6 Renewable energy and conservation – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)		
solar			
wind			
hydroelectric			
geothermal			
Biomass			
hydrogen fuel cell			
Energy conservation			

Recall

In Part A you met fossil fuels and nuclear power. Now the cleaner alternatives:

- Solar panels and wind turbines make electricity without burning anything.
- Dams use flowing water to generate power.
- Saving energy is often the cheapest option of all.

Each idea has a short worked example before the Practice.

New ideas

1 The main renewables

Clean, renewable sources make electricity without fuel:

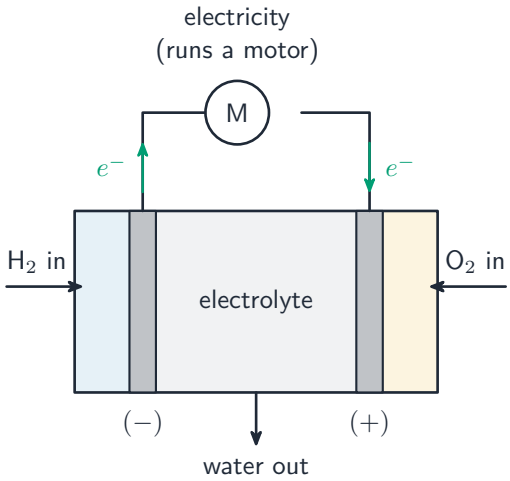
- **solar** – from sunlight (but only in daytime),
- **wind** – from moving air (but only when it blows),
- **hydroelectric** – from flowing water in dams,
- **geothermal** – from Earth's internal heat.

2 Their trade-offs

They are clean during use, but many are **intermittent** (sun and wind come and go) and need particular locations or large areas.

3 Biomass and hydrogen

Biomass (wood, crops, waste) is renewable but pollutes when burned. A **hydrogen fuel cell** makes electricity from hydrogen and oxygen, with only water as waste.



overall: $2H_2 + O_2 \rightarrow 2H_2O$

4 Energy conservation

Energy conservation – using less through efficient lights, insulation, and public transport – is often the cheapest and cleanest choice, because the energy you do not use needs no fuel.

Watch out: solar and wind are **intermittent** – they only produce power when the sun shines or the wind blows – so they usually need storage (batteries) or a backup supply to give steady electricity.

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Practice

Try these in order. The methods are all above.

2.1 Name four renewable sources of electricity. [2]

2.2 State what "intermittent" means for solar and wind power. [2]

2.3 State the only waste product of a hydrogen fuel cell. [1]

2.4 Explain why energy conservation is often described as the cheapest and cleanest option. [2]

2.5 Give one drawback of hydroelectric dams. [1]

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