Fact Sheet

China Emerging As New Leader In Clean Energy Policies

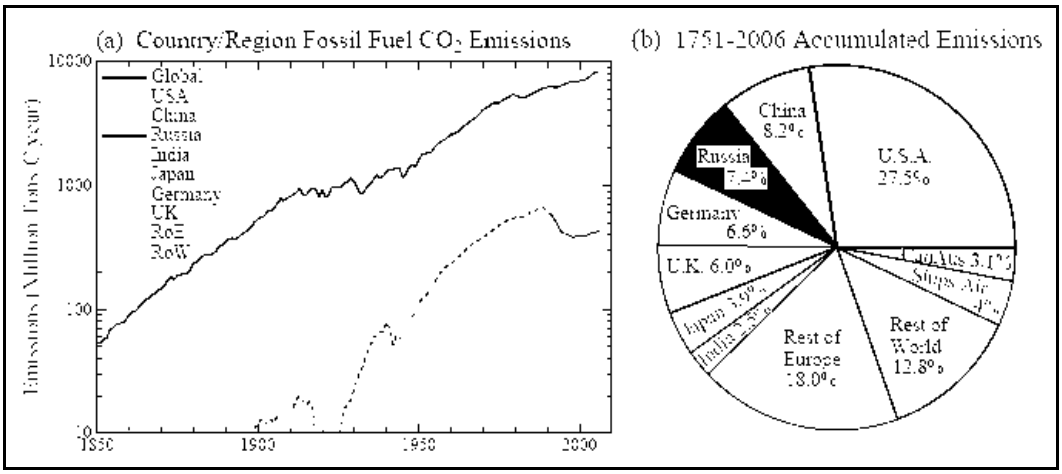
OVERVIEW

In the last two years, China has implemented a series of ambitious clean energy policies that will help to dramatically reduce the growth of the country's energy consumption and greenhouse gas emissions. For example, its Top-1000 Enterprise Program, explained in more detail below, will reduce more carbon at a faster rate than most western energy initiatives underway today. These policies are also advancing new technologies, especially in energy efficiency and renewable energy.

China has established the world's most aggressive energy efficiency target, which calls for a 20% reduction in energy intensity between 2005 and 2010 (which is a nation's energy consumption per unit of GDP). If fully implemented, this target would translate to a reduction of over 1.5 billion tons of CO2 in just five years. In comparison, the EU commitment under Kyoto is about 300 million tons of CO2 between 1997 and 2012.

Cumulative vs. per capita emissions

Due to the way CO2 accumulates in the atmosphere (once present in the atmosphere, it remains for centuries), global warming is determined by cumulative CO2 emissions rather than annual CO2 emissions. In this context, it is important to determine China's cumulative emissions when examining its role in contributing to climate change. Between 1750 and 2006, China emitted 8.2 percent of the cumulative emissions from fossil fuel use, compared to the U.S., which emitted 27.5 percent, more than three times the emissions of any other country.



As such, U.S. cumulative emissions have made a much larger contribution to current warming as well as future warming locked-in by past emissions. Currently, international policy recognizes this distinction by assigning a greater responsibility for greenhouse gas reduction to developed countries. [1]

China's per capita energy use, which is just one-eighth of the U.S., and one-quarter of the European Union, could easily double or triple in the next few decades, as millions of Chinese move to cities from the countryside and demand basic amenities. That is likely to drive the pace of construction of conventional power plants, until alternative and renewable sources become available at scale.

RENEWABLE ENERGY

Renewable energy mandates

China's Renewable Energy Law (RE Law), effective since February 2005, has set the world's most aggressive and legally binding target. By 2020, 15 percent of all energy is to come from wind, biomass, solar and hydropower energy, compared to its present 7 percent. China is to have 137 gigawatts (GW) of renewable power generation by then, plus vehicle fuels with at least 15 percent renewable energy content.

In August 2007, China's National Development and Reform Commission (NDRC) launched its Medium to Long-term Renewable Energy Development Plan. By 2020, installed capacity for small hydro, wind, biomass, and solar will reach 75 GW, 30GW, 30 GW and 1.8 GW, respectively. Estimated total investment needs for realizing these target amounts to nearly US $270 billion. The U.S. has yet to establish a national renewable energy platform.

[1] Hansen, James and Sato, Makiko. "Global Warming: East-West Connections." NASA Goddard Institute for Space Studies and Columbia University Earth Institute, September 2007.

