

NAME:

*“An abundant supply of low-cost energy is the key ingredient in continuing to improve the quality of our total environment.”*

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### ENERGY CONSUMPTION

1. On 10 July 2012, Turkey used over 744 million KWh (kilowatts per hour) of electricity. This was the highest electricity use in the history of the Turkish Republic. Currently, Turkey can produce up to 737 million KWh of electricity, so the remaining kilowatts were bought from neighbors such as Bulgaria and Georgia. However, like most other nations, Turkey is also using natural gas and petroleum to produce electricity, and these are also imported.
2. Although what happened in Turkey on 10 July was something new to us, most of the developed nations are familiar with the story. The USA has been trying to deal with an energy crisis for over 30 years. The Americans make up 6% of the world population, but they represent 35% of the total world energy consumption. Technologically developed countries together consume about 85% of the world energy supplies. On the other hand, the remaining nations account for about 85% of the total world population and consume only 15% of the available supplies. These figures show that technologically developed countries are responsible for the intensive use of energy around the world.
3. **Plentiful and economical energy is the life blood of modern civilizations.** The intensive use of energy in developed countries is closely linked to the high standard of living. There is a relationship between economic growth and increased energy demand. In developed countries, for example, increased energy consumption has resulted from replacing manpower with machinery in farming and manufacturing. Both employers and employees have benefited from this replacement. Productivity has increased, which has enabled the production of more items in less time. This means higher profits for the employer. Employees have also benefited as they have had higher wages, more leisure time, and a lot of material goods – things that can be considered a luxury for most of the underdeveloped world, such as cars, refrigerators, printers, air-conditioners etc.
4. All these conveniences have become possible with fossil fuels. Petroleum powers almost all the machines that move. Petroleum-powered airplanes carry 500 people across the widest oceans. Petroleum-powered machines produce and transport food. They are simply everywhere. Without petroleum and gas, farmers cannot produce food. Without petroleum, truckers cannot deliver food and people cannot get to stores. Without gas and petroleum, electricity production will be limited, resulting in blackouts and outages. Without electricity, petroleum, and gas, people will not be able to heat or cool their homes.
5. Clearly, we live in the age of petroleum, but the age of petroleum is coming to an end. An energy crisis is just around the corner. The problem is that the demand for energy has increased much faster than our capacity to produce it. The supply of fossil fuels is decreasing. In addition, fossil fuels are not renewable. That is, once you

- use them, you finish them and cannot use them again. Because the energy from fossil fuels is not sustainable, the need for alternative, renewable energy resources is certain. There is enough petroleum to last 42 years if its production remains the same. Similarly, there is enough natural gas to last 61 years, and there is enough coal to last 133 years. Inevitably, people will be forced to use sustainable, renewable energy sources.
6. The first step toward a long-term solution is energy conservation. This can be done immediately, and there is no need for new technology. If we manage to consume less energy, the current non-renewable energy supplies will last longer. In the meantime, scientists and governments will hopefully have enough time to develop sustainable energy sources such as solar, wind, and geothermal which can be used and produced over and over again. Although some might see sustainable energy sources as the only effective way to solve our energy problems, these energy sources will not produce energy in large amounts. Therefore, they cannot bring back the days of abundant and cheap energy afforded by fossil fuels.
  7. In addition to a future energy crisis, there is also the possibility of an environmental crisis. Excessive energy consumption has been damaging the environment in many ways. Today, developed countries are faced with a huge **dilemma**. On the one hand, the need for energy is increasing every day to maintain daily life in industrial civilizations. On the other hand, human beings are damaging themselves and the environment with the activities of an industrial civilization. These two extremes are already coming into conflict. The solution to this problem will determine if humanity goes through a severe energy crisis, a worsening environmental crisis, or both. Environmentalists are warning people against the dangers of using too much fossil fuel. These include the increase of greenhouse gases and global warming. However, even if environmentalists are wrong, there will be an energy crisis in our lifetime. This means we need to find immediate solutions to this problem before it is too late. It would be a big mistake to add an environmental crisis to **this already dark picture**.
  8. The most important environmental impact of excessive energy consumption is global climate change. The global climate has become warmer for the past 150 years due to the increased amount of greenhouse gases in the atmosphere. Normally, greenhouse gases, such as carbon dioxide (CO<sub>2</sub>), are necessary for life on Earth because they keep the heat from the sun in the atmosphere. In other words, without greenhouse gases, Earth would be too cold to sustain life. Industrialization has made our daily lives more comfortable. However, since the Industrial Revolution humans have been adding huge amounts of greenhouse gases to the atmosphere. More greenhouse gases mean more heat in the atmosphere, which results in global warming. Today, excessive use of fossil fuels in industrial activities, electricity production and transportation produces greenhouse gases much faster than nature can remove them.
  9. If we cannot find ways to reduce carbon levels in the atmosphere, global climate change will have even worse effects. For one thing, sea levels will rise. Only a few centimeters of rise in sea levels will double the risk of floods in coastal cities such as New York and Istanbul. A warmer climate will also affect food production negatively. Too much heat will decrease fresh water reserves, so it will be difficult to grow food crops. As a

