



**Некоммерческое
акционерное
общество**

**АЛМАТИНСКИЙ
УНИВЕРСИТЕТ
ЭНЕРГЕТИКИ И
СВЯЗИ**

Кафедра
иностранных
языков

ПРОФЕССИОНАЛЬНО-ОРИЕНТИРОВАННЫЙ АНГЛИЙСКИЙ ЯЗЫК

Методические указания для улучшения навыков перевода научно-технической литературы для студентов специальности
5В071800 – Электроэнергетика

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В методических указаниях рассматриваются основы перевода, лексические трудности перевода научно-технической литературы. Большое внимание уделяется вопросам терминологии, что дает возможность увеличить активный словарь по специальности.

Методические указания по профессионально-ориентированному английскому языку предназначены для студентов специальности «Электротехника», занимающихся техническим переводом.

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Energy everywhere

Energy is incredible because we use it for everything that we do. Energy can make things work, make things move, and make things happen. People use energy to work and to play. When people do things like cook food, listen to music, and use a lamp, they are using heat energy, sound energy, and light energy.

Energy is everywhere and energy is in everything. We can't make energy and we can't destroy it. When we use energy to make something happen, we don't lose it. It becomes a different type of energy.

Converting energy is one of the types of energy, it is when one type of energy can be converted into another. For example, when we move, we use energy from the food that we eat. When runners use this energy to run fast in a race, some of it is converted into heat energy. That's why runners look and feel so hot at the end of a race! When people run, only 25% of the energy in their legs is used to make them move. Most of it is converted into heat energy.

There are also other types of energy. There are many different types of energy, for example electrical energy and heat energy. Two important types of energy are kinetic energy and potential energy.

Kinetic energy is a type of energy that's moving. All things that move have kinetic energy. Wind is moving air. We use the kinetic energy in wind to fly kites and to sail boats.

Things that are not moving also have energy. Potential energy is stored energy. It's energy inside something that's waiting to be used. It's energy that has the potential to do work. We have potential energy stored in our bodies. When we run, some of this potential energy is converted into kinetic energy to make our legs move.

Let us look at how potential energy works. When we stretch a rubber band, we give it energy. The energy that we use to stretch the rubber band is stored inside it as potential energy. When we let go of the rubber band, it moves. When we stretch the rubber band more, it has more potential energy, and it can move more.

When we jump on a trampoline, this stretches the trampoline springs. This gives the springs potential energy. When the springs can't be stretched any more, this potential energy is converted into kinetic energy. The springs move back, and this throw us up into the air!

From high to low: some things have potential energy because they are high up. When we lift a picture off the floor and put it on a wall, some of the energy that we use for lifting goes into the picture. If the picture falls off the wall, that potential energy is converted into kinetic energy. When something is very high up, it has a lot of potential energy. The water at the top of a high waterfall has a lot of potential energy. When it falls, it moves very fast because it has a lot of kinetic energy. Angel

Falls in Venezuela is the highest waterfall in the world. The water falls almost 1 kilometer from top to bottom!

Most of the electricity in the United States is produced in steam turbines. There are many discrete steps in this process. In a steam turbine, combustion of coal, petroleum, or natural gas heats water to make steam. The steam rotates the shaft that is connected to a generator that produces electricity. Finally, that electricity is converted by a transformer and conveyed from the turbine to its place of use. Many sources can provide energy to heat the water in a steam turbine. Coal is primary, producing 51 percent of the country's electricity. Another common way to heat water for steam turbines is through nuclear power. In nuclear fission, atoms of uranium fuel are hit by neutrons, triggering a continuous chain of fission that releases heat. In 2001, nuclear power generated 21 percent of the electricity in the United States. Solar power produces less than 1 percent of the United States' electricity needs, because it is not regularly available and harnessing it is more expensive than using fossil fuels. Dependence on electricity permeates daily life in the United States. Still, few people are aware of the many components of electricity production.

Vocabulary:

Convert- to become different; to make something different (превращать).

Kinetic energy- energy that's moving (кинетическая энергия).

Energy- we need energy to move and grow, and machines need energy to work.

Potential energy- a type of energy that is stored (потенциальная энергия).

Low- not high (низкий, низко).

Combustion- the process of burning (воспламенение, сгорание).

Component- one part of a system or whole.

Convey- to transport from one place to another; to transmit or make known (переправлять, перевозить).

Discretely- separately, distinctly (обособлено).

Permeate- to spread or flow throughout; to pass through or penetrate (пропитывать, проникать, просачиваться).

Rotate- to turn around, to take turns in sequence (вращаться, чередоваться).

Solar- of, or relating to the sun (солнечный).

Source- the point of origin or creation (источник).

Trigger- to set off or initiate (вызывать, влечь за собой).

Exercise 1. Decide if the sentences are true (T) or false (F).

1. When we use energy, we lose it. T/F.

2. When we use energy, it becomes a different type of energy. T/F.

3. When we move, we use energy from the food that we eat. T/F.

4. When runners run, some of their energy is converted into light energy. T/F.

Exercise 2. Complete the sentences with the words: sailing boats, stored, energy, Potential, Wind, kinetic.

1. There are many different types of _____.
2. All things that move have _____ energy.
3. _____ has kinetic energy.
4. Kinetic energy makes _____ move.
5. _____ energy is stored energy.
6. When we run, potential energy that's _____ in our body is converted into kinetic energy.

Exercise 3. Put the words in the right order.

1. stretch a / we give it energy. / When we / rubber band,
2. jump on a / When we / its springs. / this stretches / trampoline,
3. potential energy. / the springs / When we stretch / this gives / a trampoline
4. When springs / is converted into kinetic energy. / potential energy / can't be stretched any more,

Exercise 4. Underline the correct words.

1. Some things have potential / kinetic energy because they are high up.
2. When you lift something off the floor, some of the energy / time that you use goes into it.
3. When something falls, potential energy is converted into kinetic / heat energy.
4. When something is very high up, it has a lot of potential / kinetic energy.
5. Water in a high waterfall moves fast because it has a lot of potential / kinetic energy.

Exercise 5. Answer the questions.

1. What does the author say about solar power?
 - a) It produces more electricity than any other source.
 - b) It is relatively small source of energy for heating water in steam turbines.
 - c) Electricity producers are trying to use it more regularly.
 - d) Researchers are trying to make it cheaper to use.
2. The word transformer probably refers to a:
 - a) truck
 - b) generator that produces electricity
 - c) type of turbine
 - d) device that changes electric currents

Exercise 6. Translate the following sentences using the key words from the vocabulary above.