Policies to develop renewable industries
China has numerous policies in place to reach its renewable energy goals. For instance, all taxpayers are to share the incremental costs of renewables nationwide, and electric utilities have to pay a favorable "feed-in" tariff for the output of renewable facilities. Other mandates encourage the development of a domestic renewable industry. Newly installed facilities such as wind turbines must contain 70 percent content that is manufactured in China. As a result, the Chinese now produce about 40 percent of wind turbines sold in China and 3 percent of wind turbines sold globally. [2]

Other incentives have been used in the solar photovoltaic industry (PV), leading to a six-fold growth in PV production between 2004 and 2005. China is currently the third-largest producer of solar PVs for the global market, according to a recent study. [3]

Installed wind power doubled in 2006. To boost output, the NDRC is implementing wind concessions – local programs that auction wind rights to wind energy developers. Since it launched in 2001, this program has catalyzed over 2,000 megawatts (MW) of utility-scale wind farms, thanks to over US $2 billion in investments. This program puts China on track to meet its RE Law's aggressive 30,000 MW wind energy target.

ENERGY EFFICIENCY

Economy-wide Energy Efficiency Target
China has set a target of reducing its energy intensity 20 percent between 2005 and 2010. If fully implemented, this target would translate into a reduction of CO2 by 1.5 billion tons by 2010. In comparison, the EU commitment under Kyoto is about 300 million tons of CO2 reduction by 2012. Faced with the prospect of not meeting this aggressive target, the Chinese government has increased its effort to include additional incentives for energy savings to about US $1.35 billion per year.

Top-1,000 Enterprises Energy Efficiency Program
China's industrial sector, dominated by large, state-owned enterprises, consumes seventy percent of the country's primary energy and emits the bulk of China's pollution. In 2006, China established the Top-1,000 Enterprises Energy-Efficiency Program (Top-1,000 Program), aimed at cutting the energy use of its 1,000 most energy-intensive enterprises.

The program has enormous energy-savings and carbon emissions-reduction potential: these enterprises currently consume a third of all China's primary energy, and a successful program promises to cut 242 million tons of carbon dioxide by 2010, equivalent to removing 38 large (1,000-megawatt) coal-fired power plants. As of the first quarter of 2007, the Top-1000 Program was on track to meet and exceed its 2010 target. One of the policies used to reach the goal has

[2] Lewis, Joanna. "China's Strategic Priorities in International Climate Change Negotiations." *The Washington Quarterly*. Winter 2007-08, 161.
[3] Ibid.
[4] Lewis, Joanna. "China's Strategic Priorities in International Climate Change Negotiations." *The Washington Quarterly*. Winter 2007-08, 160.

been to make energy efficiency improvements a criteria for job performance evaluations of local officials and heads of state-owned enterprises. [4]

Fuel Economy Standards
China's passenger vehicle fuel economy standards exceed that for the U.S. By 2008, average Chinese passenger vehicles will be required to meet a 36 miles per gallon (mpg) requirement. [5] In late 2007, the U.S. standard for passenger vehicles was raised to 35 mpg, but not until 2020. China is also in the process to set fuel economy standards for trucks and agricultural vehicles. These policies together are going to reduce China's GHG emissions by 488 million tons of CO2 by 2030.

Appliance Standards
China makes more consumer appliances, such as refrigerators and air conditioners, as well as light bulbs, than any other country. To cut electricity growth and greenhouse gas emissions, China established extensive energy efficiency standards and labels for lighting, air conditioners, and home appliances such as refrigerators, and has introduced energy codes for new buildings. Advanced standards and codes also improve economic development by spurring the most advanced manufacturing approaches and efficient building materials. These appliance standards are on track to reduce residential electricity use by 10 percent by 2010, eliminating the need for 36 large (1,000-megawatt) coal-fired power plants.

Building Codes
Building energy consumption has increased over 10 percent each year for the last 20 years and now represents 25 percent of all energy consumed in China. To improve energy conservation, national building codes for residential and commercial buildings have been adopted and demonstration implementation is underway in six cities. Shanghai has established China's leading administrative system requiring construction inspection and energy codes enforcement for new buildings. In recent months, the Ministry of Construction (MOC) has called for a 65 percent energy savings target for buildings in major Chinese cities, including Beijing, Shanghai, Chongqing, and Tianjin.

Closing Small, Inefficient Coal-Fired Power Plants
In 2006, China announced plans to decommission hundreds of smaller, older coal-fired power plants with a combined capacity of 50,000 megawatts and below by 2010. Closing these plants, which are typically inefficient and highly polluting, would reduce coal consumption by about 60-90 million tons per year. By the end of November 2007, China had closed 365 small plants with a total capacity of 11,000 megawatts, according to statistics from the National Development and Reform Commission.

China's clean energy policies at a glance

- Passed Renewable Energy Law in 2005 with Renewable Energy Goal of 15% by 2020
- Installed wind capacity doubled in 2006
- Energy Efficiency Targets for Top-1000 Chinese Companies that make up one-third of nation's total energy use
- Efficiency Standards and Labels for household appliances
- National Building Codes established to increase energy efficiency
- Passenger vehicles must meet 36mpg fuel economy standards by 2008.