Environmental Studies
FACT SHEET

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Energy Use - Ethical Implications

There are ethical implications not only to do with the **amount** of energy we use, but also the **source** of that energy. There are two important considerations:

1. How does our energy use affect people and wildlife now? i.e. current generations.
2. How does our energy use affect future generations of humans and other species?

Impacts on current generations

All forms of energy generation and use have some environmental impact (Table 1). Fossil fuel extraction may result in local air and water pollution. Fossil fuel use contributes to local air (smog) and water (acid rain) and global (greenhouse effect) pollution. Renewables have an impact: a wind farm may spoil a home-owner's view for the rest of their life, construction of the three Gorges Dam in China has resulted in the relocation of nearly a million people, often against their will and, by decreasing downstream flooding, will decrease the fertility of croplands.

Since any energy use has some negative effect, it seems ethically sensible to minimise energy wastage. However, people in developing and developed countries use energy for very different things and people in developed countries have a much greater potential to decrease their energy use: In the foothills of Nepal, the major source of energy is wood and it is used for cooking. In the suburbs of Northampton, the major energy use in a household is for transport – using the car to go to the out-of-town supermarket or just driving for relaxation.

The Nepalese villages may cause short-term local air pollution, but wood as a biofuel is likely to be carbon-neutral (the CO_2 given off when it's burned is equal to the CO_2 the tree absorbed, so the net effect is zero).

The Northamptonshire family estate car contributes to national and global air pollution which may actually affect the Nepalese villager. Thus, ethically, there may be a greater case for people in developed countries to try to do everything they can to minimise energy wastage.

All of the above uses of energy affect people and other species of animal and plant now. But we also need to consider **future generations**. Again, this involves thinking about how much energy we use and its source.

It is perhaps useful to think of ourselves as just one generation of earth stewards in a long line of such earth stewards. Our parents' generation handed over responsibility to us and we must hand over responsibility for conserving earth's resources and maintaining biogeochemical cycles to our children and thence, to our children's children etc. In this light, we need to consider issues such as:

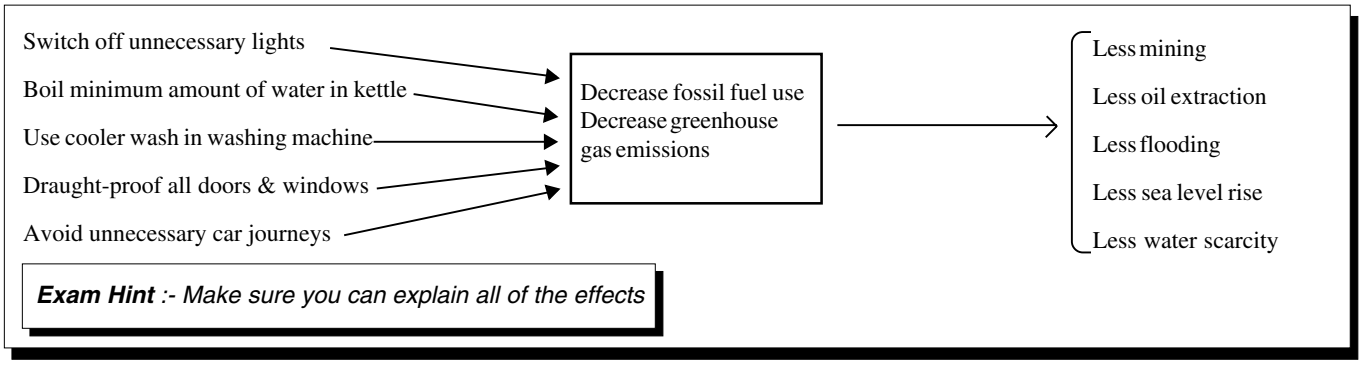
- The finite nature of fossil fuels and the unsustainable way in which we are currently consuming them. Do we have the right to use them all up?
- The responsibility we have not to create problems which we are effectively forcing future generations – our children or our children's children – to deal with. The high level of nuclear waste from Sellafield will be deadly for the next hundred of thousands of years!
- The degree to which we take personal responsibility for problems such as the enhanced greenhouse effect. The grandchildren of 25 year old adults living in the Maldive Islands, in the West Indian ocean, will almost certainly have to move to the mainland because, with current projected sea level rise, the Maldives will be submerged. Every car trip to the out-of-town supermarket increases that likelihood, albeit by an infinitely small amount. When our individual effect is so small, it can be hard not to say 'I can't do anything'.