1. It is often difficult to convey the meaning of a poem to a large audience.
2. The source of the gossip was someone inside this office.

3. Her bad mood that day permeated the atmosphere in the laboratory.
4. The internal combustion engine revolutionized the way automobiles run.
5. A cigarette triggered the explosion.

Read and translate the text.

Heat energy

We use heat energy for many things. Heat energy makes our homes warm, cooks our food, and makes hot water that we can use for drinking and washing.

Let us look at how we get heat energy. We can get heat energy in different ways. Heat energy from the sun makes Earth warm. We can also get heat energy when we burn wood. When things move, some kinetic energy is converted into heat energy. Inside our body we make heat energy to keep us warm.

When heat is added to something, its temperature gets higher. When something has a high temperature it's very hot. Things are cold when they have less heat energy. When something is cold, it has a low temperature.

What is happening inside hot things? Everything in the world is made of parts called atoms. Atoms join together to make molecules. Atoms and molecules are so small that we can't see them, but they are inside everything - rocks, water, air, and people.

When water is frozen, it becomes solid ice because it has very little heat energy. Molecules in ice are very near each other and they don't move very much. When heat energy is added to something, it makes the molecules inside move more. When heat energy is added to ice, molecules inside it move more. The ice melts and becomes liquid water again. If more heat is added to the water so that it boils, the molecules move so much that the water changes into a gas called steam.

And now let us examine how heat energy moves. Heat energy doesn't stay still. It moves from things that are warmer to things that are cooler. When heat moves between things that are touching, it's called conduction. Heat moves between two things until they are the same temperature.

Heat moves quickly and easily through some materials, like metal. For example, heat from a stove moves quickly through a metal pan to heat the food inside it. When we pick up a metal spoon from a table it feels cold because heat moves from our fingers into the spoon. Heat moves slowly through other materials, like wood. We use wooden spoons to stir food so that heat from the pan does not move into our hands.

And now everything about insulators: to keep our homes warm when it's cold, we have to stop heat energy moving from the inside to the outside. In cold countries, people put insulators in the roofs of their homes. Insulators are materials that stop heat moving from warm places to cold places. Insulators in a roof stop heat moving from the rooms inside the home to the cold air outside.

Heat moves slowly through air, so air can be used as an insulator, too. When we wear a jacket in winter, the jacket holds air next to our body. The air stops heat leaving our body and so it helps to keep us warm.

Vocabulary:

Atom – everything is made of parts called atoms, but atoms are so small that we can't see them.

Ice – frozen water (лед).

Liquid – not a solid or a gas; like water.

Melt – to become liquid because of being hot (жидкость, жидкий).

Molecule – a very small thing that's made of two or more atoms (молекула).

Gas – a fossil fuel from under the ground; not a solid or a liquid; like air (газ).

Temperature – how hot or cold something is.

Stove – печь

Pan – сковорода

Metal spoon-металлическая ложка

Stir-to move something around.

Insulator-a material that stops heat, electricity, or sound leaving something (непроводник).

Roof- the top part of a building (крыша).

Keep-to stay; to make something stay (держат, оставлять).

Exercise 1. Find the end of the sentence.

1. Heat energy from the sun	a. make our homes warm.
2. Inside our body, heat energy	b. it has a low temperature.
3. We can use heat energy to	c. keeps us warm.
4. When heat is added to something	d. makes Earth warm.
5. When something is cold	e. its temperature gets higher.

Exercise 2. Underline the correct words.

1. Everything in the world is made of parts called atoms / air.
2. Atoms join together to make molecules / rocks.
3. Atoms and molecules are very big / small.
4. When heat energy is added to something, it makes the molecules inside move more / less.

Exercise 3. Complete the sentences with the words: conduction, temperature, wood, cooler, materials.

1. Heat energy moves from things that are warmer to things that are _____.
2. When heat moves between things that are touching, it's called _____.
3. Heat moves between two things until they are the same _____.

4. Heat moves quickly through _____ like metal.
5. Heat moves slowly through materials like _____.

Exercise 4. Answer the questions.

1. What do we have to do to keep our homes warm when it's cold?
2. What do insulators do?
3. Why can we use air as an insulator?
4. How do jackets help to keep us warm in winter?

Read and translate the text.

Sound and light

Sound and light are types of energy that travel in the air. We use sound energy to hear, to listen to music, and to communicate by telephone. We use light energy from the sun to see during the day, and light from lamps to see when it's dark.

What can be learned about sound? Sound happens when something vibrates. When we hit a drum, it vibrates and this makes the air around the drum vibrate, too. The vibrations of sound travel through the air in all directions. These movements are called sound waves. Sound waves are invisible—we can't see them. We hear the sound of the drum when the sound waves reach our ears.

What are radio waves? Sounds lose energy and get weaker when they move. That's why we can only hear people speaking if they are near us. To send sounds from one place to another, sound waves are converted into radio waves. Radio waves are a type of energy that can travel a long distance through the air. Like sound waves, radio waves are invisible.

When you use a cell phone, the phone converts sound waves into radio waves. It sends the radio waves to a cell tower near you. The cell tower sends them to a base station that sends them on to a cell tower near the person you are calling. Their cell phone converts the radio waves back into sound waves so that they can hear you!

What is new about the light? When something is luminous, it gives off light. Lamps, candles, fires, televisions, and the sun are luminous. Light energy travels from luminous things in straight lines. Light can move through transparent things like air, water, and windows. It can't move through opaque things like walls, trees, or people.

Shadows happen when something opaque stops light moving through it. Shadows happen on the other side of an opaque thing, where light can't reach. For example, when we stand outside on a sunny day, we block the sunlight and we make a shadow. Some transparent materials can make a thin shadow because they stop some light.

What are lasers? A laser is a type of light that we get from machines. It's a very thin beam of light that has a lot of light energy and heat energy. Lasers have more energy than sunlight! We use lasers in many machines, like CD players and DVD players. Lasers have so much energy that some factories use them to cut through metal, and doctors use lasers to operate on some parts of the body, like eyes. In clothes factories, people use lasers to cut through hundreds of pieces of fabric at the same time.

Vocabulary:

Sound wave-a movement of sound through air (звуковая волна).

Energy– we need energy to move and grow, and machines need energy to work.

Vibrate – to move very quickly up and down, or forward and backward (вибрировать).

To hit a drum – играть на барабане.

Invisible – something that we can't see (невидимый).

Convert – change the form, character, or function of something (превращать).

