

Exercise walk-through

Renewable and Nonrenewable Resources ■ 6.1

eXercise

You must be able to

- classify energy sources as **renewable** 可再生 or **nonrenewable** 不可再生
- give examples of each
- explain the difference in supply

Method — Renewable vs nonrenewable

- **Renewable** energy is replenished naturally on a human timescale: solar, wind, hydro, geothermal, biomass.
- **Nonrenewable** energy is finite, formed over millions of years: coal, oil, natural gas, and nuclear (uranium).

Method — Why the difference matters

Nonrenewable sources will eventually **run out** and cannot be replaced quickly; renewable sources can supply energy indefinitely if managed well.

Method — A worked classification

Sunlight and wind are **renewable**; coal and uranium are **nonrenewable** (uranium is renewable... no — it is a finite mined element, so nonrenewable).

Method — Note on biomass

Biomass (wood, crops) is **renewable** if replanted as fast as it is used, but can be unsustainable if harvested too fast.

Practice 2.1 ■ 1 mark

Classify solar energy.

Solution 2.1

Method: Renewable vs nonrenewable

Worked steps

Renewable **B1**.

Practice 2.2 ■ 1 mark

Classify coal.

Solution 2.2

Worked steps

Nonrenewable **B1**.

Practice 2.3 ■ 2 marks

Name two renewable energy sources.

Solution 2.3

Method: Why the difference matters

Worked steps

Any two: solar, wind, hydro, geothermal, biomass **B1** **B1**.

Exam-style 3.1 ■ 1 mark

Which is a nonrenewable energy source?

A wind

B solar

C natural gas

D geothermal

Solution 3.1

A wind

B solar

C natural gas



D geothermal

Worked steps

C — natural gas.

Exam-style 3.2 ■ 1 mark

A country relies mostly on coal and oil.

- (a) Classify these sources.
- (b) Explain why this reliance is a long-term problem.

Solution 3.2

Worked steps

(a) Nonrenewable **B1**. (b) These finite sources will eventually run out and cannot be replaced on a human timescale, so the energy supply is not secure long-term **M1 A1**.

Exam-style 3.3 ■ 2 marks

Explain why biomass can be either renewable or unsustainable, depending on use.

Solution 3.3

Method: Note on biomass

Worked steps

If trees/crops are replanted as fast as they are burned, biomass is renewable; if harvested faster than they regrow, it is depleted and unsustainable **M1** **A1**.