

Assignment 1: Fill in the Blanks

1. Complete the sentences below using the correct terms or concepts from the article. (demand, biomass, \$2 trillion, green, Likewatt, Internet, downtime)
1. By 2030, the renewable energy market is expected to grow from \$880 billion to nearly _____ trillion.
2. Artificial intelligence (AI) is used in the energy sector to forecast _____ and manage the distribution of resources efficiently.
3. _____ hydrogen is produced using electrolysis and renewable energy sources like wind or solar, making it a carbon-free fuel option.
4. The _____ of Energy (IoE) involves a shift toward decentralized power grids and uses technologies like blockchain for secure energy trading.
5. Advanced engineering innovations, such as stronger turbine blades by Helicoid, aim to reduce _____ and improve the efficiency of renewable energy systems.
6. Bioenergy, derived from _____ or biofuel, is predicted to account for 30% of renewable energy production by 2023, according to the IEA.
7. In 2025, startups like _____ might have scaled their AI tool Optiwise to help consumers monitor their energy use and carbon emissions in real time.

Assignment 2: Matching

Match each renewable energy trend on the left with its description or example on the right.

Trend	Description/Example
A. AI in the Energy Sector	1. Uses electrolysis and renewable energy to create a carbon-free fuel source
B. Green Hydrogen Energy	2. Involves blockchain and IoT to manage decentralized energy trading and distribution
C. Internet of Energy (IoE)	3. Improves solar panel efficiency with fluorescent ink and new materials
D. Advanced Engineering	4. Forecasts demand and optimizes power distribution in real-time
E. Bioenergy	5. Converts waste rice husks into power for a brewery in Cambodia

Assignment 3:

1. **How does artificial intelligence (AI) contribute to the transition to renewable energy, and why is it especially important for decentralized**

energy systems?

- 2. What makes green hydrogen a promising energy source, and what challenges might have been overcome by 2025 to make it more widespread?**
- 3. Explain how the Internet of Energy (IoE) could change the way people use and trade energy in 2025 compared to traditional centralized power grids.**
- 4. Describe one example of an advanced engineering innovation in renewables and how it could improve the reliability or cost of renewable energy by 2025.**
- 5. Why might bioenergy be considered controversial as a renewable energy source, and how might projects like Heineken's brewery power plan address this concern?**
- 6. Imagine it's March 30, 2025. Predict one way a trend from the article (AI, green hydrogen, IoE, engineering, or bioenergy) might be part of your everyday life.**

Assignment 4. Choose 1 trend and give additional information on it