

## 2 Renewable energies

### 2.1 Conversion of energy

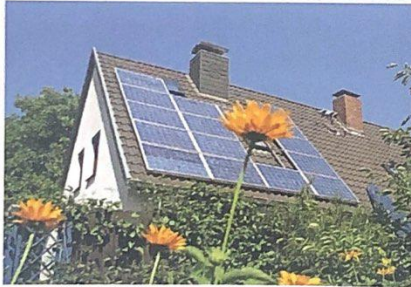
a) Complete the text using the words in the box.

efficiency • derived • renewable • electricity • nuclear •  
converted • combustion • depleted • applied

Renewable energy is **1** from resources that are generally not **2** by humans over time, such as the sun, wind, and water movement. These sources of natural energy can be **3** into heat, **4** and mechanical energy in several ways. Some technologies for the conversion of renewable energy such as hydropower, biomass, and waste **5** have already been **6** for many years. Other conversion technologies, such as wind turbines and photovoltaics, are already well-developed, but have not achieved technological **7** so far. Although geothermal energy is produced from geological sources, it is generally regarded as a **8** energy resource. Commercial **9** power is not considered to be a renewable energy resource.

I b) Discuss in groups: Why do you think nuclear power is not a renewable energy?

### 2.2 Solar power



R a) Put the incomplete sentences about solar cells into the correct order.

1. Solar power is an environmentally friendly technology. Sunlight is ...
2. ... generally called solar cells, are semiconductor devices that convert light directly ...
3. ... in two ways to produce energy: solar cells and solar panels. Photovoltaics (PVs), ...
4. ... approximately 0.5 volts, but when many individual cells are connected in series, ...
5. ... into electricity. PVs are made of thin slices of silicon. Two different types of silicon ...
6. ... converted into electricity without any polluting side effects. We can use the sun ...

#### WORD LIST

to achieve erreichen  
to apply anwenden  
approximately annähernd  
biomass Biomasse  
combustion Verbrennung  
commercial kommerziell  
conversion Verwandlung  
to convert verwandeln  
to deplete erschöpfen  
device Gerät  
efficiency Effizienz  
photovoltaics Fotozellen  
to regard betrachten  
semiconductor Halbleiter  
side effect Nebeneffekt  
waste Abfall

7. ... **current** is produced. A single solar cell produces only very little **current**, ...
8. ... **as in a battery**, they can generate a useful amount of power.
9. ... **layers** are connected by a wire. When light shines on them, an **electric** ...

I b) Now read on and, in pairs, discuss the questions 1–4.

Solar cell technology was first used in space, but it is now increasingly used in other applications. Today pocket calculators, watches and even cars and communications satellites are powered by solar energy.

Solar panels, on the other hand, collect the heat of the sun to supply us with hot water. Pipes are fixed to a black plate under a glass. The sun heats the liquid in the pipes and this heats a tank of water. Huge solar furnaces can use the sun's heat to generate electricity. Curved mirrors collect heat from the sun and concentrate it onto a furnace, where the heated water is converted into steam. The steam drives a turbine that can produce electricity like an ordinary power station.

Solar technology has improved steadily in recent years, and as a result the cost of solar energy has decreased considerably.

#### Pros



- Solar energy is free – fuel is not required and it produces no waste or pollution.
- In sunny countries, solar power can be used when there is no access to electricity in remote places.
- It is useful for low-power uses such as solar-powered outside lights.

#### Cons



- It doesn't work at night.
- Solar power stations are very expensive to construct.
- Solar cells cost a lot to produce compared to the amount of electricity they produce.
- It can be unreliable in a climate where sunshine is limited, such as in the British Isles.
- It's not much use for high-power applications, as you need a very large area of solar panels to get enough power.

1. Which solar power technologies can be used to produce energy?
2. How can solar panel technology be used to generate electricity?
3. Describe how energy is generated in solar cells.
4. Do the pros of solar energy outweigh the cons?

c) Find the English translations for these German words in the advert on page 126.

Sonnenkollektoren • Garantie • Anwendungen • hochmodern • Gleichstromumrichter • Bausatz • Gerät, Apparat • Batterieladegerät

#### WORD LIST

con **Nachteil**  
 current **aktuell**  
 curved **kurvenförmig**  
 furnace **Heizofen**  
 layer **Schicht**  
 to **outweigh** [ˌaʊtˈweɪ] **überwiegen**  
 pro **Vorteil**  
 to **supply** **liefern**  
 unreliable **unzuverlässig**

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- P d) Sie arbeiten für eine deutsche Firma, die sich auf Solartechnik spezialisiert hat, und Sie haben soeben die oben stehende Anzeige gelesen. Schreiben Sie eine E-Mail an Solar Products Ltd. und erkundigen Sie sich nach folgenden Punkten: (See e-mail layout and phrases on pages 31, 199–200.)

KMK II

their range of products (solar cells, solar panels, etc.) •  
technical details • costs/efficiency • terms of delivery and payment •  
brochures and price lists • discounts

## Englisch PT 16

### Topic: Energy and Environment/ Renewable energies

**Solve the following tasks.**

2.1. Conversion of energy:

- a) Write the text and fill the gaps with the correct words.;
- b) Write a coherent text of about 100 words.

2.2 Solar power:

- a) Put sentences 1-6 into the correct order. , leave 7-9 out, because it is not readable.;
- b) Answer questions 1-4.;
- leave c) out;
- d) Write the e- mail.

I hope we will see each other soon.

Take care!

Rika Heyer