



April 2024

## **Scheme Guidelines for implementation of R&D Scheme under the National Green Hydrogen Mission**

The Ministry of New and Renewable Energy (“**MNRE**”), *vide* notification dated March 15, 2024, issued the ‘Scheme Guidelines for the implementation of R&D Scheme under the National Green Hydrogen Mission’ (“**Scheme**”).

The National Green Hydrogen Mission (“**Mission**”), which was launched in January 2023, is focused on a holistic development of a thriving, self-sufficient, indigenous green hydrogen sector in India. This would mean not only focusing on development of India’s green hydrogen manufacturing capabilities or increasing affordable supply of renewable energy, but also emphasizing on building a knowledge base through robust research and development (“**R&D**”) initiatives in the field of green hydrogen as well as upskilling India’s workforce proposed to be engaged in the green hydrogen sector. This Scheme, being aligned with the broader aim of the Mission, looks towards building a robust R&D ecosystem with emphasis on collaboration amongst industry-academia-government to establish an innovation ecosystem for green hydrogen technologies as well as facilitate scaling up and commercialization of the technological advancements by providing requisite policy and regulatory support to R&D activities.

### **Budgetary Outlay**

As per the Scheme document, the budgetary outlay for the R&D initiative will be INR 400,00,00,000 (Indian Rupees four hundred crore) until the financial year 2025-26.

### **Key Components**

As per the Scheme, the following types of R&D projects will be provided with fiscal assistance by the Government of India:

1. **Mission mode projects (0 (zero) - 5 (five) years horizon):** These projects will focus on development of an end-product in partnership between government and industry. These projects will leverage existing knowledge and infrastructure and projects under Mission mode are likely to include development of indigenous modular electrolysers, polymer electrolyte membrane (PEM) based fuel cells.
2. **Grand challenge projects (0 (zero) – 8 (eight) years horizon):** These projects will focus on overcoming challenges related to licensing and supply constraints and will be taken up on consortium basis. The projects will include component-specific research with an aim to upscale existing domestic manufacturing capabilities which lead to a lowering of cost of critical technologies. It is expected that Grand Challenge Projects will be built around manufacture of critical electrolyser and fuel cell components like membrane electrode assemblies, electrocatalysts, catalyst coated membranes, gas diffusion layers, bipolar plates etc.

3. **Blue sky projects (0 (zero) – 15 (fifteen) years horizon):** These projects will focus on establishing competitive advantage for the Indian industry including greenfield and indigenous R&D projects. Blue sky projects will develop capabilities of the Indian R&D sector such as development of third generation electrocatalysts, reversible solid oxide electrolyzers (SOECs) and solid oxide fuel cells (SOFCs), seawater electrolysis, thermo-catalytic pyrolysis, plasma pyrolysis, salt cavern surveys, etc.
4. **Centers of Excellence:** The Scheme will also focus on identifying, developing and supporting centers of excellence, by building subject expertise and research infrastructure in these centers. The approach proposed will be based on involving the academia, industry as well as the government to ensure coordinated transfer and commercialization of new green hydrogen technology developed as a result of R&D activities.

In addition to the above, the Scheme proposes support for innovative medium and small enterprises (MSMEs) and start-ups working on developing indigenous technology.

### Implementation of Scheme

The Scheme is proposed to be implemented in a diverse manner with the government looking to follow several routes. Some of these are mentioned below:

1. MNRE may, from time to time, issue 'Call for Proposals' for R&D projects through advertisement in scientific / technological journals and the MNRE website. Proposals will be invited against identified challenges, research problems in fostering green hydrogen ecosystem for R&D areas.
2. Interested institutions/ individuals will be permitted to submit proposals in relevant areas of research at any time to the MNRE. Such proposals will be evaluated for financial support according to their relevance to the Ministry's research priorities.
3. MNRE will also look towards *suo moto* soliciting proposals from identified experts, institutions and industry capable of implementing technology development activities in relevant areas.

### Evaluation of Proposals Submitted

The MNRE will accept proposals for R&D projects submitted by academic institutions, universities, government/non-profit research organizations as well as private institutes/research organizations and industries. The proposals submitted will be evaluated on the following parameters by Sectoral Sub-Committees ("SSC") constituted under the Advisory Group chaired by the Principal Scientific Advisor, Government of India:

1. Relevance and quality of the proposal.
2. Availability of clear statement of quantified objectives and deliverables.
3. Technical feasibility of the proposal.
4. Technology Readiness Level of the proposed proposal/project.

