World’s Most Powerful Hydrogen Train Engine

Why in News?

Recently, **the Union Railway Minister** announced that India has achieved a significant milestone in **green energy** leadership by **developing the world’s most powerful hydrogen-powered train engine.**

- The hydrogen-powered train engine will undergo its **first trial run on the Jind-Sonipat route in Haryana.**

Key Points

- **Key Features of India’s Hydrogen Train Engine:**
  - **Power Output:** 1,200 horsepower, surpassing global counterparts.
  - **Technology:** Fully developed using indigenous expertise.
  - **Green Milestone:** Marks a significant step in India’s transition to hydrogen-powered transportation.
- **Global Leadership:**
  - Only four countries—**Germany, France, Sweden, and China**—currently operate hydrogen-powered trains**,delivering a power output of 500-600 horsepower.**
  - India's indigenously developed hydrogen engine surpasses these with a power output of 1,200 horsepower, the highest in its category.
- **Indigenous Development:**
  - The **engine was developed entirely by indigenous expertise,** showcasing the country’s innovation in **clean energy solutions.**
  - This achievement is a **step toward India leading major economies** in green energy-driven growth.

Green Energy

- Green energy is defined as energy derived from **renewable sources**. It is also known as clean, sustainable, or renewable energy.
- Green energy generation emits no dangerous **greenhouse gases** into the atmosphere, resulting in **little or no environmental impact.**
- **Solar, wind, geothermal, biogas, low-impact hydroelectricity,** and certain qualified biomass sources are all key green energy sources.