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Jharkhand's Renewable Energy Story

Media resource kit



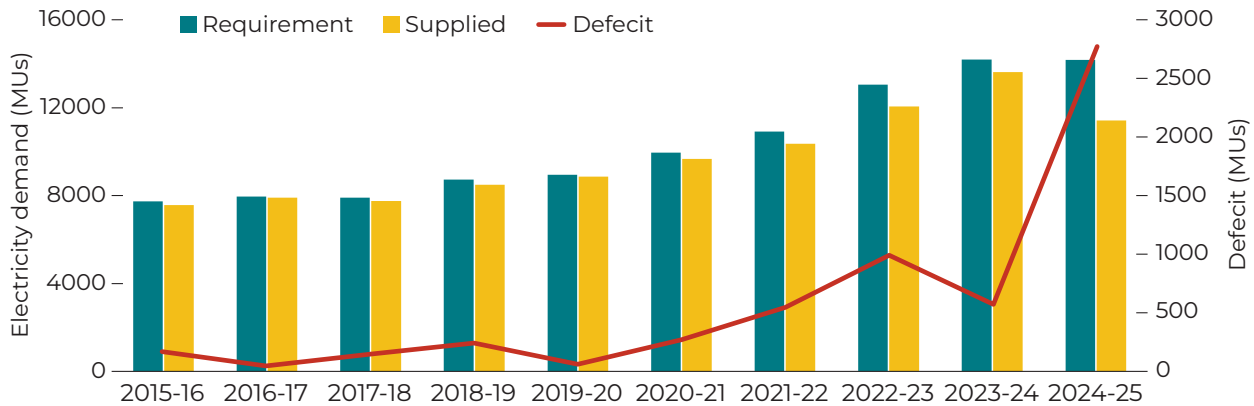
October 2024



State of Jharkhand's access to energy

Over the past decade, Jharkhand has made significant strides in electrification, reporting all households as electrified under the Saubhagya scheme as of 2020. However, the state has been unable to keep pace with the rising energy demand, leading to increased deficits year-on-year. The deficits in energy supply until 2020 range between 2 to 3 per cent. In 2022-23, the deficit reached 7.6 per cent and CEA's Load Generation Balance Report (LBGR) for 2024-25, anticipates the electricity deficit to reach 2,764 MUs – 20 per cent of the state's energy requirement, which is the highest in the country.

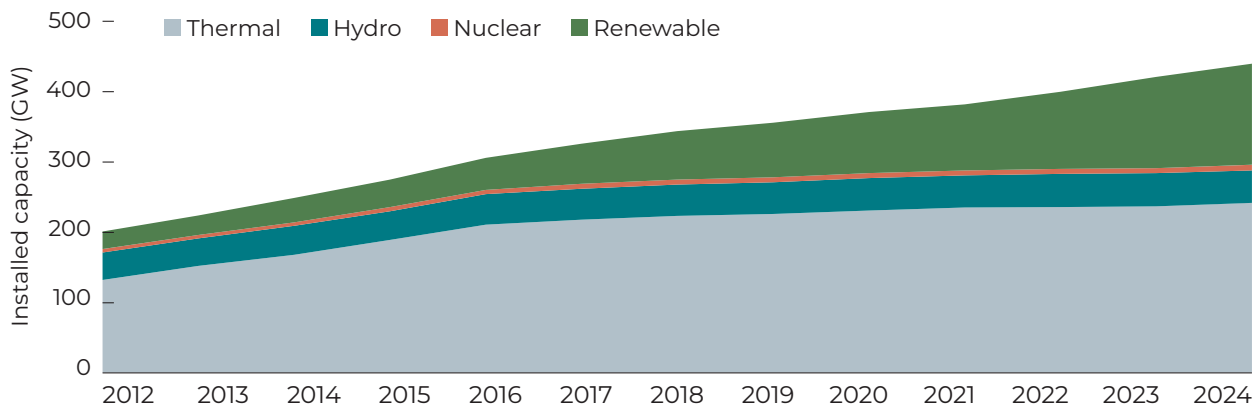
Figure 1: Electricity demand and supply situation in Jharkhand (2015 – 2025)



Source: CEA

How should Jharkhand be meeting this rising deficit? More than 85 per cent (2,607 MW) of Jharkhand's utility segment power is from thermal (coal-based) sources. Further, a review of the year-on-year growth in the electricity generation capacity suggests that the state has seen replacements of old coal-based Thermal Power Plants (TPPs) with newer ones in 2024. Meanwhile, across India, growth of thermal power is slowing down. This is on account of the global focus on climate change, international commitments and actions to bring greenhouse gas emissions to zero in next few decades, falling costs of technologies like solar energy production, that are driving an increased thrust on renewable and green energy sources. In India too, since 2017, only 24 GW of thermal capacity has been added in comparison to 87 GW of renewable energy (RE) capacity.

