



Università degli Studi di Udine
Prova di Ammissione alla Scuola Superiore a.a. 2015-16 – LINGUA INGLESE

Part 1: Reading comprehension

Smart Energy

The next few decades will see great changes in the way energy is supplied and used. In some major oil producing nations, 'peak oil' has already been reached, and there are increasing fears of global warming. Consequently, many countries are focusing on the switch to a low carbon economy. This transition will lead to major changes in the supply and use of electricity. [A] Firstly, there will be an increase in overall demand, as consumers switch from oil and gas to electricity to power their homes and vehicles. [B] Secondly, there will be an increase in power generation, not only in terms of how much is generated, but also how it is generated, as there is growing electricity generation from renewable sources. [C] To meet these challenges, countries are investing in Smart Grid technology. [D] This system aims to provide the electricity industry with a better understanding of power generation and demand, and to use this information to create a more efficient power network.

Smart Grid technology basically involves the application of a computer system to the electricity network. The computer system can be used to collect information about supply and demand and improve the engineers' ability to manage the system. With better information about electricity demand, the network will be able to increase the amount of electricity delivered per unit generated, leading to potential reductions in fuel needs and carbon emissions. Moreover, the computer system will assist in reducing operational and maintenance costs.

Smart Grid technology offers benefits to the consumer too. They will be able to collect real-time information on their energy use for each appliance. Varying tariffs throughout the day will give customers the incentive to use appliances at times when supply greatly exceeds demand, leading to great reductions in bills. For example, they may use their washing machines at night. Smart meters can also be connected to the internet or telephone system, allowing customers to switch appliances on or off remotely. Furthermore, if houses are fitted with the apparatus to generate their own power, appliances can be set to run directly from the on-site power source, and any excess can be sold to the grid.

With these changes comes a range of challenges. The first involves managing the supply and demand. Sources of renewable energy, such as wind, wave and solar, are notoriously unpredictable, and nuclear power, which is also set to increase as nations switch to alternative energy sources, is inflexible. With oil and gas, it is relatively simple to increase the supply of energy to match the increasing demand during peak times of the day or year. With alternative sources, this is far more difficult, and may lead to blackouts or system collapse. Potential solutions include investigating new and efficient ways to store energy and encouraging consumers to use electricity at off-peak times.

A second problem is the fact that many renewable power generation sources are located in remote areas, such as windy uplands and coastal regions, where there is currently a lack of electrical infrastructure. New infrastructures therefore must be built. Thankfully, with improved smart technology, this can be done more efficiently by reducing the reinforcement or construction costs.

Although Smart Technology is still in its infancy, pilot schemes to promote and test it are already underway. Consumers are currently testing the new smart meters which can be used in their homes to manage electricity use. There are also a number of demonstrations being planned to show how the smart technology could practically work, and trials are in place to test the new electrical

infrastructure. It is likely that technology will be added in 'layers', starting with 'quick win' methods which will provide initial carbon savings, to be followed by more advanced systems at a later date. Cities are prime candidates for investment into smart energy, due to the high population density and high energy use. It is here where Smart Technology is likely to be promoted first, utilising a range of sustainable power sources, transport solutions and an infrastructure for charging electrically powered vehicles. The infrastructure is already changing fast. By the year 2050, changes in the energy supply will have transformed our homes, our roads and our behaviour.

Exercise 1. General Comprehension. Circle the correct answer.

- 1) According to paragraph 1, what has happened in some oil producing countries?
 - A They are unwilling to sell their oil any more.
 - B They are not producing as much oil as they used to.
 - C The supply of oil is unpredictable.
 - D Global warming is more severe here than in other countries.

- 2) Where in paragraph 1 can the following sentence be placed?
 There is also likely more electricity generation centres, as households and communities take up the opportunity to install photovoltaic cells and small scale wind turbines.
 - A
 - B
 - C
 - D

- 3) Which of the following is NOT a benefit of Smart Grid technology to consumers?
 - A It can reduce their electricity bills.
 - B It can tell them how much energy each appliance is using.
 - C It can allow them to turn appliances on and off when they are not at home.
 - D It can reduce the amount of energy needed to power appliances.

