

# 6.12 Wind Energy

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Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 10 marks

**KEY WORDS** wind turbines 风力涡轮机 • wind 风能

## Objective

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Build the skills to answer exam questions on **wind energy**.

**You must be able to:**

- describe how **wind turbines** 风力涡轮机 generate electricity
- state advantages and disadvantages
- explain intermittency and siting issues

## 1 Worked examples

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Study these first. Each one shows the method for a question type used later — follow the steps and you can do the Practice and Exam-style questions yourself.

### ■ How it works

**Wind turbines** use moving air to spin blades connected to a generator, producing electricity. Wind is a **renewable**, low-carbon source.

### ■ Advantages

- Renewable, **no CO<sub>2</sub>** during use, no fuel cost.
- Land between turbines can still be farmed.

### ■ Disadvantages

- **Intermittent** — only works when the wind blows (needs storage/backup).
- Can **harm birds and bats**; noise and visual impact.
- Best only in consistently **windy** locations (coasts, plains, ridges).

### ■ A worked judgement

A wind farm on a windy coast provides clean power and lets the land below stay in use, but produces nothing on calm days and may affect local birds.

## 2 Practice

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Now apply the methods above.

**2.1** What spins a wind turbine's blades? [1]

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**2.2** State one advantage of wind energy. [1]

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**2.3** State one disadvantage. [1]

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## 3 Exam-style questions

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**3.1** A disadvantage of wind power is that it is [1]

|   |   |
|---|---|
| A | B |
| C | D |

**A** a major CO<sub>2</sub> source

**B** intermittent (depends on wind)

**C** nonrenewable

**D** available everywhere equally

**3.2** A region installs a large wind farm.

(a) State one benefit and one drawback. [2]

(b) Explain how the intermittency problem could be managed. [2]

**3.3** Explain why wind energy is considered renewable and low-carbon. [2]