Figure 2: Growth in electricity generation capacity of India (2012-2024)



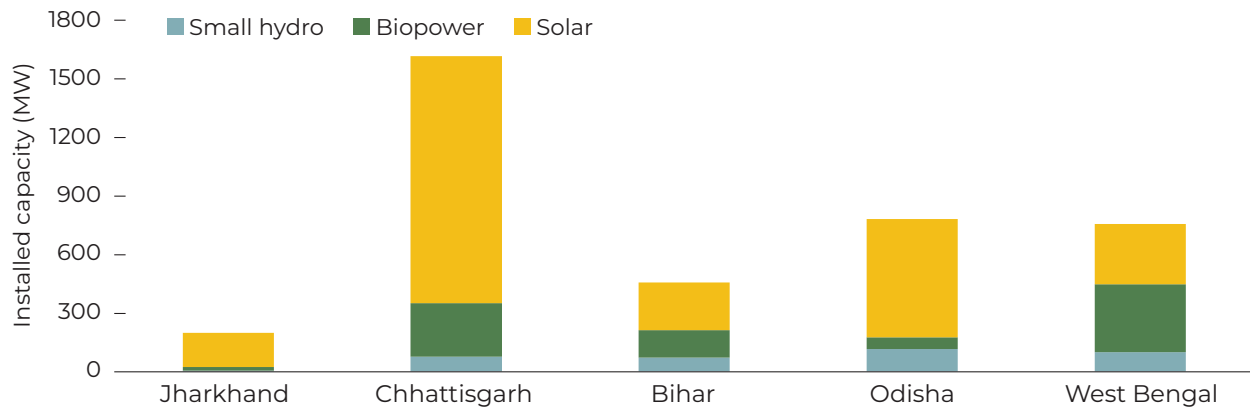
Source: CEA

The transition to renewable energy (RE) has important implications for eastern region states as their economies are closely tied to fossil fuels. In 2023-24, the Government of Jharkhand's non-tax revenues accrued to ₹1.6 billion (16,116 Cr), 80 per cent of which were royalties from coal mining. Coal production (and thermal energy generation) are also key sources of employment in Jharkhand. In order to diversify their economies, and ensure job safety and energy security, eastern region states have begun developing RE capacities of their own and moving towards a green growth pathway.

Unrealised Potential

Jharkhand has substantial water resources, rich mineral deposits (required for the development of batteries), and receives suitable levels of solar radiation. Despite this, the renewable energy sector in Jharkhand is extremely underdeveloped, even compared to neighboring eastern states. As of September 2024, the Renewable energy capacity of Jharkhand stood at roughly 200 MW, which is less than half of the next highest state, Bihar (at 456 MW), and merely 12 per cent of the eastern state with highest capacity – Chhattisgarh.

Figure 3: Installed capacity of RE in Eastern Region (Sep 2024)

