China Facts

This windmill in Beijing is part of China's commitment to renewable energy. China invested $15.6 billion in renewable energy in 2008.

From Crisis to Opportunity:

How China is addressing climate change and positioning itself to be a leader in clean energy

For more information, please contact **Barbara Finamore** at bfinamore@nrdc.org or (646) 244-8222

China and the United States are the world's largest emitters of global warming pollution. As both nations face ever-growing energy service needs and an increasing dependence on foreign oil, their joint leadership is crucial to addressing global climate change and moving the world to a clean energy economy.

With global warming already taking a toll on China's agricultural production, water supplies, and coastal cities, a major shift in energy patterns is urgently needed. The country is already moving to take advantage of its manufacturing prowess to retool itself as a leader in the clean energy technologies of the future: wind and solar; advanced coal technology; electric vehicles, advanced batteries, and high-speed rail; smart grid technology; and more energy-efficient lighting and appliances.

China is Taking Action to Curb Global Warming

Some of China's recent actions to reduce its greenhouse gas emissions and become a leader in clean energy include:

Leading in renewable energy. China invested $15.6 billion in renewable energy in 2008, more than any other country except the United States and Spain.[1] It has set aggressive targets to increase renewables to 10 percent of its energy consumption by 2010 and at least 15 percent by 2020. Moreover, it is reportedly preparing plans to invest between $440 billion and $660 billion in the next 10 years on alternative energy development in what could be the largest government renewables program in the world, part of an effort to boost its clean energy industry.[2]

- ***Wind***—China is set to become the world's leading manufacturer of wind turbines this year, and recently raised its national target for installed

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chinainfo@nrdc.org

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wind power capacity from 20 to 150 gigawatts by 2020. Domestically, China installed 6.3 gigawatts of wind capacity in 2008, second only to the United States, which installed 8.3 gigawatts. In July 2009, China set a feed-in tariff for new onshore wind power plants of up to 9 cents per kilowatt hour, a significant premium on the average rate paid to coal-fired electricity generators that is designed to improve profitability for China's wind farm operators.

- ***Solar***—China is the top manufacturer of solar photovoltaic (PV) cells in the world and has established incentive policies to boost domestic demand and deployment, including an installation subsidy for solar PV panels larger than 50 kW fixed on building roofs of up to $3 per watt (which could cover half the total installation cost) and a 16-cent feed-in tariff.[3] China is also the largest manufacturer and user of solar water heaters in the world, an industry that employs some 600,000 people in China.

Building efficient industries. China has made reducing its energy intensity (the energy consumed per unit of gross domestic product) a central pillar of its current Five Year Plan, setting a target of reducing energy intensity 20 percent from 2005 levels by 2010. In the last three years, the country has achieved a 10 percent reduction in energy intensity by closing inefficient factories, putting in place a suite of programs and incentives to make its industries more efficient and competitive, and prioritizing development of its high-tech sector over more energy-intensive industries. If China succeeds in reaching its energy intensity target, it will avoid approximately 1.5 billion tons of CO_2 emissions, constituting the largest single greenhouse gas (GHG) mitigation program in the world.

Enforcing stricter energy codes and standards for buildings and appliances. China enacted new building energy standards after 2003 that mandate reducing building energy use by at least 50 percent. Improving compliance with building codes is a challenge, however, so China is developing a national building energy rating and labeling system similar to that in the United States. China has also developed efficiency standards and labels covering most home and office appliances, which could avoid a cumulative 300 million tons of CO_2 emissions from 2000 through 2020.

Developing advanced coal technology. China retired 34 gigawatts of small, inefficient coal-burning power plants from 2006 to 2008 and plans to close another 31 gigawatts of capacity during the next three years. It is replacing these plants with larger but more efficient thermal power plants. China is also developing and deploying advanced coal-fired power generation technologies such as combined heat and power, integrated gasification combined cycle (IGCC), and carbon capture and storage. It has broken ground on its first IGCC power plant in Tianjin, which is slated to include carbon capture and storage, a technology that captures the CO_2 emitted from coal-fired power plants and pumps it into natural geologic structures deep in the Earth, where it is gradually absorbed. A pilot carbon capture power plant in Beijing, supplying 10 percent of the city's power demand, is already capturing 3,000 tons of CO_2 per year.

Electrifying transportation. China's automobile fuel economy standards are more stringent that those in the United States and are among the strictest in the world. China is moving to capitalize on its strengths in battery technology and its status as the largest automobile market in the world to become a leader in hybrid and electric vehicles. China aims to raise its annual production capacity of hybrid and all-electric cars and buses to 500,000 by the end of 2011; the Chinese auto manufacturer BYD is making the world's first mass-produced, plug-in hybrid electric vehicle. Further, China is the world's leader in electric scooters and bicycles, which have largely replaced gasoline motorcycles for intra-city transportation, and is also building the largest high-speed rail network in the world.

Now Is the Time for Global Innovation

China has recognized that the current economic downturn can be an opportunity to innovate and reposition its response to global warming. While it has resisted setting a firm cap on its emissions, Chinese leadership has realized that action to address global warming cannot wait. Now more than ever, both China and the United States have the opportunity to reduce their greenhouse gas emissions, protect their citizens from the growing impacts of climate change, create millions of green jobs, and build the clean energy economies of the future.

About NRDC's China Program

For nearly 15 years, NRDC has been working to improve environmental protection and reduce energy consumption in China by developing stricter energy codes and standards for buildings and appliances; helping to establish provincial demand side management programs to fund large-scale investments in industrial energy efficiency; working with factories to find cleaner production methods; supporting efforts to develop advanced coal technologies; and strengthening environmental laws and enforcement by encouraging the development of a robust environmental legal system to monitor and enforce against violations. The on-the-ground work of our 25-person staff in Beijing has been recognized by both governments as a model for achieving concrete reductions in energy use, emissions, and global warming pollution.

[1] UNEP, New Energy Finance, Global Trends in Sustainable Energy Investment 2009.

[2] http://money.163.com/09/0526/16/5A8JM34S00252G50.html; http://www.google.com/hostednews/afp/article/ALeqM5i7wWko-CABy_Y7poh8ym0TI7CjJjA

[3] http://www.chinadaily.com.cn/china/2009-07/03/content_8351467.htm

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