

Other types of renewable power – Spain’s potential 1

There are several types of renewable energy that scientists are researching at present. Some of these might be suitable for Spain.

Hydro-electric power (HEP)

This is generated by running water which is used to turn a turbine (see *Horizons 1* page 94). There are many successful HEP sites in operation all round the world.

It needs:

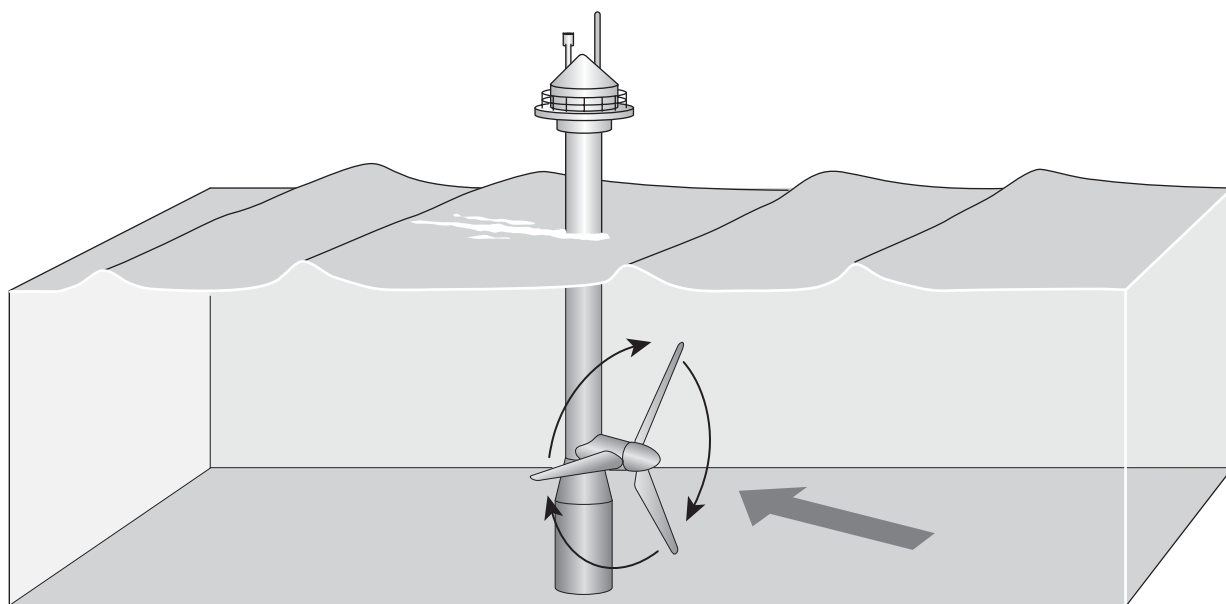
- heavy and reliable rainfall
- high land to build up a good ‘head’ of water to increase pressure
- deep, narrow valleys, to make good sites for storage dams
- cheap land, to allow flooding for the storage reservoirs.

Wave power

This is still very experimental. Scientists are trying to develop a system that will convert the action of the sea’s waves into electricity. Some schemes have been tried, but they have not proved successful ... yet.

It is expected that wave power will be successful in places where:

- there are large areas of open coastline
- these coasts are exposed to winds that have blown a long way across the ocean, because this increases the size and strength of the waves.



Other types of renewable power – Spain’s potential 2

Solar power

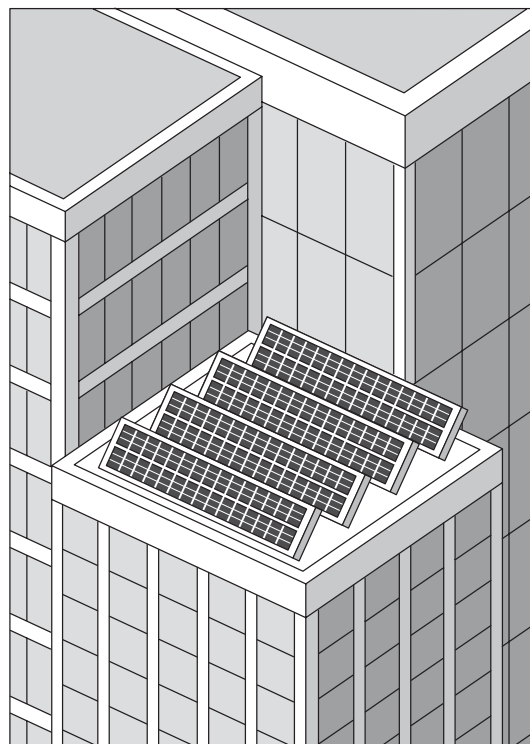
Power that harnesses the sun’s rays to produce electricity has been very successful but only on a small scale. You have probably seen, and may own, a solar-powered calculator. You may even live in a house which heats its water using solar panels on the roof. One very promising use of solar power is to distill sea water to produce fresh drinking water.

The two big problems are:

- a** building solar power stations on a large scale and
- b** storing the electricity which is produced when the sun is shining, so that it can be used when it is most needed.

To be successful, solar power needs:

- long hours of sunshine, which can be relied on for a large part of the year
- hillsides that face the direction of the sun
- an obvious local market, such as salt water distillation plants.



Tidal power

Tides are different from waves. Tides rise and fall approximately twice every 24 hours. There is one power station using tidal power, in Brittany, France. It has been technically successful, but the station was very expensive to build. It was built about 40 years ago ... and no more have been built since. There has been discussion about building tidal schemes in the Bristol Channel and Morecambe Bay.

Tidal power needs:

- an area with a big range between high and low tides
- an estuary that is ‘funnel shaped’, because this increases the rise and fall of the tide. (Find the Bristol Channel and Morecambe Bay on a map of the UK.)

- 1** Study each of the forms of renewable power set out on sheets 4.13 and 4.14. Then, for each form, answer these questions:
 - a** Is it suitable for use in Spain?
 - b** If it is suitable, which areas of the country are most likely to use it? Explain your answer.
 - c** Would it be used for general supplies, or for particular local needs?
- 2** Annotate a copy of sheet 4.1 to show areas of potential for alternative supplies of energy.
- 3** List at least five reasons why it is important for all countries to look for new ways of generating electricity using renewable energy resources.