Luminous – something that produces light; lamps and candles are luminous (светящийся, яркий).

Straight lines – прямые линии

Transparent – you can see through it (прозрачный).

Shadow – a dark, flat shape that something makes when it stops light (тень).

Opaque – you can't see through it (непрозрачный, темный).

Block – загромождать

Exercise 1. Complete the chart with the words: windows, walls, water, trees, doors, air.

Things that are transparent:	Things that are opaque:
Windows	

Exercise 2. Put the words in the right order.

1. that travel in the air./ are types of energy/ Sound and light
2. when something/ Sound happens/ vibrates.
3. it makes the air/ around the drum vibrate, too./ When a drum vibrates,
4. travel through the air/ The vibrations/ in all directions./ of sound
5. are called/ in the air/ The vibrations/ sound waves./ of sound

Exercise 3. Correct the sentences.

1. Sounds get more energy and get stronger when they move.
2. To send sounds from one place to another, light waves are converted into radio waves.
3. Radio waves are visible. We can see them.

4. Cell phones convert radio waves back into sound waves so that we can see the sound.

Exercise 4. Decide if the sentences are true (T) or false (F).

1. When something is luminous, it gives off light. T/F.

2. Lamps, candles, and fires are not luminous. T/F.

3. Shadow happen when something opaque stops light moving through it.
T/F.

4. A laser is type of light that we get from the sun. T/F.

5. A laser beam has very little energy. T/F.

6. Doctors use lasers to operate on some parts of the body. T/F.

Exercise 5. Write about sounds that you like.

Read and translate the text.

Chemical energy

Chemical energy is a type of potential energy. Wood and gasoline have chemical energy. Chemical energy is very useful because we can convert it into many other types of energy.

Using chemical energy properly is that we have to do. When a material has chemical energy, we call this material fuel. Fuels like wood and gasoline have a lot of chemical energy. When we burn gasoline in a car engine, chemical energy from the fuel is converted into kinetic energy that makes the car move. When we burn wood in a fire, chemical energy is converted into heat energy to keep us warm. The engine in a rocket converts chemical energy from fuel into kinetic energy to send the rocket into space!

Fireworks and what can we learn about them? Inside a firework there are powders that use chemical energy in different ways. When we burn a firework, these different types of chemical energy are converted into an amazing, colorful display of kinetic energy, light energy, and sound energy!

The first thing that burns in a firework is fuel. This gives us the kinetic energy that sends the firework up into the sky. Then, different metals start to burn and they make sparks of different colors. For example, when copper burns it makes blue sparks. Some chemicals inside the firework make loud sounds when they burn.

What is food energy? Food has chemical energy, too. Our body converts the chemical energy in our food into chemical energy that we can use to live, to move, and to grow. The chemical energy in our food, and in the food that other animals eat, comes from plants.

What are food chains? Plants convert light energy from the sun into chemical energy that they can use as food. Plants also store chemical energy. When an animal, like a gazelle, eats plants, it uses some of the chemical energy from the

plant. When a lion eats a gazelle, it uses some of the chemical energy from the gazelle's body. When energy from food moves from one living thing to another like this, it's called a food chain.

Chemicals in the ocean, what are they? Most food chains start with energy from the sun, but some food chains in the ocean start with a different type of energy. The rock under deep oceans is very, very hot. When water goes underground through small holes, the rock makes the water as hot as the inside of a pizza oven. The hot water dissolves some of the chemicals in the rock. So the chemicals become part of the water. When water with chemicals dissolved in it comes out of the rock, living things called bacteria feed on the chemicals. Other animals in the ocean feed on the bacteria. Deep in the ocean, some bacteria live inside the bodies of giant worms that can be 3 meters long! The bacteria make food for the worms.

Vocabulary:

Chemical – a solid or liquid that's made by chemistry; made from chemicals (химический продукт, химикат).

Gasoline – a liquid that burns and powers an engine (бензин).

Potential – a type of energy that is stored (потенциальная энергия).

Convert – to become different; to make something different (преобразовывать).

Fuel – something that we use to produce heat or energy (топливо).

Burn – to make flames and heat (сжигать).

Kinetic – energy that's moving (кинетическая энергия).

Firework – a thing with powder inside that makes colored lights and loud sounds when it burns (фейерверк).

Spark – a very small piece of material that's burning (искра).

Copper – a soft, orange or yellow metal (медь).

Grow- to get bigger (расти).

Store – to keep something to use later (сохранять).

Oven – you cook food inside of it (печь).

Dissolve – to mix with water and become part of it (смешивается).

Bacteria- very simple living things (бактерии).

Giant worms- гигантские черви

Exercise 1. Match. Then write the sentences.

1. We use chemical energy from food	a. chemical energy
2. Most living things need energy	b. from the sun into chemical energy.
3. Plants convert light energy	c. of the chemical energy from the plant.
4. Plants store	d. moves from one living thing to another.
5. Animals eat plants to use some	e. to live, to move, and to grow.

Exercise 2. Complete the sentences with the words: energy, sun, dissolves, chemical.

1. Most living things need energy from the _____
2. Some food chains in the oceans start with a different type of _____
3. How water _____ some of chemicals in rock under deep oceans.
4. Living things called bacteria feed on the _____.

Read and translate the text.

Electricity

How often do you use televisions, lights, and computers? Without electricity, these and many other machines can't work! Electricity is a very useful type of energy that gives us heat energy, light energy, sound energy, and kinetic energy.

What is electricity? Inside atoms there are parts called electrons. Electrons can move from one atom to another, and when they do this they make electricity.

Lightning is a type of electricity. It happens when the wind makes atoms of ice inside clouds move around and crash into each other. Electrons move quickly from one atom to another, and we see this movement of electricity as a flash of lightning.

And now let us observe how electricity moves. Power stations are factories that make electricity. The electricity goes through cables and pylons to our homes. This electricity makes the machines in our homes work. Some materials are called conductors – electricity can move easily through these materials. Most metals, like copper and gold, are good conductors. Other materials, like rubber and air, are called insulators – electricity can't move easily through these materials.

Some animals are dangerous because they make their own electricity. Electric eels store electricity in their body and use it to kill other fish!

Using electricity is actual nowadays. Electricity gives us different types of energy. In a toaster, electricity is used to make heat energy to cook bread. Wires inside a toaster are made from a type of metal that slows down the electricity so that some of its energy is converted into heat. In a hairdryer, electric wires give us heat energy and then electricity turns a fan. The fan uses kinetic energy to push the heat out of the hairdryer so that we can dry our hair. In many electric lamps, electricity moves slowly through a thin, curly wire inside a light bulb. This makes the wire so hot that it becomes white, and it glows to give us light.

