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НАВЧАЛЬНІ ЗАВДАННЯ

із розвитку навичок читання та усного мовлення з дисципліни «Іноземна мова за професійним спрямуванням (англійська)» для студентів напряму підготовки 6.050602 «Гідроенергетика»

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Навчальні завдання з розвитку навичок читання та усного мовлення з дисципліни «Іноземна мова за професійним спрямуванням (англійська)» для студентів напряму підготовки 6.050602 «Гідроенергетика». / Н.Г Сторожевська, С.А. Лисюк, Рівне: НУВГП, 2014, – 41 с.

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Передмова

Дані “Навчальні завдання” призначені для студентів /напряму підготовки 6.050602 “Гідроенергетика”/. Їх основна мета полягає в тому, щоб відповідно до вимог навчальної програми з іноземних мов підготувати студентів до самостійного читання англомовної літератури за фахом. Вдосконалювати вміння і навички читання та усного мовлення студентів у процесі використання ними іншомовного матеріалу під час вивчення лексики до свого професійного спрямування. Добір текстів, розробку системи лексичних і граматичних вправ виконано з урахуванням цільової установки чинної програми з іноземних мов. Навчальні завдання укладені з урахуванням основних дидактичних принципів (доступність та послідовність, активність, концентричне проходження матеріалу). Основними критеріями при виборі текстового матеріалу була інформативна та пізнавальна цінність текстів, їх актуальність.

У навчальних завданнях подано практичні аспекти володіння граматичним матеріалом, характерним для наукового функціонального стилю.

Навчальні завдання складаються із 7 уроків, кожен з яких спрямований на досягнення певної мети. Кожен урок починається з передтекстових вправ, які дозволяють розширити лексичний запас студента (інтернаціональна лексика, фонетичні вправи, словник) та вправи, які містять питання або висновки, з якими пропонується погодить або висловити своє ставлення. Всі тексти професійно спрямовані „Енергія,” „:Енергія води, механічна енергія, енергія припливів”, ”Гідроенергія-це безпечне, оновлююче джерело енергії”, ”Компоненти гідросистеми”, ”Класифікація турбін” та інші.

Післятекстові вправи організовані в три групи: лексичні, вправи на контроль розуміння тексту, граматичні.

Лексичні вправи спрямовані на закріплення активного словника, граматичні – побудовані за принципом множинного вибору – це сучасний вид навчального контролю у міжнародній практиці. У кожному уроці, крім основного тексту “А”, є також, текст “В”, який в інформативному плані доповнює основний текст уроку, а у структурно-семантичному плані є набагато легшим від попереднього.

Lesson 1
Pretext Exercises

Exercise 1. Read and pronounce correctly the following international words.

Control, light, electricity, molecules, machine, electron, mission, planet, biomass, automobile, form, potential, basic, importance, economic, operation, system, tradition, structure, generation, market.

Exercise 2. Guess the meaning of the given below professional terms.

Energy, heat, electricity, electron, gasoline, radio wave, copper electric ware, solar, wind, biomass, geothermal, small hydro sources.

Exercise 3. Study the new words.

finite	обмежений
find out	дізнатися
supply	Пропозиція, постачання
to surround	оточувати
to invent	винаходити
substance	речовина
to breath	дихати
particle	частина
copper wire	мідний провідник
property	властивість
pollution	забруднення
to store	зберігати
to discover	відкривати
to reduce	зменшувати
current	струм
consumption	споживання
to require	вимагати, потребувати
peculiarity	особливість
to exceed	перевищувати
innovation	нововведення
efficient	ефективний

Exercise 4. Read and translate text A. Be ready to prove the statements:

a) energy is power;

b) energy surrounds us in different forms;
c) our mission is to preserve planet;
d) people are energy rich today.

Text A. Energy

Energy is power, both materially and politically, so we should all be interested in who controls our planet's finite resources. But it isn't enough just to find out who is controlling energy supplies and why. We have to understand energy itself.

We use energy every day. It surrounds us in different forms, such as light, heat and electricity. Our bodies use energy stored in molecules of substances to move, breath, grow and think. We also use energy to do work and to play. Humans have invented thousands of machines that use energy to make our work easier, to heat our homes and to get ourselves from place to place. Some of these machines use electricity, while others, like automobiles, use the energy stored in substances such as gasoline.

The two most common forms of energy we use are heat and electricity. Heat is the energy of moving particles in any substance. Electricity is the energy of electrons moving along a conductor like a copper electric wire. Besides heat and electricity we use other forms of energy every day: light, radio waves, sound. Energy is easily converted from one form to another. This is its important and very useful property.

Our mission is to preserve the planet, using less energy that saves natural resources like oil and coal and helps to reduce air pollution.

People are energy rich today. Scientists and inventors discovered ways to use energy to make our lives easier. We should be taught theoretical and practical basics of renewable energy and look for solar, wind, biomass, geothermal and small hydro sources for electricity. A big step has been made by planning ocean-based power plants, which use the energy of waves, sea current and tides. There is a lot of research to be done but there is a usable potential much higher than the entire world's energy consumption.

Post text exercise

Exercise 1. Give Ukrainian equivalents to the following English words.

Substance, to reduce, supply, electricity, heat, to store, resources, energy, light, gasoline, wave, property, research, renewable, to preserve, plant, scientist.

Exercise 2. Give English equivalents to the following Ukrainian words.

Споживання, структура, особливість, мідь, контроль, науковець, електроенергія, зменшувати, енергія, хвиля, традиція, наголос, атомна електростанція, споживач, тепло, забруднення, ресурси, океан, властивість, речовина**.**

Exercise 3. Form professional terms joining two words together.

planet's finite	supplies
controlling energy	wire
stored in	machines
thousands of	basics
energy of moving	resources
electrons moving along	resources
a copper electric	molecules
theoretical and practical	consumption
natural	a conductor
entire world's energy	particles

Exercise 4. Quote the sentences in which the terms from exercise 4 are used in the text.

Exercise 5. Answer the following questions.

1. What is energy?
2. How do the humans use energy?
3. Give a definition of electricity?
4. What is our mission?
5. What did the scientists discover?

Exercise 6. State if the following sentences are true to the fact or false. Correct the false statements.

1. Humans have invented hundreds of machines.

2. The three most common forms of energy are heat and electricity.
3. Electricity is the energy of molecules moving along a conductor.
4. Our mission is to reserve the planet.
5. A big step has been made by planning river-based power plants.

Exercise 7. Fill in the missing active words. (Tides, power, bodies, wire, finite**,** electrons, think, to heat, thousands, plants)

1. Energy is_____, both materially and politically, so we should all be interested in who controls our planet's_____ resources.

2. Our_____ use energy stored in molecules of substances to move, breathe, grow and ____.

3. Humans have invented of_____ machines that use energy to make our work easier,_____ our homes and to get ourselves from place to place.

4. Electricity is the energy of moving_____ along a conductor like a copper electric_____.

5. A big step has been made by planning ocean-based power_____, which use the energy of waves, sea current and_____.

Exercise 7. Read and translate text B.