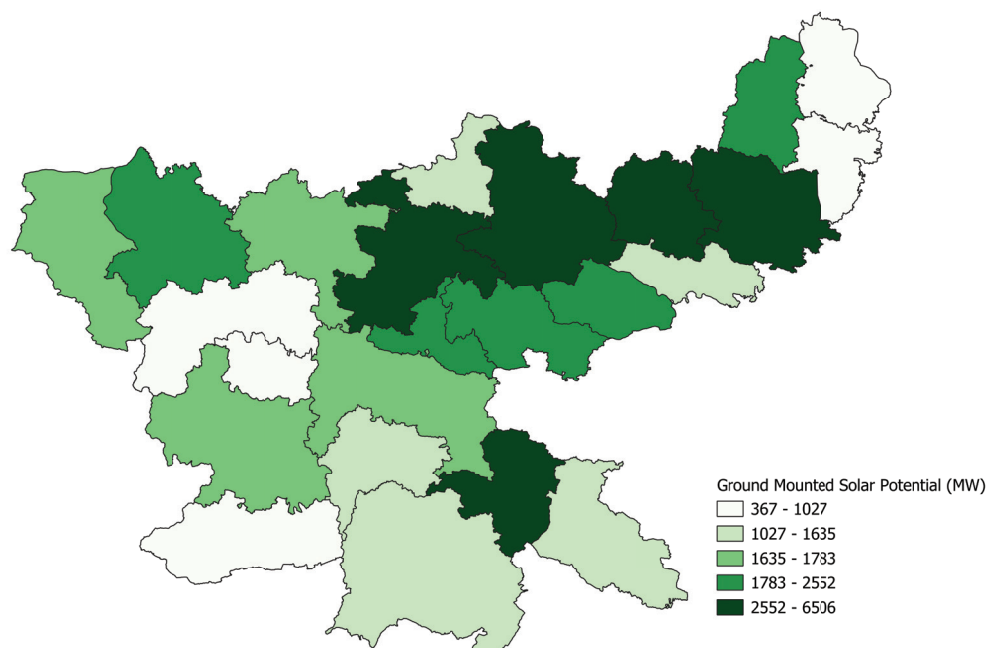


Source: MNRE

Jharkhand has the potential to do much more. A re-assessment of the state's potential for renewable energy suggests 52 GW of solar, 22 GW of wind (at 150m agl) and 3 GW of biomass can be installed in the state:

- Giridih district, which has over 6,500 sq. m of wasteland (mainly with open-scrub), is found to have a potential for 6.5 GW of solar. Other key districts for ground-mounted solar are Palamu, Bokaro, Saraikela-Kharsawan, Hazaribagh, Deoghar and Dumka, each of which has the potential for 2 to 3 GW of capacity.

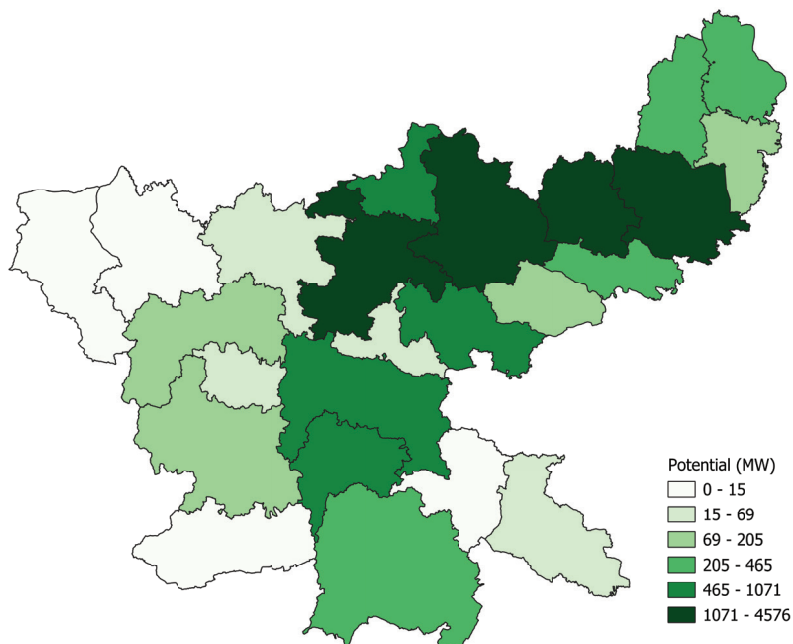
Figure 4: Potential for ground-mounted solar in Jharkhand



Source: iFOREST assessment

- Jharkhand has a theoretical potential of nearly 12 GW of wind energy at 100 m agl, and 22 GW of potential at 150 m agl. Major wasteland parcels with potential for wind installations are found in the districts of Ranchi (100 m agl) and Giridih (150 m agl).

