

OPINION: Why renewable energy projects need smart siting

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“The end justifies the means” — but at what cost and who pays for it? This question is creeping up on the renewable energy (RE) sector, which is contributing increasingly to India’s energy mix. The current government has set an ambitious RE target of 450 GW by 2030. Though RE plants are considered green, they could have unintended impacts. Recent projects in this sector have been troubled by unintended socio-ecological conflicts due to flaws while siting land parcels and inadequate planning. For instance, a wind power project in Pune partially damaged the local ecology leading to substantial soil erosion and large-scale deforestation as more than 3 lakh trees were cut down against the sanctioned 26,000. Land acquisition for RE projects, thus, is beset by several issues that lead to the loss of livelihoods, and endangerment to local ecology and wildlife.

Land acquisition issues

Solar, wind, and hybrid power projects are land-intensive and require a substantial area for installation. A solar photovoltaic (PV) system requires around 4 acres of land per megawatt (MW), while a 2 MW wind turbine requires an average of 1.5 acres of land. Based on this thumb rule, the land required for achieving the 2030 RE target would be more than 3 lakh hectares. The main challenge while acquiring such enormous parcels of land is to ensure that they are free of conflict — both environmental and social. To ensure this, industrial projects in India are required to follow certain legal obligations and acquire clearances from the central, state, and local governments. The approvals related to the environment include the applicability of the Environmental Impact Assessment (EIA) under environmental clearance, forest clearance, wildlife clearance, forest rights, land acquisition, and approval from the concerned state pollution control board. However, the Ministry of Environment, Forest and Climate Change (MoEFCC) in March 2016 added a white category of industries based on pollution index (PI). The category has 36 industrial sectors that are considered practically non-polluting.

Power generation units based on RE sources, which include solar PV, wind power, and mini hydel power (below 25 MW) fall under this category and are thus exempted from procuring an environmental clearance. Large-scale RE power projects are subjected to the Land Acquisition Act, 2013, which ensures fair compensation for families affected by the land acquisition through proper rehabilitation and resettlement. A social impact assessment (SIA) study is necessary to acquire the land and is performed as a preliminary investigation for determining the social impact and public purpose of projects.

Even with the presence of an SIA study for land acquisition, the alleged dilution of the environmental protection laws for RE projects can lead to various complications, affecting the ecology and local communities. There could be a rise in conflicts related to inadequate compensation for acquired land, improper relocation, unethical land procurement practices, investment risk, soil erosion, poor compensatory afforestation efforts, and disruption of the local biodiversity.

Low-impact siting

The alternative path that could drastically cut down these issues and avoid them at the very beginning is low-impact siting. This is a pre-emptive approach to project planning. It assesses various impacts during the initial stage of project planning, follows mitigation hierarchy, examines the land-use demands, and ensures inclusive participation from all relevant stakeholders.

Decision-support tools that identify areas where large-scale solar and wind development is less likely to cause socio-ecological conflicts could prove useful in this regard. These can benefit policymakers, businesses, and financial institutions by reducing the regulatory strain of approvals and clearances, minimising project costs and delays, reducing compliance implementation cost, and de-risking investments, while expediting installation of RE to meet our national targets.

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