



Report Back

Stakeholder Consultation Decarbonising the Power Sector



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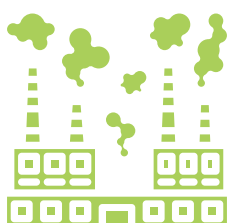
BACKGROUND

The power sector plays a pivotal role in supporting infrastructural development and driving economic growth and social development. However, it also significantly contributes to greenhouse gas emissions and climate change impacts. Hence, decarbonizing the power sector presents a promising opportunity for achieving climate goals and net-zero ambitions. Given that the energy sector accounts for 75% of greenhouse gas emissions in India, with electricity representing more than half of this figure, it becomes a crucial focus area for the development of low-carbon strategies. Decarbonising the power sector broadly means reducing its carbon intensity which can be done by reducing the emissions per unit of electricity generated. By prioritizing the decarbonization of the power sector, India can effectively address climate change and work towards a sustainable future.

In Jharkhand, the power generation scenario indicates heavy reliance on the thermal power segment which is significantly high at 93.5%, whereas hydro and solar energy sources contribute roughly about 4.8% and 2.25% respectively. Further, as Jharkhand is largely an industrialized state, the industry sector is the primary consumer of electricity, accounting for approximately 67%, followed by the domestic sector at 23.4%, and the transport sector at 3.7%.

Given Jharkhand's status as the most climate-vulnerable state in India and its heavy reliance on coal-based thermal power consumption, it presents an intriguing opportunity to showcase pathways for decarbonising India and fostering sustainable growth. This can be done by recognizing the challenges of decarbonising the power sector while ensuring reliability and affordability of electricity generation since there are numerous proven technological and commercially viable solutions available.

Set in this context, the Task Force on Sustainable Just Transition, (Government of Jharkhand) in collaboration with the Centre for Environment and Energy Development (CEED) organized a stakeholder consultation on 'Decarbonising the Power Sector in Jharkhand.'





GOALS AND OBJECTIVES

The objective of the consultation was to convene key stakeholders from various sectors of the power industry to engage in deliberations to discuss and explore pathways for decarbonizing the power and electricity sector in Jharkhand. The overall aim was to contribute in facilitating a sustainable energy transition to achieve a net-zero scenario in the state.

The consultation commenced with a welcome note and opening remarks delivered by Sh. Ramapati Kumar, CEO of CEED. Following that, Mr. Satyam Abhishek, Senior Research Associate at CEED presented the current scenario and trends in the power sector of Jharkhand, making comparisons with neighboring states. The presentation emphasized the significance of low-carbon development strategies, implementing demand-side management measures, enhancing energy efficiency, and other relevant approaches.

Sh. A.K. Rastogi (IFS, Retd), Chairman of the Task Force on Sustainable Just Transition and Green Hydrogen Mission, provided an overview of the consultation in alignment with present and future efforts towards decarbonisation of the power sector.

During the technical session, experts and industry representatives discussed various ideas and solutions, including the utilization of lower-emission power sources, enhancing end-use efficiency, improving grid flexibility and storage capacity, and implementing modern infrastructure and technologies such as Carbon Capture, Utilization, and Storage (CCUS), as well as establishing a green hydrogen ecosystem. Notable participants in the discussion included the senior officials of the National Thermal Power Corporation, Tata Power, Tenughat Vidyut Nigam Ltd, Damodar Valley Corporation, and other power-producing and consuming companies from steel, cement sectors operating in the state.





KEY SPEAKERS



**Sh. A.K. Rastogi, IFS (Retd),
Chairman- Sustainable Just
Transition & Green Hydrogen
Mission, Govt. of Jharkhand**

Decarbonizing the power sector presents challenges of reducing greenhouse gas emissions while maintaining reliable and affordable electricity generation. A holistic approach is needed to identify opportunities for integrating decarbonization strategies. The energy sector should adopt sustainability based operations, including measures like a green hydrogen penetration, carbon capture, utilization and storage facilities, and a mix of zero and lower-carbon generation capabilities to enhance energy security. Through reduced costs, enabling ecosystem and meeting renewable energy obligations and commitments, we can lead towards creating an economically viable and sustainable power landscape in Jharkhand.