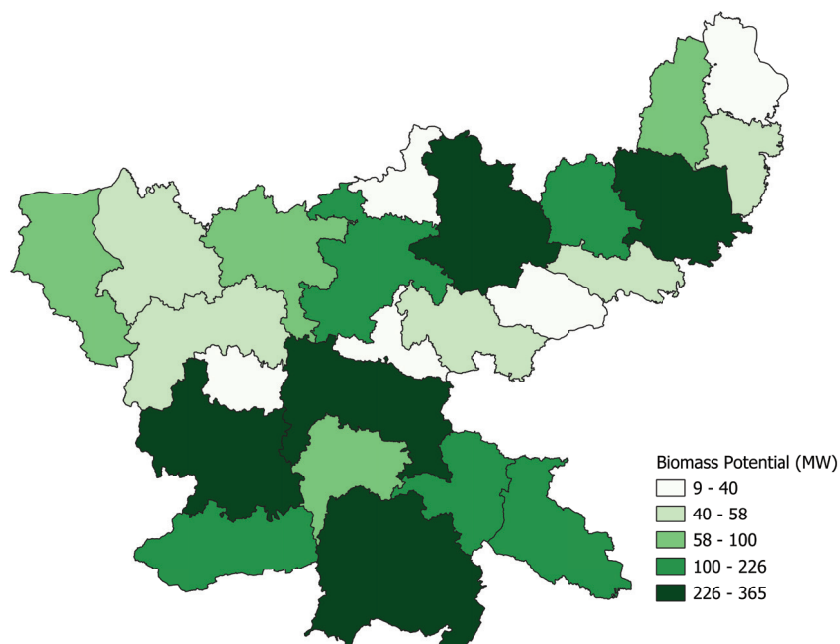
Figure 5: Potential for wind installations in Jharkhand



Source: iFOREST assessment

- The production of rice (Kharif), which is grown across Jharkhand accounts for 97 per cent of the gross and surplus biomass generation. Leading districts, Gumla, Ranchi and West Singbaum are capable of hosting a generation capacity of 240 to 360 MW.

Figure 6: Potential for biomass generation in Jharkhand



Source: iFOREST assessment

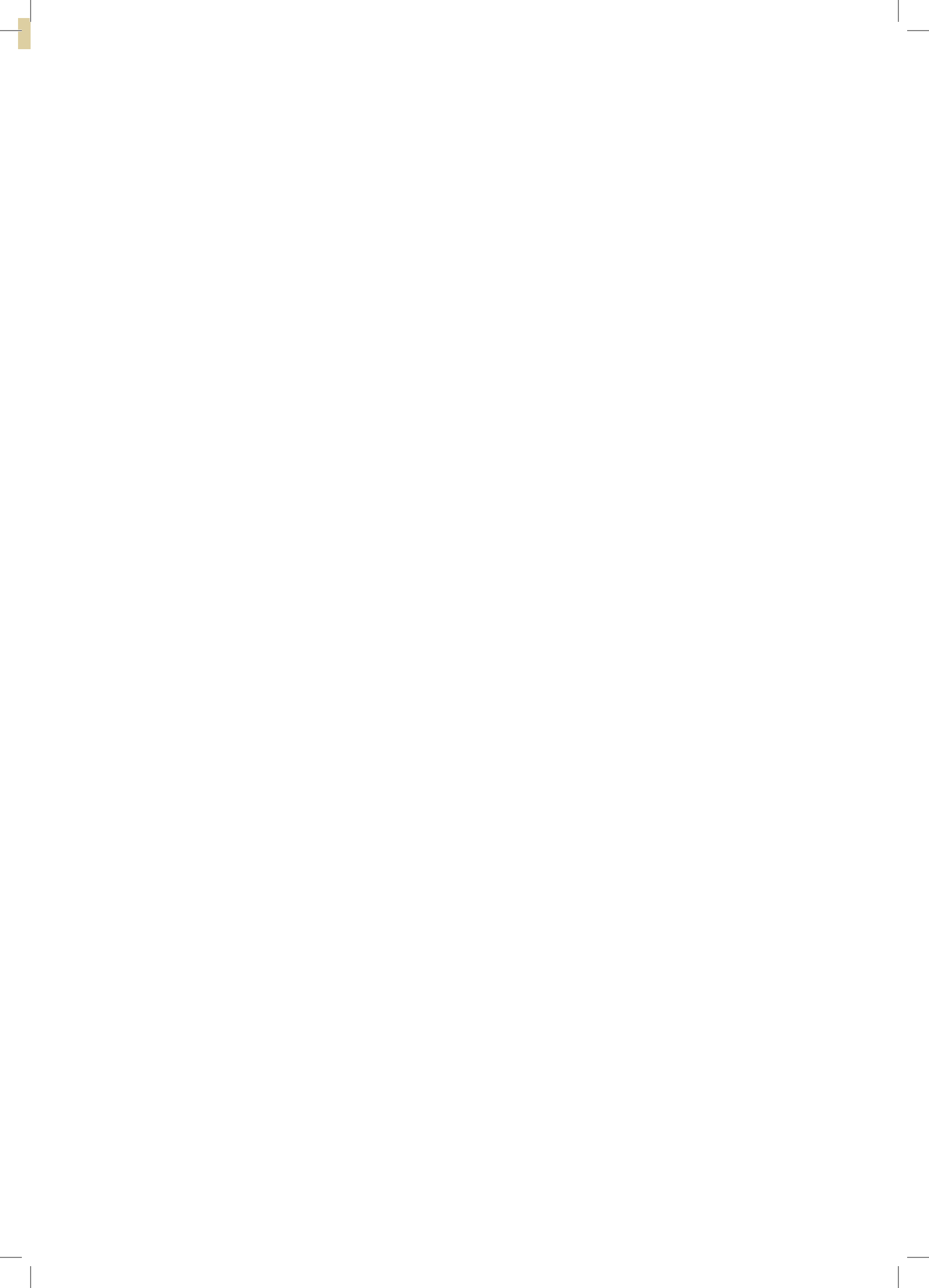
Pathways to scale-up renewable energy in Jharkhand