- result, underdeveloped countries that are already facing hunger will have to deal with significant decreases in food production and supply. Finally, severe heat waves that kill hundreds of people will become more frequent.
10. In recognition of these issues, many governments have set targets for carbon reduction and renewable energy production. They have also accepted the need to help companies invest in these technologies. Financial help from governments is necessary for renewable energy projects because such projects are more expensive than traditional methods of energy production. There are two possible investment solutions for governments: they can invest in these projects directly, or alternatively, they can give tax breaks to companies that produce clean energy. If companies know that they will not pay taxes, they may be more willing to spend money on clean energy production.
11. A possible alternative to fossil fuels and renewable resources is nuclear power. Looking from the positive side, nuclear power plants have a relatively small effect on global warming. Also, it is possible to produce a high amount of electrical energy in one single plant. For this reason, **it** is a cheaper alternative to other sources of energy. However, nuclear power is neither environmentally friendly nor sustainable. Most importantly, there is the problem of radioactive waste. The waste from nuclear energy threatens the environment for thousands of years to come. There is also the issue of safety. It is impossible to build a plant with 100% security, so accidents can happen. An accident, such as the one in Chernobyl, could kill millions of people and harm the environment very badly.
12. Clean energy seems to be our best weapon against global climate change and an approaching energy crisis. Renewable power, conservation of energy and clean fuels... These are some solutions that will reduce the impact of fossil fuels on the climate and still provide enough energy for the necessities of modern life.

**A. Choose the correct option (A-B-C-D) for the following questions using the information in the text.**

1. We understand from paragraph 1 that...
- A. the Ministry of Energy and Natural Resources sells electricity.
  - B. Turkey is unable to meet its energy needs on its own.
  - C. natural gas and petroleum cause hot weather in Turkey.
  - D. most nations can produce less electricity than Turkey does.
2. In paragraph 3, "**Plentiful and economical energy is the life blood of modern civilizations.**" means...
- A. modern civilizations need blood to have economical energy.
  - B. not much energy is needed to provide blood for modern civilizations.
  - C. modern civilizations cannot produce a lot of energy at a reasonable price.
  - D. survival of modern civilizations depends on cheap energy in large quantities.
3. In paragraph 3, which of the following is **NOT** mentioned as a result of replacing manpower with machinery?
- A. Employers could earn more money than they did before.
  - B. People could produce more things in less time.
  - C. Workers could have more money and free time for themselves.
  - D. People in underdeveloped countries could buy luxury items.

4. According to paragraph 4,
- A. people need fossil fuels for almost everything.
  - B. using petroleum for everything is unnecessary.
  - C. using gas and petroleum can limit electricity production.
  - D. people can use electricity instead of fossil fuels.
5. What is the **main** idea of paragraph 5?
- A. Future generations must find a way to produce more petroleum and natural gas.
  - B. Modern people must use petroleum to power their machines.
  - C. People must find a way to end their dependence on fossil fuels.
  - D. People must use less petroleum so that there is more for future generations.
6. Energy conservation means...
- A. finding an effective alternative to electricity.
  - B. decreasing our energy consumption.
  - C. producing cheap energy from fossil fuels.
  - D. developing sustainable energy resources.
7. We can understand from paragraph 6 that...
- A. we do not need new technology to use sustainable energy sources.
  - B. there will be no need for sustainable energy sources.
  - C. there may be an energy crisis despite sustainable energy.
  - D. sustainable energy sources are the only effective way to solve energy problems.
8. In paragraph 7, the word "**dilemma**" is closest in meaning to...
- A. destruction.
  - B. difficulty.
  - C. consumption.
  - D. establishment.
9. In paragraph 7, "**This already dark picture**" refers to...
- A. immediate solutions.
  - B. a big mistake.
  - C. the energy crisis.
  - D. the environmental crisis.
10. Greenhouse gases...
- A. are not naturally found in the atmosphere.
  - B. keep Earth warm enough to live on.
  - C. did not exist until 150 years ago.
  - D. led to a successful industrial revolution.
11. We can understand paragraph 8 that global climate change...
- A. has created a more industrial life style.
  - B. can cause intensive use of energy sources.
  - C. can be prevented by technological developments.
  - D. has resulted from a more comfortable lifestyle.

12. Today, greenhouse gases are more dangerous because...
- there are more than nature can clean.
  - they prevent electricity production.
  - there are not enough of them to support life.
  - they increase the burning of fossil fuels.
13. Global warming will cause hunger in underdeveloped countries because...
- they are mostly on coastal areas.
  - there will be enough water to grow food.
  - rising sea levels will cause severe heat waves.
  - fresh water supplies will decrease.
14. Why are governments investing in renewable energy production?
- It is a profitable investment.
  - Clean energy reduces financial risks.
  - They have to pay higher taxes.
  - They are aware of the need for it.
15. In paragraph 11, "it" refers to...
- electrical energy.
  - single plant.
  - global warming.
  - nuclear power
16. The writer of the text probably believes that nuclear energy...
- is a good alternative to fossil fuels.
  - will cause more problems than it solves.
  - needs to be developed before it can be used.
  - may be more efficient in the future.
17. The purpose of the writer is to ...
- claim that high energy consumption is necessary for modern life.
  - prove that alternative energy sources will be more expensive.
  - argue that scientists need to find a way to produce cheaper energy.
  - show that we need to find a way to use less fossil fuels for energy.
- B. Match the following figures in column A with what they represent in column B. There are TWO EXTRA items in column B.**
- | A                 | B                                                          |
|-------------------|------------------------------------------------------------|
| 18. 6% of the ... | A. world population lives in less developed countries.     |
| 19. 35% of the... | B. world population is American.                           |
| 20. 15% of the    | C. world's energy is consumed by all developed nations.    |
|                   | D. world's energy is consumed by the USA.                  |
|                   | E. world's energy is consumed by less developed countries. |