

CLIMATE CHANGE MAY HIT INDIA'S WIND POWER

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

Long-term: The government could set up more projects in Tamil Nadu, says Meng Gao.

Increased warming in the Indian Ocean and the resultant weakening of the Indian summer monsoon may come in the way of India's goal of leading the world's wind power generation.

Analysing the available wind and atmospheric data from 1980-2016, researchers from Harvard University, U.S., and National Climate Center in Beijing, China, found the potential electricity production of windmills across India had decreased by about 13%. And this trend might continue.

However, researchers in India have raised doubts about the results of the study. "The data used by the team does not correlate with the live data we have. We have started additional studies to validate these results and will publish the findings soon," says Dr. K. Balaraman, Director General, National Institute of Wind Energy, Chennai, under the Government's Ministry of New and Renewable Energy.

In the paper published last December in *Science Advances*, the researchers showed a decline in electricity production in the States of Rajasthan, Maharashtra, Gujarat, and Karnataka. No significant decline was seen in Tamil Nadu, which is located on the east coast and, thus, had different wind conditions during summer.

"The government could concentrate on setting up more projects in this region [Tamil Nadu] as the lifetime of wind turbines is 20 to 30 years. We need to look at long-term goals," says Meng Gao, a postdoctoral fellow at the School of Engineering and Applied Sciences, Harvard University and the first author of the study. The researchers showed that 63% of the annual production of electricity from wind is contributed by winds in spring (March-May) and summer (June-August). Interestingly, they found a decrease in wind power during these months. This could be due to the weakening of the Indian summer monsoon during this period.

Summer winds in India are driven by the temperature contrast between the Indian subcontinent and the Indian Ocean, and the warming in the Indian Ocean reduced this contrast. Also, warming of the Equatorial Indian Ocean resulted in a decline in the wind speed.

The Indian government has set a target of 60 GW of cumulative wind power capacity by 2022. The researchers say that this goal can be beneficial only if planners in India take these historical reconstructions into account while setting up wind power installations in the future. "Our findings can provide suggestions on where to build more wind turbines to minimise the influences of climate change," said Prof. Michael B. McElroy, from the School of Engineering and Applied Sciences, Harvard University and senior author of the study in a release.

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