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The Yogi Adityanath-led Uttar Pradesh government has been making consistent and collective efforts to promote sustainable energy solutions with a view towards achieving India's net zero goal. Taking a step further in this direction, the state government recently approved the Green Hydrogen Policy, rolling out a series of administrative and financial incentives to promote green hydrogen and ammonia production, market creation, and demand aggregation. The incentives are being pushed through the UP-Government's investment arm UP Invest.

Green Hydrogen and ammonia are produced by the electrolysis of water using renewable energy. They are expected to serve as a cleaner and more sustainable alternative to fossil fuels and are likely to play a pivotal role in facilitating India's transition to the net zero goal by 2070. Green Hydrogen has a large potential uptake from nitrogenous fertilisers, chemicals, refineries, heavy-duty vehicles, energy storage, and the iron and steel sectors.

Chemicals and fertilisers contribute to nearly 50 per cent of UP's industrial emissions, and refineries add another 5 per cent. Therefore, the Uttar Pradesh Green Hydrogen Policy 2022 focuses on two major demand centers: nitrogenous fertilisers and petrochemical refineries. Promoting green Hydrogen and ammonia in these sectors will help address more than 50 per cent of the State's industrial emissions. However, it is also likely to cover other emerging industries and applications of green Hydrogen in the future.

The current hydrogen demand in the State stands at around 0.9 million tonnes per annum (Mtpa). It is primarily used in Nitrogen-based fertilisers, with some demand coming from the refinery sector. By implementing this policy, the state government plans to be a leading green hydrogen and ammonia producer and a 100 per cent consuming state by 2035. It intends to achieve this status by pushing for 20 percent green Hydrogen blending by 2028 for existing fertiliser and refinery units and gradually reaching 100 per cent by 2035.

The state government's policy is in line with the central government's National Green Hydrogen Mission, which has estimated an initial outlay of Rs 19,744 crore. This includes Rs 17,490 crore for the SIGHT (Strategic Interventions for Green Hydrogen Transition) program, Rs 1,466 crore for pilot projects, Rs 400 crores for R & D, and Rs 388 crore for other mission components.

Incentives and subsidies rolled out.

The UP government prioritised decarbonisation while aligning with India's climate goals. It has rolled out various incentives and subsidies as a part of the Green Hydrogen Policy to attract manufacturers to set up green hydrogen hubs in the State. While on the one hand, the state government's move is expected to bring in a host of investments in the space of clean energy, on the other hand, it is likely to promote a spurt in growth and employment in the State, thereby helping it achieve the vision of turning into the country's third-largest economy up from the current position of fifth in the next few years.

The policy, which is set to boost the manufacturing ecosystem, lead R & D and innovation activities, and provides incentives for promoting green Hydrogen adoption, among other things, is expected to support production, consumption, market creation, and other elements across the green Hydrogen and ammonia value chain.

Several states, including Andhra Pradesh, Maharashtra, Gujarat, Tamil Nadu, and Odisha, have either rolled out a separate green Hydrogen policy or included it as part of their renewable energy policy. Some states have also signed MoUs with large corporate companies to ramp up production of green Hydrogen. To facilitate investments in the sector, the UP government has rolled out a host of incentives and subsidies, such as stamp duty exemption, tax reimbursement, capital interest subsidy, and infrastructure interest subsidy, among others. The state government has already put in place a single-window clearance platform, which is expected to support new investment projects in the sector.

Apart from these initiatives, the state government also plans to develop green Hydrogen and ammonia industrial clusters or hubs to promote their production around consumption centres and provide government land to set up such units on a priority basis. As green Hydrogen is required to be produced using renewable energy, the state government plans to deploy solar power plants for its production.

It is to be noted that Uttar Pradesh has set a vision of meeting 40 per cent of its energy requirement through solar and alternative sources. The Green Hydrogen Policy approved by the state government will help spur investments into the segment and push for the production of alternate energy sources. Uttar Pradesh, which aims to grow its economy to \$1 trillion in the next few years, expects to become the country's growth engine. Therefore, prioritising decarbonisation and contributing to the country's climate goals would be a crucial step in this direction.