To capitalise on the substantial potential for renewable energy in Jharkhand, the state has been evolving its policy and regulatory framework. In 2022, the Jharkhand State Solar Policy (JSSP), was notified and in 2024, the Jharkhand Electricity Regulatory Commission (JERC) established green open-access regulations for the state. Both of these are welcome measures to support the growth of renewable energy (RE) in Jharkhand.

However, the government also needs to prioritize enhancing the policy and institutional set-up in the State for renewable energy. Since the announcement of the JSSP, 2022, roughly 100 MW of renewable capacity has been added, compared to the policy's target of 697 MW by 2024, making it unlikely to reach the targeted 4,000 MW by year 2027.

iFOREST recently completed an assessment of the state policy and the capacity of the nodal implementation agency- the Jharkhand Renewable Energy Development Agency (JREDA) and it highlights that -

- Additional policies which cover the entire range of renewable energy technologies, including wind and biomass, are required to offer a comprehensive developmental approach. They should also include technology-specific guidelines that target high-potential areas to stimulate growth.
- To boost renewable energy development in Jharkhand, the state needs a strong incentive framework. According to iFOREST research, the levelized cost of energy (LCOE) for solar projects in Jharkhand may be around ₹0.21 per unit higher than in states like Rajasthan or Karnataka with better solar conditions. To bridge this gap and attract investment, the state should implement policies offering competitive financial incentives.
- JREDA needs to strengthen its role as a facilitator and anchor for both utility-scale large projects and distributed renewable energy like rooftops, mini and microgrids implementation in the state. Enhancing JREDA's institutional structure could involve adopting stronger governance practices, providing regular training for technical staff, expanding the workforce, and creating specialized teams focused on key segments and technologies aligned with the state's unique characteristics.
- In addition, JREDA must streamline the project development process by identifying key land parcels, assisting developers in obtaining clearances and ensure the timely development of related infrastructure. At the same time, to develop a cohesive ecosystem for RE in the state, JREDA must also invest the regular skilling of local technicians and the development of renewable energy entrepreneurs in Jharkhand to support green job creation.



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About iFOREST

The International Forum for Environment, Sustainability and Technology (iFOREST) is an independent non-profit research and innovation organisation which was established in 2019 to identify, promote and scale-up solutions for pressing environment-development challenges in India and other developing countries in Asia and Africa. Our work is guided by a commitment to sustainability and equity, ensuring that our solutions are socially just and environmentally responsible.

iFOREST's work is rooted in regional priorities to accelerate environmental actions at the sub-national level and to improve national policies and plans to support it. At our core, we are a regional organisation with a national focus and an international reach. Our mission is to address the unique needs of regions by leveraging our resources and expertise to scale up national action and make a global impact. We use our regional knowledge to inform national policy and plans and strengthen international collaboration.

To achieve our goals, we conduct independent evidence-based research, develop new knowledge and innovative solutions, convene stakeholders to increase awareness and build consensus, and partner with think tanks, civil society, government agencies, philanthropies and industry to scale up solutions.

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