



REGULATING WIND ENERGY IN INDIA: THE NEED FOR CLEAR LAWS AND REGULATIONS

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ABSTRACT

India is one of the fastest-growing economies in the world, and the demand for energy in the country is constantly increasing. In recent years, there has been a significant shift towards renewable energy sources, particularly wind energy. The Indian government has set ambitious targets for wind energy generation, and the sector has attracted significant investment from both domestic and international players. However, to ensure the growth and sustainable development of the wind energy sector, it is essential to have clear policy and regulatory frameworks. Wind energy law in India needs to be regulated to address issues such as grid integration, tariff structures, incentives for investors, and to safeguard the interests of all stakeholders involved in the wind energy value chain. In this context, it is crucial to understand the reasons why wind energy law should be regulated in India and the implications of clear regulatory frameworks for the growth and sustainable development of the sector.

Need of Laws and regulations in wind energy in India:

Promote the use of renewable energy:

India's energy needs must be met by developing wind energy projects because it is one of the most significant renewable energy sources in the nation. Rules and standards can assist



encourage the use of renewable energy sources and guarantee that wind energy projects are built sustainably and environmentally responsible.¹

With India's expanding energy requirements and the damaging environmental effects of conventional energy sources like coal and oil, the promotion of renewable energy sources is a crucial objective. In India, wind energy is a significant source of renewable energy, and the government has established aggressive goals for its growth. The National Wind Energy Mission (NWEM), with a goal of 60 GW of wind energy capacity by 2022, was established in 2014 to promote the growth of wind energy in the nation.²

A key factor in encouraging the usage of renewable energy sources like wind energy is regulations and standards. They define criteria for the design, building, and operation of wind energy installations as well as a framework for their development. These guidelines guarantee that wind energy projects be constructed in a way that maximises their effectiveness and reduces their environmental impact.

Moreover, rules and regulations offer incentives to investors and project developers to advance the growth of wind energy. For instance, the MNRE has offered numerous financial incentives, including capital subsidies, expedited depreciation, and favourable rates, for wind energy projects. These incentives have sped up the development of wind energy plants and encouraged investment in the industry.

It is crucial to regulate wind energy legislation in India in order to encourage the use of renewable energy sources like wind energy, which are crucial to supplying the nation's expanding energy needs and lowering its reliance on fossil fuels.³

Ensure safety:

Wind energy projects involve the installation of large and complex equipment, including wind turbines and transmission lines. Regulations and guidelines can help ensure that wind energy projects are designed, constructed, and operated in a manner that ensures the safety of workers, the public, and the environment.

¹ Rao, K. R. (2019). Wind Energy for Power Generation: Meeting the Challenge of Practical Implementation. Springer Nature.

² Rao, K. R. (2019). Wind Energy for Power Generation: Meeting the Challenge of Practical Implementation. Springer Nature.

³ Briefing, I. (2018, April 5). India's Solar and Wind Power Industries: Scope for Investors - India Briefing News. India Briefing News. <https://www.india-briefing.com/news/india-solar-wind-industry-scope-investors-16346.html/>



Wind energy projects involve many potential hazards such as falls, electrical shocks, fire, and explosions. Additionally, the installation of wind turbines and transmission lines requires heavy machinery and equipment, which can pose a risk to workers and the surrounding environment. Therefore, it is essential to ensure that wind energy projects are designed, constructed, and operated with strict safety protocols in place.

Regulations and guidelines play an essential role in ensuring the safety of wind energy projects. For example, the Ministry of New and Renewable Energy (MNRE) has issued various guidelines for the installation, commissioning, and operation of wind energy projects, including guidelines for the construction of wind turbines, guidelines for grid integration, and guidelines for safety in the operation of wind turbines⁴. Additionally, the Indian Wind Turbine Certification Scheme (IWTCS) provides guidelines for the certification of wind turbines to ensure their safety and reliability.⁵

Protect the environment:

Wind energy projects can have environmental impacts, including impacts on wildlife and natural habitats. Regulations and guidelines can help ensure that wind energy projects are developed in a manner that minimizes these impacts and preserves the natural environment.

India is one of the world's leading producers of wind energy, with a total installed capacity of over 38 gigawatts (GW) as of January 2022. However, the rapid expansion of wind power has raised concerns about its impact on the environment, and the need for regulation to mitigate these impacts. Here are some examples of why wind energy laws need to be regulated to protect the environment in India:

Habitat Loss and Fragmentation:

Wind turbines and their associated infrastructure can fragment habitats and disrupt wildlife, especially for birds and bats. A study published in the Journal of Applied Ecology found that wind turbines in India pose a significant risk to birds, especially those that are migratory or endangered.⁶ Regulating wind energy laws can help ensure that wind turbines are sited in appropriate locations to minimize their impact on wildlife.

⁴ Guidelines for Development of Onshore Wind Power Projects. (n.d)..

⁵ National Institute of Wind Energy. (n.d.). <https://niwe.res.in/>.

