The U.S. and China at the Summit:

Climate & Energy Developments in China and U.S.-China collaboration

FAQs Addressed:

Contact an Expert

Luke Schoen
ChinaFAQs Manager, World Resources Institute

Lschoen@wri.org
(202) 729-7657

1. What are the U.S. and China doing together to make progress on climate and energy issues?

The US and China share many of the same goals related to climate and energy, including proming job creation, economic growth, energy security, and pollution reduction. The two nations have collaborated for over 20 years on these issues, and recently agreed to a new, wide-ranging set of cooperative efforts, contributed to a productive international climate negotiation in Cancun, and established new private sector cooperative efforts. The U.S.-China climate and energy relationship reflects the two countries' interdependence and collaboration, even as the countries and their companies also compete in a global marketplace.

Over the last few years, the two governments have expanded opportunities for collaboration through a range of agreements and multilateral and bilateral arrangements. In 2008, the two nations signed The Ten-Year Framework Agreement on Energy and Environment, which identified six areas of cooperation, including clean electricity, clean transport and energy efficiency. In December 2008, U.S. and Chinese companies and universities formed seven "EcoPartnerships" under the framework, including partnerships between auto, wind, and energy firms.

In 2009, the Obama Administration announced a wide-ranging package of cooperative efforts with China. The U.S.-China Clean Energy Research Center (CERC) established three joint research partnerships on energy efficiency in buildings, clean coal including carbon capture and storage (CCS), and clean vehicles, for which the US Department of Energy awarded funding in the second half of 2010. Other initiatives include partnering on electric vehicles, energy efficiency, and shale gas. In addition, the U.S. Environmental Protection Agency is providing technical support to China's National Development and Reform Commission (NDRC) to improve China's ability to routinely monitor and report its greenhouse gas emissions – a key element of the new Cancun Agreements.

The recent Cancun climate discussions saw an improved working relationship between the United States and China (see question 3). Private sector collaboration can also deliver tangible benefits to both nations and the world at-large, including new markets for U.S. technologies (see question 2).

2. What are the opportunities and challenges for U.S. – China business cooperation on clean technology and public-private partnerships?

The US and China are the two largest markets for clean energy in the world. A 2010 Pew study estimated that the total global market through 2020 could be as high as $2.3 trillion, with investment in China potentially over $600 billion, and the US more than half the Chinese total.[i] Growth has already begun. The clean energy investment of both countries more than doubled, according to Pew, between 2005 and 2009. Businesses in the two countries are seeing the opportunities not only to trade with each other, but to invest in both countries and to work collaboratively to develop new technologies and new opportunities.

Over the past year we've seen a blossoming of US-China corporate alliances. It began with government-sponsored group endeavors, in particular the Energy Cooperation Program (ECP), sponsored by the U.S. Department of Commerce and the Chinese Ministry of Commerce.[ii] Cooperative projects then led to new alliances. Duke Energy began this new approach with an alliance with China's largest power company, Huaneng, in 2009.[iii] We've now seen new alliances for electric vehicles, and for working with the power grid.[iv, v] US and Chinese firms often have complementary experience and skills to share. For example, in the area of cleaner coal, Chinese companies have focused on gasification, while the United States has more experience in turbines and the subsurface geology. In wind power, major deals are likely to involve not just US investment in China, but also Chinese investment in the United States.[vi] The United States has many more years of experience integrating such projects into the electric grid, but the Chinese will now gain important experience in working with very large projects as well as managing wind with a coal baseload.

As MIT Professor and ChinaFAQs Network Member Ed Steinfeld shows in his new book, Playing Our Game, opportunities today do not require a single business or country to dominate the entire development, production and marketing chain.[vii] In fact, much of the profit and the job opportunities can come when companies specialize in the areas they do best. These international alliances are fast becoming the norm, and China's integration into the global energy supply system is just one such example. A concrete example of this integration is found in Georgetown Professor and ChinaFAQs Network Member Joanna Lewis's research on the global wind industry, which finds significant integration among international players.[viii]

New relationships are not without their challenges. The US and China have had both a robust trading relationship and a robust trade negotiations relationship for the over thirty years since diplomatic normalization. As clean energy grows as a business opportunity, it is not surprising that trade and investment disputes are emerging. It is worth noting, however, that many of these have been resolved in the annual Joint Commission on Commerce and Trade (JCCT) Process, and to date just one has been brought to the World Trade Organization (WTO), suggesting that the JCCT and other regular mechanisms are able to resolve significant numbers of concerns.[ix]

