

High Production Costs: The production of green hydrogen through electrolysis can be expensive, primarily due to the high cost of renewable energy sources and electrolysis equipment.

Infrastructure Development: Establishing a comprehensive infrastructure for green hydrogen production, distribution, and utilization requires significant investment and coordination.

Solution: Implementing energy storage solutions such as batteries or pumped hydro storage can help mitigate the intermittency issue by storing excess renewable energy during periods of high production for later use in electrolysis. Additionally, advancements in hydrogen transportation infrastructure, including pipelines, trucks, and ships, can help facilitate the widespread distribution of hydrogen.

Solution: Research and development efforts should focus on improving the efficiency of electrolysis technologies, such as developing more efficient catalysts and optimizing system design.

Solution: Governments and private sector stakeholders can work together to develop policies and incentives to support the deployment of green hydrogen infrastructure. Utilizing advanced safety technologies, such as leak detection systems and hydrogen sensors, can enhance safety measures throughout the hydrogen value chain.

Efficiency of Electrolysis: Electrolysis processes require significant energy input, and current electrolyzer technologies may have limited efficiency.