**SH. RAMAPATI KUMAR,
CHIEF EXECUTIVE OFFICER,
CENTRE FOR ENVIRONMENT
AND ENERGY DEVELOPMENT
(CEED)**

To mitigate climate impacts and advance towards sustainable development, it is imperative for the state to shift its energy portfolio in favor of low-carbon energy sources and a corresponding reduction in the use of fossil fuels. It is essential to have enabling frameworks and pathways to accelerate the infusion of cleaner energy in the power sector. Recent engagements with bankers, investors, and policymakers highlight the significance of early adoption since prime movers stand to gain a competitive edge based on technological advancements and other factors. Delayed action may result in missed opportunities. While a comprehensive decarbonization strategy encompassing short, mid, and long-term goals is being developed, industries must initiate tangible ground-level efforts to facilitate this process further.

KEY TAKEAWAYS



Repurposing of Land of Abandoned Coal Mines and Plants

- Repurpose the thermal power assets for accelerating renewable energy generation.
- Generate additional revenue through selling carbon credits, scrap, and recyclable construction materials.
- Provide facilitation, technology transfer, and hand-holding support for consortium-based projects (like Bokaro Thermal Power Plant and Asian Development Bank).

Geothermal Potential

- Explore synergies between renewable energy generation and geothermal potential (Dumka, Hazaribag, and Latehar were identified as key locations with high geothermal potential in Jharkhand by Geological Survey of India).
 - Collaborate with relevant stakeholders to develop and implement geo-thermal projects in the 3 major and other minor locations in Jharkhand.
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Role of Green Hydrogen in Jharkhand

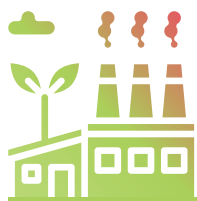
- Promote the adoption of co-firing of coal with hydrogen to increase thermal power plant capacity and longevity while lowering carbon footprint.
- Simultaneous carbon capture and green methanol production for generating substantial profits.
- Learning from the experience of the NTPC in Ladakh, feasibility studies can be conducted in Jharkhand to deploy microgrid solutions in the state with hydrogen storage for remote hilly terrains. The specific features of the pilot incorporated a combination of electrolyser-fuel cell systems for higher elevations, in which PV solar electricity is stored in hydrogen electrolysers during the day, and fuel cells produce electricity at night.

Land Acquisition and Regulatory Hurdles

- Limited space, finances, and regulatory hurdles in land acquisition for renewable energy projects in Jharkhand.
- Streamline documentation and verification requirements for land acquisition.
- Enforce a single-window system for land acquisition related approvals and clearances.
- Provide incentives and compensation to landowners and affected communities to encourage their participation.

Optimal Land Usage and Renewable Potential

- Optimize land usage through cost-effective solutions like floating solar and gravitational (pumped) storage.
- Potential to generate 70-75 GW of renewable power in Jharkhand by utilizing available mined land (300 sq. Km of mined land available with CIL).





Deploying new technologies in Jharkhand

- According to NTPC, molten salt solar thermal concentrator systems can be used for plain regions in Jharkhand, in which heliostats act as the concentrator and sand acts as the thermal battery (a new initiative called “247 Solar” by a USA-based company). The cost of a 5 acre 400 kW molten salt plant set-up is around 25 crores.
- Another study by NTPC demonstrates a 25 MW-hr surface pumped storage project (5 MW storage for 5 hours) with an elevation difference of only 6 meters between its reservoirs, and can be set up within 1.5 years.

Battery Storage and Recycling

- Invest in research and development for battery storage technologies, including non-lithium systems thereby addressing challenges associated with battery lifespan, recyclability, and cost through R&D.
- Partnerships with EV battery recycling companies to repurpose used batteries for energy storage applications.
- A 100 kW plant based on Lithium technology has demonstrated excellent temperature characteristics, stability, a fast recharge cycle, and recharges quickly. It was further claimed by the manufacturer to have a DoD of 100% with a lifespan close to 13 years.

Emissions Measurement and Reporting

- Improve data collection procedures to measure and report emissions reliably.
 - Special emphasis on measuring and reporting IPCC’s Scope 3 emissions.
 - Collaborate with necessary authorities and existing systems like the SAP (Systems, Applications, and Products) database to capture data on transportation, raw materials, dispatch, and other supply chain activities.
 - Continuous monitoring and benchmarking of Environment, Social Governance (ESG) factors are needed.
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Diversification of Decarbonization Strategies (for companies like DVC, TATA Power, and NTPC)

- Emphasize a holistic approach to decarbonization beyond renewable energy generation.
- Implement water and waste management initiatives to reduce environmental impact.
- Develop biodiversity plans to protect and conserve natural resources.
- Adopt customer-centric approaches to address evolving energy needs.

