

Q10B – the hydrogen economy

Candidate E evidence

10. B. ~~6)~~

SPACE FOR ANSWERS

a) It ~~is~~ does not create any dangerous gases, its only by product is water. ~~on rockets~~ space rockets hydrogen is used as a fuel source, since its only by product is water, they keep it and the astronauts drink the water. In California by the end of 2015 they aimed to have 50 public hydrogen fuel station open. Hydrogen is very explosive, so not alot of energy is needed to burn it, this saves the use of fossil fuels to create energy to light it. Hydrogen will ensure the make countries less dependend on fossil fuels and become self sufficient by not relying on foreign oil. Since dependancy of fossil fuels is decreased, less dangerous gases will be emitted from the burning of fossil fuels which will help stop climate change as less ~~of~~ greenhouse gases are produced so ~~can~~ the enhanced greenhouse effect may decrease.

b) Challenges of using hydrogen include that hydrogen is not an element that is found by itself on Earth. It is bonded to ~~hydrogen~~ ~~and~~ ~~on~~ carbon or oxygen, this means that it has to be removed through either of electrolysis, thermolysis or distillation. Electrolysis is the best way to do this. This requires alot of ~~electrical~~ energy to do this, so there is a need for the use of fossil fuels. It may take a while for hydrogen to become a highly used fuel and replace fossil fuels, this is mainly due to the high cost hydrogen generation which means its products are expensive so not alot of people use hydrogen fuel, and the technology is new.

Candidate F evidence

10B)

SPACE FOR ANSWERS

a) • The only by-product is water which is safe

- Hydrogen as a fuel would decrease our dependency on foreign oil companies and fossil resources
- Reduces greenhouse gas emissions
- Replace gasoline for transport and natural gas for heating homes
- Hydrogen is easy to source - fermentation of biomass as an example

b) • Hydrogen relies on lots of ~~water~~ electricity for electrolysis, most sources of electricity are fossil fuels

- Electrolysis is an expensive process
- Hydrogen technology may become more advanced in future and decrease its price
- Hydrogen requires lots of energy to produce as a fuel
- Hydrogen is not common^{er} because fossil fuel resources are cheaper