AP ENVIRONMENTAL SCIENCE • EXERCISE SHEET

6.10 Geothermal Energy

Name: _____ Class: _____ Date: _____ **Total: 10 marks**

KEY WORDS geothermal 地热 • steam 蒸汽 • wind 风能 • solar 太阳能

Objective

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

You must be able to:

- describe **geothermal** 地热 energy from Earth's heat
- state advantages and disadvantages
- explain where it is most viable

1 Worked examples

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

Geothermal energy taps **Earth's internal heat**: hot water/steam from underground spins turbines to make electricity, or heats buildings directly.

Where it is viable

It is most practical near **plate boundaries and volcanic regions**, where heat is close to the surface (e.g. Iceland). Ground-source heat pumps work more widely for heating/cooling.

Advantages

- **Renewable**, reliable (works day and night), low CO_2.
- Small land footprint.

Disadvantages

- **Location-limited** — best only in geologically active areas.
- Can release some underground gases; high drilling cost.

A worked judgement

Iceland uses abundant geothermal energy because it sits on a plate boundary, but a geologically stable country has far less easily-accessible geothermal potential.

2 Practice

Now apply the methods above.

2.1 What is the source of geothermal energy? [1]

2.2 Where is geothermal energy most viable? [1]

2.3 State one advantage of geothermal power. [1]

3 Exam-style questions

3.1 Geothermal energy is limited mainly by [1]

A B
C D

A the weather
B its dependence on geologically active locations
C the time of day
D the season

3.2 A country on a plate boundary develops geothermal power.

(a) State two advantages. [2]

(b) Explain why a geologically stable country cannot easily use it. [2]

3.3 Explain why geothermal energy is more reliable than solar or wind. [2]