The larger challenge is whether the market in each country progresses at the same pace. To date, the Chinese government is further along in creating the policy incentives, including a national renewable energy portfolio standard, than is the United States. Chinese companies are showing growing interest in bringing investment and job opportunities to the United States, but they will be looking at whether the policy environment promotes this kind of investment.[x] Moreover, while supply chains often involve players from several countries, reaping the benefits in green jobs often depends on a domestic policy environment supporting clean energy.[xi]

3. What did the U.S. and China agree to in Cancun?

In the December 2010 climate meeting in Cancun, Mexico, the U.S. and China contributed to the positive negotiations resulting in the Cancun Agreements. China emphasized the elements that provide support for developing countries, including a Green Climate Fund, and the establishment of a new Technology Mechanism for transferring technology and promoting the worldwide development and deployment of clean technologies. The agreements also include provisions for greater reporting and monitoring of these areas.

The U.S. achieved its two main goals of greater transparency in the reporting of developing country actions, and legal parity in how the Copenhagen pledges of the United States and China were incorporated into the Cancun Agreements (the United States pledge of a 17% emissions reduction below 2005 levels, and the Chinese pledge of a 40-45% carbon intensity reduction below 2005 levels). The second goal was achieved by having both developed and developing country pledges "taken note of" in the final decision text.[xii]

4. What important steps is China taking on climate and energy?

China has been making steady progress in implementing domestic climate and energy policy over the past year. Shortly after Copenhagen, China reformed the Renewable Energy Law to address problems with how new generation sources are added to the grid.[xiii] Later, it added new requirements intended to improve energy intensity performance in order to meet the goal of a 20% reduction in energy intensity set forth in the 11th Five-Year Plan.

2010 saw China taking major initiatives in low carbon development. In the transportation sector, it continued to build out the world's largest high-speed rail program and new construction of both subway lines and bus rapid transit systems in dozens of cities. It improved its energy efficiency standards in areas ranging from industry to buildings to appliances. China also continues to invest heavily in wind, solar and nuclear power, as well as in experiments in carbon capture and storage. China is widely expected to soon overtake the United States in total installed wind capacity.

China is also exploring new policy options to control the growth of greenhouse gas emissions, including carbon taxes and carbon markets, in addition to continued use of targets and quotas (from goals for renewable and nuclear energy, to the energy/carbon intensity goals), standards, and financial support for new technologies. It is now looking at new market-based mechanisms, and is widely expected to experiment with these new approaches during the 12th Five Year Plan period, 2011 – 2015.

There is also broad political consensus within China that measurement and reporting systems are crucial for ensuring domestic goals are met.[xiv] Both the central government officials charged with monitoring local performance, and the local officials that want to ensure they get credit for the changes they make are voicing support for improving these systems.[xv]

China's prospects for reducing carbon emissions in the long term can be viewed in light of its progress on climate and energy policy. It is taking substantial action on efficiency and renewables, but remains heavily reliant on coal. China is taking action to address this issue, including building power plants with state of the art equipment, and it is also giving serious consideration to CCS.

Taking into account China's current trends that will saturate markets for many energy-intensive products (e.g. home appliances and heating and cooling equipment; road building and cement production) and the continued emphasis on energy efficiency, renewable energy and nuclear power, researchers at LBNL found that China's carbon emissions are expected to plateau around 2030 and could decline thereafter.[xvi]

5. What steps can we expect China to take in the coming year?

The next Five Year Plan, set to be released in March, will once again further China's environmental policy implementation. We can expect to see targets added for some new key pollutants, most likely NOx, nitrogen, and phosphorous, and we will also see the formal adoption of China's 40-45% carbon intensity reduction target pledged at Cancun.

China will lead the world in high-speed rail, with the 4-hour Beijing-Shanghai link launching service in June, 2011. It currently has over 7,000 km of high-speed rail, and expects to complete 13,000 km by 2012.

Over the course of the year, we can also expect China to continue to promote clean energy industries by investing heavily in a number of non-carbon or reduced carbon sectors, including renewable energy, nuclear power, electric vehicles and energy efficiency technologies. It is now touted as the most attractive renewables market in the world. 2011 should see the start of the first solar thermal power plant projects in China.

