

Blowing in the Wind

KALPANA SHARMA describes how a developing country has become the world's fourth largest generator of wind power

India's rapid economic growth rate, now eight per cent a year, threatens to slow down if it fails to find dependable and sustainable sources of energy. At present it imports most of its oil, and generates over half its electricity from coal-powered thermal stations.

Yet, electricity is in short supply all over the country, and the energy shortfall affects business and industry. Maharashtra, India's most industrialised state, faces a deficit of up to 4,000 MW, forcing power cuts ranging from four to eight hours a day. The impact on development in India's villages, where most of its people continue to live, is far more serious still. Lack of dependable power affects health and the ability of the poor to pull themselves out of poverty.

Little hope

On paper, 80 per cent of India's villages — and 44 per cent of rural households — get electricity. In fact, most of them receive it for only a few hours in a day. This means water cannot be pumped for drinking and agriculture, homes have no lighting after dark, children cannot study beyond daylight hours and health centres cannot maintain stocks of medicine that require refrigeration. Women carry the double burden of collecting water and fuel for cooking, and this is in no way lightened by the absence of electricity.

Without electricity, there is also little hope of villages moving beyond primary agricultural production to adding value through food processing or other industries. Thus, the absence of electricity ensures that villages remain deprived of the fruits of the economic growth so evident in urban India.

Vast potential

Alternative energy sources have long been mooted as the answer for some of these problems. But despite having a Department for Non-conventional Energy Sources in the central government, only 5 per cent of India's energy comes from renewables (though their 6,158 MW capacity is still almost



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double nuclear power's 3,310 MW). Solar energy, for instance, remains hugely underutilised despite its vast potential in a country where many areas get sunshine for most of the year.

Yet India's wind energy has grown dramatically since its first wind farm was set up in Mandvi in the state of Gujarat in 1986 with a capacity of just 55 MW. It has now just surpassed Denmark, one of the pioneers of the technology, and provides sixty per cent of the electricity the country derives from renewables. Germany is the leading windpower nation with 18,000 MW of the world's 48,000 MW installed capacity. Spain and the United States are second and third. The European Wind Energy Association believes that wind power has the potential to meet 12 per cent of the world's electricity requirements.

Dr. Anil Kane, Chairman of the Indian Wind Energy Association says that this is one of the fastest growing sectors in the country. At the rate at which new wind energy farms are being set up in India, he says, its capacity from the wind will exceed 5,000 MW in less than two years , up from the present 3,595 MW.

Energy farms

More than three fifths of India's windpower are generated in the southern state of Tamil Nadu, which has a double advantage, getting

winds from the South West and the North East. As a result, a 1 MW machine there can generate 3.5 million units a year as compared to 2 million units in a western state like Maharashtra.

The initial start-up costs of wind energy are expensive, working out to Rs. 45 to 50 million per MW (just over \$ 1 million), but since over 90 per cent of the cost of wind generation is in servicing its financing, these costs can be recovered in 10 years. Over the next decade the only costs are operational and maintenance ones, and so the cost of the energy is reduced to a mere 40 paise (approximately 9 cents) per unit.

The Centre for Wind Energy Technology estimates that the potential for wind energy in India is about 45,000 MW, a figure arrived at after one of the largest mapping programmes in the world where five to six hundred meteorological masts were set up around India. But even though this is more than ten times present capacity, the Indian Wind Energy Association estimates that the potential from wind energy in India is more than twice that, at least 100,000 MW.

Government incentives

The Indian government can play an important role in encouraging the growth of alternative energy sources, not by giving cash subsidies but through other kinds of incentives.

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For instance, wind energy received a boost in Tamil Nadu last year when the Ministry of Textiles agreed to include wind farms in its Technology Upgrading Fund Scheme, which gives a subsidy of five per cent in the rate of interest on capital borrowed for upgrading textile mills. As a result, several textile mills in the state set up wind energy farms.

Even without such incentives, some industries have already recognised the potential saving from tapping the wind. Bajaj Auto, a company producing two-wheelers in the city of Pune, south of Mumbai, has set up a wind farm that writes off its entire electricity bill; several other industries are following its example.

India must take urgent steps to move away from fossil fuels in the face of the growing threat of global warming. Windpower can help both in this and in building energy security and self-reliance ■

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