GREEN economy

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Success Stories

Renewable Energy in China

China is taking considerable steps to shift to a low-carbon growth strategy based on the development of renewable energy sources. The outline of 11th Five-year Plan (2006-2010) allocated a significant share of investments to green sectors, with an emphasis on renewable energy and energy efficiency.

The Plan projects that the per-unit GDP energy consumption by 2010 should have decreased by 20 per cent compared to 2005. In addition, the Chinese government has committed itself to producing 16 per cent of its primary energy from renewable sources by 2020.

Passed in 2005, China's Renewable Energy Law serves as the principal framework for development of the sector. The law offers a variety of financial incentives, such as a national fund to foster renewable energy development, discounted lending and tax preferences for renewable energy projects, and a requirement that power grid operators purchase resources from registered renewable energy producers. The combination of investments and policy incentives has encouraged major advances in the development of both wind power and solar power.

Wind Power
The additional generating capacity from wind power has exhibited an annual growth rate of more than 100 per cent from 2005 to 2009. With new installations of 13.8 GW coming on line in 2009, China led the world in added capacity, and is second in terms of installed capacity, after the U.S. To reflect increasing ambition in the industry, the government has indicated its intention to increase its previous target of 30 GW of installed capacity by 2020 to 100 GW.

To directly encourage local wind turbine manufacturing, China has implemented policies to encourage joint-ventures and technology transfers in large wind turbine technology and mandated the use of locally made wind turbines. The Ministry of Science and Technology has subsidized wind energy R&D expenditures at varied levels over time, beginning most notably in 1996 with the establishment of a renewable energy fund. Domestic wind turbine makers, such as Sinovel Wind, Goldwind Science and Technology, and Dongfang Electric, have contributed an increasing share of total new installations. Together they accounted for at least half of a market dominated by foreign firms until 2008.

China's National Development and Reform Commission issued the Interim Management Measures for Renewable Power Tariff and Cost Allocation in 2006, and the Interim Measures on Renewable Power Surcharge Collection and Allocation in 2007. Together with the Renewable Energy Law, the regulations aim to encourage a reduction in the price of wind power by stipulating that a competitive pricing bidding model be used for the majority of wind power development in China.

Solar Power
Being the largest Solar PV manufacturer in the world, China produced 45% of global solar PV in 2009. The domestic solar market has started developing more recently, with about 160 MW solar PV installed and connected to grid in 2009. But with more than 12GW of large projects in the pipeline, it could rapidly become a major market in Asia and the world. For solar PV, the government has also indicated that the target for installed capacity in 2020 could be increased from 1.8 GW to 20 GW.

China is now the world's largest market for solar hot water, with nearly two-thirds of global capacity. More than 10 per cent of Chinese households rely on the sun to heat their water with more than 160 million square metres as total collector area. The rapid development of the solar water heater sector is due to its basic profitability for both business manufacturing the units and households that install them. There are also considerable health and sanitation benefits afforded by the improved availability of hot water, made more feasible and economic with solar water heater systems. Within the context of the Eleventh Five-Year Plan for New and Renewable Energy, an Implementation Plan on Promoting Solar Thermal Utilization in China was adopted in 2007. Under this national policy, the installation of SWH systems is given priority for major hot water consumers, such as hospitals, schools, restaurants and swimming pools.

Job Creation
The energy sector as a whole generates output worth US$17 billion and employed an estimated 1.5 million at the end of 2009, of which 600,000 were in the solar thermal industry, 266,000 in biomass generation, 55,000 in solar photovoltaics and 22,200 in wind power. In 2009 alone, an estimated 300,000 jobs were created.

China's experience provides an example of policy-led growth in renewable energy that has created jobs, income and revenue streams for nascent low carbon industries.

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