GREENZO ENERGY INDIA LIMITED
ISO 9001-14001

GREEN HYDROGEN

REFUELLING STATIONS

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A WORD FROM THE MD

At Greenzo Energy, we envision a future where transportation is no longer dependent on fossil fuels but powered by clean and sustainable hydrogen. Our focus is on building reliable hydrogen refuelling infrastructure and accelerating the adoption of green mobility solutions.

By collaborating with industry, government, and technology partners, we are working to make hydrogen accessible, affordable, and safe for all. Through these efforts, Greenzo Energy is proud to contribute to India's net-zero ambitions and lead the transition toward a cleaner, greener, and more resilient transport sector.

SANDEEP AGARWAL
FOUNDER & MANAGING DIRECTOR

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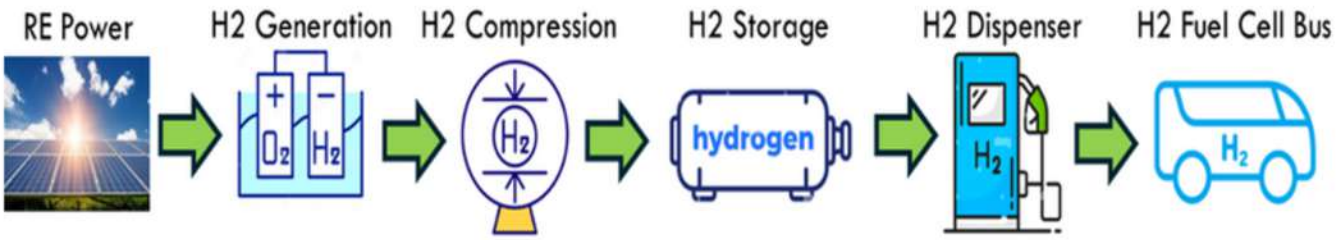
1. EXECUTIVE SUMMARY

The transportation sector is one of the major consumers of fuel i.e., mostly relying on fossil-based fuels. With the rising energy demand and consumption of fossil fuels, the concentration of pollutants and greenhouse gases (GHGs) are increasing in the atmosphere. Hydrogen (H_2) is a well-known source of clean energy options and a better alternative to fossil fuels. It has the potential to become a promising fuel for renewable transportation by providing safe, efficient, stable, accessible, and customer-friendly energy. This is due to its many characteristics, such as energy density, high calorific value, affordability, and a wide variety of production methods. H2 has the potential to completely replace the use of fossil fuel in internal combustion engines.

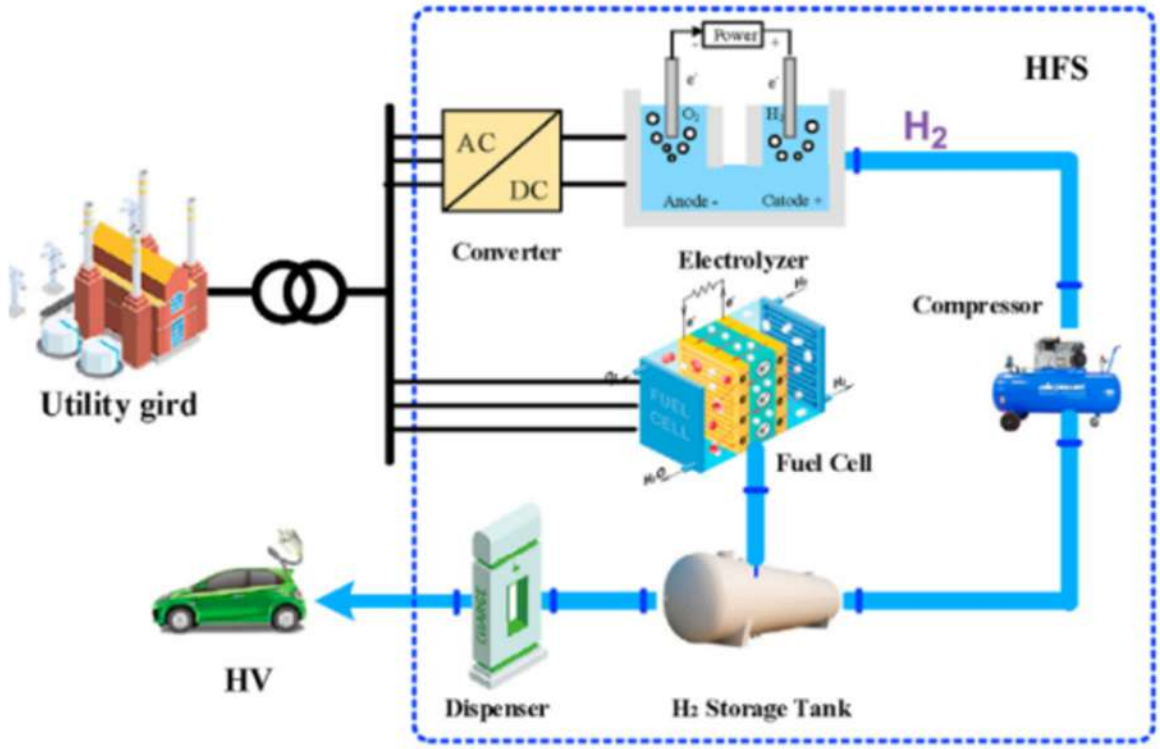
Despite its many advantages, H_2 storage is a significant issue. Hence, the recent advances and challenges in H_2 storage i.e., physical, and material-based techniques have been deliberated. Further, the risks involved during the production, handling, and transportation of H_2 fuel is highlighted, and the latest trends in its safety recommendations have been suggested.

