

## China's Renewable Energy Development Strategy December 3, 2004

China aims to establish a 12 percent target for renewables in 2020

China, which relies heavily on coal for power production, is looking to clean up their energy supply with a big boost of renewables.

-- By Li Junfeng, Song Yanqin and Hu Xiulian, Center for Renewable Energy Development, Energy Research Institute, article courtesy of the EETIC -- China is at a critical stage in its renewable energy (RE) development. The country is experiencing a rapid increase in energy demand and serious environmental pollution, and there is a growing awareness that RE can play an important role in meeting energy demand, enhancing energy security, reducing greenhouse gas emissions and, as a result, contributing to sustainable development. The Government is currently proposing to increase the contribution of renewables from the current level of less than 1 percent to around 12 percent by 2020. It will only meet these targets if appropriate policies and mechanisms are put in place and implemented.

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### Current status of RE

China has substantial RE resources and has initiated various programs to expand their use. There has been progress in biomass- solar- and wind-based technologies, and total installed capacities at the end of 2003 were:

- Grid-connected wind power: 568 MW;
- Solar photovoltaic (PV) systems: 50 MW;
- Solar water-heating systems: 50 million m<sup>2</sup>.

In the same year, the annual output of high-efficiency bio-energy from gasification, biogas and bagasse cogeneration reached 4.5 million m<sup>3</sup>, 5 billion m<sup>3</sup> and 1.7 billion kWh, respectively. The development of RE has already contributed to economic growth, improved living standards in remote areas and substantially reduced greenhouse gas emissions.

### Targets for 2010 and 2020

The Government of China's Medium- and Long-term Energy Development Strategy and Plan to 2020 has specific targets for power generation from renewable sources. The target for 2010 (60 GW) will represent about 10 percent of China's total installed power generation capacity. The equivalent figure for 2020 (Target: 121 GW) is about 12 percent. China will also pay considerable attention to the development of RE heat sources and to liquid biofuels, etc. Overall, China's use of renewable energy is expected to increase to 20,000 PJ/year by 2020 - 17 percent of the country's projected total energy consumption.

### Legislation

To achieve these ambitious targets, the Government of China is formulating its Promotion Law for Renewable Energy Development and Utilization. The objectives of this law will be to:

- Confirm the importance of RE in China's national energy strategy;
- Remove barriers to the development of an RE market;
- Create market opportunities for RE;
- Set up a financial guarantee system for RE development;
- Create a social atmosphere that encourages RE.

The new law will combine:

- Citizen obligations and government responsibilities;
- Government promotion and market guidance;
- Current needs and long-term development goals;

- International and domestic experience. It will result in the setting up of various critical systems:
- A system of government responsibility, requiring the government to formulate development targets, strategic plans and guarantee measures for RE.
- A system of public cost-sharing, whereby all citizens contribute to the extra costs of developing RE.
- A system of rewards and penalties that will encourage society, particularly companies, to develop and use renewable energy, whilst penalizing, financially, companies and individuals that fail to meet their legal obligations in this respect.

The new law is expected to come into effect in 2005.

#### RE strategy

The strategy has four basic principles:

- Support for the harmonious development of society, the economy and the environment, with priority being given to the development of RE technologies that can help to achieve China's goal of a basic level of comfort for all citizens.
- The short-term development of small-scale hydropower, solar water-heaters, geothermal heating and other competitive RE technologies.
- Active support for new and developing RE technologies, particularly wind power and biomass power generation, using measures that will stimulate market demand, technical progress and the growth of manufacturing capability.
- The integration of long-term technical progress with short-term development and utilization - ie the active development of RE technologies with both a current market and considerable future potential. The strategy will require the development, by 2020, of most of the available resources for small-scale hydropower, solar thermal, geothermal and other competitive RE technologies. It will also require active commercialization of, and the development of manufacturing capacity for, wind, biomass and solar power generation.

#### Financial incentives

At present, there are no comprehensive financial incentives for RE development in China. Some subsidies and taxation/import incentives do exist, but there are no pricesetting mechanisms, and prices are set on a case-by-case basis following protracted negotiation between the power producer and the grid or utility. This increases risks and costs, and discourages the RE industry. Furthermore, with certain exceptions such as wind power, it is difficult to obtain a reasonable price for RE products. To achieve its RE objectives, the Government will need to encourage the development of appropriate incentives and mechanisms.

#### Subsidies, loans and capital investment

Central and local government subsidies are some of the most popular economic incentives for RE development in China.

- The central government subsidises R&D for key RE technologies through its National Development and Reform Commission (NDRC) and Ministry of Science and Technology (MoST). For example, during the Ninth Five-Year Plan period, MoST provided R&D funds for RE totaling 60 million RMB Yuan (where RMB Yuan is the Chinese Yuan or Renminbi). The NDRC, Ministry of Finance (MoF) and MoA (Ministry of Agriculture) also offer some subsidies for demonstration projects and training courses.
- The NDRC provides low-interest loans of up to 120 million RMB Yuan each year to support industrial development of RE. The Ministry of Water Resources (MWR) provides low-interest loans of up to 300 million RMB Yuan for small-scale hydropower development.

During the Eighth Five-year Plan period, the central government invested 7 million RMB Yuan and built four PV power stations with a total installed capacity of 85 kW in Tibet. In 1995, NDRC provided 3 million RMB Yuan for poverty-alleviation, in conjunction with the German 'Eldorado Project', to encourage PV development. In 1996, MoA provided 1.2 million RMB Yuan, in conjunction with the United States Department of Energy (USDOE), to support PV projects in Gan Su Province.

#### Import duties

For consistency with the international market, China's import duties have been adjusted several times, and the average has fallen to 23 percent. Although the Government does not specify low import duties on

RE products, wind turbines, wind turbine components and PV modules all attract favorable rates. In the 1980s and early 1990s, the Government approved all applications to reduce or eliminate the duty on wind turbines and related equipment imported with international assistance. However, this policy is not necessarily applied to all RE equipment imports. Exemption is more likely if the equipment is considered to be high-tech, and certain RE items - biogas power generators and certain wind turbine components - fall into this category.

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