CASE STUDY: Multi-energy solution

Nuclear power’s second chance

- This involves trying to decrease the amount of energy used, either to reduce costs, emissions, or increase energy security
- Attitudes to nuclear power are shifting due to climate change and fears over the security of fossil fuel supplies
- China and India are building several reactors and intend to increase their nuclear generation capacity in the next 15 years
- The USA has experienced a rush in applications to build new reactors
- In the UK there is now government support for a new generation of nuclear power plants
- By 2008, 439 nuclear reactors in 31 countries were supplying 15% of the world’s electricity – 370 gigawatts a year
- It is estimated by 2030 this output will increase to 520 gigawatts
- Nuclear energy does not produce greenhouse gas emissions
- Uranium is relatively cheap and easy to mine and many experts think that it is plentiful and will last nearly 150 years
- The fact that it is used in small quantities means that uranium is cheap to transport
- However there are some problems highlighted with nuclear power highlighted by the 1986 incident at Chernobyl
- Modern power stations are designed to be safe using systems that operate automatically
- But while new designs are safe, they will generate waste from radioactive materials
- This is difficult to manage, politically as well as technically
- Nuclear plants are expensive and can cost several billions of pounds to build

Wind power

- Wind generation produces about 1% of the global electricity supply
- Large scale wind turbines are connected to electricity grids, while individual turbines can provide electricity to isolated locations
- In wind pumps or mills, wind energy is used directly as mechanical energy for pumping water or grinding grain
- Wind energy is plentiful, renewable, widely distributed and clean
- Fluctuations in wind speed rarely create problems when wind power is used to supply a low proportion of total demand
- Wind farms have met local opposition with many people feeling that they looking unsightly, make a droning noise and are a danger to birds