Most of the electricity that moves through the wire in a light bulb is converted into heat, not light!

Using batteries has sense. Some machines, like calculators and music players, use batteries for their electrical energy. Batteries only give us small amounts of electricity, but they are useful because they can store electricity to use in machines that we take with us when we travel around. Small batteries are useful in small machines like watches. Bigger batteries have more potential energy and we can use them in machines like flashlights. Some machines need two or more batteries. Batteries store chemical energy. The chemical energy is converted into electricity when we turn on a machine. The chemicals inside a battery are dangerous, so never play with a battery or open a battery.

Vocabulary:

Electricity – a type of energy (электричество).

Kinetic energy – energy that’s moving (кинетическая энергия).

Atom – everything is made of parts called atoms, but atoms are so small that we can’t see them.

Electron – a very small part of an atom.

Ice – frozen water (лед).

Power station – a building where electricity is made (электростанция).

Cable – a metal rope that electricity moves through.

Conductor – a material that electricity can move through (проводник).

Metal- a hard material made from minerals.

Insulator- a material that stops heat, electricity, or sound leaving something (непроводник).

Wire- a thin, metal string (проволока).

Convert – to become different; to make something different (преобразовывать).

Hairdryer- a machine that people use to make their hair dry (фен).

Fan- a machine with parts that go round and round to make air move (вентилятор).

Bulb- the part of an electric lamp that produces light (лампочка).

Glow- to make a small amount of light (накаливаться, светиться).

Battery- something that goes inside machines to make them work.

Store- to keep something to use later (сохранить, накапливать).

Chemical- a solid or liquid that’s made by chemistry; made from chemicals (химический продукт).

Exercise 1. Complete the sentences with the words: movement, electrons, lightning, electricity.

1. Inside atoms there are parts called _____.

2. When electrons move from one atom to another, they make _____.

3. One type of electricity is _____.

4. A flash of lightning is the _____ of electricity.

Exercise 2. Decide if the sentences are true (T) or false (F).

1. Power stations are factories that make electricity. T/F.
2. Electricity can't move easily through materials called conductors. T/F.
3. Most metals are bad conductors. T/F.
4. Electricity cables are made of metal. T/F.
5. Electricity can't move easily through materials called insulators. T/F.

Exercise 3. Put the words in the right order.

1. is used/ In a toaster,/ to cook bread./ electricity
2. slow down electricity/ is converted/ Metal wires/ so that/ some of its energy/ in a toaster/ into heat.
3. give us heat./ electric wires/ In a hairdryer,
4. a hairdryer/ Electricity turns/ to dry hair./ to push heat/ out of/ a fan
5. a wire/ so hot/ white and glows./ electricity makes/ In a lamp,/ that it becomes

Exercise 4. Answer the questions.

1. What do small machines like calculators use for their electrical energy?
2. Why are batteries useful?
3. When is the chemical energy in a battery converted into electricity?
4. Why shouldn't you play with a battery or open a battery?

Read and translate the text.

Fuels for energy

Coal, oil, and gas are fossil fuels. We use fossil fuels and nuclear fuels to make electricity. We use fossil fuels to heat homes and to power cars, buses, and trucks.

What are fossil fuels? Fossil fuels are made from plants and animals that lived on Earth millions of years ago. Coal was made like this. When giant plants in ancient jungles died, they sank into mud. Slowly, over millions of years, the mud became hard and changed into rock. The heavy rock pressed down on the plants, and heat from inside Earth helped to change the plants into black coal. Oil and gas were also made like this, but they come from animals that lived in ancient oceans.

How to get coal: miners are people who get coal from under the ground. They use machines to cut holes and tunnels in the ground. Then they cut pieces of coal out of the rock from under the ground. Trucks and trains take coal to power stations or to people's homes, where the coal is burned to give us heat.

Getting oil and gas must be standard. People get oil from oil rigs in the ocean, and they get gas and more oil from wells on land. The oil and gas move through

long pipes to where people need it. People mostly use gas for heating and cooking. They usually use oil to make gasoline and to make new chemicals. One of the longest gas pipes in the ocean goes 1,200 kilometers from Norway to the United Kingdom.

Fossil fuels for electricity, what are they? Most large power stations use the chemical energy in coal to make electricity. In a coal power station, people use heat energy from burning coal to boil water. The boiling water makes steam that has lots of kinetic energy. The steam turns a turbine. The turbine turns a generator and this makes electricity. Cold water then cools the steam and converts it back into water. Some water is heated up again by burning more coal to make more steam. The electricity moves through cables to our homes and other buildings where we can use it.

Nuclear energy: nuclear energy doesn't come from fossil fuels. It's a different type of energy. Nuclear fuel is a metal called uranium. We get nuclear energy when atoms inside uranium are broken. Every atom has a part called the nucleus, and this is where nuclear energy is. When a uranium atom breaks open, the energy comes out as heat. When many atoms break open at the same time, large amounts of heat are made. Heat from nuclear energy is used to make steam that turns turbines and generators in a nuclear power station. In nuclear submarines, the steam turns propellers that move the submarine forward.

Vocabulary:

Fossil fuels –things like coal or oil, that come from plants or animals that are millions of years old (полезные ископаемые).

Coal – a hard, black fossil fuel (уголь).

Mud – wet soil (грязь, слякоть).

Gas- a fossil fuel from under the ground; not a solid or liquid; like air.

Miner – a person who takes coal, metals, and other materials from under the ground (шахтер).

Power station – a building where electricity is made (электростанция).

Oil – a liquid fossil fuel from under the ground (нефть).

Well- a hole that people make to take oil or water from the ground (колодец).

Pipe- a long, round thing that has a tunnel going through it (труба).

Gasoline- a liquid that burns and powers an engine.

Chemical- a solid or liquid that's made by chemistry; made from chemicals.

Turbine- a machine that is used to help make electricity.

Generator- a machine that makes electricity.

To boil- to heat a liquid like water until it's so hot that it changes into steam (кипеть).

To cool- to become colder; to make something colder (охлаждать).

To convert- to become different; to make something different (преобразовывать).

Nuclear- a type of energy that people use to make electricity (ядерная энергия).

Atom- everything is made of parts called atoms; but atoms are so small that we can't see them.

Propeller- a machine that turns quickly to power a ship or aircraft.

