

# Uttar Pradesh

## Leading the Green Hydrogen Revolution

As the world confronts the urgent need to transition away from fossil fuels, green hydrogen (GH<sub>2</sub>) emerges as a transformative solution. Recognizing its potential, the Uttar Pradesh (UP) government is pioneering initiatives to make the state a hub for green hydrogen production, aligning with India's and the global community's ambitious climate goals. This article outlines UP's strategic efforts to attract global investment in green hydrogen, highlighting the state's commitment to sustainability and economic growth.

### The Global Context for Green Hydrogen

The global climate crisis necessitates a shift from fossil fuels to renewable energy. The Paris Agreement aims to limit global temperature rise to 1.5°C above pre-industrial levels, requiring a 45% reduction in emissions by 2030 and achieving net-zero by 2050. Despite these goals, global CO<sub>2</sub> emissions continue to rise, with 2023 seeing a record high of 37.4 billion tonnes.

The highest recorded annual emissions were in 2022 (1.3%) that stood at 490 (Mt) in 2022. Emissions from Coal accounted for more than 65% increase in 2023. Between 2019 and 2023, total energy related emissions increased to 900 Million tonnes. Major economies, including the USA, China, India, and the EU, are responsible for 88% of these emissions.

A breakthrough and disruptive renewable fuel that can meet the global clean energy demand and help India in achieving the net-zero status is Green hydrogen. It has the potential to end our dependence on fossil fuels and aid in transitioning to a net-zero world transforming the heavy-polluting industries such as steel and cement. It can become a part of our daily lives in the form of vehicles powered by hydrogen fuel cells.

Green hydrogen, produced through electrolysis using renewable energy, offers a zero-emission alternative to conventional hydrogen production methods. It can significantly reduce carbon emissions in sectors like transportation, industry, and power generation, making it a cornerstone of the global energy transition. According to the **International Energy Agency (IEA)**, green hydrogen could meet up to **24% of the world's energy needs by 2050**

### India's Commitment to Green Energy

India aims to achieve net-zero emissions by 2070 and meet half of its electricity needs through renewable sources by 2030. The country is implementing the **Panchamrit plan**, which includes increasing **renewable energy capacity to 500 GW**, reducing **CO<sub>2</sub> emissions by 1 billion tonnes**, and lowering carbon intensity by **45% by 2030**. Initiatives like the Mission Innovation and International Solar Alliance, spearheaded by Prime Minister Narendra Modi, are driving these efforts.

### Uttar Pradesh's Green Hydrogen Initiatives

Uttar Pradesh, India's most populous state, is taking significant steps to lead the green hydrogen revolution. With strategic policies and targeted initiatives, UP is positioning itself as a leader in green hydrogen production, contributing to India's broader decarbonisation goals.

## Objectives and Goals

Uttar Pradesh's Green Hydrogen Policy aims to position the state as a hub for green hydrogen production and utilization. The policy focuses on reducing the state's carbon footprint and contributing to India's overall decarbonisation efforts. By attracting investments and creating employment opportunities in the green hydrogen sector, the policy also promotes the use of green hydrogen in transportation, industrial processes, and power generation.

## Incentives and Subsidies

To achieve these goals, UP offers various incentives and subsidies, including:

- **Capital Subsidy:** Up to 30% on the total project cost, with a maximum of ₹150 Cr. per project. The first five projects can receive up to 40%, with a cap of ₹225 Cr.
- **Land and Water Resources Incentives:** Land at concessional rates, 100% exemption on stamp duty, and provision for land allocation for captive solar energy plants.
- **Exemptions:** 100% exemption on electricity duty, intra-state wheeling, transmission, and cross-subsidy surcharges for the first 10 years.
- **Ease of Doing Business:** Simplified environmental clearance, a dedicated single-window portal, and establishment of a land bank and transmission infrastructure to support investments.
- **A large number** of other incentives, exemptions, and benefits are mentioned in the UP Green Hydrogen Policy 2024. Click here for full details: <https://invest.up.gov.in/green-hydrogen-policy/>

## Major Investment Proposals by Global Companies

***Several companies have shown interest in investing in UP's green hydrogen projects, including:***

- ZERO FOOTPRINT INDUSTRIES LLP**
  - **About Company:** A micro enterprise committed to sustainability.
  - **Investment Plan:** They plan to invest INR 150 crore in a new Green Hydrogen manufacturing project.
  - **Employment Impact:** This initiative is expected to create around 250 jobs in Rampur.
- Trafalgar Square Capital:**
  - **About Company:** A significant player from the United Kingdom focusing on green initiatives.
  - **Investment Plan:** They intend to pour in a massive INR 41,000 crore to produce "Green" Hydrogen.
  - **Employment Impact:** This venture will generate approximately 250 jobs in Lucknow.
- Welspun Group:**
  - **About Company:** A prominent ultra-mega company in India.
  - **Investment Plan:** They are investing INR 40,000 crore in a project combining Green Hydrogen and Green Ammonia production with renewable energy.
  - **Employment Impact:** This ambitious project is set to create about 3,500 jobs in Bulandshahr.
- Torrent Power Limited:**
  - **About Company:** A major player in the Indian energy sector.
  - **Investment Plan:** They plan to invest INR 4,000 crore in an 80 KTPA Green Hydrogen production plant.
  - **Employment Impact:** This project will create approximately 250 jobs in Lucknow.

## Environmental Benefits

UP's focus on green hydrogen promises significant environmental benefits, such as:

- Substantial reduction in carbon emissions across multiple sectors.
- Promotion of sustainable environmental practices.
- Exemption of green hydrogen projects from environmental and state NOCs, streamlining development.

## Future Prospects

Despite challenges, UP's commitment to establishing industrial clusters and providing substantial financial incentives sets a positive trajectory for green hydrogen growth. Advances in technology and increasing international interest in clean energy solutions are expected to drive down costs and improve efficiency.

## Conclusion

Uttar Pradesh's bold initiatives in green hydrogen exemplify a transformative approach to energy innovation and environmental sustainability. The state's comprehensive strategy aligns with India's ambitious environmental goals and sets a precedent for global and national energy sectors. By fostering collaborations and projects aimed at amplifying green hydrogen production and utilization, UP is demonstrating the vital role of regional actions in addressing global climate challenges.