PARTICIPANT LIST

Name	Organisation
D.M.R. Panda	National Thermal Power Corporation
M.V. Sagar	National Thermal Power Corporation
Anand Kishore	Grasim India Ltd, Rehla
Vikram Mani	Grasim India Ltd, Rehla
Tapan Karmakar	ACC Ltd., Chaibasa
Binnu Kumar	IPL, Ramgarh
Medhavi Sarraf	IPL, Ramgarh
M.K. Singh	TATA Power
Bimal Kumar	TATA Power (Jojobera)
Arup Dutta	Usha Martin
Debnath Bera	Ranchi Partners
A.A. Kujur	Damodar Valley Corporation
Rajesh Ranjan	Tenughat Vidyut Nigam Ltd
A.K. Sharma	Tenughat Vidyut Nigam Ltd

MEDIA COVERAGE

ग्रीन हाउस गैस उत्सर्जन को कम करना चुनौती

रांची. जस्ट ट्रांजिशन टास्क फोर्स और इसके टेक्निकल पार्टनर सेंटर फॉर एनवायरनमेंट एंड एनर्जी डेवलपमेंट (सीड) ने संयुक्त रूप से बुधवार को स्टेक होल्डर्स कंसल्टेशन 'डिकार्बनाइजिंग पावर सेक्टर इन झारखंड' का आयोजन किया। इसका उद्देश्य नेट-जीरो परिदृश्य के संदर्भ में राज्य में सस्टेनेबल एनर्जी ट्रांजिशन की प्रक्रिया को आगे बढ़ाना था। विद्युत क्षेत्र में डिकार्बनाइजेशन की प्रक्रिया से जुड़े समाधानों पर विचार-विमर्श करना था। इसमें सरकारी और निजी क्षेत्रों की प्रमुख बिजली उत्पादन इकाइयों, सार्वजनिक क्षेत्र के उपक्रमों, थिंक-टैंक और क्लीन एनर्जी सॉल्यूशन प्रोवाइडर्स कंपनियों के प्रतिभागियों ने हिस्सा लिया। टास्क फोर्स के अध्यक्ष एके रस्तोगी ने कहा कि बिजली औद्योगिक संरचना और सामाजिक-आर्थिक विकास का आधार स्तंभ है। ग्रीनहाउस गैस (जीएचजी) उत्सर्जन को कम करना विद्युत क्षेत्र के लिए प्रमुख चुनौती है। इसके लिए डिकार्बनाइजेशन रणनीतियों के अनुरूप संभावित अवसरों की पहचान बेहद

ऊर्जा सुरक्षा के लिए विद्युत क्षेत्र में डिकार्बनाइजेशन प्रक्रिया आवश्यक

जास, रांची : सस्टेनेबल जस्ट ट्रांजिशन टास्क फोर्स, झारखंड सरकार और इसके टेक्निकल पार्टनर सेंटर फॉर एनवायरनमेंट एंड एनर्जी डेवलपमेंट (सीड) द्वारा संयुक्त रूप से स्टेकहोल्डर्स कंसल्टेशन डिकार्बनाइजिंग पावर सेक्टर इन झारखंड का आयोजन किया गया। कंसल्टेशन के व्यापक उद्देश्यों को रेखांकित करते हुए एके रस्तोगी (आईएफएस सेवानिवृत्त), अध्यक्ष, सस्टेनेबल जस्ट ट्रांजिशन टास्क फोर्स (झारखंड सरकार) ने कहा कि यह चैठक प्रमुख क्षेत्रों और उद्योगों के साथ चल रहे कंसल्टेशन की श्रृंखला का एक अहम हिस्सा है। ग्रीनहाउस गैस (जीएचजी) उत्सर्जन को कम करना विद्युत क्षेत्र के लिए प्रमुख चुनौती है। इसके लिए डिकार्बनाइजेशन रणनीतियों के अनुरूप संभावित अवसरों की पहचान बेहद महत्वपूर्ण है।