China: 30 gigawatts wind power in the development plan

The Chinese development plan projects around 30 GW wind power installed by 2020.

Beijing. Less than three months after China's National Development and Reform Commission (NDRC) published an action programme for protecting the global climate, a development plan to promote renewable energies followed in early September. It sets out growth targets for various energy sources and clear regulations for grid operators and energy utilities.

In choosing the energy forms to be promoted, primarily in the midterm, the NDRC took its lead from the technologies currently rated as technically relatively mature and able to contribute significantly to the energy supply. Initially efforts are to be increased in hydropower, biomass for electricity generation, biogas, pellets, wind energy and solar heating. Parallel to that, photovoltaics (PV) and ethanol and biodiesel fuels are to be supported by research projects.

The realisation of such projects also serves the aim of reducing China's technological dependence on Western manufacturers. It is estimated that in the PV industry more than 80% of all production technologies are imported. Against this background the Chinese government is pushing the pace of building national industrial structures and hopes to be able to produce most regenerative technologies itself by 2010.

Despite the preference for grid-connected technologies, stand-alone applications distant from the grid are also to be promoted. Here the use of hydropower is in the foreground. Small-scale hydropower alone is to supply around a million households, another million are to be supplied by village PV power plants and PV-wind hybrid systems.

According to government electrification plans, 30% of rural households are to be using renewable energies by 2010. To achieve this, in addition to hydropower and village power systems some 40 million household biogas plants and solar heating systems for heating water, totalling an area of 50 million square metres, would have to be used. According to the long-term planning, by 2020 80 million biogas and solar heating installations with a total area of 100 million square metres could be installed, supplying 70% of all rural households. The countrywide use of renewable energies is to be pushed by a bundle of flanking measures. For example, by 2010 the grid operators must prove they have one per cent power from renewable energies, and three per cent by 2020. Energy utilities with an installed energy park of more than five gigawatts (GW) must by 2010 have a three per cent share, by 2020 an eight per cent share of power generation capacity based on renewable energies in their portfolios. Hydropower cannot be counted in this. Operators of grids and fuel stations have to take the power or fuel volumes offered by the producers.

Despite the new development plan it remains uncertain whether China will in the near future install a promotion system with fixed feed-in tariffs. Given the successes in the wind market, observers see no reason to hope for a change in the present promotion policy. At the end of 2006 the wind power capacity installed across the country was around 2.6 gigawatts (GW); for 2007 an installed capacity of some 4.6 gigawatts is expected. The national growth target of 5 GW by 2010 will probably be surpassed by some 3 GW.

NDRC sees these numbers validating its policies. Large projects (→ 100 MW) awarded by tenders are rapidly developing the wind market. Bids were called in early September for nine more wind parks totalling 1.1 GW (two @ 200 MW, seven @ 100 MW).

The investments needed for the planned growth of renewables in China are estimated to run to USD 180 - 200 billion.

By Frank Haugwitz

China: Renewable energy growth targets by 2010 and 2020

Energy form	Potential	Installed capacity/ production 2005	2010 targets	2020 targets
Large-scale hydro	400 GW	72 GW (395.2 TWh)	190 GW	300 GW
Small-scale hydro		38 GW (130 TWh)		
Biomass	500 million hard coal units	2 GW	5.5 GW	30 GW
Biogas		8 bn. m^3	19 bn. m^3	44 bn. m^3
Bioethanol	---	1.02 million t	2 million t	10 million t
Biodiesel	---	50,000 t	200,000 t	2 million t
Pellets	---	---	1 million t	50 million t
Wind	1,000 GW	1.26 GW	5 GW	30 GW
Photovoltaics	2,200 hrs. / 5,000 MJ/m^2	70 MW	300 MW	1.8 GW
Solar heating	---	80 million m^2	150 million m^2	300 million m^2
Geothermal	6 GW	30 MW	4 million hard coal units	12 million hard coal units
Tidal power stations	---	---	---	100 MW
Percentage of renewable energies of primary energy consumption		7.5	10	15

Source: NDRC