Exercise 1. Underline the correct words.

1. Coal, oil, and gas / water are fossil fuels.
2. Coal is made from plants / animals that lived millions of years ago.
3. Oil and gas come from animals that lived in ancient forests / oceans.
4. People who collect coal are called miners / doctors.
5. People cut coal out of the rock under the ground / ocean.
6. People mostly / never use gas for heating and cooking.
7. People usually use oil / coal in cars and other vehicles.

Exercise 2. Put the words in the right order . Then answer the questions.

1. What do / electricity? / large power stations / use to make
2. Coal power station? / burn coal / in a / Why do people
3. have? / does steam / of energy / What type / from boiling water
4. power station, / In a / steam turn? / what does
5. make electricity? / help to / a turbine / How does

Exercise 3. Decide if the sentences are true (T) or false (F).

1. We get nuclear energy when atoms inside uranium are joined. T/F.
2. Nuclear fuel is a metal called uranium. T/F.
3. Nuclear energy is in the nucleus of an atom. T/F.
4. When a fuel atom breaks open, the energy comes out as heat. T/F.

Read and translate the text.

Problems with fuels

About 75% of the energy that people use for power stations and vehicles around the world is made from fossil fuels. Fossil fuels and nuclear fuels are very useful, but there are problems with using both of them. Non-renewable fuels: one problem with fossil fuels is that they are non-renewable. Fossil fuels are made from plants and animals that lived millions of years ago. When we have used all the fossil fuels that are on Earth now, there will not be any more. Some scientists say that oil will run out in 40 to 70 years, and gas in 50 to 150 years. Coal will run out in about 1.000 years.

Dirty air: when fossil fuels are burned, they make different gases that make the air dirty. This is called air pollution. Air pollution is bad for plants, animals, and people. Power stations and vehicles make air pollution. When gasoline is burned in

cars and other vehicles, people who are walking or riding bicycles in the streets sometimes start to cough. The problem is worse in cities, where there are many cars. In some cities you can see the air is dirty. Some people wear a mask over their face so that they don't breathe the pollution. There are 700 million cars in the world. There may be 1,400 million in 30 years! Greenhouse gases are mixture of gases in the air around Earth. When heat from the sun warms Earth, some of it bounces off Earth and goes back into space. Greenhouse gases stop some of this heat going back into space. Greenhouse gases are useful because they store the heat and they keep Earth warm. Without greenhouse gases, Earth would be so cold that we would not be able to live here!

Greenhouse gas problems: when lots of fossil fuels are burned, they put too many greenhouse gases into the air. This makes it warmer on Earth and it can change the world's climate. This is called global warming. Many scientists think that global warming has started forest fires, has created more floods, and is melting glaciers and ice in the Arctic and Antarctic. If polar bears in the Arctic don't have ice to climb onto, they could die.

Nuclear problems: the biggest problem with nuclear fuel is that after uranium has been used, it makes dangerous radioactive waste. The radioactive waste stays dangerous for hundreds of years so it has to be stored very, very carefully. The radioactive waste is invisible, but it's very dangerous and it can kill living things.

Vocabulary:

Non-renewable- something which will be run out (не возобновляемый).

Vehicle- something that moves things or people (экипаж, машина).

Fossil fuels –things like coal or oil, that come from plants or animals that are millions of years old (полезные ископаемые).

Power station – a building where electricity is made (электростанция).

Energy- we need energy to move and grow, and machines need energy to work.

Coal – a hard, black fossil fuel (уголь).

Gas-a fossil fuel from under the ground; not a solid or liquid; like air.

Oil – a liquid fossil fuel from under the ground (нефть).

To run out- when there is no more of something because it is finished(кончатся, кончиться).

Air pollution- when the air around us is made dirty.

Gasoline- a liquid that burns and powers an engine.

To cough-кашлять

To breathe- дышать

Greenhouse gas- a gas that keeps Earth warm (газ в результате парникового эффекта).

To store- to keep something to use later (накапливать).

Global warming- the way that Earth's temperature is getting higher (глобальное потепление).

Forest fire- when trees burn in a large area of land that is covered with trees (лесные пожары).

Flood- when there is a lot of water where it is usually dry (наводнение).

To melt- to become liquid because of being hot (таять).

Ice- frozen water (лед).

Uranium- a metal that is used to make nuclear energy.

Waste- things that we throw away (мусор).

Invisible- something that we can't see (невидимый).

Living thing- something that lives; people, plants and animals are living things.

Exercise 1. Correct the sentences.

1. Fossil fuels make different gases that make the air clean.
2. Air pollution is good for plants, animals, and people.
3. Power stations and vehicles stop air pollution.
4. Air pollution is worse in cities where there are few cars.
5. In some cities, people wear a mask over their bicycle.

Exercise 2. Match. Then write the sentences.

1. Greenhouses gases store	g. warms Earth.
2. Greenhouses gases stop	h. and goes back into space.
3. Some heat bounces off Earth	i. some heat going back into space.
4. Heat from the sun	j. heat and keep Earth warm.

Exercise 3. Complete the sentences with the words: fires, uranium, warming, ice, invisible, air, climate.

1. Burning fossil fuels puts more greenhouse gases into the _____.
2. More greenhouses gases can change the world's _____.
3. This is called global _____.
4. In some countries, global warming has started forest _____.
5. The _____ is melting at the Arctic and Antarctic.
6. After _____ has been used, it makes radioactive waste.
7. Radioactive waste is _____.

Read and translate the text.

Saving energy

Let us observe the problems of saving energy. There are problems with fossil fuels and nuclear fuels, and we need to use more renewable energy. Renewable

energy comes from things like wind, water, and sunlight. These are types of energy that will not run out.

What is solar energy? People use the sun's energy, or solar energy, to heat water and to make electricity. In some homes, solar panels use the sun to heat water. The panels take heat from the sun and then they heat the water in pipes. Some types of solar panel have photovoltaic cells inside. The photovoltaic cells convert sunlight into electricity. They can be used in small machines like laptops, or on a roof to make electricity. Many photovoltaic cells together can make electricity for thousands of people.

What is wind energy? Wind is moving air. To catch wind energy, people build wind turbines in windy places, like high hills or near beaches. Wind turbines are tall and they have three or four blades at the top. The blades turn like a propeller when the wind blows on them. The blades then turn a generator inside the wind turbine to create electricity. When many wind turbines are built together to make a lot of electricity, this is called a wind farm.

Winds are stronger when they are higher in the sky, so scientists are inventing wind energy machines that look like kites! They send electricity to Earth through long cables.

