

Green Hydrogen: Towards a Clear Regulatory Framework

The recently concluded 29th Conference of Parties (COP-29) of the United Nations Framework Convention on Climate Change (UNFCCC) has faced flak and criticism on various aspects, including its failure to address financing for climate mitigation and adaptation meaningfully. Yet, there are a few silver linings, including a pledge on green hydrogen. The pledge underscores the role of green hydrogen as a solution to address energy transition. Zero-emission and low-carbon hydrogen production has a significant role in accelerating the decarbonization of existing hydrogen production from unabated fossil fuels. The pledge sets out the dual challenge of significantly increasing green hydrogen production from one million tonnes annually and reducing the 96 MT of hydrogen currently produced globally from unabated fossil fuels.

Opportunities for India

This presents significant opportunities for India, given the cost efficiency with which India can scale up its green hydrogen production. The potential is not only for India's domestic use of using green hydrogen to reduce carbon emissions, but also to position itself as an exporter of green hydrogen to address the growing global demand.

The National Hydrogen Mission, Green Hydrogen Policy, followed by India's Ministry of New and Renewable Energy's green hydrogen standards and R&D roadmap, provide the building blocks for the development of green hydrogen production and associated technologies. The logical next step is scaling up and implementing green hydrogen projects. This will require a uniform, predictable and stable long-term framework to enable the high-value investments that are critical for the sector.

Creating a Stable Legal Framework

A key issue in this regard is that of legislative competence to create a stable legal framework. As of now, initiatives on green hydrogen are being driven by the Central Government. To ensure legislative clarity, it would be important to maintain a clear distinction between "hydrogen" and "green hydrogen". The reason this is necessary is because hydrogen is a gas, manufactured through and used in industrial processes, and this would fall under "gas and gas works"- an entry in the State List of the Seventh Schedule to the Constitution of India, which vests exclusive legislative competence with states. "Green hydrogen" on the other hand, is clean and sustainable hydrogen produced by using renewable energy to split water to its constituent molecules. Its objective is to meet India's obligations under the UNFCCC. The focus on green hydrogen therefore, has its genesis in ensuring compliance with obligations under international treaties – a power exclusively

vested with the Central Government under the Constitution of India. The jurisdiction to address environmental matters falls within the concurrent jurisdiction of both the Centre and states under the constitutional framework.

PNGRB's Role



India has existing and rapidly developing infrastructure of natural gas pipeline and gas distribution networks. This can be utilized and be available for transporting green hydrogen through blending with natural gas. In this regard, the Petroleum and Natural Gas Regulatory Board (PNGRB), the statutory regulator established under the PNGRB Act, 2006, recently undertook a study on the feasibility of utilizing the vast network of gas pipelines for carrying green hydrogen.

Since PNGRB already has the jurisdiction and function to regulate the operations, safety and technical standards of natural gas pipelines, it is best placed to create the regulatory framework allowing for blending of hydrogen with natural gas, and enable transportation of natural gas through the natural gas pipelines already developed, as well as those under development and being operationalized. Allowing for such blending and transportation will enable usage of common carrier capacity that may otherwise not be presently utilized. This will be the most efficient manner to create the required framework to enable distribution and availability of green hydrogen.

However, while developing the regulatory framework under PNGRB's jurisdiction, special care should be taken to ensure that the thrust is on light-touch regulations that can enable utilization of natural gas pipelines for transport and distribution of green hydrogen. It would be advisable, for instance, that PNGRB should not regulate tariff for transporting hydrogen, since this is outside its jurisdiction. It would be most efficient to leave this to contractually determined rates between the relevant entities and the authorized pipeline entities whose infrastructure is sought to be utilized.

The recent feasibility study undertaken by PNGRB indicates



certain proposed changes to the PNGRB Act to make the former the regulator for hydrogen-related projects. This, however, would be an over-regulation at this point and is not required. Moreover, placing PNGRB as regulator for “hydrogen” projects, as the study proposes, instead of simply creating a distinct framework for “green hydrogen”, would result in an unstable regulatory framework, by stepping directly on the exclusive jurisdiction of states. This should be avoided, to ensure there are no protracted legal battles.

Legal Classification

The Central Government should also consider creating a ‘regulatory sandbox’ framework for green hydrogen projects, that provides regulatory flexibility to entities to implement arrangements for development and operation of green hydrogen projects. A regulatory sandbox is a legal classification that creates a space where participating businesses are not subject to onerous regulations, usually for a limited amount of time, which is linked to the testing period required to assess the viability of the relevant technology or business endeavor. The concept of regulatory sandbox was first introduced by UK Financial Conduct Authority in 2014 in relation to innovative fintech products, services and

business models, without incurring all the normal regulatory consequences for engaging in the heavily regulated financial services sector. In India, frameworks to implement regulatory sandboxes have been developed in the financial services and telecommunications sectors.

In respect of green hydrogen projects, a regulatory sandbox is crucial to test not only the viability of specific technologies, but also the nature of ‘light-touch’ regulations required to mitigate burdensome requirements under a plethora of regulatory requirements, ranging from debt exposure and other Reserve Bank of India (RBI) norms to regulations under labour laws, land laws, environment laws, water usage laws, explosives regulations, transportation regulations, as well as export-import regulations.

Clear, predictable frameworks ultimately will provide the much-needed comfort for long-term investments and boost investor confidence in this sector.

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