

In the year 2000

Energy for the future in India based on renewable sources of energy

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Renewable energy is energy that will not run out, such as solar energy. The non renewable sources of energy, which, so far have been India's main sources of energy are fast depleting. Of the commercial sources of energy generation today, coal and lignite constitute about 53%, oil and natural gas about 40%, hydro-electric power around 5% and nuclear power 2%. At present government of India has considered importance of setting up of their separate Ministry for Renewable Sources of Energy.

The Ministry of Non-Conventional Energy Sources is preparing a plan in which by the year 2007, 10% of the total power generated in India could be sourced from renewable sources of energy.

Carbon emissions from power generation alone account for about 50% of the total greenhouse gas emissions. The environmental benefits of renewable energy technologies (RETs) are well accepted, and have been promoted strongly by the government, where RETs are successfully in practice, they have improved quality of life, health and sanitation and reduced biomass (energy derived from plants, such as burning wood, (wood charcoal), rotting waste; animal droppings) consumption. The harnessing of renewable energy is thus a mission aimed not only at increasing energy generation but also at helping restore a pollution-free environment.

It is estimated that India has a potential of generating more than 100,000 megawatts from non conventional sources of energy, com-

pare that to their requirement.

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Wind power will be one of the major contributors to the Indian power network in the first 20 years. As per a recent study, wind energy, wind energy potential is at about 45,000 mw in India. To exploit wind energy, 160 sites totalling 5000 mw have been already been identified in 13 states.

Solar energy will be the next boom in the form of commercially viable projects. Solar water heating systems and solar cookers have already been commercialised in India. In fact, solar water heaters based on the thermo-syphon principle were used before fossil fuels were commercially available in India. Industries require up to 240,000 litres of hot water per day. Homes in India use 50-100 litres of hot water and if you calculate the amount of

water required for about 25,000 homes in India, you'll know just how much energy is required for simple heating. The overall area required to be devoted to collecting solar energy in the country is around 500,000 sq. m. of which 475,000 sq.m. solar thermal collector area has been installed. In addition installation of solar water heating systems in various government buildings is being made mandatory. But product innovation and cost reductions have to be carried out in order to make these devices market oriented.

Apart from harnessing solar and wind-energy, tidal power and biomass power generation are the other potential energy sources which are attracting energy agencies to tap their power-potential out of 9000 mw potential of tidal power, it is estimated that around 7000 mw is in the gulf of Cambay, 1000 mw in Gulf of Kutch, and 1000 mw in the sunderbans.

Power generation based on biomass holds great promise in India which produces over 400 million tons of crop residues besides large quantities of baggage in sugar mills. The coming decade will definitely see greater and greater use of green power so as to ensure less dependence on "fossil fuels" and also in order to prevent environmental degradation.

In the last five decades, there has been nearly a five fold increase in energy generating capacity. In spite of huge amounts of power generated today, by the year 2015, India will have to add another 250,000 mw to meet power consumption projections. At the present rate of consumption, the availability of fossil fuels like coal oil and gas would only last only for another 50 to 100 years.