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India's grand vision for green hydrogen

On 17th February, the Indian government unveiled its grand vision for green hydrogen with the release of its [Green Hydrogen Policy](#). As the first part of the much-awaited National Hydrogen Policy of India, the policy aims at massively boosting green hydrogen/ammonia production in the country and making India an export hub for the clean fuels.

Green hydrogen refers to hydrogen gas produced from the electrolysis of water – using renewable energy to split water into hydrogen and oxygen. The green hydrogen produced could be later combined with nitrogen to make green ammonia, which is another clean fuel highlighted in the policy to be promoted in India.

With renewable generation costs reduced substantially over the past few years, producing green hydrogen has also become slightly more economically feasible but it is still incomparable to the cost of grey hydrogen, the most common form of hydrogen generated from natural gas through steam reforming. As of today, the petroleum refining sector accounts for 54% of India's annual hydrogen demand while fertilizer production consumes the remaining 46%, all of which is classified as non-green hydrogen.

One of the issues with producing green hydrogen is transportation: With high transportation costs, producers often choose to locate manufacturing facilities closer to the end-users rather than where renewable energy is produced and this inevitability leads to higher electricity transmission costs. In addition, without cost-effective means of energy storage, the unstable nature of renewable energy also entails production instability for producers.

The newly-revealed Green Hydrogen Policy is strategically positioned to alleviate these pain points. For starters, it generously waives all inter-state electricity transmission charges for 25 years to green hydrogen/ammonia producers for renewable projects commissioned before 2025. For unconsumed renewable power, manufacturers would still be able to claim the same amount of energy from the electricity distribution company for up to 30 days at a low fixed cost. To avoid procedural delays, renewable energy used for

producing green hydrogen/ammonia will also be given connectivity to the grid on a priority basis. Other incentives for license application, land procurement, distribution and storage have also been highlighted in the policy including the establishment of a portal for all related statutory clearances and permissions, paving the way for a green hydrogen ecosystem in India.

Following this first phase of policy announcement, the Indian government is expected to introduce Green Hydrogen Consumption Obligation in the petroleum refining and fertiliser production sector on similar lines to the [Renewable Purchase Obligation](#) (RPO) by imposing mandates on the use of green hydrogen and ammonia as a certain percentage of energy consumption. If approved by the Cabinet, such a mandate would support the deployment of green hydrogen manufacturing until its cost comes down to parity with grey hydrogen.

On the supply side, India has also been actively engaging in bilateral partnerships to enhance technologies including a recent [letter of intent](#) with Australia to scale up the manufacturing and the deployment of ultra-low-cost solar and green hydrogen. Major Indian energy players including Reliance Industries, Adani Group, Greenko and Acme Solar have all announced their green hydrogen plans recently. Among them, Adani group has announced a massive \$70 billion capital expenditure plan to build a 45GW renewable portfolio and produce the world's cheapest green hydrogen by 2030.

By removing red tape and addressing some of the key issues of the industry, this policy acts as an encouraging first step to foster a green hydrogen ecosystem in India. To fully develop a green hydrogen economy, it is crucial that the Indian government maintains this momentum with further policy initiatives and incentives in other key areas of the value chain such as transportation and financing.

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