Unit 11 – ΕΚΠΑ

Extra Vocabulary

1. Consumption: Κατανάλωση
2. Consumer: Καταναλωτής
3. Consuming: Καταναλωτικός
4. To replace: Αντικαθιστώ
5. Replacement: Αντικατάσταση
6. To provide: Παρέχω, Προσφέρω
7. Provision: Παροχή, Προμήθεια
8. To supply: Παρέχω
9. Supplies: Αποθέματα
10. Industry: Βιομηχανία
11. Industrial: Βιομηχανικό
12. To demand: Απαιτώ, Ζητάω
13. Demanding: Απαιτητικός
14. Commerce: Εμπόριο
15. Commercial: Εμπορικός
16. Export: Εξαγωγή, Εξαγωγές
17. To export: Εξάγω
18. To import: Εισάγω
19. Import: Εισαγωγή, Εισαγωγές
20. To grow: Αναπτύσσω, Αναπτύσσομαι, Μεγαλώνω
21. Growth: Ανάπτυξη
22. Growing: Αναπτυσσόμενος
23. To focus: Επικεντρώνομαι, Εστιάζω
24. Focus: Επίκεντρο, Αυτοσυγκέντρωση
25. To dominate: Εξουσιάζω, Υπερτερώ, Κυριαρχώ
26. Dominant: Κυρίαρχος, Επικρατών
27. Dominance: Υπεροχή, Κυριαρχία
28. To transport: Μεταφέρω
29. Transportation: Μεταφορά
30. Transportable: Που μπορεί να μεταφερθεί, Ικανό να μεταφερθεί
31. Means of transport: Μέσα μεταφοράς
32. To prefer: Προτιμώ
33. Preferable: Προτιμότερος
34. Preferred: Προτιμητέος
35. To culture: Καλλιεργώ

36. Culture: Καλλιέργεια, Κουλτούρα
37. Cultured: Καλλιεργημένος
38. To recover: Ανακτώ, Αναρρώνω
39. Recovery: Ανάκτηση, Ανάρρωση
40. To concentrate: Επικεντρώνομαι, Επικεντρώνω, Εστιάζω, Συγκεντρώνομαι
41. Concentration: Συγκέντρωση
42. To increase: Αυξάνω
43. Increase: Αύξηση
44. To decrease: Μειώνω
45. Decrease: Μείωση
46. To renew: Ανανεώνω
47. Renewable: Ανανεώσιμος
48. To depend on: Εξαρτώμαι, Βασίζομαι σε
49. Dependable: Στον οποίο μπορείς να βασιστείς, Αξιόπιστος
50. Advocate: Υποστηρικτής, Συνήγορος
51. To advocate: Συνηγορώ, Υποστηρίζω

Use of English

1. *Fill in the gaps of the following text using the words from the box below.*

conventional	**locations**	**development**
competitive	**reductions**	**raw**
costly	**solar**	**manufacturing**

Solar power

The main obstacle to increased reliance on **1.** …….. power is cost. Most experts believe the cost of solar cells must fall by 50 to 75 percent to be fully **2.** …….. with coal-fired electricity. Automated **3.** ……., larger factories, and more efficient cells may deliver major cost **4.** …….. in the near future. But for now, solar cells are used primarily in remote **5.** ……., where access to other forms of power is sharply constrained. One breakthrough that promises to significantly reduce costs is the **6.** …….. of a new generation of thin-film solar cells. These cells are less than one one-hundredth the thickness of **7.** …….. solar cells. They do not need to be sliced or rigidly encased, eliminating a **8.** …….. process, and they can be made into large, flexible sheets ideal for integration into building materials. Thin-film solar cells also use less **9.** …….. material, further reducing costs.

Vocabulary:

- Conventional: Συμβατικός, Τυπικός Convention: Συνέδριο, Σύμβαση, Συνθήκη
- To compete: Ανταγωνίζομαι, Διαγωνίζομαι Competition: Ανταγωνισμός
  Competitive: Ανταγωνιστικός Integration: Ενσωμάτωση, Ενοποίηση
- To develop: Αναπτύσσω Development: Ανάπτυξη Developing: Αναπτυσσόμενος
  Developed: Ανεπτυγμένος
- To manufacture: Κατασκευάζω Manufacturer: Κατασκευαστής προϊόντων
  Manufacturing (factory): Εργοστάσιο Κατασκευής προϊόντων
- To rely on: Βασίζομαι σε, Εμπιστεύομαι Reliable: Αξιόπιστος, Έμπιστος
  Reliance: Εξάρτηση Unreliable: Αναξιόπιστος
- Efficiency: Αποτελεσματικότητα Efficient: Αποτελεσματικός
  Inefficient: Αναποτελεσματικός Flexible sheets: Λεπτά φύλλα
- To constraint: Περιορίζω Constrained: Περιορισμένος
- Breakthrough: Σημαντική πρόοδος/εξέλιξη To be sliced: Να τεμαχιστεί
  To be encased: Να επικαλυφθεί To eliminate: Αποβάλλω, Απαλλάσσομαι, Εξαλείφω
  Elimination: Εξάλειψη, Απαλλαγή Thin film: Λεπτή μεμβράνη

2. *Fill in the gaps of the following text using words from the box below.*

construction	**axis**	**shaft**
blades	**spins**	**lightweight**
converts	**rotor**	**transmission**
generator	**windings**	**turbine**

Wind Energy System Components

Modern wind energy systems consist of three basic components: a tower on which the wind **1.** …….. is mounted; a rotor that is turned by the wind; and the nacelle, which houses the equipment, including the **2.** ……., that converts the mechanical energy in the spinning **3.** …….. into electricity. The tower supporting the rotor and generator must be strong. Rotor **4.** …….. need to be light and strong in order to be aerodynamically efficient and to withstand prolonged use in high winds.

