

Historical Milestones in Renewable Energy

Renewable Energy · Answer Key · 18 Questions

1. What was one of the earliest documented uses of wind power for mechanical work, dating back to the 7th century AD in Persia?

A) Grinding grain

- B) Pumping water
- C) Generating electricity
- D) Sawing timber

2. The first recorded instance of using solar energy for practical purposes, by Archimedes to set fire to Roman ships in 212 BC, is an example of what type of solar application?

A) Solar thermal concentration

- B) Photovoltaic effect
- C) Solar distillation
- D) Passive solar heating

3. Which invention in the late 19th century, often credited to Charles F. Brush, was one of the first successful automatic wind turbines for electricity generation in the United States?

A) The Brush Electric Dynamo

- B) The Niagara Falls Hydroelectric Power Station
- C) The first solar-powered car
- D) The Geothermal Power Plant at Larderello

4. The world's first city to be powered entirely by hydroelectricity from a large dam was:

A) Niagara Falls, New York

- B) Grand Coulee, Washington
- C) Hoover Dam, Nevada
- D) Itaipu Dam, Brazil

5. What significant event in 1973 spurred increased global interest and investment in renewable energy sources like solar and wind power?

A) The first major oil crisis

- B) The Chernobyl nuclear disaster
- C) The invention of the lithium-ion battery
- D) The discovery of vast offshore oil reserves

6. The Geothermal Power Plant at Larderello, Italy, which began operation in 1911, is historically significant as:

A) The first commercial geothermal power station

- B) The first to utilize solar thermal energy on a large scale
- C) The first to successfully harness tidal power
- D) The first to generate electricity from biomass

7. Who is credited with developing the first practical solar water heater in the United States, patenting it in 1891?

A) Clarence M. Kemp

- B) Charles F. Brush
- C) Nikola Tesla
- D) Thomas Edison

8. The development of the first successful photovoltaic cell by Bell Laboratories in 1954 was a major breakthrough for which renewable energy technology?

A) Solar electric power

- B) Wind turbine technology
- C) Geothermal energy extraction
- D) Biomass conversion

9. What historical event in 1900 demonstrated the potential for large-scale solar thermal power generation, even if not commercially viable at the time?

A) The installation of a large solar thermal engine in the Sahara Desert by Frank Shuman

- B) The first solar-powered ship crossing the Atlantic
- C) The use of solar ovens during the California Gold Rush
- D) The invention of the solar-powered radio

10. The 'Sputnik of solar energy' refers to the 1958 launch of Vanguard 1, the first satellite to be powered by:

A) Solar cells

- B) Radioisotope thermoelectric generators (RTGs)
- C) Small wind turbines
- D) Hydrogen fuel cells

11. Which country was a pioneer in developing and implementing large-scale tidal power projects, with the Rance Tidal Power Station in France opening in 1966?

A) France

- B) Canada
- C) United States
- D) China

12. The first significant use of biomass for electricity generation on an industrial scale can be traced back to the use of:

A) Wood and agricultural waste in early industrial facilities

- B) Biogas from animal manure in the 1950s
- C) Ethanol from corn in the 1980s
- D) Algae cultivation for biodiesel in the 2000s

13. The Kyoto Protocol, adopted in 1997, set legally binding targets for industrialized countries to reduce greenhouse gas emissions. This international agreement significantly influenced the growth of renewable energy as a strategy for climate change mitigation.

A) True

- B) False
- C) Partially true, but other factors were more influential
- D) Only relevant to developing nations

14. The first commercial solar thermal power plant, the 'Solar One' project in California, began operation in which decade?

A) 1980s

- B) 1970s
- C) 1990s
- D) 2000s

15. Which early form of renewable energy was crucial for sailing ships, enabling exploration and trade across oceans for centuries before the advent of fossil fuels?

A) Wind power

- B) Water power
- C) Geothermal heat
- D) Solar radiation

16. The development of the first practical electric generator by Michael Faraday in 1831 laid the groundwork for harnessing mechanical energy, including from renewable sources, to produce electricity. What was his key discovery?

A) Electromagnetic induction

- B) The voltaic pile
- C) The incandescent light bulb
- D) The steam engine

17. What historical development in the early 20th century made it possible to efficiently transport and distribute electricity generated from remote renewable sources like large hydroelectric dams?

A) The invention of the high-voltage transmission line

- B) The widespread adoption of battery storage
- C) The development of efficient electric motors
- D) The creation of the alternating current (AC) system

18. The Al Ghorair Solar Power Plant in Dubai, commissioned in 2017, is one of the largest concentrated solar power (CSP) plants globally. However, earlier forms of solar thermal technology were used much earlier for:

A) Water heating and cooking

- B) Powering industrial machinery
- C) Desalination on a large scale
- D) Direct electricity generation