Text B. Energy sector in Ukraine

The energy sector is of key importance for the national economic development, as both production and municipal facilities require electric power for their operation. The energy sector peculiarity is that the technological equipment and primary generators of electric energy are separated from consumers. As a result, power generation, transmission and distribution have become separate industries. Large energy operations have been established in Ukraine, and energy companies make up the Power Grid of Ukraine. The latter is connected with power systems of Western and Central European countries including Russia, Moldova, Belarus. Three types of generation facilities are operated in Ukraine, including thermal power plants (steam turbine and diesel types), hydroelectric plants(hydroelectric power and hydroelectric accumulating plants) and nuclear power plants. The role of wind and helium power plants is growing.

At present, the situation in the energy sector is characterized by the following parameters: the total capacity of all Ukrainian power plants exceeds 53 million kW, including 34.8 million kW (65.3%) at thermal plants, 13.8 million kW (25.9%) at nuclear plants and 4.7 million kW

(8.8%) at hydroelectric plants. Hydropower has a long tradition but there are still some innovations done in the last few years that help our homes become more energy efficient. Power resources of Ukraine are mainly formed by domestic generation capacities (nearly 98%), with the import share being insignificant (2%). The power is largely consumed inside the country (97%), with a small part exported (3%).

Ukraine operates five nuclear power plants, including the Zaporizhzhya, South-Ukrainian, Rivne, Khmelnytsky, and Chornobyl, and hydroelectric power generation cascades, of which six on the Dnipro are the largest.

Ukraine has considerable geothermal resources that are used primarily for heat supply. There is a strong interest in the use of biomass potential. If it is given the good technical potential and experience with existing capacity, renewable energy prospects are reasonably good. In the future, the need for power is expected to grow calling for intensification of the sector development and optimizing of the organization structure and economic mechanisms of functioning in the market environment.

Exercise 8. Copy out key sentences from each paragraph.

Exercise 9. Make a plan of the text using sentences from exercise 11.

Exercise 10. Retell the text in short according to your plan.

Lesson 2
Pretext Exercises

Exercise 1. Read and pronounce correctly the following international words.

Global, cycle, hydrologic, mechanical, commercial**,** irrigation, textile, manufacture, era, barge, transmission, peak, generate.

Exercise 2. Guess the meaning of the given below professional terms.

Global cycle, hydrological cycle, water cycle; mechanical power, electric power, commercial electric power, power transmission, hydroelectric power, hydroelectric plant; irrigation canals; barge traffic; to generate electricity.

Exercise 3. Study the new words.

to evaporate	випаровуватися
to precipitate	осідати, випадати
to drive	керувати, везти
to tap	починати використовувати
to harness	приборкувати
vast	великий
availability	доступність
to mill	молотити
grain	зерно
flour	борошно
irrigation	зрошення
grist mill	млин
sawmill	лісопилка
water mill	водяний млин
wheel	колесо
growth	ріст
reliable	надійний
waterfall	водоспад
flood	повінь
pump	насос
to supply	постачати
to create	створювати
draught	посуха

Exercise 4. Read and translate text A.

Text A. Hydropower

Water constantly moves through a vast global cycle, **the hydrologic cycle**, in which it evaporates from lakes and oceans, form clouds, precipitates as rain or snow, then flows back to the ocean. The energy of this water cycle, which is driven by the sun, is tapped most efficiently with hydropower.

The earth's constant flow of water can be harnessed to produce useful mechanical and electric power.

Prior to the widespread availability of commercial electric power, hydropower was used for irrigation, milling of grain, textile manufacture and the operation of sawmills.

The energy of moving water has been exploited for centuries. In India, water wheels and watermills were built. In Imperial Rome, water

powered mills produced flour from grain. In China and the rest of the Far East, hydraulically operated "pot wheel" pumps raised water into irrigation canals. In the 1830s at the peak of the canal-building era, hydropower was used to transport barge traffic up and down steep hills using inclined plane railroads. Direct mechanical power transmission was required, for industries using hydropower had to locate near waterfall. For example, during the last half of the 19-th century, many grist mills were built at Saint Anthony Falls, utilizing the 50 foot (15 metre) drop in the Mississippi River. The mills contributed to the growth of Minneapolis.

During the industrial Revolution, large water wheels were used to run machinery in factories. The power was not completely reliable, however. Floodwaters created more power than was needed and draughts left the factories without power. By the end of 1800-s, the steam engine had replaced water power in most factories. The first Water powered plant for generating electricity was built in Wisconsin, USA, in 1882. This hydroelectric plant established water power as an important source of electricity. Hydroelectric power is now used all over the world. Almost all water is used to generate electricity. Hydroelectric power now supplies about 19% of world electricity.

Post text exercise

Exercise 1. Match the verbs: see the left-hand list and the right-hand one.

to precipitate	замінювати
to evaporate	постачати
to supply	використовувати
to generate	починати використовувати
to replace	сприяти
to contribute	застосовувати
to exploit	експлуатувати
to harness	скидати
to utilize	випаровуватися
to tap	виробляти

Exercise 2. Give Ukrainian equivalents to the following English words.

Availability, sawmills, watermills, flour, wheel, steep, water pot, growth, drop, floodwaters, draught, steam engine.

Exercise 3. Give English equivalents to the following Ukrainian words.

Ріст, млин, посуха, повінь, пара, постачати, доступність, цикл, ера, канал.

Exercise 4. Form professional terms joining two words together.

canal-building	cycle
global	power
hydro	canals
hydroelectric	cycle
hydrologic	power
irrigation	power
hydroelectric	era
mechanical	power
water	plant
electric	cycle

Exercise 5. Quote the sentences in which the terms from exercise 4 are used in the text.

Exercise 6. Answer the following questions.

1. How does water constantly move?
2. What is the hydrologic cycle?
3. How is the energy of the water cycle tapped?
4. How the earth's constant flow of water can be harnessed?
5. How was hydropower used prior to the widespread availability of commercial electricity power?
6. How energy of moving water has been exploited?
7. How were large water wheels used during the industrial revolution?
8. Where was the first water powered plant built?
9. How is almost all water used?
10. How much electricity does hydroelectric power supply now?

Exercise 7. Fill in the missing active words.

1. Water constantly moves through a vast ….. .
2. … in which it evaporates from lakes and oceans, form clouds, precipitates as rain or snow.
3. The earth's constant flow of water can be harnessed to produce… .

4. Direct… … … was required, for industries using hydropower had to locate near waterfall.

5. … … is now used all over the world.

6. Almost all water is used to … .

Exercise 8. Finish the following sentences.

1. The energy for moving water … .
2. In India, water wheels… .
3. In Imperial Rome water powered mills … .
4. In China and the rest of the Far East … .
5. In the 1830-s at the peak of the …. .

Exercise 9. Choose a right tense form.

1. Water constantly (to move) through a vast global cycle.
2. Water powered mills (to produce) flour from grain.
3. Floodwaters (to create) more power.
4. This hydroelectric plant (to establish) water power as an important source of electricity.
5. Hydroelectric power (to be) now used all over the world.

Exercise 10. Prove the statements:

A) water constantly moves through a vast global cycle;

B) the energy of moving water has been exploited for centuries;

C) waterpower is an important source of electricity.

Exercise 11. Make a plan of the text, put down key phrases.

Exercise 12. Be ready to speak on each point from exercise 11.

