise. They think that if China takes the edge in maintaining energy security, Beijing will easily challenge America’s economic status in the world. They managed to stop the technology transfer to China in the name of protecting national economic security. Similarly, there are a number of Chinese who are concerned about American attempts to “block” China’s rise. They take CNOOC’s failure to purchase the American company Unocal as an example, and think the U.S. is trying to prevent China from acquiring American energy assets. They push for large investments to develop core technology instead of importing luxurious American technology. Furthermore, they assume that the U.S. merely wants to export their
Second-hand technology and equipment to China. These mutual suspicions and anxieties seem not to have disappeared despite the on-going energy policy dialogues and strategic dialogues at various levels.

Second, there are political limits on cooperation. Under the Kyoto Protocol, in order to reduce greenhouse gas emission, the developed countries, while developing and applying advanced clean technologies at home, have the obligation to promote international cooperation and technology transfer to developing countries. With help from the developed nations, developing countries will be able to build up their capacity for a green economy. However, the U.S. tightened its export control system under the Bush administration, even including clean energy technology used only in the civil field. China now has a hard time gaining access to American technology. Additionally, because of less transparent Validated End-User Authorization under this system, Chinese enterprises seeking American partners have to withdraw. In fact, there are not as many technology transfers as expected in the field of clean energy cooperation. American export control regulations are not favorable to the development of a Chinese green economy or a bilateral trade surplus.

Third, there is more talk than action. Bilateral cooperation agreements on energy issues have expanded in recent years, but the co-work programs on clean energy are far from meeting expectations. There are too many discussions and documents about the importance of getting together, but not much in the way of concrete collaboration projects. Both sides still have a divergence of views regarding how to approach cooperative programs. In most areas, there are no near-term or medium-term plans. The cooperation mainly takes place on paper and appears in slogans.

III. Proposals

1. Continuously advance mutual understanding. Based on common challenges and the expansion of common interests, the two largest energy consumers need to increase mutual understanding of each other's energy policies, programs, and priorities. Political leaders should do more to reduce mutual suspicions and raise strategic comfort with each other; frequent summit exchanges should continue and consultation at all levels needs to be expanded. The China-U.S. Strategic and
Economic Dialogue is a very good platform for mutual exchange; issues related to clean energy cooperation should be set on the agenda. The energy ministries and other relevant agencies ought to take opportunities and interpret current and future energy policies. Research institutions could have more seminars and exchange programs, using these to discuss common concerns, and cooperate in the research of market forecast techniques for the governments to make the right decisions.

2. Remove policy barriers. Both countries need to avoid negative competition for clean energy politically and commercially. The U.S. could make more room for Chinese capital to enter its clean technology market. Relaxing export control policy not only benefits the reduction of trade surplus but also contributes to the growth of a green economy. China needs to further strengthen IPR protection, and must more strongly implement laws and regulations. Both governments should offer more tax preferences to encourage technological innovation, adopt highly efficient clean energy technology, and promote the sustainability of natural resources.

3. Design priorities of cooperation. First and foremost, improving energy efficiency is an easier starting-point for cooperation. Electric vehicles could bring more cooperative opportunities for the clean energy industry. In the upstream, both countries can develop solar energy technology, and in the downstream can develop cell materials. So far, the profit margin for electric vehicles, electric batteries and cell materials is respectively about 20 percent, 40 percent and 70 percent. If the technology for the new type of “green” car makes further breakthroughs, interest in the technology will increase dramatically. Right now, the Chinese government is encouraging public transportation with new emphasis. The electric vehicle industry is one of the major cooperative areas. As for the deployment of smart grid technology, China could become a place for its use at a faster rate and larger scale than anywhere else in the world. If the leading U.S. smart grid technology companies could work closely with China’s corporations from the start, they would not only obtain a large market share, but also could effectively set the world’s smart grid communication standards with their partners. American experts in this field could create dialogues with China’s experts and grid executives to explore what kind of smart grid China...
needs, how to roll it out, and what the best technologies to deploy would be.

Second, cooperation on nuclear energy has good prospects. China has a large potential for developing nuclear energy power. At present, China’s nuclear power is 9 million kilowatts, and accounts for only 2 percent of the total electrical energy generated, far behind that of the U.S. By 2020, it is expected to reach 40 million kilowatts and will account for 4 percent of the total electrical energy generated. China plans to build three or four nuclear energy power plants every year until 2020, with each plant to cost an estimated 10 billion yuan. It would provide a substantial number of jobs and profits to the U.S., while helping China update its nuclear energy facilities. President Obama has urged a boost of Sino-U.S. cooperation on the peaceful utilization of nuclear energy. Energy power enterprises could hasten their steps towards collaboration. Research institutes could put in place cooperative programs and nuclear laboratories could restart personnel and data exchanges.

Third, green technology education could become a new catalyst for cooperation. Within the clean energy field, China needs significant numbers of new talent, such as designers, engineers, operators and auditors. China’s government offers incentives for green technology education to students and workers so that they can understand and practice clean energy policies as soon as possible. The U.S. could help China train green technical talent both in China and within the U.S. This cooperation can not only create job opportunities domestically, but also coordinate job opportunities abroad. In the meantime, American institutes and universities could provide technical advice for Chinese local officials in their efforts to build green cities and seek sales channels for U.S. products and services.

Fourth, both countries should try various approaches for cooperation. It is worth trying to build a China-U.S. clean energy fund. The U.S., under the Bush administration, established an energy technology fund with 2 billion dollars. The Obama administration could expand it and accept Chinese capital as well as credit from the World Bank. The money would be invested in some companies for advanced clean energy technology. Another effective method would be to promote city-to-city cooperation. The partnership between Denver and Chongqing demonstrates a great
model for further collaboration on electric and hybrid power vehicles. Both governments could connect more green friendship cities or establish special zones of clean energy use. The joint venture should be encouraged continuously. Both sides need to inspire their energy companies to jointly develop clean energy. They should form joint ventures sharing risks, interests and common intellectual property. Each side should take into consideration the other side’s concerns including technology transfer, IPR protection, enforcement of contracts, and other issues.