- 4) According to paragraph 4, what is the problem with using renewable sources of power?
 - A They do not provide much energy.
 - B They often cause system failure and blackouts.
 - C They do not supply a continuous flow of energy.
 - D They can't be used at off-peak times.

- 5) In paragraph 5, what can be inferred about cities in the future?
 - A More people will be living in cities in the future than nowadays.
 - B People in cities will be using cars and buses powered by electricity.
 - C All buildings will generate their own electricity.
 - D Smart Grid technology will only be available in cities.

- 6) What is the main idea of the final paragraph? (paragraph 6).
 - A To describe who will benefit from Smart Grid technology first.
 - B To outline the advantages of Smart Grid technology.
 - C To summarise the main ideas in the previous paragraphs.
 - D To describe how, where and when Smart Technology will be introduced.

- 7) In paragraph 6, what can be inferred about the introduction of Smart Grid Technology?
 - A The technologies which produce most benefits will be introduced first.
 - B The cheapest technologies will be introduced first.

- C The technologies which are most difficult to put into place will be introduced first.
- D Technologically advanced systems will be introduced first.

Exercise 2. Say whether the following are True/False: if false, write the correct answer

1. In the future electricity may be generated more from renewable sources, but these power generation processes have not started yet.
2. Smart Grid makes use of information technology to decrease carbon emissions and fuel dependence by monitoring the electricity supply and demand ratio.
3. If we continue to rely on gas and oil, we may incur into blackouts and system collapses.
4. It will be a costly challenge to build new alternative renewable power sources.

Exercise 3. Textual and Stylistic analysis:

1. Macro text type: is the text expository, argumentative or instructive?
.....
2. Micro text type: is the text a story, newspaper article, essay, scientific review, interview, manual, biography, speech or editorial?
.....
3. Is the overall register: formal /informal /neutral /colloquial?
.....
4. How would you define the general style of the text?
.....
.....

Exercise 4. Linguistic analysis: The following is a list of synonyms for words/expressions which appear in the text. Find the corresponding words/expressions and write them down:

- | | |
|--------------------------------------|-------|
| 1. (par. 1) change | _____ |
| 2. (par. 2) working | _____ |
| 3. (par.3) from a distance | _____ |
| 4. (par 4) not at the highest moment | _____ |
| 5. (par. 5) isolated | _____ |
| 6. (par.6) in progress | _____ |

Explain the following expressions with your own words:

‘peak oil’ (par 1)

‘quick win’ (par 6)

Part 2: Syntax and lexis

Exercise 5. Join the following sentences with an appropriate connective.

Example: John couldn't play the game. He had a pain in his shoulder.

John couldn't play the game because he had a pain in his shoulder. // Owing to a pain in his shoulder, John couldn't play the game.

1. Many renewable energy projects are large-scale. Renewable technologies are suited to rural and remote areas and developing countries as well.
.....
2. Climate change and global warming concerns are growing. High oil prices and peak oil, are increasing. Thus renewable energy legislation, incentives and commercialization are increasing as well.
.....
3. Water is about 800 times denser than air. Even a slow flowing stream of water, or moderate sea swell, can yield considerable amounts of energy.
.....
4. Wave power, which captures the energy of ocean surface waves, and tidal power, converting the energy of tides, are two forms of hydropower with future potential. However, they are not yet widely employed commercially
.....
5. The planet might warm by more than 3°C. Most ecosystems will struggle.
.....

Exercise 6. Choose the correct term to complete the sentences.