How can we get energy from water? People can use the kinetic energy of moving water to make electricity. For example, water that moves down mountains moves very quickly and so it has a lot of kinetic energy. In a hydroelectric power station, this water moves quickly into pipes, which push it through turbines. The water turns turbines that turn generators to make electricity. Some hydroelectric power stations are next to rivers. A large wall called a dam holds the water so it becomes a store of potential energy. When the water stored behind a dam is pushed through pipes and turbines, the potential energy is converted into kinetic energy that can be used to make electricity.

The Hoover Dam is one of the biggest hydroelectric power stations in the USA. It makes electricity for about 1.3 million people.

What can we do? We can all help to save energy. We can use fewer fossil fuels every day by changing some of the things that we do. For example, we can save oil by walking, riding bicycles, sharing rides to school, or travelling by bus instead of making all our journeys by car. This will also reduce the amount of air pollution and greenhouse gases that go into the air. We can use less electricity by turning off lights and electric machines when we aren't using them. In the future, there will be more people on Earth and we will need more electricity and more energy for our vehicles. What will you do to help to save energy for the future?

Vocabulary:

Fossil fuels –things like coal or oil, that come from plants or animals that are millions of years old (полезные ископаемые).

Nuclear- a type of energy that people use to make electricity (ядерная энергия).

Renewable- will not run out (возобновляемый).

Run out- when there is no more of something because it is finished (заканчивается).

Electricity- a type of energy.

Energy- we need energy to move and grow, and machines need energy to work.

Convert- to become different, to make something different (преобразовывать).

Roof- the top part of a building (крыша).

Photovoltaic cell- something that converts light into electricity.

Turbine- a machine that is used to help make electricity.

Generator- a machine that makes electricity.

Cable- a metal rope that electricity moves through.

Kinetic energy- energy that's moving (кинетическая энергия).

Pipe- a long, round thing that has a tunnel going through it (труба).

Potential energy- a type of energy that is stored (потенциальная энергия)

Reduce- to make something smaller or less (уменьшать).

Air pollution- when the air around us is made dirty.

Greenhouse gas- a gas that keeps Earth warm.

Vehicle- something that moves things or people (машина).

Exercise 1. Match. Then write the sentences.

1. We need to use fewer	a. will not run out.
2. Renewable energy comes	b. to heat water and to make electricity.
3. Renewable energy	c. heat from the sun to warm water.
4. People use solar energy	d. convert sunlight into electricity.
5. Solar panels in a roof use	e. fossil fuels.
6. Photovoltaic cells	f. from wind, water, and sunlight.

Exercise 2. Complete the sentences with the words: propeller, blades, air, tall, generator, turbines.

1. Wind is moving_____.
2. To catch wind energy, people build wind _____ in wind places.
3. Wind turbines are_____.
4. Wind turbines have three or four_____ at the top.
5. The blades turn like a_____ when the wind blows on them.
6. The blades turn a_____ inside the wind turbine to create electricity.

Exercise 3. Answer the questions.

1. What type of energy does moving water have?
2. What happens in a hydroelectric power station?

3. What does a dam do?
4. What happens when water behind a dam is pushed through turbines?
5. How much electricity does the Hoover Dam make?

Exercise 4. Write about the things you do to save energy. What other things could you do to save energy for the future?

Read and translate the text.

Electric power industry of Kazakhstan

Electric power industry of Kazakhstan has the following sectors: electricity generation, electricity transmission, electricity supply, electricity consumption and other activity in electric power industry.

Electricity generation sector: electricity in Kazakhstan is generated by 102 power plants of various forms of ownership. The total installed capacity of power plants in Kazakhstan is 20,844.2 MW and available capacity is 16,945.5 MW.

The power plants are branched into power plants of national importance, power plants of industrial importance and those of regional importance. The power plants of national importance are the large thermal power plants generating and selling electricity to consumers at the electricity wholesale market of Kazakhstan: Ekibastuz GRES-1, Ekibastuz GRES-2, GRES of Kazakhmys energy LLP, Zhambyl GRES JSC named after T.I. Baturov and large hydro power plants used as auxiliary units and to control load schedule profile of Kazakhstan UPS: Bukhtarma hydro power complex of Kazzinc LLP, AES Ust-Kamenogorsk. The power plants of industrial importance are the combined heat power plants (CHPP) which supply heat and electric power to large industrial enterprises and nearby populated areas. The power plants of regional importance are CHPPs integrated with the territories, supplying electricity via the networks of regional electricity network companies and power transmission companies as well as heat supply to the towns nearby.

The system operator has issued the forecast electricity and power balance for the forthcoming seven years period. This forecast electricity and power balance has been sent for approval to the Ministry of Industry and New Technologies of Kazakhstan.

Vocabulary:

Generation- the production of energy in a particular form (генерация, генерирование, образование).

Transmission- the machinery that brings the power produced by the engine to the wheels of a vehicle (передача, трансмиссия).

Supply- to provide something that is wanted or needed, often in large quantities and over a long period of time (снабжать, обеспечивать).

Consumption- the amount used (потребление).

Ownership- when you own something (владение, собственность).

Capacity- the total amount that can be contained or produced (вместимость, мощность).

Importance - the quality of being important (важность).

Thermal power plant- тепло электростанция

Wholesale market - of or for the selling of goods in large amounts at low prices to shops and businesses, rather than the selling of goods in shops to customers (оптовая торговля, торговать оптом).

Combined heat power plant (CHPP)- the power plants of industrial importance, which supply heat and electric power to large industrial enterprises and nearby populated areas.

Forecast - to say what you expect to happen in the future (предсказывать).

Exercise 1. Answer the questions.

1. What sectors does electric power industry of Kazakhstan have?
2. Explain everything about electricity generation sector.
3. What types of power plants can you name?
4. What power plants of national importance can you name?
5. What can you say about power plants of industrial importance?
6. What can you say about power plants of regional importance?
7. What is the forecast electricity and power balance for the forthcoming seven years period?

Exercise 2. Translate the following sentences using the key words from the vocabulary above.

1. The car had a faulty transmission.
2. Electrical power is supplied by underground cables.
3. Someone has turned off the electricity supply.
4. We need to cut down on our fuel consumption by having fewer cars on the road.
5. The larger cars have bigger capacity engines (the engines are bigger and more powerful).
6. You should disconnect the power before attempting to repair electrical equipment.
7. Our building lost power (the electricity was stopped) during the storm.
8. Oil prices are forecast to increase by less than 2% this year.

