"We know we'll run out of dead dinosaurs to mine for fuel and have to use sustainable energy eventually, so why not go renewable now and avoid increasing risk of climate catastrophe? Betting that science is wrong and oil companies are right is the dumbest experiment in history by far."

Elon Musk, founder of Tesla

1. Renewable Energy Discussion

1. What does renewable energy mean?
2. What are the different ways of producing renewable energy?
3. Why is renewable energy better for the environment?
4. Is it better to produce renewable energy or to try to cut down on our energy use? What ways can you think of to save energy in your house?
5. Is it better for a government to support the oil and gas industry or the green energy industry?
6. Which countries or governments might oppose investing in alternative energy sources?
7. Which industries might oppose investing in renewable energy?
8. Should we aim to supply 100% of our energy from renewable sources? Is this viable?

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2. Renewable Energy Vocabulary

- **nimby** (noun, adjective) – *a person who is opposed to the siting of something considered undesirable in the area where they live (an acronym of 'not in my back yard'), especially when they raise no objects to similar developments in other areas.*
- **solar power** (noun) – *energy produced from sunlight.*
- **wind farm** (noun) – *a number of wind turbines in an area designed to produce energy from wind.*
- **tidal energy / wave power** (noun) – *energy produced from the kinetic energy of waves.*
- **hydroelectric dam** (noun) – *a barrier built to retain water, using the force of the subsequent reservoir to turn turbines and produce electricity.*
- **biofuel** (noun) – *a combustible form of energy created from biomass (organic material).*

Using the vocabulary words above, complete the following sentences (remember to use the correct form of the word, e.g. verb conjugation or plural noun):

1. Large areas of the rainforest have been cleared to plant oil palm trees, one of the most common types of **biofuel**.
2. Hikers have complained that a new **windfarm** in the Pennines has ruined the view of the previously idyllic landscape.
3. **Nimby** objections by members of the local community have delayed the construction of a new landfill site that is desperately needed to address the city's mounting waste problem.
4. One issue with **hydroelectric dams** is that when it is particularly hot, the water evaporates and there is not enough pressure to turn the turbines resulting in power cuts.
5. Building large structures underwater means the cost of **tidal energy** is excessively high.
6. The major issue with **solar power** is how to generate electricity at night. Currently, battery storage is not sufficient for an entire house.

Renewable Energy vocabulary comprehension questions

1. When would you be a nimby?
2. A solar power system for a house could cost around $10,000, but this reduces a typical electric bill by 80% and lasts for 20 to 30 years. Does this seem like a good investment?
3. Do wind farms destroy the countryside?
4. Can you think of any disadvantages of tidal energy?
5. How environmentally friendly are hydroelectric dams?
6. What kind of environmental and ecological problems are caused by biofuels?

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3. Video: 100% Renewable Energy

You are going to watch a video by TED Ed called "Can 100% renewable energy power the world?"

Watch the video here: https://yourenglishpal.com/blog/esl-conversation-lesson-plan-renewable-energy/

While you watch the video, answer the following questions:

Multiple choice

1. How frequently does the world use 35 billion barrels of oil?
   a) every day *b) every week* ***c) every year***

2. When will renewable energy run out?
   a) 50 years *b) 100 years* ***c) never***

3. Liquid fuel is mainly used in what?
   a) computers *b) manufacturing* ***c) transport***

4. When will we have sufficiently advanced technology to capture all our energy needs from renewable sources?
   a) it already exists *b) in 50 years* *c) never*

Sentence completion

1. The Sun produces 10,000 times the amount of energy than the Earth's present **needs**.
2. The ideal location for solar plants is somewhere with a lot of **sunshine**.
3. Hydro, geothermal, and biomasses have limits due to **availability** and **location**.
4. The cost of renewable energy could be lowered by developing technologies that captured energy more **efficiently**.

Short answer

1. New superconducting materials would need to operate at what temperature? **Room temperature**
2. A competitive car battery would store more energy without adding what? **Cost**
3. What kind of energy could chemical energy be created from? **Solar**
4. Who are investing money in renewable technologies? **Governments and businesses**

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4. Renewable Energy Conversation Questions

1. The global middle class is expected to grow by 3 billion over the next 20 years. What will the consequences of this be for energy consumption and the environment?
2. How can the world produce enough energy to meet the needs of the growing population and still protect the environment?
3. Is it more important to provide people with the energy they need, or is it more important to protect the environment?
4. How reliable is renewable energy? What are the problems with renewable energy?
5. Should it be the law that all new buildings have solar panels fitted?
6. Will energy costs increase or decrease in the future? What will be the consequences of this?
7. Would you be happy to pay more for renewable energy? Why or why not?
8. Where will we get our energy from 1,000 years in the future?

5. Renewable Energy Writing Task

Write about your opinion of renewable energy. Try to use some of the vocabulary you learned earlier in this lesson. In your answer, you could include some of the following topics:

- The different types of renewable energy.
- The pros and cons of these types of energy.
- Whether you think we could, and should, get all our energy from renewables.

Alternative exam practice question:

Fossil fuels like gas, oil and coal are the most common sources of energy in the modern world. However, due to increasing environmental concerns with these sources of energy, many governments are promoting the use of alternative renewable energies such as wind, solar and tidal. What are the advantages and disadvantages of these new forms of energy?

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6. Renewable Energy Answers

2. Vocabulary

1. biofuels
2. wind farm
3. Nimby
4. hydroelectric dams
5. tidal energy / wave power
6. solar power

3. Video

Multiple choice

1. b
2. b
3. c

Sentence completion

1. advanced
2. needs
3. sunshine

Short answer

1. The cost
2. Resistance
3. Superconductors

True or false

1. True
2. False
3. True

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