Exercise 13. Text B. Read and translate the text, pick up the words you do not know in the dictionary.

Text B

So hydropower is a great source of energy and is used to make electricity. It makes electricity by storing water by using a dam and putting it into a reservoir and forcing the water by a turbine. It all works like this: Water from the reservoir is forced into a pipe called "penstock" which flows and forces a turbine (propeller) which is connected to a "powerhouse generator" with a rod. This gets the generator turning and producing electricity. The electricity flows out through power lines and to wherever it is needed, allowing low cost

energy to be used at long distances from the watercourse. Hydroelectric power now supplies 19% of world electricity.

Hydropower is the most important renewable energy source.

It is 97 % renewable and is used for many reasons. It is used to run major factories cheaply and used to get electricity to a handful of homes across the world. About 20% of the world's electricity comes from hydropower. When such fuel as coal, oil and even nuclear fuels are burned up as a source of energy, they cannot be reused. But water used as a source of energy is not used up.

Hydropower is considered one of the most environmentally friendly sources of energy. This is mainly because it does not involve the burning of oils and gases, which pollute the air and cause acid rain which kills trees, plants and small animals. Hydropower is the cheapest and safest source of energy.

It is said that: "Hydroelectricity is the source that can come "on line" quick enough in an energy crisis of the nation." Hydropower in the United States makes enough energy to meet the needs of 28 million residents. Norway's electricity is about 99% hydroelectric; New Zealand's electricity is 75% hydroelectric.

Ukraine's power sector is the twelfth largest in the world in terms of installed capacity. Ukraine generated 177 billion kilowatt hours of electricity. Ukraine has sufficient generating capacity to supply more than twice its electricity needs. In 2006 Ukraine increased electricity exports by almost 25% or over 2 billion KWh.

Exercise 14. Divide the text into paragraphs and entitle them.

Exercise 15. Point out the main features of hydropower.

Exercise 16 Make a list of them in your notebooks.

Exercise 19 Render the following text to characterize Hydropower. Start the sentences with: Hydropower is…

Lesson 3
Pretext Exercises

Exercise 1.Read and pronounce correctly the following international words.

Energy, source, solar, climate, technology, tropical, biomass, industry, product, organism, natural, atmosphere, century, condition,

million, uranium carbon, continent, radioactive, minerals, materials, Chernobyl, biological.

Exercise 2. Study the new words.

renewable	відновний
nonrenewable	невідновний
access	доступ
support	підтримка
target	ціль
account	нараховувати
to warn	попереджати
electric grid	електронна сітка
application	застосування
fossil fuels	тверде паливо
surface	поверхня
to pump	качати
tissue	тканина
straw	солома
wastes	відходи
to release	звільняти
to feed	годувати
to absorb	вбирати
surrounding environment	навколишнє середовище
to inject	вприскувати
to affect	впливати
liquid	рідина
deposit	поклади
crude oil	сира нафта
scale	масштаб
leakage	витік

Exercise 3. Read and translate text A. Be ready to prove the statements:

a) characterize shortly kinds of renewable energy;
b) do it in written form;
c) enlist all kinds of renewable energy;
d) compare with those which your groupmates have.

Text A. Renewable energy

Kinds of renewable energy.

All forms of energy are stored in different ways, in the energy sources that we use every day. These sources are divided into two groups – renewable and nonrenewable. Renewable energy comes from the natural flow of sunlight, wind, or water around the Earth. With the help of special collectors, we can capture some of this energy and put it to use in our homes and businesses. As long as sunlight, water and wind continue to flow and trees and other plants continue to grow, we have access to a ready of supply of energy. Ukraine has a program of state support for the development of nontraditional and renewable energy sources and small hydro power plants.

Solar energy is energy from the sun in the form of heat and light. This energy drives the climate and weather and supports virtually all life on the Earth. Heat and light from the Sun, along with secondary solar resources as wind and wave power, hydroelectricity and biomass, account for over 99,9% of the available flow of renewable energy on the Earth.

Solar energy technologies harness the sun's heat and light for practical needs such as heating, lighting and electricity. These technologies date from the time of the early Greeks, Native Americans and Chinese, who warmed their buildings by orienting them towards the sun. Solar energy is becoming increasingly popular for remote power needs such as telecommunication towers, agricultural applications (irrigation and pasture management), in tropical countries that are not connected to an electric grid, for heating swimming pools an many other applications around the world.

Wind energy. Wind energy is really just another form of solar energy. Sunlight falling on oceans and continents causes air to warm and rise, which in turn generates surface winds. Humans have used the wind for thousands of years, first to carry ships across oceans and later to pump water and grind grain. More recently, wind has been harnessed as a clean, safe source of electricity.

Biomass energy. The term 'biomass" refers to any form of plant or animal tissue. In the energy industry, biomass refers to wood, straw, biological waste products such as manure, and other natural materials that contain stored energy. The energy stored in biomass can be released by burning the material directly, or by feeding it to microorganisms that use it to make biogas, a form of natural gas.

Energy from biomass is still used around the world, for everything from cooking and heating to generating electricity.

Geothermal power (from the Greek words *geo*, meaning earth and *thermal,* meaning heat) is energy generated by heat stored beneath the Earth's surface or the collection of absorbed heat in the atmosphere and oceans. Geothermal steam and hot springs have been used for centuries for bathing and heating, but it wasn't until the 20-th century that geothermal power started being used to make electricity. Geothermal energy is clean and safe for the surrounding environment; the hot water used in the geothermal process can be re-injected into the ground to produce more steam. Geothermal plants work day and night, they are unaffected by changing weather conditions. Geothermal power is generated in over 20 countries around the world.

Post text exercise

Exercise 1. Give Ukrainian equivalents to the following English words.

Renewable, nonrenewable, environment, biological wastes, electric grid, climate, solar energy, wind energy, natural gas, animal tissues, cause, support for development, small hydropower plant, unaffected by changing weather, beneath the earth surface**.**

Exercise 2. Give English equivalents to the following Ukrainian words.

Джерело, світло, доступ, енергія, підтримка, розвиток, ціль, сонце, тепло, відновна енергія, технології, застосування, енергія сонця та вітру, енергія біомаси, геотермальна енергія, умови, електронна сітка, пара.

Exercise 3. Find suitable variant.

renewable	warm
to generate	adding water
heat	growing plants
to release	plants and animal tissues
to absorb	energy which comes from sun, wind, water, ...
irrigation	to let free
application	to take up
agriculture	energy

biomass	to produce
electricity	use

Exercise 4. Quote the sentences in which the terms from exercise 3 are used in the text.

Exercise 5. Answer the following questions.

1. What forms of energy do you know?
2. How can we use solar energy?
3. How long has the wind been used as an energy?
4. Give me the definition of biomass.
5. Are the geothermal plants affected by weather conditions?
6. Does Ukraine have any state support programs?

Exercise 6. State if the following sentences are true to the fact or false. Correct the false statements.

1. All form of energy are divided into two forms.
2. Ukraine has a program of state support for the development of nontraditional and renewable energy sources.
3. This energy drives the climate and ocean and supports virtually all life on the Earth.
4. The energy stored in biomass can be released by hiding the material directly.
5. Geothermal power is energy generated by heat stored on the Earth's surface.

