TEXT 2 Energy Sources

Pre_read

1. Is your home heated in winter and, if so, how? How is your food cooked?
2. Which kinds of fuel are used in your country to make electricity for industry and the home?
3. Are there any problems or difficulties in getting enough energy or paying for it?
4. Do you think the situation will have changed much in a hundred years' time and, if so, why?

Text

Para 1

In technologically advanced societies, the enormous consumption of energy per head is one aspect of the ever-increasing pressure man is placing on his environment. Early industrial man used three times as much energy as his agricultural ancestor; modern man is using three times as much as his industrial ancestor. If present trends continue, the rate of consumption will have tripled again by the end of the century. The problem lies in the fact that most of our current energy sources are finite. The hard truth is that a day will come when there is little or no exploitable coal, oil or natural gas anywhere. The sharp rise in the price of oil over the last decade has been unpleasant for many parts of the world but in the long run it is beneficial, partly because it discourages waste and partly because it has forced many nations to seek ways of developing better and more permanent sources of energy.

P2

Energy sources may initially be divided into two kinds: non-renewable (i.e. finite) and renewable. The former group includes coal, oil, gas and, in the long run, nuclear; the latter hydropower, solar power and wind power. The energy from all these sources ultimately derives from the sun. There is a further source – geothermal – which depends on the earth's own heat. In practice this may be classed as non-renewable as it is exploitable in only a few places and even there is limited.

P3 1 There is a second distinction that is often made, that between conventional and non-conventional energy sources. A conventional energy source is one which is at present widely exploited. In view of the points made in para. 1 (above) it will be realised that, broadly, the conventional sources are the non-renewable ones. This is not entirely true, however, as a good deal of oil is locked up in solid form in rock (tar sands and oil shale) and this source, though non-renewable, is also non-conventional, since it has not so far been developed very much. In what follows, the earlier distinction, rather than this one, will be assumed when comparing different energy sources.

P4 1 Energy sources may be compared from several points of view. You will hear about some of these in the talk, but first it is important to explain the terms used:

a) Renewability. This has been referred to.

b) Availability. Some energy sources may be excellent from some points of view but unlikely to contribute much at any time because of their limited geographical availability.

c) Cost and efficiency. Some sources may be cheap but highly inefficient, even to a point where they are not practicable. Coal, for instance, though certainly practicable and comparatively cheap, is not very efficient (the efficiency even of a modern power station is only 35%). Geothermal sources, though in a sense free, would, in order to be maintained, end up by using more energy than they produced. Others, like oil, may be comparatively efficient but are in danger of becoming prohibitively expensive.

TEXT Study 2

A. Content skim :

1. Look at the title of the unit and the first sentence of each paragraph. What is the topic of the passage? ……Description, classification and comparison of energy sources……

   ……

2. How does it deal with this topic? …the text is listing the different types of energy sources……

   ……

3. What is the main division between different kinds? …one division : renewable/non-renewable……

   second division : conventional/non-conventional

   ……

4. How many ways of comparing sources are given? ……

   3 ways : renewability, availability, cost & efficiency

   ……

What is the topic of each paragraph?

Para 1	impact of the ever-rising consumption of energy
Para 2	renewable and non-renewable energy sources
Para 3	conventional and non-conventional energy sources
Para 4	comparisn of the different types of energy sources

B. Comprehension Scan

Para 1 Line 5	What are these **"trends"** ?	using 3 times as much as before
Para 1 Line 6	What is the **"problem"** ?	the problem is : most energy sources are finite
Para 1 Line 11	What "**discourages waste** " ?	the sharp rise of the price of oil
Para 1 Line 12	"**better and more permanent**" than what ?	than oil

Para 2 Line 3	What does "**the latter**" refer to ?	renewable
Para 2 Line 4	Which sources are included in "**all**" ?	hydropower wind power and solar power
Para 2 Line 7	Which word(s) could you add between "**there**" and "**limited**" ?	geothermal energy
Para 3 Line 1	What was the first distinction ?	renewable/non-renewable
Para 3 Line 3	What were "**the points**" made in the first paragraph ?	coal, oil and natural gas will finish one day
Para 3 Line 6	What does "**this**" refer to ?	tar sands & oil shale
Para 3 Line 8	What is the earlier distinction and what is this one	earlier distinction : renewable/non-renewable this distinction : conventional/non-conventional

C. Classifying and comparing

Using the grid below, list vertically in the left-hand column all sources of energy mentioned in the text. Then, from information given so far, place à tick (V) in the appropriate box if an energy source has the feature noted at the head of the column. Mark with a cross (X) if it does not. If the information is not provided, leave the box empty.

Sources of energy	renewable	available	low cost	efficient	non-polluting
coal	x	v	v	x	x
oil	x	v	v	v	x
natural gas	x	v	v	v	x
nuclear energy	x	x	x	v	x
a) rivers hydropower	v	x	v	v	v
b) seas hydropower	v	x	x	x	v
solar (sun) power	v	v	x	x	v
wind power	v	v	x	x	v
geothermal energy	v	x	x	x	v