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Topics Covered



- What is the news?
- A Landmark Achievement:
- Breaking Free from Fossil Fuels:
- Measureable Environmental Benefits:
- Introducing Technology:
- Symbol of Growing Commitment:
- Challenges and Way Forward:
- QuizTime:
- Are you Ready!

- Read the Below Instructions Carefully:
 - Please Rate!
- Mains Questions:
 - Question 1:
 - Model Answer:
 - Question 2:
 - Model Answer:
 - Relevance to the UPSC Prelims and Mains syllabus under the following topics:

What is the news?

- Union Steel Minister Jyotiraditya Scindia virtually launched India's first green hydrogen

plant in the stainless steel sector at Jindal Stainless Limited in Hisar, Haryana.

- This plant will be the world's first off-grid Green Hydrogen plant for the stainless steel industry and the world's first Green Hydrogen plant with rooftop and floating solar.
- Over two decades, this project will reduce carbon emissions by 2,700 Metric Tonnes per year and 54,000 Tonnes of carbon dioxide.

A Landmark Achievement:

- India's first green hydrogen factory for stainless steel was inaugurated in Hisar, Haryana.
- This partnership between Jindal Stainless Ltd. (JSL) and Hygenco Green Energies is vital to Indian industry's sustainability.



Breaking Free from Fossil Fuels:

- Hydrogen production traditionally uses fossil fuels, emitting greenhouse gases. Cleaner green hydrogen is available. Electrolysis divides water molecules into hydrogen and oxygen using renewable electricity like solar or wind. This revolutionary Hisar facility uses rooftop and floating solar panels to generate sustainable electricity .

Measureable Environmental Benefits:

- The environmental benefits of this initiative are clear. The plant aims to cut carbon emissions by 2,700 metric tonnes per year, or 54,000 tonnes over 20 years. This means cleaner air, a healthier earth, and a critical step towards India's clean energy aspirations.

Introducing Technology:

- Beyond environmental benefits, this green hydrogen factory advances technology. The world's first off-grid green hydrogen factory for stainless steel manufacture shows India's clean energy ingenuity. This novel method may inspire and drive similar ventures nationwide.

Symbol of Growing Commitment:

- Project relevance goes beyond its immediate impact. It powerfully represents India's growing sustainability commitment. The 2023 National Hydrogen Mission underlines the government's clean energy future ambition. This green hydrogen plant demonstrates India's ability to lead the green hydrogen revolution.

Challenges and Way Forward:

- Although this plant's opening is celebrated, obstacles persist. Scaling up green hydrogen production and building a strong transportation and use infrastructure will require sustained investment and teamwork. This project shows India's commitment to a cleaner, more sustainable future, giving hope.



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QuizTime:

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Are you Ready!

Thank you, Time Out !

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General Studies
CURRENT AFFAIRS QUIZ

Read the Below Instructions Carefully:

- Click on - Start Quiz

- Attempt all questions (You can attempt or leave)
 - After Attempting Last Question.
 - Enter Name & Email
 - Click on - Check Result
 - Scroll down - Check out Solutions too.
- Thank you.

Loading ...



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Category: General Studies

Which of the following is NOT a potential application of green hydrogen mentioned in the editorial?

- Power generation
- Manufacturing fertilizers
- Production of steel
- Refining petroleum

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Finish

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Category: General Studies

The primary benefit of using green hydrogen instead of traditional methods of hydrogen production is:

- Reduced cost
- Increased energy security
- Lower greenhouse gas emissions
- Improved energy efficiency

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Finish

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Category: General Studies

Consider the following statements about India's first green hydrogen plant:

- It is located in Hisar, Haryana.
- It is the world's first off-grid green hydrogen plant dedicated to the stainless steel sector.
- It utilizes a combination of rooftop and floating solar panels for electricity generation.
- All of the above.

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Category: General Studies

A major challenge associated with scaling up green hydrogen production in India is:

- Lack of awareness about its benefits
- Absence of skilled workforce
- High initial investment costs
- Limited availability of water resources

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Category: General Studies

The National Hydrogen Mission launched by the Indian government aims to:

- Promote the use of hydrogen fuel cells in public transportation

- Develop a robust infrastructure for hydrogen transportation and storage
- Establish India as a global leader in green hydrogen technology
- All of the above

Prev

Finish

Check Rank, Result Now and enter correct email as you will get Solutions in the email as well for future use!

Check the Result

Your score is

0%

Restart quiz

Please Rate!