Exercise 7. Fill in the missing active words. (state, ways, Earth, steam, heat and light, bathing, every, natural)

1. All forms of energy are stored in different_____, in the energy sources that we use____ day.
2. Renewable energy comes from the _____flow of sunlight, wind, or water around the____.
3. Ukraine has a program of_____ support for the development of nontraditional and renewable energy sources.
4. Solar energy is energy from the sun in the form of_____.
5. Geothermal _____and hot springs have been used for centuries for_____ and heating.

Exercise 8. Look through the text and find any forms of infinitive.

Exercise 9. Translate the following sentences. (complex object and complex subject)

1. Кажуть, що він поїхав з міста.
2. Не очікували, що його оберуть президентом.
3. Здається, їй подобається ця книга.
4. Кажуть, він розмовляє кількома мовами.
5. Думають, що раніше вони були друзями.
6. Він наказав водію зупинити машину.
7. Я попросив своїх друзів зачекати на мене.
8. Я вважаю тебе своїм найкращим другом.
9. Мої батьки хочуть, щоб я став адвокатом.
10. Всі вважають мене невдахою (loser).

Exercise 10. Read and translate text B.

Text B. Non-renewable energy

Non-renewable energy sources come out of the ground as liquids, gases and solids. They are considered non-renewable because once they are removed from the ground and used; they are not - immediately replaced. In fact, the world's natural gas, crude oil and coal deposits took millions of years to form. Uranium, which is used for nuclear energy, has limited supply as well. Humans will have used up most of these deposits in less than 200 years. Once they are gone, non-renewable energy supplies cannot be replaced within human time scales. Let's consider non-renewable energy sources. Coal (fossil fuel) is formed from fossilised plants and consisting of carbon with various organic and some inorganic compounds. Coal is a ready-made fuel. Oil (fossil fuel)is a carbon-based liquid formed from fossilised animals. It can be relatively cheap to mine and to convert into energy Natural gas (fossil fuel) is often used in houses for heating and cooking. Burning of oil, coal and gas give off atmospheric pollutants, including greenhouse gases. Nuclear radioactive minerals such as uranium are obtained by mining. A small amount of radioactive material produces a lot of energy, however, nuclear waste is highly toxic, and needs to be safely stored for 100s or 1000s of years. Accidental leakage of nuclear materials can have a devastating impact on people and the environment. The worst nuclear reactor accident was at Chernobyl, Ukraine in 1986. Some resources can be thought of as both renewable and non-renewable. Wood can be used for fuel and is renewable if trees are replanted as well as biomass, which is material from living

things. They are cheap and readily available source of energy, but if they are not replanted, they refer to non-renewable source of energy.

Exercise 11. Describe non-renewable energy sources using such professional terms: liquid, gases, solids, crude oil, human time scales, fossilized plants, inorganic components, ready-made fuel, mine, accidental leakage, devastating impact.

Exercise 12. Annotate text B using underlined words.

Exercise 13. Considering information in Texts A and B give sound arguments to the usage of regional energy.

Exercise 14. Act in the following situation: "You want to open a biogas plant in Rivne region."

Lesson 4
Pretext exercises

Exercise 1. Read and pronounce correctly the following words and expressions.

Mechanical, machinery, hydraulic, vertically, hydroelectric, energy, textile, manufacture, structures, potential, efficiently, technology, turbine, generator, commercial, pressure, to convert, utilization, privatization.

.

Exercise 2. Translate and memorize the following words and expressions.

Power mill, sawmill, to mill grain, water mill, water power, water turbine, run-off-the river setup, availability, draught.

Exercise 3. Study the new words.

frame	каркас
tidal power	енергія припливу
tidal steam power	парова енергія припливу
thermal power plant	теплова електростанція
wave	хвиля
pant	водовід
tidal barrage	шлюз, дамба
floating	плавучий
grinding stones	жорна

to pipe down	пускати по трубам
high pressure	високий тиск
to be of great demand	користуватись великим попитом
approximately	приблизно
bay	затока
blades	лопоті
to revamp	ремонтувати
feasibility	виконання
current	струм
to frustrate	робити марними
useful	корисний
purpose	ціль
wide-spread	широко розповсюджений
impoundment hydropower	руслова ГЕС
micro-hydropower project	мікрогідравлічні споруди
diversion hydropower	пригребельна ГЕС
pumped storage	гідроакумулююча ГЕС
run-of-river project	річкові гідротехнічні споруди

Exercise 5. Read and translate the text, find the explanation to the following kinds of energy.

mechanical,
hydraulic,
tidal,
tidal steam,
wave,
water.

Text A. Types of Water Power

There are many types of water power:

Mechanical power, water wheels, used for hundreds of years to power mills and machinery

Hydraulic power, hydroelectric energy, usually referring to hydroelectric dams or run-of-the-river setups

Tidal power, which comes from inside by pants

Tidal steam power, which does the same vertically

Wave power, which uses the energy in waves

Hydropower harnesses the energy of moving or falling water for some useful purposes.

Mechanical power.

Prior to the widespread availability of commercial electricity, hydropower was widely used for milling, textile manufacture and the operation of sawmills. Wheels mounted on a frame over a river were the first devise used to harness water power. Blades around the wheels dripped into the river, and the flowing water striking the blades caused the wheels to turn. The ancient Romans connected water wheels to grinding stones and used the power to mill grain.

Hydraulic power.

Hydropower is created by capturing energy from moving water. Usually, hydro power works by capturing the potential energy of dammed water, which drives a water turbine and generator as it is piped down a hill at high pressure to produce electricity Today the largest use of hydropower is for electric power generation. Many hydroelectric plants are combined with thermal power plants (those using fuel). With this combination the thermal plant can supply power if the hydroelectric plant is affected by draught. Hydroelectric plant s are especially useful for producing electricity during periods of great demand, because they can be turned on and off rapidly. In Ukraine, thermal power plants (oil, natural gas, coal) account for nearly 50% of generation, with nuclear power generating another 45% and hydroelectric generation accounting for approximately 5%. The country is currently in the process of revamping its electricity sector, through privatization, increased utilization at existing facilities and the completion of two new nuclear plants. The potential water power of the entire world is about 2.25 billion kilowatts of electric power. This is a very general estimate, because the flow of many large rivers has not been measured. Of this enormous potential, only about 600 million kilowatts is developed. The United States has about a sixth of the world's developed power. Canada, Australia and Europe have most of the rest of the developed power. The potential of Asia, Africa, and Latin America is just beginning to be developed.

Tidal power.

Harnessing the tides in a bay or estuary could be achieved with a large tidal range. The tapped water turns turbines as it is released through the tidal barrage in either direction. But possible fault is that the system would generate electricity most efficiently in bursts every six hours (once every tide). This limits the application of tidal energy.

Tidal steam power.

A relatively new technology, tidal steam generators draw energy from currents in much the same way that wind generators do. The higher density of water means that a single generator can provide significant power. This technology is at the early stages of development and will require more research before it becomes a significant contributor.

Wave power.

Harnessing power from ocean surface wave motion might yield much more energy than tides. The feasibility of this has been investigated. Generators either coupled to floating devices or turned by air displaced by waves in a hollow concrete structure would produce electricity. Numerous technical problems have frustrated progress. Wave energy is captured by an air driven generator and converted to electricity.