By year's end also expect to see one of the world's most advanced power plants, China's first commercial-scale Integrated Gasification Combined Cycle (IGCC) power plant GreenGen, come on line, and then look to its second phase, which will start to explore carbon capture and storage. 2011 should also see new developments in end-use energy efficiency, as China's first Demand-side management regulations come into effect.

China will also continue to explore the use of market-based approaches to controlling carbon and other pollutant emissions. There has been growing enthusiasm for experimenting with both the cap and trade approach and a carbon tax in addition to the target-based approaches that have been central to China's energy and climate policies to date. Knowledgeable policy advisors tell us that some kind of "environmental tax" is likely to emerge at some point during the 12th Five Year Plan period (2011-2015), and we also expect to see new experiments in trading schemes. The specifics are likely to start emerging after the actual Five Year Plan is announced in March, and our best guess is that we'll see local or sectoral experiments, rather than any full-fledged national program, in the next year.

6. Are the United States and China's Cancun commitments sufficient to avert catastrophic climate change?

The commitments embodied first in Copenhagen and now with additional specificity in Cancun are important in beginning an approach to reducing our global risk of catastrophic climate change, but the commitments not just from these two countries, but from all of the major emitters are not what the best scientific evidence suggests will ultimately be needed to avert catastrophic climate change.[xvii]

The U.S. and China both remain heavily dependent on coal, and the U.S. uses far more fossil fuel in transportation than any other country in the world. To address these issues advances in clean energy and transport beyond 2020 will need to look at areas like carbon capture and storage and electric vehicles, both of which are priorities for bilateral energy research and development cooperation.

This fact sheet is a product of ChinaFAQs, a joint project of the World Resources Institute and experts from leading American universities, think tanks and government laboratories. Find out more about the ChinaFAQs Project at: http://www.ChinaFAQs.org/.

Notes

[i] "A $2.3 Trillion Opportunity", Pew Charitable Trusts, http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Global_warming/G20-Report-LowRes.pdf.

[ii] www.uschinaecp.org

[iii] http://www.powermag.com/POWERnews/Duke-Energy-China-Huaneng-Agree-to-Share-Information-on-Cleaner-Coal-Tech_2097.html.

[iv] http://electriccarsreport.com/2010/08/chinese-and-american-companies-establish-electric-vehicle-alliance/.

[v] Both Duke and GE have alliances with State Grid. http://www.sustainablebusinessoregon.com/national/2010/03/duke_energy_signs_third_deal_in_china.html; http://www.greentechmedia.com/articles/read/ge-gets-its-smart-grid-in-a-very-large-door-china/.

[vi] http://www.uschinaecp.org/article/detail/229.

[vii] http://www.oup.com/us/catalog/general/subject/Politics/ComparativePolitics/China/?view=usa&ci=9780195390650.

[viii] http://www.chinafaqs.org/blog-posts/two-international-conferences-china-highlight-importance-wind-energy.

[ix] http://www.chinafaqs.org/blog-posts/ustr-requests-wto-consultations-chinese-wind-subsidy-action-rare-earths-still-undecided

[x] http://moneymorning.com/2010/09/09/renewable-energy/.

[xi] http://www.wri.org/publication/it-should-be-a-breeze.

[xii] http://www.chinafaqs.org/blog-posts/what-cancun-means-china-and-us.

[xiii] http://www.chinafaqs.org/blog-posts/after-copenhagen-china-strengthens-domestic-clean-energy-policies.

[xiv] http://www.chinafaqs.org/blog-posts/chinas-party-plenum-recommends-climate-actions-12th-five-year-plan.

[xv] http://www.chinafaqs.org/blog-posts/report-cancun-chinas-climate-progress-copenhagen

xvi Report forthcoming.

[xvii] "The Emissions Gap Report: Are the Copenhagen Accord Pledges Sufficient to Limit Global Warming to 2 degrees C or 1.5 degrees C?" UNDP, http://www.unep.org/publications/ebooks/emissionsgapreport/.

ChinaFAQs
World Resources Institute
10 G St NE
Washington, DC 20002
202-729-7600
www.ChinaFAQs.org

v2.4 Published January 14, 2011