Send feedback

Mains Questions:

Below Mains Question

Write in Comment Section



Question 1:

Critically examine the significance of India's first green hydrogen plant recently inaugurated in Hisar, Haryana. Discuss the potential benefits and challenges associated with scaling up green hydrogen production in India.(250 words)

Model Answer:

Significance of India's First Green Hydrogen Plant:

- **Environmental benefits:** This plant significantly reduces carbon emissions, contributing to cleaner air and tackling climate change.
- **Technological advancement:** It showcases India's commitment to innovation, paving the way for similar projects and potentially establishing India as a leader in green hydrogen technology.
- **Symbol of growing commitment:** It reflects India's increasing focus on clean energy sources, aligning with the National Hydrogen Mission.

Benefits of Scaling Up Green Hydrogen Production:

- **Decarbonization:** Green hydrogen can replace fossil fuels in various sectors, contributing to India's net-zero goals.
- **Energy security:** It reduces reliance on imported

- fossil fuels, enhancing energy independence.
- Job creation: The development of this sector can create new employment opportunities.

Challenges of Scaling Up Green Hydrogen Production:

- High cost: Currently, green hydrogen is more expensive than traditional methods.
- Infrastructure development: A robust infrastructure for transportation and storage of hydrogen needs to be established.
- Policy framework: Supportive policies are needed to incentivize production and adoption of green hydrogen.

Question 2:

What are the potential applications of green hydrogen in different sectors in India? Discuss the policy measures that can be taken to promote the adoption of green hydrogen in the country. (250 words)

Model Answer:

Applications of Green Hydrogen:

- Power generation: Green hydrogen can be used in fuel cells to generate electricity without

emissions.

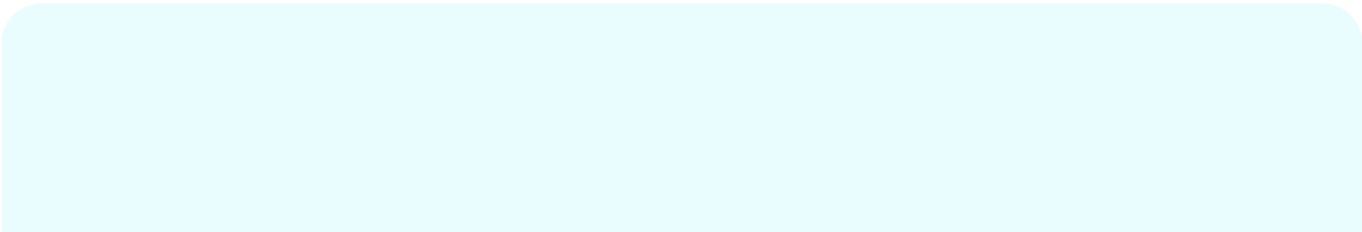
- **Transportation sector:** It can be used as fuel for electric vehicles, particularly heavy-duty vehicles like trucks and ships.
- **Industry:** Green hydrogen can be used in various industrial processes, such as steel production and fertilizer manufacturing, reducing greenhouse gas emissions.

Policy Measures for Promoting Green Hydrogen Adoption:

- **Financial incentives:** Providing subsidies and tax breaks for green hydrogen production and adoption can encourage investment and reduce costs.
- **Research and development:** Increasing funding for research and development of green hydrogen technologies can help bring down costs and improve efficiency.
- **Carbon pricing:** Implementing carbon pricing mechanisms can incentivize industries to switch to cleaner alternatives like green hydrogen.
- **Demand creation:** Setting mandatory blending targets for green hydrogen with other fuels can create demand and stimulate the market.

By addressing these challenges and implementing supportive policies, India can unlock the immense potential of green hydrogen for a cleaner and more sustainable future.

Remember: These are just sample answers. It's important to further research and refine your responses based on your own understanding and perspective.



Relevance to the **UPSC Prelims and Mains syllabus** under the following topics:



Prelims:

- **General Science and Technology:** Recent developments in science and technology. (Although not explicitly stated, green hydrogen could be considered a recent development in technology under this section.)

Mains:

- **GS Paper III – Science, Technology, and Development and Security:**
Science and Technology – developments and their applications and impact on society. (Similar to the Prelims syllabus, this section could potentially cover green hydrogen as a recent development and its potential impact.)
Environmental pollution & degradation, conservation of environmental resources. (Green hydrogen, as a clean energy source, could be linked to environmental conservation

discussions.)

- **GS Paper IV – Ethics, Integrity and Aptitude:** Conservation, environmental ethics – climate change, water conservation, and air pollution. (Green hydrogen can be discussed in the context of its role in mitigating climate change.)



*Click here to read in
Hindi.*

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Quiz Time

The profit triples with a doubling of the selling price. Determine the profit percentage.

- Option 1
- Option 2
- Option 3



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