Post text exercises

Exercise 1. Give equivalents to the following English expressions.

To power mill, to power machinery, to harness the energy, to draw energy from, to capture energy, moving water, falling water, useful purposes, to supply power, to be affected by, in the process of revamping, to frustrate the progress.

Exercise 2. Give equivalents to the following Ukrainian words.

Високий тиск, хвиля, ремонтувати, струм, пристрій, приплив, лопоті, електроенергія, турбіна, система, поверхня.

Exercise 3. Give the examples of the following kinds of power.

mechanical power,
hydraulic power,
tidal power,
tidal steam power,
wave power.

Exercise 4. Ask the questions to have the following answers.

1. Prior to the widespread availability of commercial electricity, hydropower was widely used for milling, textile manufacture and the operation of sawmills.

2. Wheels mounted on a frame over a river were the first devise used to harness water power.

3. Blade around the wheels dripped into the river, and the flowing water striking the blades caused the wheels to turn.

4. Usually, hydropower works by capturing the potential energy of dammed water.

5. Today the largest use of hydropower is for electric power generation.

6. With this combination the thermal plant can supply power if the hydroelectric plant is affected by draught.

7. Hydroelectric plants are especially useful for producing electricity during periods of great demand.

8. In Ukraine thermal power plants account for nearly 50% of generation.

9. The country is currently in the process of revamping its electricity sector.

10. The potential water power of the entire world is about 2.25 billion KWts of electric power.

Exercise 5. Answer the following questions.

1. How many million KWts of electric power is developed?
2. What part has the US of the world's developed power?
3. What is the part of the developed power of Canada, Australia and Europe?
4. What is the potential of Asia, Africa and Latin America?
5. How could be harnessing the tides achieved?
6. How does the tapped water act?
7. What is the possible fault of the tidal power?
8. How do tidal steam generators operate?
9. What does the higher density of water mean?
10. How is wave energy converted to electricity?

Exercise 6. Make up sentences.

1. Was, hydropower, used, widely, milling for.
2. Around, the, blades, dripped, wheels, the river, into.
3. Romans, the, ancient, water, connected, to, wheels, grinding, stones.
4. Created, is, hydropower, capturing by, energy from, water, moving.

5. Plants, hydroelectric, many, combined, are, thermal, with, plant, power.

6. The, country, currently, in, is, the, of, process, revamping, sector, electricity, its.

7. Water, the, tapped, turbines, turns.

8. Application, this, the, limits, energy, tidal, of.

9. Of, the feasibility, this, investigated, has been.

10. Problems, numerous, technical, have, frustrated, progress.

Exercise 7. Give the examples of the application of the following kinds of energy.

mechanical power,
hydraulic power,
tidal power,
tidal steam power,
wave power.

Exercise 8. Give English definitions to the following Ukrainian words and word combinations.

Механічна енергія, гідравлічна енергія, енергія припливу, парова енергія припливів, енергія морських хвиль, комерційна електроенергія, виробництво текстилю, потенційна енергія, високий тиск, виробляти електроенергію, теплоелектростанції, процес ремонту обладнання, затока, гирло, потік, перетворювати в електроенергію.

Exercise 9. Choose the correct answer.

1. Hydropower … the energy of moving or falling water for some useful purposes. /makes, harness, calms/

2. The … connected water wheels to grinding stones and used the … to mill grain. / power, ancient Romans, water/.

3. … is created by capturing energy from moving water. /tidal power, wave power, hydropower/.

4. Today the largest use of hydropower is for … … generation. /mechanical power, tidal steam power, electric power/.

5. This … the application of tidal energy. /prolongs, limits, enlarge/.

Exercise 10 Choose the right predicate.

1. Blades around the wheels … into the river. (drip, will drip, dripped)

2. The Ancient Romans … the power to mill grain. (use, uses, used).

3. Hydropower … by capturing the potential energy (works, worked, work, will work).

4. In Ukraine, thermal power plants … for nearly 50% of generation. (account, will account, accounted).

5. The United States … about a sixth of this world's developed power. (have, had. has).

6. Hydroelectric plants … especially useful for producing electricity during periods of great demand (is, am, are).

Exercise 11. Organize the discussion on one of the following topics: Consider the following sentences as a plan, if not make your own:

a. advantages of hydropower usage.

1. Hydropower is created by capturing energy from moving water.

2. Hydropower works by capturing the potential energy of dammed water.

3. Hydroelectric plants are useful for producing electricity.

b. disadvantages of tidal and wave power usage.

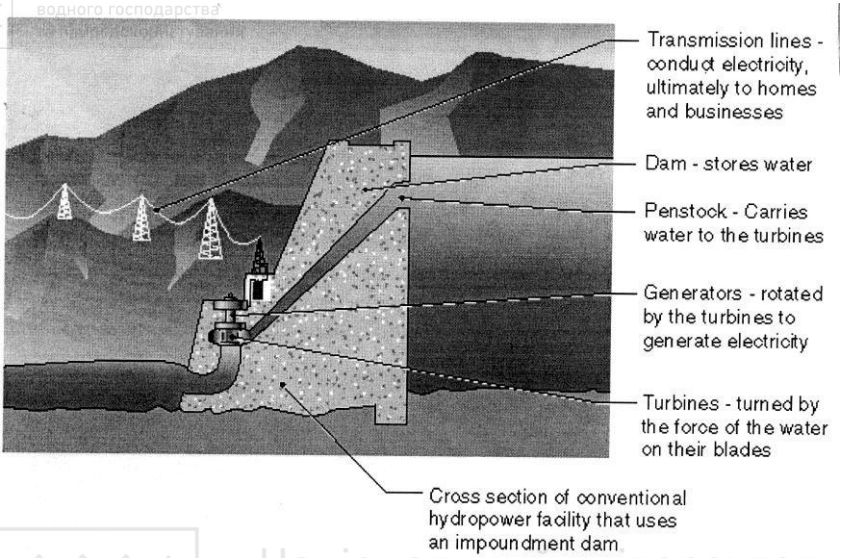
1. Possible fault is that the system would generate electricity most efficiently in bursts every six hours.

2. Wave energy is captured by an air driven generator and converted into electricity.

Exercise 12. Read and translate text B.

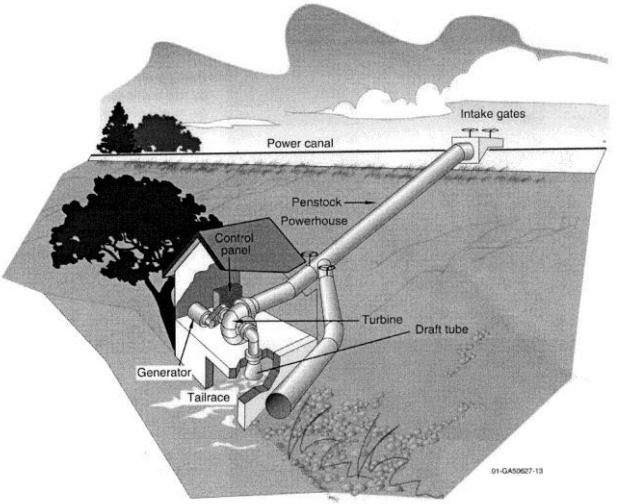
Text B. Types of hydropower facilities

Impoundment hydropower – uses a dam to store water. Water may be released either to meet changing electricity needs or to maintain a constant reservoir level.



