



Green Sun Over China

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EU commissioner [Andris Piebalgs](#) recently indicated the decisive role alternative energy could play in China. Listing bilateral initiatives to a Chinese minister, Piebalgs concluded that joint plans to promote renewable energy may "ensure a major breakthrough over the next coming years."

Some big numbers underscore the commissioner's remarks. Research group [Worldwatch Institute](#) reported that global investment in renewables reached a record \$30 billion in 2004. Worldwatch president [Christopher Flavin](#) believes this figure was surpassed by up to 50 percent in 2005 – reflecting expanding demand from emerging markets led by China.

But China's entrance onto the renewable scene may not be the windfall for U.S. companies that it will for western competitors, reports [American Council on Renewable Energy](#) president [Michael Eckhart](#). "The U.S. is woefully behind when it comes to competing in alternative energy," he said. Eckhart added that as renewable demand increases and the Chinese market develops, U.S. shareholders and companies may find themselves falling regretfully behind European and Canadian counterparts.

The Chinese appetite for energy is massive: [Jerry Clifford](#) of the [Environmental Protection Agency](#) testified before Congress in February that for the past 15 years China has annually constructed 400 million square meters of building space – "the equivalent of building 1,000 Sears Towers each year." Clifford went on to note that in 2004 the increase in energy use from new Chinese air conditioners alone "exceeded the entire generating capacity of the Three Gorges Dam."

Such staggering demand has raised obvious questions on where the energy is actually going to come from to satiate the ever-growing Chinese appetite for the fuels that power a growing consumer society.

"China's back is against the wall," explained [Robert Watson](#), senior scientist at the [Natural Resources Defense Council](#). "Their land is barren, the water undrinkable and the government needs to begin providing for an immense and newly wealthy population." The result, says Watson, is that "China will drive the alternative energy market and help make it a reality."

Concerned with growth and pollution – in addition to a rising profile with the upcoming Olympics - China is focusing on renewables. At last year's Beijing International Renewable Energy Conference, Chinese leaders affirmed their pledge to derive 10 percent of all energy through alternative means by 2020. Representing a \$180 billion commitment in both infrastructure and research & development, China took recent steps toward this ambitious goal with the first "Law on Renewable Energy." Taking effect next year, the law encourages alternative energy use through renewable purchases and financial incentives.

"My bet is that China is indisputably number one in renewable energy within five years," Worldwatch's Flavin said of the legislation's effect. "They now have key state sponsored support and one advantage of a centralized economy is

that these massive projects can be put into effect very quickly."

But state control of this centralized system may obstruct opportunities in China, ACORE president Eckhart points out. Before the private sector can access renewable markets, he explains, "Chinese officials must work with foreign governments on parallel levels, minister to minister."

Hosted for the sixth time in Shanghai, the annual China-EU Energy Conference may foster such relationships for Europeans. The conference, commissioner Piebalgs keyed, "has the objective of bringing together the key players in our energy industries as well as high ranking officials from the EU and China." And it may have succeeded: last year brought blockbuster EU-Chinese deals in wind power, fuel cells and hybrid cars including **Volkswagen's** joint-venture with **Shanghai Automotive Industry Corporation**.

The venture, which Volkswagen describes as an unprecedented collaboration of Chinese and foreign hybrid technology, plans a product launch during the 2008 Beijing Olympics. A press release from the company states: "[hybrid vehicles] fit in ideally with the [Chinese] motto 'Green Olympics, High-tech Olympics and People's Olympics Beijing' and with the policy of developing a society in China that conserves energy."

The deal may also highlight collusion between foreign and Chinese governments in private renewable deals. Volkswagen's venture was followed by a \$60 million investment from the German government for a wind turbine project in Qingdao – the site for Beijing Olympics water sports. Following the Qingdao announcement, vice minister **Zhu Guangyao** told the *China Daily*: "Germany is well-known for its advanced technology and rich management experience in the fields of renewable energy and a circular economy. The future for cooperation between the two countries looks bright."