1. energies like wind power could provide more than 10% of electricity needs within five years. (*Crude / Fossil fuel / Alternative / Nuclear*)
2. In some countries there is already a of fuel, and petrol stations only have limited supplies. (*shortage / control / speculation / target*)
3. Solar Photovoltaic has turned into a multi-billion, fast-growing industry, continues to improve its, and has the most potential of any renewable technologies together with concentrated solar power. (*cost-efficiency / cost-effectiveness / cost-efficacy / cost-performance ratio*).
4. From the end of 2004, worldwide renewable energy capacity grew at of 10–60% annually for many technologies. (*ratios / rates / ranges/ speeds*)
5. Geothermal power is reliable,, and environmentally friendly,¹ but has historically been limited to areas near tectonic plate boundaries. (*sustainable / feasible/ viable / supportable*)

Exercise 7. Read the following extract from The Rise of Renewable Energy and choose the most appropriate word to complete the text.

The renewable sources of energy are now at the.....(1) when investments and innovation, as well as market access, could enable them to become major(2) to energy supplies. Nearly all scientists agree that the addiction to fossil fuels is(3) the earth's climate. The time for(4) is now and the tools exist to(5) energy production and(6) in ways that benefit both the economy and the environment.(7) the past 25 years, however, the public and private funding of research and development in the energy sector has(8). Raising R&D spending, though, is not the only way to make clean energy a national(9). Educators and non-profit organisations can stimulate public interest. But perhaps the most important step is to(10) market-based schemes to make the prices of carbon fuels reflect their social cost. A(11) on carbon emissions would provide a simple and transparent method to reward clean sources of energy. The carbon fee could be combined with a cap-and-trade program to(12) limits on carbon emissions. Best of all, these steps would give energy companies an enormous financial incentive to(13) the development and commercialization of new energy sources. The US has the opportunity to foster a new industry which would strengthen our economy and(14) our international trade deficits; instead of importing foreign oil, we can export high-efficiency equipment. This transformation can turn the energy sector into an environmentally sustainable(15) of growth.

- | | | | |
|------------------|----------------|-----------------|-----------------|
| 1 a) step | b) stage | c) point | d) moment |
| 2 a) subscribers | b) bestowers | c) contributors | d) donators |
| 3 a) unsettling | b) shaking | c) discomposing | d) disrupting |
| 4 a) activity | b) action | c) reaction | d) operation |
| 5 a) alter | b) adjust | c) amend | d) convert |
| 6 a) use | b) utilization | c) consumption | d) consuming |
| 7 a) for | b) over | c) during | d) throughout |
| 8 a) withered | b) faded | c) shrunken | d) deteriorated |
| 9 a) prerogative | b) preference | c) priority | d) preeminence |
| 10 a) establish | b) prescribe | c) decree | d) institute |
| 11 a) fee | b) fine | c) tariff | d) duty |
| 12 a) apply | b) set | c) fix | d) appoint |
| 13 a) advance | b) forward | c) drive | d) hasten |
| 14 a) lessen | b) alleviate | c) abate | d) lighten |
| 15 a) motor | b) engine | c) generator | d) agent |

Exercise 8: Find ONE word to complete all three sentences.

Example: Could you do me a and hold the door open while I bring in the shopping?
 All those in of the proposal please raise your hand.
 After being out of fashion for years the painter is now in with the critics.
Answer: FAVOUR

- Green partiesthe promotion of renewable energy policies.
 The child grew up in a home.
 Such conditionsthe spread of the disease.
Answer:.....

V. G.

2. You can changewith this remote control.
Make sure the irrigation does not flood.
Art provides a for the children's creativity.
Answer:.....

3. The plane was running low on
His words will her anger even more.
Environmentalists would like to see fossil replaced by renewable energy sources.
Answer:.....

4. The sun makes up 99.9% of the of our solar system.
There was a of people around the club entrance.
The food had congealed into a sticky
Answer:.....

Part 3. Writing

Briefly comment on how you think renewable sources of energy will affect our lifestyles and behaviours in the near future. Will we have to continue relying massively on non-renewable sources to sustain our current energy consumption rates or will a transition to renewable sources such as solar or wind power be feasible? (max 600 words)

U-6.