Diversion projects – channel a portion of the river through a canal or a penstock and may require a dam. The adjacent project did not require a dam

Micro-hydropower Projects – produce 100 kilowatts(kW) or less. Microhydro plants can utilize low heads or high heads



Pumped storage pumps water from a lower reservoir to an upper reservoir at times when demand for electricity is low. During periods of high electrical demand, the water is released back to the lower reservoir to generate electricity.

Run-off-river project – utilize the flow of water within the natural range of the river, requiring little or no impoundment. Run-off-river plants can be designed using large flow rates with low head or small flow rates with high head

Exercise 13. Describe hydropower facilities.

Exercise 14. Render this text into Ukrainian: Make use of the following words and expressions given below:

річкові ГЕС
руслові ГЕС
мікрогідравлічні споруди
гідроакумулюючі споруди

Lesson 5
Pretext Exercises

Exercise 1. Read and pronounce correctly the following international words.

Electricity, economics, political, biological, problem, transportation, federal, carbon dioxide, automobile, project, solar, biomass, important, natural.

Exercise 2. Study the new words.

fluctuation	коливання
deregulation	дерегламентація
price	ціна
certainty	впевненість
society	суспільство
to increase	збільшувати
scarce	рідкісний
to estimate	оцінювати
disease	хвороба
to consider	обмірковувати
invisible blanket	невидима ковдра
to melt	танути

to spread	поширювати
severe	суворий сильний
significantly	значно
water shed	водяна перепона
household	господарство
neighborhood	сусідство
equipment	обладнання
to create	створювати
to suffer	страждати

Exercise 3. Read and translate text A. Be ready to prove the statements:

do you agree with the title of the text? If not: give your own variant of the title - if yes: give full answer to the question ;

Text A. Why is renewable energy important today?

Energy Price Stability

In the last three years, we have seen large fluctuations in the cost of natural gas, oil, and electricity due to global economics, market deregulation, and political events in some parts of the world. Renewable energy is not subject to sharp price changes because it comes from sources such as sunshine, flowing water, wind, and biological waste, all of which are free. This gives people greater certainty about the cost of energy, which is good for society and the economy. By comparison, fossil fuels are limited in their supply, and their price will increase as they become scarcer.

Clean Air

Air pollution is a major problem in many cities in Canada and around the world. The biggest cause of air pollution in cities is the burning of fossil fuels, including fuels used for transportation. The Canadian federal government estimates that more than 16,000 Canadians die prematurely each year from diseases caused by air pollution. Thousands more suffer from long-term sicknesses and disabilities. The great advantage of using renewable energy in place of fossil fuels is that renewable energy adds very few pollutants to the environment. Renewable energy is considered "clean" and "green."

Protecting Global Climates

When fossil fuels are burned, they release carbon dioxide. This gas acts like an invisible blanket, trapping more of the sun's energy in the

atmosphere, causing the Earth to warm up little by little. Carbon dioxide is building up in the atmosphere as more and more fossil fuels are used in homes, factories, and automobiles. If this continues, most scientists think our planet is likely to become significantly warmer, which could cause many serious problems around the world. These problems could include melting of arctic ice, increased forest fires, rising sea levels, loss of animal habitat, damage to coral reefs, the spreading of tropical diseases, expanding deserts, and more frequent and severe storms.

Protecting Landscapes and Watersheds

Some energy projects, particularly big coalmines, hydro dams, and oil and gas activities, can have a large impact on lands and watersheds. Damage or loss of natural lands and watersheds is likely to affect humans and animals. For example, wilderness areas could be lost for when energy resources are extracted. Hydro dams can flood large areas, while the facilities associated with oil and gas and oil sands development can affect forests and disrupt animal movements and migrations. On the other hand, solar energy can provide a continuous supply of energy, which is integrated directly into buildings so that it has very little impact on land use. Run-of-river hydro plants can be designed to allow for free flow of existing streams.

Post text exercise

Exercise 1. Give Ukrainian equivalents to the following English words.

Коливання, біологічні відходи, суспільство, впевненість, збільшувати, різка зміна ціни, пропозиція, хвороби, перевага, сильний шторм, вплив, природний газ, необмежені ресурси, створювати, господарство.

Exercise 2. Give English equivalents to the following Ukrainian words.

Fluctuation, price, waste, certainty, society, to estimate, disease, advantage, carbon dioxide, spreading, damage, loss, impact, solar energy, limitless resources, amount, distance, equipment.

Exercise 3. Find suitable variant.

air	dioxide
burning of	large areas

renewable	dams
carbon	disease
invisible	pollution
melting of	gas
tropical	arctic ice
hydro	fossil fuels
to flood	blanket
natural	energy

Exercise 4. Quote the sentences in which the terms from exercise 3 are used in the text.

Exercise 5. Put as many questions as possible to the following sentences.

1. Damage or loss of natural lands and watersheds is likely to affect humans and animals.
2. Air pollution is a major problem in many cities in Canada and around the world.
3. Thousands more suffer from long-term sicknesses and disabilities.
4. Hydro dams can flood large areas.
5. Run-of-river hydro plants can be designed to allow for free flow of existing streams.

Exercise 6. State if the following sentences are true to the fact or false. Correct the false statements.

1. Renewable energy is a subject to sharp price change.
2. The great advantage of using renewable energy in place of fossil fuels is that renewable energy adds a lot of pollutants to the environment.
3. Carbon dioxide is building up in the atmosphere as more and more fossil fuels are used in homes, factories, and automobiles
4. Hydro dams can flood large areas.
5. Damage or loss of natural lands and watersheds is likely to affect humans and people.

Exercise 7. Finish the following sentences.

1. Large fluctuation …
2. Fossil fuels are limited …

3. The biggest cause of air pollution …
4. Renewable energy …
5. When fossil fuels …

Exercise 7. Find and translate the forms of *gerund* in text A.

Exercise 8. Use a correct form of a gerund.

1. He regrets (do) that terrible thing.
2. He hates (address) as "sir".
3. Don't be afraid of (fall) down. I'll hold you.
4. Thank you for (help) us find this flat. Now we have a place to live in.
5. I am looking forward to (take) to the seaside. My parents promise to take me with them.
6. I think there is no sense in (do) morning exercises if you go in for sports.
7. He denied (steal) the car.
8. Let's go out tonight. – I suggest (go) to a concert.

Exercise 9. Translate the following sentences with gerund.

1. Він розказав про те, що пише підручник з української літератури.
2. Бабуся була здивована, що я навідався до неї в понеділок
3. Ви не проти, якщо я вестиму машину?
4. Я зовсім забув, що ти позичав мені гроші.
5. Вибач, що розбудив тебе.

Text B

Unlimited Supplies. Renewable energy supplies will never run out. While the supplies of coal, oil, and natural gas are limited, sunshine, wind, biomass, and waterpower are considered almost limitless resources. Canada's coal supply is expected to last 200 years, and natural gas about 100 years. Our large, untapped supplies of wind, sun, water, and biomass can power our society indefinitely.

