

PRESS RELEASE

Foundation for Advancing Science and Technology (FAST India) releases State of Industry R&D in India for the Energy sector in collaboration with IIFL Securities

20 June 2024, New Delhi: FAST India released its sectoral brief on the Energy sector for its series on the State of Industrial research and development (R&D) in India in collaboration with IIFL Securities. The latest brief presents an in-depth analysis of R&D trends, innovation outputs, and comparative performance metrics of major Indian chemical sector firms against their global counterparts. The report underscores significant disparities in R&D intensity, the proportion of PhD employees, and patent output, while showing better performance in publication rates, providing important insights for policymakers and industry stakeholders.

The report reveals critical insights into the performance of Indian energy firms in various domains of R&D and innovation, comparing them with their global counterparts as well as categorising Indian firms into high-revenue and low-revenue clusters to provide a more nuanced analysis:

1. **R&D Intensity:**
 - a. Three Indian energy firms (Coal India, RIL, and ONGC) ranked amongst the top five firms for R&D intensity. Overall, the global energy firms show **2.5x** higher R&D intensity compared to the Indian firms.
 - b. Coal India ranks first overall, with an R&D intensity of 3.8%, much higher than PetroChina (0.9%) that comes in second place.
2. **Proportion of PhD Employees:**
 - a. Global firms outperformed Indian firms for the proportion of PhD employees by **4.0x**.
 - b. Equinor ranks first among global firms in proportion of PhD employees with 2.07%. BPCL ranks first among Indian firms and 8th overall.
3. **Publications:**
 - a. Indian energy firms outperformed global firms by **1.1x** in publications per billion USD revenue.
 - b. Coal India maintains its first rank in publications per USD billion revenue by publishing more than **3.4x** the second-ranked firm, Tata Power, indicating a strong focus on research and dissemination amongst all firms studied. NHPC Limited ranks fourth in this parameter.
 - c. RIL and IOCL have the maximum absolute number of publications over the study period in the high revenue cluster for Indian firms, at 262 and 218 respectively.
4. **Patent Output:**
 - a. Indian firms significantly lag in patent output, with global firms producing **9.9x the** number of patents per billion USD revenue as compared to Indian firms.
 - b. While Reliance Industries Limited performs well for patents by revenue as compared to other Indian firms, it does not rank amongst the top five global and Indian firms overall.

Conclusion

The Indian energy sector, largely dependent on fossil fuels, is slowly moving towards increasing the use of renewable energy and improving efficiency for use of non-renewable fuel. A large proportion of high market capitalisation firms in the sector in India are PSEs, which compete well with global peers for R&D intensity.

However, when compared to global counterparts, Indian firms generally have fewer proportion of PhD qualified employees and patents by revenue, highlighting the need for increased focus on innovation and intellectual property.

For a detailed analysis and further information, the full brief is available for stakeholders and interested parties.

About FAST India:

The Foundation for Advancing Science & Technology (FAST India), a nonprofit initiative co-founded by Ashish Dhawan (Founder, of Ashoka University and The Convergence Foundation) and Varun Aggarwal (Co-founder, of Aspiring Minds and The Change Engine), is dedicated to enhancing the Science and Technology ecosystem in India.

In the coming decade, FAST India aims to position India as one of the top three global giants in Science and Technology, harnessing India's immense potential to drive progress on the economic and societal fronts. In the short term, FAST India's objectives include propelling five Indian universities into the top 100 research ranks, tripling the R&D expenditure in the industry, and ensuring that five Indian firms feature in the world's 100 most innovative companies list.

To learn more about FAST India and its transformative initiatives, please visit <https://fast-india.org/>. For press inquiries, please reach out to info@fast-india.org