

Overview of wind energy

Wind energy is a type of renewable energy that harnesses the power of the wind to generate electricity. It is a clean, sustainable and cost-effective alternative to traditional energy sources such as coal, oil, and gas.

Types of wind turbines

- **Horizontal-axis wind turbines (HAWT):** These are seen in large wind farms. They have a horizontal axis and are designed to face the wind.
- **Vertical-axis wind turbines (VAWT):** These turbines have a vertical axis, and the blades rotate around this axis. They are typically smaller than HAWTs and are often used for small-scale applications such as residential homes.

Pros of wind energy

- **Renewable:** Wind energy is a renewable-energy source, meaning it can be used indefinitely as long as the wind keeps blowing.
- **Environmentally friendly:** Wind energy does not produce harmful emissions or greenhouse gases, which makes it an environmentally friendly alternative to fossil fuels.

Cons of wind energy

- **Intermittent:** The wind is an intermittent energy source, meaning it can only generate electricity when the wind blows, and the power output can also be variable.
- **Land use:** Wind turbines require large areas of land to be installed, which can be a problem in densely populated areas.

Examples of wind energy projects

Alwen Forest (9 turbines / up to 33MW)
Developer – RWE Renewables UK Ltd.

Clocaenog Forest (27 turbines / 96MW)
Developer – RWE Renewables UK Ltd.

Brechfa Forest West (28 turbines / 57.4MW)

Pen y Cymoedd (76 turbines / 228MW)

Y Bryn Project (up to 21 turbines / up to 151.2MW)