Table 1. Energy Impacts - *Consider which impacts have consequences for future generations*

Energy Source	Extraction	Construction/Use
Fosil fuels Coal	Habitat Destruction	CO_2 – Greenhouse gas therefore global impact
Oil	Pollution	NO_x – Acid rain/smog
Gas	Finite	SO_2 – Acid rain Particulates – health problems so local impact
Biofuel	-	C neutral
HEP	-	decrease downstream flooding therefore decrease fertility therefore decrease food production Destruction of valleys Relocation of villagers
Wind	-	Visual Pollution Noise Pollution
Wave	-	May change or increase erosion and deposition
Tidal	-	Permanent change to estuarine processes
Geothermal	-	Drilling Hot water may damage aquatic life
Nuclear	Habitat Destruction Pollution	Radiation leak Accumulation of toxic waste, which further generations will have to take care of

However, it is quite easy for people in developed countries to make simple changes which will reduce their energy impact (Fig 1).

Fig 1. Ethical Choices



Exam Hint *:- Make sure you can explain all of the effects*

Government Policy: Ethical Energy Use

The government have announced that they intend to encourage the development of more energy efficient housing by:

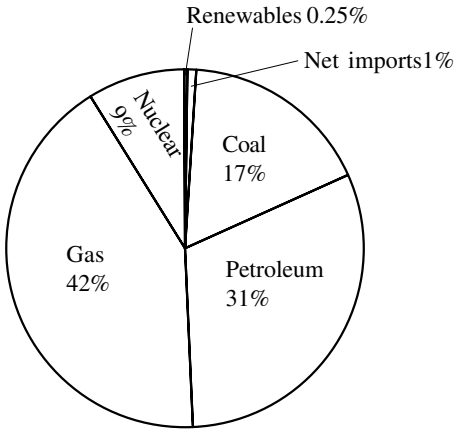
- Offering tax breaks for energy efficient house construction and refurbishment – for example to encourage the use of solar panels
- Cuts in VAT on insulation, draught proofing and double glazing
- Charging higher rates of VAT on any new homes that fail to meet the energy efficient targets.

The energy mix

Although all sources of energy have an environmental impact, it is ethically sensible to try to reduce our use of fossil fuels (coal, oil and gas) and increase our use of renewables because:

1. Fossil fuels are finite and we have no right to deprive future generations of them.
2. Burning fossil fuels accelerates global climate change because of CO_2 and NO_x emissions.
3. The impacts of renewables tend to be local.

UK energy consumption



Typical Exam Question

Read the following article and answer the questions that follow.

Bush warms the world, but does it matter?

Citing economic reasons, Mr Bush unilaterally withdrew the United States from the Kyoto treaty in 2001. This dramatically reduced the effectiveness of an instrument whose ability to actually reduce atmospheric carbon dioxide levels was already miniscule.

It has been argued that, in order to bring climate change to a halt, greenhouse gas emissions need to be cut back, now, by 60%, based on 1990 levels. When it was signed in 1997 the Kyoto treaty merely specified an emissions cut of 5%, and that from the industrialised countries alone. It has been estimated that a cut of this size would reduce the expected global temperature rise over the next hundred years – estimated to be up to 5.8°C – by just 0.05°C. By withdrawing from the treaty, the US has halved this figure again.

Many scientists are becoming cynical, arguing that whilst industry can be made to reduce its emissions, individual homeowners pose much more of a problem; the Kyoto treaty expects people to make personal sacrifices and that means turning citizens into activists. There can be no clearer illustration of the contrast between the activist and the citizen than in the two sides of the personality of John Prescott: environmental activist Prescott took a key role in negotiating Kyoto; citizen Prescott then came home and climbed into one of his gas-guzzling Jaguars.

It is citizens we must address, not by forcing them to become activists but by helping them to reduce their impact by better technology. The possibility of replacing the internal combustion engine with the hydrogen fuel cell seems to offer a real chance and every possible incentive must be offered to bring this about.

Based on an article: The Independent 30/10/02 M McCarthy

(a) Outline the ethical arguments for the US:
  (i) withdrawing from the Kyoto treaty *(3)*
  (ii) agreeing to the Kyoto treaty *(3)*

(b) Suggest four ways in which domestic energy consumption can be reduced *(4)*

Answers

(a) (i) reduction in emissions means reducing energy use;
which would lead to reduced industrial output/ loss of jobs;
increased dependence on welfare payments;
Kyoto would have so little effect anyway;

(ii) present energy use causing global warming;
will bring flooding/hurricanes/drought etc to people in developing countries who use much less energy than US/developed countries;
fossil fuels finite;
future generations may face climate extremes/energy shortages;

(b) loft insulation; double glazing; draught-proofing reducing vehicle use; etc

Acknowledgments: This Factsheet was researched and written by Kevin Byrne *Curriculum Press, Unit 305b, 120 Vyse Street, Birmingham. B18 6NF*

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