### Disbursement of Financial Support

Under the Scheme the proposals which are approved by the SSCs will be entitled to financial support from the Government of India under the Mission. Academic institutions, universities, government/non-profit research organizations would be eligible for financial support up to 100% of the total project cost, subject to a cap as decided by the concerned SSC. Private institutes/research organizations and industries would receive financial support up to 80% of the total project cost subject to a cap as decided by the concerned SSC.

The manner of release of the financial support will be as follows:

1. Up to 30% of the total assistance (excluding the institutional overheads) will be released along with the sanction of the project, depending on the requirement of equipment in the project.
2. Remaining financial assistance (excluding the institutional overheads) will be sanctioned as per the annual allocation based on the progress/milestone achieved in the project.

3. Overhead charges will be restricted up to 8% of the total project cost for the projects costing up to INR 1,00,00,000 (Indian Rupees one crore). For project costs between INR 1,00,00,000 (Indian Rupees one crore) and INR 5,00,00,000 (Indian Rupees five crore), the overhead charges will be 8% of the project cost or INR 15,00,000 (Indian Rupees fifteen lakh) whichever is less. For projects cost of more than INR 5,00,00,000 (Indian Rupees five crore), the quantum and overhead charges will be decided by the MNRE on a case-to-case basis. These institutional overhead costs will be released to the project proponent only after successful completion of the project, review by the concerned SSC and on receipt of the project completion report and conclusion of the financial due diligence.

## Other Key Terms

The Scheme contemplates certain other key conditions which will govern any financial assistance to be provided to the project proponents. These include:

1. The grantee/ project proponent will be responsible for protecting the intellectual property rights being generated through the research projects under the Scheme.
2. The funds will be released exclusively for the specific project sanctioned and has to be spent on the project within the approved time duration. The grantee organization is not permitted to seek or utilize funds from any other organization (government, semi-government, autonomous and private bodies) for this project unless specifically approved for joint funding by the SSC. Any un-spent balance out of the amount sanctioned must be surrendered to the Government of India.
3. For permanent, semi-permanent assets acquired solely or mainly out of the project grants, an audited record in the form of a register must be maintained by the project proponent. For the purpose of the Scheme "Assets" include (a) the immovable property acquired out of the grant; and (b) movable property of capital nature where the value exceeds INR 50,000 (Indian Rupees fifty thousand). The project proponent will be required to send to MNRE a list of assets acquired from the grant. The grant must not be utilized for construction of any building unless specific provision is made for that purpose.
4. Assets acquired in the project is required to be shared proportionately between Government of India and project proponents in accordance with the cost sharing pattern of the project. The assets will not be disposed of or encumbered or utilized for any purpose other than those for which the grant had been sanctioned, without the prior permission of this MNRE.
5. On conclusion of a project, Government of India will have the discretion to sell or otherwise dispose of its share of the assets, which are the property of the Government of India. The project proponent will provide the Government of India necessary assistance and facilities for arranging the sale of these assets. The Government of India may exercise discretion to gift its share of assets to the grantee organization or transfer them to any other organization if it is considered appropriate.

## Conclusion

As part of the Mission, the Government of India will be looking to build capacities to produce at least 5 (five) million metric tonne ("**MMT**") of green hydrogen per annum by 2030, with potential to reach 10 (ten) MMT per annum with growth of export markets. To achieve this objective, the Mission contemplates a holistic approach which goes beyond demand and supply incentives but also involves evolving an ecosystem for R&D activities in the green hydrogen sector. The aim is to develop and build up India's indigenous capabilities of producing green hydrogen in India and this will only be possible if India's R&D sector is provided with ample support, financially and technically. This Scheme, which involves funding of R&D projects in the green hydrogen space will ensure mitigation against the risk technological disruptions and unforeseen developments. As per the Mission document, the call for proposals by the Government of India for implementing R&D projects was scheduled to take place in financial year 2024-25 and with the notification of this Scheme and the publication of the first set of call for proposal documents, the roadmap of the Mission seems to be on track.

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- Public Procurement;
- Compliance and Strategy;
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**This Prism has been prepared by:**



**Ashish Suman**  
Partner



**Ayan Sinha**  
Senior Associate

		
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For more details, please contact [km@jsalaw.com](mailto:km@jsalaw.com)



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