Tower

Improvements in structural design and construction materials have led to the **5.** …….. of taller towers, allowing rotors to be mounted farther off the ground, where winds are typically stronger.

Rotor

The rotor, which **6.** …….. when driven by the wind, supports blades that are designed to capture kinetic energy in the wind. Nearly all modern wind turbines have rotors that spin about an **7.** …….. parallel to the ground. The spinning rotor turns a **8.** …….. which converts the wind's energy into mechanical power. In turn, the shaft drives the generator, which converts mechanical energy into electricity. Although some modern wind turbines have rotor blades made of composite wood, most modern wind turbine blades are made of fibreglass, a **9.** ……., strong material typically composed of polyester resins and glass fibres.

Generators

The generator **10.** …….. the mechanical energy of the spinning rotor into electricity. Most wind turbines use a generator and transmission in combination. Many of these wind turbines use two generators, a small generator for light winds and a large generator for strong winds. Other wind turbines use a single generator that contains dual electric **11.** …….. These dual electric windings accomplish the same task as the combination of a small and a large generator. Some wind turbines use another type of specially designed generator that is driven directly by the rotor without a **12.** ……..

Vocabulary: rotor: Στροφείο, Ρότορας

- Construction: Κατασκευή Conversion: Μετατροπή Convertible: Που μπορεί να μετατραπεί
- Blade: Λεπίδα Lightweight: Ελαφρύς Turbine: Στρόβιλος, Τουρμπίνα
- Windings: Τυλίγματα πηνίου, Σπείρωμα Axis: Νοητός άξονας Shaft: Στροφαλοφόρος άξονας
- Transmission: Μετάδοση To transmit: Μεταδίδω Nacelle: Περίβλημα
- Polyester resins: Ρητίνες πολυεστέρα Glass fibres/Fiber glass: Υαλοβάμβακας

Cloze

Skim the passage quickly to get the gist, and then select the appropriate word for each blank from the choices provided.

Reliability of wind energy

Wind energy is a promising source of electrical power because it is a(n) **1.** ..... and renewable resource. However, because wind speeds vary by time of day, season, and even from one year to the next, wind energy is an **2.** ..... resource. At windy sites it is common for wind turbines to operate 60 percent of the year. Even when operating, however, the wind may be insufficiently **3.** ..... for wind turbines to generate at full capacity. Overall, turbines installed on **4.** ..... sites operate at an average of 25 to 35 percent of full capacity. In comparison, coal-fired power plants usually operate at an average of 75 to 85 percent of full capacity.

The intermittent nature of wind energy does not affect consumers when wind turbines are tied to an electrical **5.** ....., or power grid. Many wind turbines in North America, Europe, and parts of Asia are connected to large electricity networks. The effect of windless days can be offset by production from other power-generating sources, such as coal- **6.** ..... plants and hydroelectric plants that are connected to the power grid. Such a system helps provide reliable power supplies to consumers. People located in **7.** ..... sites that rely on

1. a. dirty **b**. clean

c. air-polluting

2. a. intermittent **b**. constant

c. continuous

3. a. weak **b**. slow

c. strong

4. a. windy **b**. calm

c. windless

5. a. wire **b**. network

c. line

6. a. producing **b**. ignited

c. fired

electricity from wind turbines often use batteries or a **8.** ..... generator to provide auxiliary power during extended periods without sufficient wind.

Operationally, modern wind turbines are as reliable as conventional power plants. Most commercial wind turbines are offline (down for maintenance or **9.** .....) less than 3 percent of the time. Wind turbines are also known for their **10.** ..... -many turbines have been generating electricity since the early 1980s.

7. a. remote **b**. urban

c. metropolitan

8. a. backward **b**. backup

c. backside

9. a. repair **b**. operation

c. conservation

10. a. brief duration **b**. short life

c. longevity

Vocabulary:

- To vary: Μεταβάλλομαι, Ποικίλω, Διαφοροποιούμαι Variety: Ποικιλία
- Resources: Πόροι Intermittent: Διαλειμματικός, Διακοπτόμενος
- Sufficient: Επαρκές Sufficiently: Επαρκώς Insufficiently: Ανεπαρκώς
- Full capacity: Σε πλήρη ισχύ To install: Εγκαθιστώ Installation: Εγκατάσταση
- Power grid: Δίκτυο ηλεκτρικού ρεύματος Network: Δίκτυο
- To ignite: Αναφλέγω, Πυροδοτώ Ignition: Ανάφλεξη, Πυροδότηση
- Backward: Προς τα πίσω Backup: Εφεδρικός Backside: Πίσω όψη
- Conservation: Συντήρηση, Διατήρηση Longevity: Μακροζωία
- To maintain: Συντηρώ Maintenance: Συντήρηση

Writing

Using this prompt, write a short essay (180-200 words) describing the advantages and disadvantages of wind energy. You may elaborate on the following points.

- Aesthetic issues.
- Noise associated with wind turbine rotors.
- Harming wildlife.
- Inexhaustible nature of the specific energy source.
- Lack of air pollution.
- Supplement to other renewable sources.

FOCUS ON SCIENCE

CURRENT ISSUES & THE FUTURE

With the growing worldwide demand for electric power and the rising concern about global warming, many experts believe that the use of wind energy will continue to increase. As wind power becomes an increasingly cost-effective source of electricity, the market for wind power should continue to expand. However, not everybody is in favour of wind energy due to some environmental and political factors, influencing the growth of wind energy.

Fig. 1: A modern windmill