

HyTrEc

Hydrogen Transport Economy
for the North Sea Region

**The Interreg IVB
North Sea Region
Programme**

*Investing in the future by working together
for a sustainable and competitive region*



European Union



The European Regional Development Fund

Unit 1 – An introduction to Sustainable Energy and Hydrogen

TEST PAPER

Name :-

Date :-

Instructions: -

- Try to answer all questions
- Read each question carefully and choose the correct answer: A,B,C or D
- Make sure you only mark one answer for each question

Unit 1 – An introduction to Sustainable Energy and Hydrogen

TEST

1) What do you understand by the term hydrogen economy :-

- A The use of oxygen as the secondary fuel for storing and transporting energy
- B The use of oxygen as the core fuel for generating, storing and transporting energy
- C The use of hydrogen as the secondary fuel for storing and transporting energy
- D The use of hydrogen as the core fuel for generating, storing and transporting energy

(1.1)

2) Why are we using less energy

- A We are more effective storing and selling it to Europe
- B We are more effective storing and using it after 6pm
- C We are more efficient both in storing our energy and using it
- D We are more efficient both in producing our energy and using it

(1.1)

3) Which of the statements below is true?

- A Burning fossil fuels increases the level of hydrogen in the atmosphere
- B Burning fossil fuels decreases the level of hydrogen in the atmosphere
- C Burning fossil fuels increases the level of carbon dioxide in the atmosphere
- D Burning fossil fuels decreases the level of carbon dioxide in the atmosphere

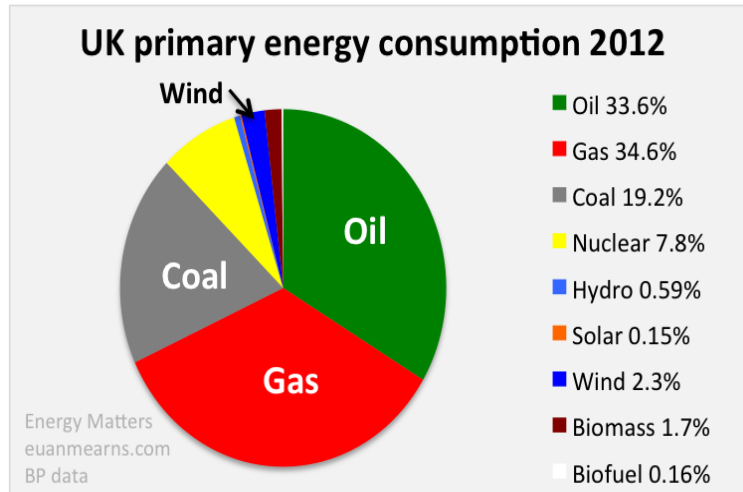
(1.2) (1.4)

4) When a fossil fuel like coal, oil or natural gas is burned usually to produce electricity or to power transport carbon dioxide will be released into the atmosphere, what is this process called?

- A Greenhouse capture
- B Carbon warming
- C Global warming
- D Global cooling

(1.2) (1.4)

5) Looking at the pie chart below for the 2012 UK energy consumption (%) figures identify which statement is correct.



- A Gas consumption represents the highest consumption of energy whilst biofuel provides the lowest energy consumption
- B Gas consumption represents the highest consumption of energy whilst solar provides the lowest energy consumption
- C Oil consumption represents the highest consumption of energy whilst solar provides the lowest energy consumption
- D Oil consumption represents the highest consumption of energy whilst solar provides the lowest energy consumption

(1.3)

6) Traffic congestion is defined as:-

- A A condition on road networks that occurs as use increases, and is characterised by slower speeds, longer trip times, and increased vehicles queuing
- B A condition just on motorways that occurs as use increases, and is characterised by Slower speeds, longer trip times, and increased vehicles queuing
- C A condition that occurs when vehicles' start breaking down and is characterised by slower speeds, longer trip times, and increased vehicles' queuing
- D All the above

(1.5)

7) Domestic households in the UK are considered by the Government to be in "Fuel Poverty" if they have to spend what percentage of their income on fuel to keep their home in a satisfactory condition.

- A 25%
- B 10%
- C less than 5%
- D 1%

(1.6)

8) Those mostly affected by fuel poverty are:-

- A Old people
- B Disabled people
- C One parent families
- D All the above

(1.6)

9) Identify one disadvantage of large scale electricity production using wind power.

- A Dangerous with many waste products
- B Destroys habitats
- C Visual pollution
- D Releases CO₂

(2.1)

10) Hydrogen is considered an important fuel for future use in central and distributed electric power, portable power and combined CHP for industrial development, plus:-

- A Health technologies
- B Education technology
- C Mobility technologies
- D Agriculture technologies

(2.2)

11) Hydrogen generation involves the process of the conversion of solar energy to hydrogen fuel; the fuel is then compressed and stored. The hydrogen fuel produced from the solar energy can be used to produce electrical power at:-

- A The site where the fuel is frozen, eliminating the necessity to transport hydrogen
- B The site where the fuel is disposed of, eliminating the necessity to transport hydrogen over long distances
- C The site where the fuel is burnt off, eliminating the necessity to bottle hydrogen
- D The site where the fuel is produced, eliminating the necessity to transport hydrogen over long distances

(2.2)

12) Identify one disadvantage of adopting hydrogen technologies.

- A When used as a fuel it produces large volumes of carbon dioxide
- B When used as a fuel it produces small volumes of carbon dioxide
- C Not easy to replace the existing fueling infrastructure
- D Easy to replace the existing fueling infrastructure

(3.1)

13) Hydrogen use will require the alteration of transport infrastructure on a scale never seen before in history, this will mean the:-

- A Construction of new roads and motorways
- B Distribution of new hydrogen fuel stations
- C An increase in the role out of lithium batteries
- D An increase in the number of road signs

(3.2)

14) The consequences of global warming are?

- A CO₂ levels are 10% higher than they were 650,000 years ago whilst methane is 130% greater
- B CO₂ levels are 20% higher than they were 650,000 years ago whilst methane is 130% greater
- C CO₂ levels are 30% higher than they were 650,000 years ago whilst methane is 130% greater
- D CO₂ levels are 40% higher than they were 650,000 years ago whilst methane is 130% greater

(4.1)

15) What is the main environmental opportunities for an organisation who engages with the hydrogen economy?

- A Water, oxygen, and hydrogen will create an endless cycle of energy.
- B Water, oxygen, and hydrogen will create only a small amount of energy
- C Water, oxygen, and hydrogen will create intermittent cycles of energy
- D Water, oxygen, and hydrogen will create only infra-red energy

(4.2)