

# Renewable Energy Fundamentals

Renewable Energy · Answer Key · 8 Questions

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**1. Which chemical element is most commonly used as the semiconductor material in commercial solar photovoltaic cells?**

- A) Silicon**
- B) Copper
- C) Lead
- D) Aluminum

**2. According to Betz's law, what is the maximum theoretical percentage of kinetic energy that a wind turbine can extract from wind?**

- A) 25.0%
- B) 59.3%**
- C) 85.0%
- D) 100.0%

**3. Which power plant holds the record for the world's largest energy producing facility by installed capacity?**

- A) Itaipu Dam
- B) Hoover Dam
- C) Three Gorges Dam**
- D) Grand Coulee Dam

**4. Geothermal energy primarily derives its power from which natural thermal source?**

- A) Earth's internal heat**
- B) Solar radiation absorbed by soil
- C) Friction from surface tectonic movements
- D) Ocean surface currents

**5. Biomass energy relies on organic matter that originally locked in solar energy through which biological process?**

- A) Cellular respiration
- B) Photosynthesis**
- C) Nitrogen fixation
- D) Fermentation

**6. Which celestial body exerts the primary gravitational influence that creates the tides harnessed by tidal power systems?**

- A) Jupiter
- B) The Sun
- C) The Moon**
- D) Mars

**7. What is currently the most widely deployed technology for grid-scale energy storage worldwide?**

- A) Lithium-ion batteries
- B) Pumped-storage hydroelectricity**
- C) Compressed air energy storage
- D) Flywheel energy storage

**8. What is the primary byproduct emitted when pure hydrogen gas is reacted with oxygen inside a standard fuel cell?**

- A) Carbon dioxide
- B) Methane
- C) Water**
- D) Nitrogen oxides