Jobs and Economy. Renewable energy can be developed in such a way that every household or neighbourhood could have its own renewable power generating equipment. This would create many new jobs for people involved in setting up and maintaining this energy supply, and in manufacturing the equipment. It is also more efficient to

produce renewable energy in small amounts right where it is needed. The energy losses and equipment needed to transmit power over long distances can also be minimized in this way.

Exercise 10. Make written translation of the text.

Exercise 11. Give the definition of the following professional terms.

Limitless resources, biomass, untapped supplies, renewable power, and energy losses.

Exercise 12. Render the text in English; make use of the terms from Ex 11.

Exercise 13. Dwell on the topic: Why is energy important today? What has been done in Rivne region on this item?

Exercise 14. Do you know that: A biodiesel plant is under construction in Rivne region. Find any information concerning this problem. Organize a discussion on your group on this topic.

Lesson 6
Pretext Exercises

Exercise 1.Read and guess the meaning of professional terms.

Alternative, dam, diversion, wheel, installation, lack, generator, solar energy, system, water flow, available, minimum, amount, migration, radio, fossil fuels, local, schemes.

Exercise 2. Study the new words.

remote area	віддалена територія
viable	життєздатний
discernible	видимий, помітний
diversion	відхилення
consistent	послідовний, стійкий
issues	проблеми
easement	зручність
loan	позика
benefit	перевага
to allow	дозволяти
various	різноманітний

community	громада
frequently	часто
to accomplish	виконувати, завершувати
prone	схильний
debris	уламки
complement	додаток
photovoltaic	фотогальванічний
to require	вимагати
respectively	відповідно
resident	житель
to jam	стикатися

Exercise 3. Read and translate text A. Be ready to prove the statements:

a) Has small-scale hydro or micro-hydro power been increasingly used as an alternative energy source ?

b) Why has it happened so? If you do not agree, give your arguments.

Text A. Small-scale hydropower

Small-scale hydro or micro-hydro power has been increasingly used as an alternative energy source, especially in remote areas where other power sources are not viable. Small-scale hydropower system can be installed in small rivers or streams with little or no discernible environmental effect on things such as fish migration. Most small-scale hydropower systems make no use of a dam or major water diversion, but rather use water wheels.

There are some considerations in a micro-hydro system installation. The amount of water flow available on a consistent basis, since lack of rain can affect plant operation. Head is the amount of drop between the intake and the exit. The more head, the more power can be generated. There can be legal and regulatory issues, since, most, countries, cities, and states have regulations about water right and easements.

Over the last few years, the US. Government increased support for alternative power generation. Many resources such as grand, loans, and tax, benefits are available for small-scale hydro systems. In poor areas, many remote communities have no electricity. Micro hydro power, with a capacity of 100 kW or less, allow communities to generate electricity.

Micro- hydropower can be used directly as “shaft power” for many industrial applications. Alternatively, the preferred option for domestic energy supply is to generate electricity with a generator or a reversed electric motor that, while less efficient is likely to be available locally and cheaply.

Post text exercises

Exercise 1. Give Ukrainian equivalents to the following English words.

Віддалені території, дамба, різноманіття, позика, дозволяти, застосовування, виробляти, часто, місцеві жителі, невелика кількість електроенергії, схема, заблоковувати, вбирання, колесо.

Exercise 2. Give English equivalents to the following Ukrainian words.

Alternative energy, remote areas, dam, water diversion, water wheel, loan, benefit, application, complement, local resident, amount of electricity, prone, to accomplish, lack.

Exercise 3. Find suitable variant.

small scale	number
remote area	to let
installation	use
benefit	problem
application	micro
complement	fixation
amount	advantage
resident	citizen
issue	distant
allow	part

Exercise 4. Quote the sentences in which the terms from exercise 3 are used in the text.

Exercise 5. Fill in the missing active words. (systems, resources, head, industrial, alternative)

1. Small-scale hydropower has been increasingly used as an _____energy source.

2. Most small-scale hydropower_____ make no use of a dam or major water diversion, but rather use water wheels.

3. Many _____such as grand, loans, and tax benefits are available for small-scale hydro systems.

4. Micro- hydropower can be used directly as “shaft power” for many_____ applications.

5. The more_____, the more power can be generated.

Exercise 6. State if the following sentences are true to the fact or false. Correct the false statements.

1. Small-scale hydropower system can be installed in small rivers or streams.

2. The amount of airflow available on a consistent basis, since lack of rain can affect plant operation.

3. In rich areas, many remote communities have no electricity.

4. Micro hydropower, with a capacity of 100 kW or less, doesn’t allow communities to generate electricity.

5. The more head, the less power can be generated.

Exercise 7. Answer the following questions.

1. Where can we use small-scale hydropower?

2. What does small-scale hydropower system make use or not make use of?

3. What resources are available for small-scale hydropower system?

4. Can micro hydropower be used as “shaft power” for many industrial applications?

5. With what capacity does the communities generate electricity?

Exercise 8. Find and translate *Past Participle* from text A.

Exercise 9. Make up sentences using following Past Participles: (used, installed, generated, increased, preferred, reversed)

Exercise 10. Choose the right variant.

1. The (losing, lost) book was found at last.

2. (Going, gone) along the street, I met Mary and Ann.

3. Read the (translating, translated) sentences once more.

4. Name some places (visiting, visited) by you last year.

5. She was reading the book (buying, bought) the day before.

6. Yesterday we were at a conference (organizing, organized) by the pupils of the 10th form.

Unit 5. Text B. Micro hydro, pico hydro

Micro Hydro is a term used for hydroelectric power installations that typically produce up to 100 kW of power. They are often used in water rich areas as a Remote Area Power Supply (RAPS). There are many of these installations around the world, including several delivering around 50 kW in the Solomon Islands, supplying energy for small communities. Micro hydro is frequently accomplished with a Pelton wheel for high head, low flow water supply. The installation is often just a small-dammed pool, at the top of a waterfall, with several hundred feet of pipe leading to a small generator housing. Since the water flows in, then out of it, it cleans itself and is less prone to jam with debris. Micro hydro systems complement photovoltaic solar energy systems because in many areas, water flow, and thus available hydropower, is highest in the winter when solar energy is at a minimum.

Pico hydro is a term used for hydroelectric power generation of under 5 kW. It is useful in small, remote communities that require only a small amount of electricity - for example, to power one or two light bulbs in a house, or a radio, for part of the day. Pico hydropower is more environmentally friendly than burning fossil fuels, as it does not pollute the air. Two examples of pico hydropower can be found in Kenya. These sites produce 1.1 kW and 2.2 kW, respectively. Local residents were trained to maintain the hydro schemes.

Exercise 11. Read and translate text B:

a) make drawings of microhydro and pico hydro installations;

b) describe them using your drawings and professional terms (remote Area Power Supply, Pelton wheel, small-dammed pool, prone to jam with debris, photovoltaic solar energy, remote communities);

c) do you know any of them in Ukraine.

Exercise 12. Do you know that: hydropower station has been built in Khrinnyky. What is its capacity? Can we call it micro hydro power station? Answer these questions using Ukrainian sources and considering information of Rivne region.