By comparison, experts point to a distinct lack of support from the U.S. for similar ventures. "I don't think the Department of Energy has any real money in its budget to promote U.S. and Chinese cooperation," said director of Asian studies **Elizabeth Economy** at the **Council on Foreign Relations**. "We lag very far behind the EU and Canada when there are real dollars involved and [the U.S. is] simply not in the game financially. This congress has very little interest in supplying funds for cooperative efforts."

Indeed representatives from the DOE could identify only one joint venture between the Energy Department and China during the last 12 months - a promotion of hydrogen-based transportation at the Beijing Olympics totaling \$2.6 million.

"This is really an error of omission," said Eckhart. "Europe and Canada expressly noticed that the U.S. was not a leader in the alternative energy space and realized that this was a huge opportunity where they could take the lead." He points to an EU White Paper from 1997 as evidence that nearly a decade ago Europe prioritized the development of renewables. Referring to "promising business opportunities" in "third countries," the White Paper states: "development of renewable energy sources can actively contribute to job creation."

The European wind industry may validate this outlook. **Donald Aitken**, former Stanford physicist and national chair of the **American Solar Energy Society**, recently wrote in *Solar Today Magazine*: "By the end of 2003, Germany had an estimated 45,400 permanent jobs resulting from the wind industry alone, a figure expected to increase to 103,000 jobs by 2010. About one new job is created in the German wind industry for every 300 kW capacity installed, for a technology that contributes 6.2% of the nation's demand for electricity"

Wind is also big business in Spain. In another example of politics interacting with renewable dealmaking, Spanish wind turbine maker **Gamesa** unveiled a \$190 million agreement to provide turbines to China. The deal, signed in Madrid in the presence of Chinese President **Hu Jintao** and Spanish Prime Minister **Jose Zapatero**, was announced

in November with Hu conferring on Spain the status of "strategic partner" – an accolade shared by several other EU members.

Political complicity in alternative energy deals goes beyond the Continent. During a state trip to Canada in September, president Hu visited a single company: Vancouver-based **Ballard Power Systems**, an automotive fuel cell manufacturer. Ballard executives reciprocated the visit by traveling to Beijing, where they attended the November launch of Ballard fuel cell-powered buses sponsored by the Chinese Ministry of Science & Technology.

These visits may be more than symbolic. "[I]f a mere 3.7 percent of all Chinese earned enough money to buy a car in 2002, the figure will reach 13 percent in 2010," reports corporate strategist **Mercer Management Consulting**. "In absolute terms, this implies a growth of today's 50 million potential buyers to more than 170 million." Increasing in eight years by approximately the number of cars in the EU, China's dynamic market could substantially determine the future of both Ballard and automotive fuel cell industry.

"We don't know what kind of transport system will develop, but oil supply and pollution issues might cause the Chinese government to mandate fuel cells," said **David Edwards**, analyst at San Francisco-based **ThinkEquity Partners**. "That type of top-down government could create an immediate market. In the U.S. this would be more of a trickle."

But when it comes to renewables, the U.S. may risk falling behind in areas beyond automobiles. London-based **JPMorgan** analyst **Andreas Willi** believes that despite the U.S. having some of the most advanced wind power technology, an unfavorable political environment has discouraged business. EU members like Germany and Spain are committed to domestic wind energy and renewable exports, Willi says, allowing them to have more stable wind markets than America. He adds: "The U.S. is constrained by politics, budgets and bills which is very unattractive for investors."

These same constraints have resulted in **GE Wind Energy** being the only internationally competitive U.S. wind company, reports Barcelona-based **Emerging Energy Research** director **Keith Hays**. "GE is the only global American competitor, for other U.S. companies they just aren't that competitive internationally," he says.

"The way that wind energy has grown in Europe has been significantly different from the U.S.," Hays continued. "The Kyoto accords, emission targets and alternative energy incentives have led to a lot of general activity between China and Europe." With Hays estimating that growth in the Chinese wind market could total up to \$600 million annually for the next several years, limited involvement may confound both U.S. companies and shareholders.

"The only way we can compete is to be developing next year's technology," said Watson, the senior scientist from NRDC. "We have two to three years maximum before our current technology is copied and even improved on."

Watson believes that if the U.S. is going to continue as a global energy power, it must recognize the importance of areas like alternative energy and its approach to China. After all, a lack of meaningful engagement with China on matters of energy will only get harder to justify.