Read and translate the text.

Electricity transmission sector

Electric networks of Kazakhstan is a package of 0.4-1150 kV substations, switchgears and electricity transmission lines connecting them to transmit and (or) distribute electricity. The backbone grid in Kazakhstan UPS is National Power Grid (NPG) which provide electric connections between the regions of the country and power systems of the neighboring countries (the Russian Federation, the Kyrgyz Republic and the Republic of Uzbekistan) and enable power plants to supply electricity and deliver it to the wholesale consumers. Substations, switchgears, interregional and (or) interconnection electricity lines and electricity lines of 220 kV and higher transmitting electricity from power plants being are a part of the NPG and belong to Kazakhstan electricity grid operating company (KEGOC). Electric networks of regional importance provide electric connections inside the regions and deliver electricity to the retail consumers. Electric networks of regional level belongs to and are being operated by the regional electric network companies (REC). The power transmission companies provide contract-based electricity transmission services using their own or managed (rent, lease, trust management and other types of use) electric networks for the wholesale and retail consumers or power supplying companies.

Power supply sector: the power supply sector in the electricity market of Kazakhstan comprises power supply companies (PSC) which purchase electricity from generators or at the centralized auctions and further sell it to the end retail consumers. Some of PSCs are the «guaranteed suppliers» of electricity.

Vocabulary:

Substation- electricity substation-a place which allows electricity to go from one part of the electricity production system to another (подстанция).

Switchgear- switching equipment used in the transmission of electricity.

Grid- a system of wires through which electricity is connected to different power stations across a region (сеть электропередач, энергосистема).

Supply- to provide something that is wanted or needed, often in large quantities and over a long period of time (снабжать, обеспечивать).

Retail- the activity of selling goods to the public, usually in small quantities (розничная продажа).

Lease- a legal agreement in which you pay money in order to use a building, piece of land, vehicle, etc. for a period (аренда).

Wholesale- of or for the selling of goods in large amounts at low prices to shops and businesses, rather than the selling of goods in shops to customers (оптовая торговля, торговать оптом).

Purchase- to buy (покупать, купить).

Exercise 1. Answer the following questions.

1. What parts do electric networks of Kazakhstan consist of?
2. What are the functions of National Power Grid (NPG)?
3. What task do electric networks of regional importance perform?

4. What is the principle of work of the power transmission companies?
5. What can you say about the process of work of power supply sector?

Exercise 2. Translate the following sentences using the key words from the vocabulary above.

1. The clothing company has six retail outlets (shops) in south-eastern Australia.
2. This model of computer is retailing at \$650.
3. It's much cheaper to buy wholesale than retail.
4. Tickets must be purchased two weeks in advance.
5. New restrictions have been placed on the purchase of guns.

Read and translate the text.

Kazakhstan electricity market

Electricity market has two levels: wholesale and retail electricity markets; heat power market has only one level - retail market. System operator, regional electric network companies and other entities owning electric networks shall ensure non-discriminatory access to the electricity market for all market players as prescribed by the state authority performing management of the natural monopolies and regulated markets. Any relations arising out of generation, transmission and consumption at the market of electric or heat power shall be regulated by the relevant contracts in the electric power industry.

The functional design of the wholesale electricity market in Kazakhstan comprises: market of decentralized purchase and sale of electricity (bilateral contracts of electricity purchase and sale); centralized electricity market, which is based on purchase and sale of electricity for short-term (spot-trade), mid-term (week, month) and long-term (quarter, year) period; real-time balancing market operating for physical and subsequent financial settlement of hourly disbalances arising within the operating day between actual and contractual generation and consumption of electricity in the unified power system of Kazakhstan; system and ancillary services market, which serves for the system operator to render system services and purchase ancillary services at the participants of the electricity market of the republic of Kazakhstan to ensure the adherence to the established state standards of reliable operation of Kazakhstan UPS and electricity quality capacity market (launching 01 January 2016).

Power generating companies generate and sell electricity at the wholesale market of Kazakhstan if they meet the following conditions: 1) they have licenses as required by the laws of Kazakhstan; 2) they have access to the national and (or) regional electric network; 3) they supply at least 1 megawatt (further MW) of electricity of daily average (base) capacity to the wholesale market and have

commercial metering systems, telecommunications harmonized with the system operator's systems.

Power generating companies connected to the national power grid can have access to the national power grid if they contract with the system operator: 1) for technical dispatch of generation/consumption of electricity in the unified power system of Kazakhstan; 2) for balancing of generation/consumption of electricity in the unified power system of Kazakhstan. The power generating companies connected to the electric networks of the regional electric network companies can have access to the national power grid under if they have contract with the system operator for rendering by the latter the services on technical dispatch of generation/consumption of electricity in the unified power system of Kazakhstan.

Consumers make electricity purchase and sale contracts with the price, volume and supply conditions at the decentralized electricity market in accordance with the civil code.

The electricity consumers connected to the electric networks of the regional electric network companies can have access to the national power grid if they meet the following conditions: 1) contract with the system operator for transmission of electricity via national power grid; 2) contract with the system operator for technical dispatch of the imported electricity (in case of electricity import); 3) they have access to the regional electric network.

Vocabulary:

Heat power- тепловая энергия

Entity- something which exists apart from other things, having its own independent existence (организм, организация).

Ensure- to make something certain to happen (обеспечивать).

Non-discriminatory- not making or showing an unfair or prejudicial distinction between different categories of people or things, especially on the grounds of race, age, etc.

Relevant - correct or suitable for a particular purpose (относящийся к делу, уместный).

Decentralize- to move the control of an organization or government from a single place to several smaller ones (децентрализовать).

Bilateral- involving two groups or countries (двусторонний).

Spot-trade - denoting a system of trading in which commodities or currencies are delivered and paid for immediately after a sale.

Contractual- relating to or contained within a contract (legal agreement) (договорный).

Ancillary- providing support or help; additional; extra (вспомогательный, подчиненный).

Adherence- when someone acts strictly according to rules, beliefs, etc. (приверженность).

Dispatch - to send something, especially goods or a message, somewhere for a particular purpose (отправлять).

Conditions - the physical situation that someone or something is in and affected by (условия, обстоятельства).

In accordance- following or obeying a rule/ law/ wish / etc. (в соответствии, согласно).

Access - the method or possibility of getting near to a place or person, or the right to use or look at something (доступ, подход).

Import - to buy or bring in products from another country (импортировать, ввозить).

