

Box 3.5: Non-conventional power development

Wind power: India's estimated potential for wind generation is 20,000 MW. The 8th Five-Year Plan called for the installation of 500 MW. In fact, during the last year, projects producing 236 MW have been commissioned, taking the installed total to 556 MW, nearly all of which is in private hands. 85 suitable sites for a total of over 4,000 MW have now been documented in 8 states, and large wind farm projects totalling 1,800 MW are said to be in the pipeline, in Southern and Western states. A good portion of the required goods and services will have to be imported. Denmark has dominated the import market to date.

Small hydro: Definitions: *Small hydro:* 2 MW to 25 MW; *Mini hydro:* 0.1 M to 2 MW; *Micro hydro:* below 100 KW. India's potential is estimated at 10,000 MW, and the installation target for the 8th Plan is 600 MW. 2000 suitable sites have been identified. MNES is offering grants for project preparation work. The United Nations Development Fund (UNDP), together with the multilateral Global Environmental Facility (GEF), is helping to promote small-hydro development in the Himalayan foothills. Private investors are welcome to participate through joint ventures. One Canadian company, Canadian Hydro, has successfully pursued a series of such projects in India.

Biomass co-generation. As one of the world's leading cane sugar producers, India has a tremendous potential for generating power by using refinery waste products (bagasse) as fuel. So far, more than 400 sugar mills have been identified as suitable, with a potential of 3,500 MW. The 8th Plan envisions installation of 300 MW in new bagasse-based power. Several projects have already been undertaken, either as "captive" plants to meet the power needs of the sugar mill itself, or for selling power directly to the SEBs. MNES offers subsidies for demonstration projects, and there are 12 now under consideration.

Solar power: This source of power is already widely used in India. There are some 150,000 small photovoltaic systems in place, powering remote lighting, water-pumping and telecommunications facilities, and supplying villages with electricity. During the 8th Plan to date, MNES has received BOO or BOT proposals totalling 10 MW from private promoters seeking to erect grid-connected photovoltaic plants of 2 MW capacity or more.

In the area of *solar thermal power*, MNES is contemplating a 35 MW demonstration project, for which World Bank/ GEF funding is being discussed. A private proposal for a 10-year, 150 MW solar thermal project in the Kutch desert (bringing 15 MW on stream each year) was submitted by Enron and Amoco, at the invitation of the State Government of Rajasthan — which now, under the new Central guidelines, has cancelled negotiations, and opened the project to competitive tender.

Ocean power (thermal, tidal and wave). The total potential along India's 5,600 km coastline is estimated at 50,000 MW. The first 100 MW marine thermal conversion project has been proposed by a U.S. company, for installation off the coast of Tamil Nadu. MNES is actively pursuing a proposed 900 MW tidal plant in the Gulf of Kutch, off the Gujarat coast. A wave power plant of 150 MW has been installed in Kerala. A pilot project for a new, Swedish-designed "floating" wave power concept is reportedly planned for the Andaman Islands.

