

The GIB Case: Possible solutions for harmonising India's clean energy transition with biodiversity conservation

On 21 March, the [Supreme Court](#), in a judgement regarding a public interest litigation (PIL) on protecting and conserving the critically endangered [Great Indian Bustard \(GIB\)](#), noted that people have a fundamental right to be free from the adverse effects of climate change. The court also set up an expert committee to assess the technical feasibility of [undergrounding power lines](#), as well as to figure out ways to conserve GIBs. The next hearing in the matter is due this month.

Collisions with high-tension overhead wires pose a major threat to the survival of the GIB species, besides habitat loss and poaching. Rajasthan and Gujarat are home to most of the current GIB population. However, they also have considerable [renewable energy potential](#). Naturally, efforts to realise this potential have to be made as India moves towards its climate goals, which is why the states have witnessed an uptick in the construction of solar plants, wind farms, and transmission lines. This has intensified the collision threat for GIBs, while also causing further displacement and destruction of their habitats.

The 2019 PIL had called attention to the hazard overhead power lines pose to GIBs, to which the apex court had, in April 2021, responded by imposing a blanket ban on the laying of overhead power lines, and ordering the installation of bird flight divertors (BFDs) and the undergrounding of the existing high-tension cables. The same year, the government approached the court, seeking modification of the order. It cited the negative effect on India's [clean energy transition](#) and international climate commitments, and the technical unfeasibility of undergrounding the existing power lines as the main reasons. In its 21 March decision, the court called back the blanket prohibition, and, acknowledging the need for domain expert consultation in the matter, set up the expert committee.

The technical challenges

The technical difficulties in laying high-voltage underground power lines and installing bird diverters on the existing overhead lines are significant. The power loss component of underground cables is approximately five times higher than that of overhead lines. Further, no underground cables above 400 kV are available in the market, and there is also a distance restriction (underground cables can only be laid up to a maximum of 5 to 8 kilometres). These barriers could make it challenging for utilities and developers to use underground cables. Then there are concerns about the potential operational challenges. For instance, these cables are marked for locating faults, and for preventing digging so that accidents can be avoided. But in desert regions, strong winds can cause landscapes and sand dunes to shift, making these markings invisible. Laying underground power lines is an expensive exercise as well, with the cost of underground cables being typically three to four times higher than that of overhead lines.

Similarly, for installing bird diverters, a thorough analysis of all the available BFDs in the market is required, besides finding ways to place them optimally throughout the power line. Further, for maintaining and monitoring the installed BFDs and underground lines, appropriate monitoring devices that can capture bird collisions and record them have to be identified.

What can help

In Central and Eastern Europe, where several countries are losing their endangered avian species to electrocution and power line collisions, various strategies to protect the at-risk species have been adopted. For instance, in Slovakia, all electric companies consider the bird protection aspect right from the beginning, while preparing the plans. The cooperation and trust among these companies has been far more effective in mitigating threats than the legal obligations. In the Netherlands, Belgium, Norway, Denmark, Germany, and Bulgaria, line modification has been undertaken and medium- and low-voltage distribution lines have been successfully undergrounded.

Closer home, a new 220 kV cable has been laid underground for 5 kilometres in the Jaisalmer–Barmer region of Rajasthan by a private transmission utility in 2023-24. However, large-scale replications in India could be challenging due to the existing technical, financial, and operational constraints.

The next best approach, then, is to keep the birds away from the high-risk power lines by installing bird flight diverters—devices that alert the approaching birds to the presence of power lines. While ensuring the quality and the technical specification of the BFDs is crucial, it is also important to explore different types of BFDs to identify the one that will work best. For instance, Hungary uses black and white RIBE strip diverters (that have a blinking effect), BirdMark Afterglow (with luminescent properties that make them more visible for birds in both daytime and night-time flight), and various types of aerial balls, each demonstrating different degrees of success in different projects. A 2021 Nature and [Biodiversity Conservation](#) Union (NABU) document says that in Portugal, rotating FireFly diverters (which swing and rotate to create sparkling refracted light that can be spotted by birds from a distance of about 50 metres) have been able to reduce the collision mortality of bustards by more than 65%. It also mentions that effectively placing the BFDs along the transmission line (at every 5 metre) can reduce bird collision by 55-94%.

India can explore similar strategies for GIB protection. It also needs to put in place a proper monitoring system for identifying the major collision sites and estimating the efficiency of BFDs, and firm up the implementation of environmental impact assessment (EIA) processes to ensure compliance.

Though challenges exist in operationalising these solutions, for now, they may be India's best bet for avoiding conflict as it pursues its clean energy and biodiversity conservation goals, both of which are needed for holistic climate action.

Towards harmonised climate action

The GIB case has highlighted the need to develop and apply a strategy that encompasses all components of climate change adaptation and mitigation, for pre-empting any counterproductive effects, and hence minimising the need for course correction, which is often arduous. This can be achieved by adopting an ecocentric approach (which sees inherent value in all living beings and ecosystems, irrespective of their utility to humans) in all green initiatives from the planning stage itself. This should be complemented by proactive revisions of environmental regulations, strengthening of the environmental clearance process, involvement of local community to understand the region-specific complexities, and eventually, movement towards an overarching climate change law.

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