

UNIVERSITE DE OUAGADOUGOU
Office du Baccalauréat

Séries E-F1-F2-F3-F4

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Session normale
Epreuve du 1^{er} tour
Durée : 2 heures
Coefficient : 02

EPREUVE ECRITE D'ANGLAIS

Cette épreuve comporte deux (02) pages

Non Mechanical Electricity

Photovoltaic solar panels convert energy from the sun into electricity directly and require no mechanical energy. Photons of light hit electrons (often in silicon) bumping them into a higher energy state and generating electricity. Initially used to power satellites in outer space, solar power is now used to generate electricity on earth. Photovoltaic panels do not use electromagnetic induction.

All these methods for generating power have drawbacks. Either they release toxic byproducts, or they are expensive. Coal is inexpensive and abundant, but burning coal produces toxic and environmentally damaging byproducts: carbon dioxide, a greenhouse gas; sulfur dioxide, which forms acid rain and damages respiratory systems; nitrogen oxides, which forms ozone and smog; fly ash, which contains environmental toxins such as arsenic.

In 2007, almost half of the electricity generated in the United States was from coal, according to the US department of Energy. "Though coal is an abundant resource in the world, it is imperative that we find a way to use it as cleanly as possible".

Burning natural gas produces less carbon dioxide emissions than coal for each unit of energy produced, according to the Union of Concerned Scientists. But burning natural gas still produces pollutants like carbon monoxide and nitrogen oxides. Furthermore, natural gas contains methane, a more potent greenhouse gas than carbon dioxide. Carbon monoxide and carbon dioxide are also by-products of petroleum refining and combustion.

Nuclear power plants produce no green house gases and no chemicals that form ozone. But byproduct of the fission reaction is radioactive waste, which must be properly stored and contained to prevent it from damaging plants and animals. Radioactive waste from nuclear power plants remains toxic for thousands of years. Today there is no widely accepted long term storage method.

Adapted from the Washington Post, December 2012

Vocabulary:

Green house gases: les gaz à effet de serre.

A. Guided commentary

- 1) Based on the text and using your own words, explain how photovoltaic solar panels convert the sun rays into electricity. (2 points)
- 2) According to the text, what are the drawbacks related to the use of the photovoltaic panels and coal? (4 points)
- 3) Referring to the text, why is it an imperative for the US to develop a way to use coal cleanly? (3 points)
- 4) Based on the text, are Nuclear power plants totally safe of pollution? Why? (5 points)

B. Essay:

What decisions and suggestions would you make for your country to meet its current and future energy needs? (6 points)