Exercise 1. Answer the following questions.

1. How many levels does electricity market have?
2. What does the functional design of the wholesale electricity market in Kazakhstan comprise?
3. What must the conditions be for power generating companies that generate and sell electricity at the wholesale market of Kazakhstan?
4. What must the conditions be for power generating companies connected to the national power grid if they need to have access to the national power grid?
5. What are the conditions for the electricity consumers connected to the electric networks of the regional electric network companies in case they want to have an access to the national power grid?

Exercise 2. Translate the following sentences using the key words from the vocabulary above.

1. Buses and trucks are usually powered by diesel engines.
2. In the future electricity will be used to power road vehicles.
3. For further information, please refer to the relevant leaflet.
4. The point is highly relevant to this discussion.
5. The airline is taking steps to ensure safety on its aircraft.
6. France and Germany have signed a bilateral agreement.
7. Are you under a contractual obligation to any other company?
8. He was noted for his strict adherence to the rules.
9. The main access to the building is at the side.
10. The system has been designed to give the user quick and easy access.
11. We import a large numbers of cars from Japan.

Read and translate the text.

Power supplying companies

Power supplying companies can participate at the wholesale electricity market of Kazakhstan if they meet the following conditions: 1) they have license for

the right of electricity purchase to supply electricity; 2) they have access to the national and (or) regional electric network; 3) they meet the requirements on supply/consumption of at least 1 MW of daily average (base) capacity from the wholesale electricity market and have commercial metering systems, telecommunication systems harmonized with the main systems installed by the system operator.

The power generating companies can have access to the national power grid if they meet the following conditions: 1) they have contracts with the system operator for transmission of electricity via national power grid identifying electricity consumers and (or) for technical dispatch of the imported electricity (in case of electricity import or acquisition of such services) identifying electricity consumers; 2) they have contracts with the system operator for balancing of electricity generation/consumption in the unified power system of Kazakhstan identifying electricity consumers and/or power generating companies; 3) they have access to the regional electric networks in cases when power supply companies have entities connected to the regional electric network.

All electricity consumers with the connected capacity of less than 1 MW are the players of the retail electricity market as well as power supplying companies selling electricity to them on the competitive market.

Vocabulary:

Participate- to take part in or become involved in an activity (принимать участие).

Wholesale- of or for the selling of goods in large amounts at low prices to shops and businesses, rather than the selling of goods in shops to customers (оптовая торговля, торговать оптом).

Harmonized- to be suitable together, or to make different people, plans, situations, etc. suitable for each other (гармонизировать).

Install- to put furniture, a machine or a piece of equipment into position and make it ready to use (устанавливать).

Access- the method or possibility of getting near to a place or person, or the right to use or look at something (доступ, подход).

Grid- a system of wires through which electricity is connected to different power stations across a region (сеть электропередач, энергосистема).

Via- through; using (через).

Dispatch- to send something, especially goods or a message, somewhere for a particular purpose (отправлять).

Import- to buy or bring in products from another country (импортировать, ввозить).

Consumer- a person who buys goods or services for their own use (потребитель).

Retail- the activity of selling goods to the public, usually in small quantities (розничная продажа).

Exercise 1. Answer the questions.

1. What are the following conditions to participate at the wholesale electricity market for power supplying companies?
2. What are the conditions to have an access to the national power grid for power generating companies?
3. What is the main condition for the players of the retail electricity market?

Read and translate the text.

Operators in the electricity market

The system operator of Kazakhstan UPS is KEGOC JSC (order of the Ministry of energy and mineral resources of the Republic of Kazakhstan No. 198 dated 27 August 2004) and its functions are: to render system services on transmission of electricity via national power grid pursuant to the contracts; maintain the grid and keep its operational availability; to render system services on technical dispatch to perform centralized operational dispatch control of Kazakhstan UPS pursuant to the contracts including compilation of actual balances and daily schedule of electricity generation/consumption; to ensure reliable operation of Kazakhstan UPS; to render system services on electric capacity regulation; to render system services on balancing electricity generation/consumption; to perform financial settlement of electricity imbalances as established by the laws of Kazakhstan; to cooperate with the power systems of the neighboring countries to control and ensure stability of parallel operation; to manage operation of the real time electricity balancing market and system and ancillary services market; to perform technical and methodical management in forming the unified informational system, commercial metering system, related relay protection and emergency automation devices for all participants of the wholesale electricity market; to ensure equal conditions for the participants of the wholesale electricity market to access the national power grid; to provide the participants of the wholesale electricity market of Kazakhstan with the information except for any data making a commercial or any other secret protected by the law; to agree upon the outage of the primary equipment of power plants, substations, electricity transmission lines, relay protection and emergency automation devices, systems of technological control and operational availability support; to participate in planning of the hydro power plants operation subject to their water economy balances and operational modes of Kazakhstan UPS; to elaborate long-term forecast of electricity balances; to define the amount, structure and distribution of capacity reserve between power generating companies and engagement of capacity reserve in the unified power system of Kazakhstan.

Pursuant to the standing law of Kazakhstan 'On electric power industry', the balancing electricity market of Kazakhstan started to work in the simulation mode on 01 January 2008.

Vocabulary:

To render- to cause someone or something to be in a particular state (воздавать, отдавать).

Pursuant- according to (в соответствии, согласно).

Availability- the fact that something can be bought, used or reached, or whether or how much it can (наличие, доступность).

Dispatch- to send something, especially goods or a message, somewhere for a particular purpose (отправлять).

Compilation- the act of compiling something (собираение, сборник, собрание).

Reliable- something or someone that is reliable can be trusted or believed because they work or behave well in the way you expect (надежный).

Capacity - the total amount that can be contained or produced, or (especially of a person or organization) the ability to do a particular thing (вместимость, мощность, нагрузка).

Settlement - an official agreement that finishes an argument (улаживание, урегулирование).

Ancillary- providing support or help; additional; extra (вспомогательный, подчиненный).

Outage - a period when a service, such as electricity, is not available (отключение, бездействие).

Elaborate- containing a lot of careful detail or many detailed parts (искусно сделанный, сложный).

Simulation - a model of a set of problems or events that can be used to teach someone how to do something, or the process of making such a model (воспроизведение, моделирование).

Exercise 1. Answer the questions.

1. What are the functions of the system operator of Kazakhstan UPS?
2. KEGOC is Kazakhstan electricity grid operating company, isn't it?
3. UPS is uninterruptible power supply, isn't that?
4. When did the balancing electricity market of Kazakhstan start to work?

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