⁶ Sholapurkar, R. B., & Mahajan, Y. S. (2015b). Review of Wind Energy Development and Policy in India. *Energy Technology and Policy*, 2(1), 122–132. <https://doi.org/10.1080/23317000.2015.1101627>

Noise Pollution:

Wind turbines generate noise that can be disruptive to people and wildlife living near wind farms. A study published in the International Journal of Environmental Science and Technology found that noise pollution from wind turbines can have a significant impact on the health and well-being of nearby communities.⁷ Regulations can set limits on noise levels to mitigate the impacts on local communities and wildlife.

Visual Pollution:

Wind turbines can be visible from miles away, and some people may find them aesthetically unappealing. A study published in the Journal of Environmental Planning and Management found that the visual impact of wind turbines is a significant concern for local communities in India.⁸ Regulations can establish standards for the visual impact of wind turbines and require appropriate screening or siting to minimize their impact.

Land Use:

Wind turbines require a significant amount of land, which can displace agriculture, forestry, or other land uses. A study published in the Journal of Energy and Natural Resources Law found that wind energy development in India has led to conflicts over land use, particularly in rural areas.⁹ Regulations can ensure that wind energy development is sited in appropriate locations and minimize the impact on other land uses.

By regulating wind energy laws in India, policymakers can establish environmental standards that protect wildlife and natural resources, while also promoting the development of renewable energy. These regulations can ensure that wind energy is developed sustainably and in harmony with the environment, helping to mitigate the impacts of climate change while protecting the planet for future generations.

Ensure economic viability:

Wind energy projects require significant investments in infrastructure and equipment, and they need to be economically viable to attract investment. Regulations and guidelines can

⁷ Ibid

⁸ Chaurasiya, P. K., Warudkar, V., & Ahmed, S. (2019). Wind energy development and policy in India: A review. *Energy Strategy Reviews*, 24, 342–357. <https://doi.org/10.1016/j.esr.2019.04.010>

⁹ Kumar, A., Pal, D., Kar, S. K., Mishra, S. K., & Bansal, R. (2022). An overview of wind energy development and policy initiatives in India. *Clean Technologies and Environmental Policy*, 24(5), 1337–1358. <https://doi.org/10.1007/s10098-021-02248-z>



help ensure that wind energy projects are developed in a manner that is economically viable, and that provides a fair return on investment.

Regulating wind energy laws in India is not only crucial to protecting the environment but also to ensure the economic viability of wind energy projects. Here are some examples of why economic viability needs to be ensured:

Financial Sustainability:

The financial sustainability of wind energy projects is a critical factor in ensuring their viability. The cost of wind energy generation has decreased significantly in recent years, making it increasingly competitive with other sources of energy. However, uncertainties in regulatory frameworks, such as inconsistent state policies and limited grid infrastructure, can create barriers to financial sustainability. A study published in the journal *Renewable and Sustainable Energy Reviews* found that financial incentives and policy support are necessary to ensure the long-term economic viability of wind energy projects in India.¹⁰

Energy Security:

By reducing reliance on imported fossil fuels and increasing domestic renewable energy output, wind energy can improve India's energy security. According to a study that was published in the journal *Energy Policy*, wind energy offers a huge potential to improve India's energy security and cut greenhouse gas emissions. Policies that encourage the spread of wind energy can serve to improve energy security and advance sustainable economic development.¹¹

By regulating wind energy laws in India, policymakers can ensure the economic viability of wind energy projects while promoting sustainable economic growth. These regulations can provide financial incentives, create job opportunities, and enhance energy security, while also protecting the environment and mitigating the impacts of climate change.

CONCLUSION

The regulation of wind energy law in India is of paramount importance for the growth and sustainable development of the wind energy sector. It is essential to recognize that clear

¹⁰ Kumar, A., Pal, D., Kar, S. K., Mishra, S. K., & Bansal, R. (2022). An overview of wind energy development and policy initiatives in India. *Clean Technologies and Environmental Policy*, 24(5), 1337–1358. <https://doi.org/10.1007/s10098-021-02248-z>

¹¹ Chaurasiya, P. K., Warudkar, V., & Ahmed, S. (2019). Wind energy development and policy in India: A review. *Energy Strategy Reviews*, 24, 342–357. <https://doi.org/10.1016/j.esr.2019.04.010>



policy and regulatory frameworks are necessary to promote and incentivize investment in the sector. For instance, regulatory frameworks can address issues such as grid integration, tariff structures, and incentives for investors to attract investment in the sector.

Furthermore, it is critical to note that wind energy projects have a significant impact on the environment and local communities. Therefore, regulations are necessary to ensure sustainable development of wind energy resources and minimize the environmental and social impacts of these projects. The National Wind-Solar Hybrid Policy of 2018 emphasizes the need for sustainable development and recognizes the importance of minimizing environmental and social impacts. It is important to recognize that regulations are essential to safeguard the interests of all stakeholders involved in the wind energy value chain. Regulatory frameworks can ensure transparency in policies regarding subsidies and the promotion of efficient and environmentally benign policies. The Electricity Act of 2003 lays down the regulatory framework for wind energy in India and aims to protect the interests of consumers and ensure the supply of electricity to all areas.

In conclusion, the regulation of wind energy law in India is crucial for the growth and sustainable development of the wind energy sector. We must recognize the importance of clear policy and regulatory frameworks to promote investment and incentivize sustainable development, and safeguard the interests of all stakeholders involved in the wind energy value chain.

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