2. OUR CONTRIBUTION

At Greenzo Energy, we are committed to accelerating the hydrogen economy by enabling reliable, efficient, and sustainable hydrogen refuelling stations (HRS). With our advanced alkaline electrolysers, we produce green hydrogen on-site, helping mobility and transport sectors transition to zero-emission fuels.



The Hydrogen Fuelling System (HFS) works as an integrated pathway to produce, store, and supply hydrogen for clean mobility. Electricity is first drawn from the utility grid and passed through a converter, which transforms alternating current (AC) into direct current (DC) suitable for the electrolyser. The electrolyser then splits water into hydrogen and oxygen through the process of electrolysis, where oxygen is released at the anode and hydrogen is collected at the cathode. The generated hydrogen is directed to a compressor, which increases its pressure to make storage and transportation more efficient. This compressed hydrogen is stored safely in a high-pressure hydrogen storage tank, acting as a buffer between production and demand. From here, hydrogen can either be fed into a fuel cell to generate clean electricity or sent directly to a dispenser for end use. The dispenser functions like a fuelling station pump, delivering compressed hydrogen to hydrogen vehicles (HVs).



These vehicles use onboard fuel cells to convert hydrogen into electricity, powering the vehicle with only water vapor as the byproduct. This system not only provides a clean and sustainable energy cycle but also supports grid balancing, energy storage, and decarbonization of the transportation sector.

3. HOW GREENZO SUPPORTS REFUELLING STATIONS

3.1 On-Site Hydrogen Production

- Our electrolysers split water into hydrogen and oxygen using renewable electricity.
- On-site generation eliminates costly transportation and ensures a continuous supply of green hydrogen.

3.2 High-Purity Hydrogen for Mobility

- Greenzo electrolysers deliver hydrogen at 99.999% purity, meeting global fuel cell vehicle standards.

3.3. Integration with Refuelling Infrastructure

- Compatible with compressors, storage tanks, and dispensers.
- Scalable design for both small-scale pilot stations and large commercial hubs.

3.4 Safety & Reliability

- Designed with robust safety systems to meet international codes and standards.
- Proven stack durability ensures low operating costs and long life.

3.5 Sustainability & Net-Zero Goals

- By enabling green hydrogen mobility, we reduce reliance on fossil fuels.
- Supports governments, industries, and transport operators in achieving net-zero targets.

Applications in Hydrogen Mobility

- Hydrogen Cars (FCEVs) – Fast refuelling in 3–5 minutes.
- Buses & Trucks – Clean, long-range, heavy-duty mobility.
- Industrial & Fleet Vehicles – Decarbonized logistics and operations.

Why Choose Greenzo Energy?

- Expertise in Electrolyser Manufacturing
- Customizable Solutions (30 Nm^3/hr to MW scale)
- Proven R&D and Innovation in Hydrogen Technologies
- Commitment to Sustainability and Energy Transition

4. CONCLUSION

Greenzo Energy is committed to becoming a leader in the hydrogen economy by bridging the gap between renewable energy generation and clean mobility. Our alkaline electrolysers are engineered to accelerate the adoption of hydrogen in refuelling infrastructure and transport decarbonization.

We aim to expand India's hydrogen ecosystem by collaborating with automotive OEMs, government bodies, and energy companies to establish a strong network of hydrogen refuelling stations. Our long-term vision is to make hydrogen accessible, affordable, and reliable, ensuring that clean mobility becomes a mainstream reality. By integrating hydrogen into the transport sector, we support India's climate goals, reduce dependence on fossil fuels, and empower industries with a sustainable energy pathway.

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