

ChinaFAQs

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U.S. - China Renewable Energy Partnership

Key Points

- The US-China Renewable Energy Partnership (USCREP) is matching US cleantech firms with opportunities in Chinese markets
- The USCREP undertakes tasks in the key areas of improving wind and solar technologies, integrating renewable power with existing electric power grids, developing international standards and testing protocols for new energy technologies, and collaborating on policies to spur advancement of renewable energy technologies.
- American companies, such as Boston-based Second Wind, are already benefiting from USCREP-fostered cooperation in terms of potential job creation and expanding exports.

In the fall of 2010, a team of engineers carefully installed an unusual, six-foot high enclosure on a windy plain some 200 miles northwest of Beijing. Inside the gray casing – which looks a bit like a giant rabbit from some angles – is a sensitive device that uses sound waves to measure wind speeds hundreds of feet up into the sky. It's called the Triton Sonic Wind Profiler, and the American-made technology helps windfarm developers identify the best, most cost-effective spots to build their power plants. The Triton is also just one example of how U.S.-China cooperation on developing better and cheaper renewable energy technologies is helping U.S. firms gain a foothold in the growing Chinese energy market, and helping China curb its emissions of greenhouse gases.

A little-known program called the U.S.-China Renewable Energy Partnership (USCREP) “helped us make the right connections that led to this first key installation,” says Larry Letteney, CEO of Second Wind, Inc., a 31-year-old company that makes the Triton at its manufacturing plant near Boston, Massachusetts.

VALUE PROPOSITION

Such match-making is part of USCREP’s “value proposition,” says David Kline, an energy specialist at the

U.S. Department of Energy’s National Renewable Energy Laboratory (NREL) in Golden, Colorado, which manages USCREP. “The U.S. has strong interests in China,” he notes, ranging from fostering fair, transparent trading practices to solving energy and environmental problems that confront both nations and the world at large. As the world’s two major emitters of greenhouse gases, for example, both nations have an interest in advancing technologies, such as wind power, that can reduce reliance on burning fossil fuels. And as China’s demand for oil grows, the U.S. has an interest in helping find alternative fuels, since rising global demand will ultimately force up oil prices for U.S. consumers too.

THE MAJOR TASKS

Such common interest spurred the creation of USCREP in November 2009 as part of a broader, ten-year package of cooperative clean energy research programs agreed to by the U.S. and China. In particular, USCREP was given the task of bringing scientists, entrepreneurs and policy makers from both nations together to work on five major tasks:

- Improving wind energy technologies.

- Improving solar energy technologies.
- Developing better ways of integrating power produced by renewable sources into existing electric power grids.
- Developing rigorous international standards and testing protocols for new renewable energy technologies.
- Collaborating on policies and plans that would enable rapid advances in renewable technologies.

Those tasks, Kline notes, cover four key elements of U.S. international cooperation: “The economy, the environment, technology advancement, and energy security.”

Now, just two years into its work, USCREP is engaged in a range of projects (see box) that involve leading research institutions and companies in both nations, including NREL, China’s State Grid Energy Research Institute, Alcoa, General Electric, HydroChina and Duke Energy. Some partnerships emphasize conducting basic research, such as a project involving Honeywell and DuPont that is cataloging bacteria and other organisms from China that might help make better biofuels. Others have a more applied focus, such as one between Boeing and PetroChina to test new, cleaner biofuels in passenger jets. Still others are focusing on policy and financing issues, such as analyzing import/export policies in each nation, and opportunities for

foreign investment in renewable energy -- and potential barriers.

Together, the initiatives are “helping facilitate strategic corporate partnerships between U.S. and Chinese companies, and improve market transparency,” says Kline. Efforts to develop common, internationally-accepted equipment standards and industry protocols, for instance, are helping build trust and mutual confidence; ultimately, the common standards will ensure that technical data collected in different nations is reliable, and will help level the playing field for trade by discouraging the production of inferior or substandard products.

WIND POWER RISING

The potential benefit of collaboration between the United States and China isn’t lost on wind industry executives in both nations. China has been doubling its wind capacity annually in recent years, and building new wind farms is a key part of China’s strategy to boost the amount of power it gets from non-fossil fuel sources to 11.4% of the total by 2015. Wind power will also help China reduce its “carbon intensity” – the amount of carbon produced per unit of gross domestic product – by a targeted 17% over the same period. “There is serious discussion of and planning for producing 150 to 300 new gigawatts of wind and solar power in China by 2030,” notes Kline.

A Sampling of USCREP Initiatives

Wind Energy

- Validation of Second Wind’s Triton Sonic Wind Profiler for HydroChina
- Research on turbine wake effects using data from Chinese wind farms

Solar Energy

- Alternative approaches to solar project finance
- Identifying best practices in solar project development

Biofuels

- Ethanol conversion
- Producing biodiesel from algae
- Developing sustainable feedstocks

Renewable Grid Integration

- Technical workshops
- Consultation

Standards & Testing

- Joint project on developing quality standards for photovoltaics
- Technical assistance to testing laboratories
- Comparative study of wind technology standards

Policy & Planning

- Comparison of U.S. and China renewable energy policies
- Facilitation of investment in renewable energy
- Creating regional, state/province, and city-level partnerships

As a result, “any company that expects to be a serious player in the international wind power market needs a substantial presence in China,” says Second Wind’s Letteney. For U.S. companies, China offers a potentially vast market – and an unusual opportunity to rapidly deploy, test and improve new technologies. For Chinese firms, partnering presents an opportunity to accelerate expansion by working with U.S. companies that pioneered ways of converting breezes into kilowatts, and now have decades of experience.

Forging partnerships, however, can be a complex process. That’s where USCREP has found a niche. Building on NREL’s long record of working with Chinese and U.S. partners, Kline and other USCREP staffers have been able to identify opportunities on both sides of the Pacific. In China, for instance, they realized that the rapid expansion of operating wind farms had enabled engineers to compile a rare – and valuable -- trove of data on how the turbulent wakes created by spinning turbine blades affect performance. USCREP helped arrange for collaborative evaluation of that data, which promises to lead to more efficient turbine and wind farm designs.

Similarly, Kline’s team realized that Massachusetts-based Second Wind had technology that could help Chinese wind developers solve a major problem: How to best arrange new towers on sites where even minor variations in wind speeds can make major differences in turbine efficiency. Two ago, NREL scientists had helped technically validate Second Wind’s Triton wind profiler, and soon USCREP was helping arrange contacts between the

company and HydroChina, a major Chinese wind developer.

In October, 2010, those contacts bore fruit: Second Wind, in partnership with Beijing New Energy Technology Co., exhibited a Triton at a leading wind power conference in Beijing. Soon after, the device was on its way to a HydroChina wind power site near Zhangbei for a months-long performance test.

The results were promising, Letteney says, and the Triton is now poised to become more common at Chinese wind installations. “We’re very excited to begin selling into China,” he says, noting Triton sales in other nations have already helped add 25 jobs to the company’s workforce. The forum for collaboration created by USCREP “was vital in making this happen,” he says. “Cooperation was key.”

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/>.

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