Exercise 13. Write a report on the topics: Small-scale hydropower installation in Ukraine. Micro hydropower and pico hydro power installations in Ukraine.

Exersice 14. Organize a discussion on this question in your group, using the information from your reports.

Lesson 7
Pretext Exercises

Exercise 1. Read and pronounce correctly the following international words.

Project, migration, research, generation, material, fauna, reservoir, tropical, carbon, sabotage, terrorism, operating, hydroelectric, natural, generation, personnel, normal, operation, hydroelectric, scheme, farming, emission, uranium.

Exercise 2. Study the new words.

disruptive	руйнівний
upstream	угору по течії
downstream	вниз за течією
spawn	нерест (ікра)
to harm	завдавати шкоди
sediment	осад
scouring	вимивання
riverbed	русло ріки
endangered	бути у небезпеці (вимирати)
decaying	гниття, руйнування
to relocate	переселяти
failure	невдача
rare	рідкий
elimination	ліквідація
facility	можливість
hazard	небезпека
leak	витік
to dissolve	розчиняти
inappropriate	невідповідний
disaster	катастрофа

Exercise 3. Read and translate text A. Say: do you agree with the position that hydroelectric projects can be disruptive to surrounding aquatic ecosystems? If yes – give sound reasons; if not – than prove it.

Text A. Disadvantages

Environmental damage.

Hydroelectric projects can be disruptive to surrounding aquatic ecosystems both upstream and downstream of the plant site. Studies have shown that dams have reduced salmon populations by preventing access to spawning grounds upstream, even though most dams in salmon habitat have fish ladders installed. Salmon spawn is also harmed on their migration to sea when they must pass through turbines. So turbine and power plant designers are required new research projects or a condition of relicensing of existing projects. Generation of hydroelectric power changes the downstream river environment. Water exiting a turbine usually contains very little suspended sediment, which can lead to scouring of riverbeds and loss of riverbanks. Since turbine gates are often opened intermittently, rapid or even daily fluctuations in river flow are observed. Dissolved oxygen content of the water may change from pre-construction conditions. Depending on the location, water exiting form turbines is typically much warmer than the pre-dam water, which can change aquatic faunal populations, including endangered species and prevent natural freezing processes from occurring. In some cases, the entire river may be diverted leaving a dry riverbed. Since damming and redirecting the waters for agricultural and energy use, many native and migratory birds have become increasingly endangered.

Greenhouse gas emissions. The reservoirs of power plants in tropical regions may produce substantial amounts of methane and carbon dioxide. This is due to plant material in flooded areas decaying in an anaerobic environment and forming methane, a very potential greenhouse gas.

Population relocation. Another disadvantage of hydroelectric dams is the need to relocate the people living where the reservoirs are planned. Historically and culturally important sites can be flooded and lost.

Dam failures. Failures of large dams, while rare, are potentially serious. Dams may be subject to enemy bombardment during wartime, sabotage and terrorism. The creation of a dam in a geologically inappropriate location may cause disasters like in 1963 in Italy where almost 2000 people died.

Post text exercise

Exercise 1. Give Ukrainian equivalents to the following English words.

Екосистема, зменшувати, доступ, дослідження, швидкий, коливання, кількість, катастрофа, ліквідація, схема, будівля, потік, вплив, витік.

Exercise 2. Give English equivalents to the following Ukrainian words.

Disaster, sediment, environment, to harm, disruptive, riverbed, rapid, dissolved oxygen, decaying, construction, flood, schemes, leak, waste, to effect, to improve, hazard.

Exercise 3. Find suitable variant (synonym or antonym).

to harm	tragedy
river bank	change
endangered	to damage
dry	protected
energy	deposit
flood	draught
disadvantage	power
fluctuation	drawback
sediment	river shore
disaster	wet

Exercise 4. Quote the sentences in which the terms from exercise 3 are used in the text.

Exercise 5. Fill in the missing active words. (power plants, location, creation, migration, failures pre-dam, disasters, amounts, turbines).

1. Salmon spawn is also harmed on their_____ to sea when they must pass through _____.
2. Depending on the_____, water exiting form turbines is typically much warmer than the_____ water.
3. The reservoirs of _____in tropical regions may produce substantial_____ of methane and carbon dioxide.
4. _____of large dams, while rare, are potentially serious.
5. The_____ of a dam in a geologically inappropriate location may cause_____.

Exercise 6. State if the following sentences are true to the fact or false. Correct the false statements.

1. Hydroelectric projects can be disruptive to surrounding aquatic ecosystems both upstream and downstream of the plant site.
2. Salmon spawn is also harmed on their migration to sea when they must pass through dam.
3. The reservoirs of power plants in tropical regions may produce substantial amounts of methane and carbon dioxide.
4. Another advantage of hydroelectric dams is the need to relocate the people living where the reservoirs are planned.
5. Failures of small dams, while rare, are potentially serious.

Exercise 7. Answer the following questions.

1. How do the dams influence on salmon population?
2. Name main disadvantages of hydroelectric projects.
3. Is population recollection advantage or disadvantage of hydroelectric project?
4. Who has become increasingly endangered?
5. What happened in 1963 in Italy**?**

Exercise 8. Look through the text and find examples of *Participle I* and *Participle II*.

Exercise 9. Translate the following sentences using *Participle I* and *Participle II*.

1. Залишивши йому записку вони пішли у парк.
2. Оповідання надруковані у цьому журналі є дуже цікавими.
3. Ви повинні бути дуже уважними переходячи дорогу.
4. Почувши кроки він підняв голову.

Exercise 10. Read and translate text B.

Text B. Advantages of electricity generation

Economics. The major advantage of electricity is elimination of the cost of fuel. The cost of operating a hydroelectric plant is nearly immune to increases in the cost of fossil fuels such as oil, natural gas or coal. Fuel is not required and so it need not be imported. Hydroelectric plants tend to have longer economic lives than fuel-fired generation, with some plants now is service having been built 50 years

ago. Operating labor cost is usually low since plants are automated and have few personnel on site during normal operation. A hydroelectric plant may be considered with relatively low construction cost. It has been calculated that the sale of electricity from the Three Gorges Dam will cover the construction costs after 5 to 8 years of full generation.

Greenhouse gas emission. Since hydroelectric dams do not burn fossil fuels, they do not directly produce carbon dioxide (a greenhouse gas).

Related activities. Reservoirs created by hydroelectric schemes often provide facilities for water sports and become tourist attractions in themselves. In some countries farming fish in the reservoirs is common. Large hydro dams can control floods. Boats may be used to improve transportation, when dams create reservoirs and eliminate rapids.

Hydroelectricity avoids the hazards of coal mining and the direct health effects of coal emissions.

Hydroelectricity generates no nuclear waste, has none of the dangers associated with uranium mining, nor nuclear leaks.

Exercise 11. Copy out professional terms, translate them.

Exercise 12. Annotate the text using the phrases:

The subject of this text is…
The purpose of this text is …
It is pointed out that …
The text also discusses…

Exercise 13 Make up a dialogue on the topic: Advantage and disadvantage of electricity generation

Exercise 14. Discuss some of the following topics:

1. Energy is power.
2. Energy sector in Ukraine and abroad (any country to compare)
3. Ukraine has a program of state support for the development of regional energy sources, hasn't it?