



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.