

UNIT 8 BIOMASS – Part 2

Watch this video about biomass once.

<https://www.youtube.com/watch?v=dQ-cIVJuDks>

Now, read the sentences below. Are they true or false on the basis of the video? If necessary, look up the new words in your dictionary, and you can also watch the video again.

- | | |
|--|-------|
| 1. Biomass can be processed into fuel or heat. | true |
| 2. Biomass is a carbon-neutral fuel. | true |
| 3. Biomass can support the rural economy. | true |
| 4. District heating can supply energy and hot water for one household. | false |
| 5. Wood is the most common type of biomass fuel. | true |
| 6. Wood logs are not easily available. | false |
| 7. Wood pellets need less storage and have a higher calorific value than logs. | true |
| 8. Biomass is a clean but not sustainable fuel source. | false |

Watch the video again, and fill in the gaps with the correct words from the list. There are 2 extra words.



wood
18
8
inexpensive

pellets
automated
storage
expensive

boiler
boilers
advantage

According to the video, the most common type of biomass fuel in the UK is _____ (wood). The three main forms of wood used in biomass _____ (boilers) are logs, wood pellets and wood chips.

The main _____ (advantage) to using **logs** in a boiler is that they are easily available. A fully loaded burn chamber can burn for up to _____ (18) hours when the system is in low demand.

Wood _____ (**pellets**) are manufactured from by-products from saw mills and other wood-processing industries. Advantages:

- They need less _____ (storage) than logs or chips as they have a higher calorific value for the same volume.

- Wood pellet boilers are generally fully _____ (automated), with the pellets sucked by vacuum straight into the boiler from the store.

Wood chip is timber that has been shredded in a chipper.

Advantages:

- an easy fuel for automation: a screw-feed takes the chips from the store into the _____ (boiler)
- the chip system is _____ (inexpensive) to run.

These are the most important words for you to remember. Do you know their meanings in your language? If not, look them up in the dictionary.

biomass boiler

log

to load

fully loaded

burn chamber

by-product

saw mill

wood processing

storage

calorific value

to shred timber

Decide if the following statements are true on the basis of the text above.

1. In the United Kingdom, most biomass comes from wood. T
2. If you fill the burn chamber of a boiler with logs, you don't need to reload it for a day. F
3. Logs need less storage than chips. F
4. Both wood pellet and wood chip boilers can be fully automated. T
5. Wood pellets are transported into the boiler by a screw-feed. F
6. Wood chips are transported into the boiler by vacuum. F

Read the text below.

How is biomass used?

You can produce energy from biomass in different ways. You can use it directly to produce heat through combustion, or indirectly to convert it into various forms of biofuel.

Heat

Heat can be used to provide hot water for households, or to heat individual buildings or several households through district heating.

Heat can also be the source of electricity generation. Biomass can be burnt in biomass power plants, or in co-firing power plants. Co-firing means that two different materials are burnt at the same time. Biomass is usually added to coal, so no new plant has to be built to generate cleaner electricity.

Biofuels

Biomass can be converted into different biofuels in three ways: thermal, chemical and biochemical conversion. The forms of these biofuels can be solid, liquid or gas. The most common examples are bioethanol, biodiesel, biogas and wood pellets.

combustion – burning

district heating – a system in which one boiler heats a large number of buildings by sending hot water through pipes

solid – hard, not having the form of a gas or a liquid

liquid – material that can flow (e.g. water)



Biomass power plant in Werl, Germany

Choose the best answer.

1. Energy from biomass can be produced ...

- a) in three ways.
- b) directly to produce heat and indirectly to make biofuel. (yes)
- c) through combustion.
- d) by converting it into a biofuel.

2. 'Co-firing' means

- a) firing something with biomass
- b) burning two different materials in the same power plant (yes)
- c) burning coal in a power plant
- d) burning something in a power plant

3. A boiler is a device that
- a) heats water for cooking.
 - b) heats water to heat a building.
 - c) heats water to heat a building or buildings, and provide hot water for household use. (yes)
 - d) burns biomass to generate electricity.
4. Which one is true?
- a) Biogas is liquid biofuel.
 - b) Wood pellets are a common type of solid biofuel. (yes)
 - c) Biodiesel is biomass in gaseous form.
 - d) Bioethanol is an alcohol, and not a biofuel.

Here are the most important words of the text. Look them up in the dictionary if you don't know their meanings.

log
combustion
district heating
biomass power plant
co-firing power plant (e.g. coal + biomass)
bioethanol
biodiesel
biogas

Forum topic:

According to the video, biomass is carbon-neutral. What is your opinion? Give reasons and examples.