



Sustainable Development Goals

Individual Report on SDG 7 - AFFORDABLE AND CLEAN ENERGY



Aktau 2023

YU actions to promote affordable, reliable, sustainable and modern energy

SUSTAINABLE DEVELOPMENT GOALS

Individual Report

7.2 University measures towards affordable and clean energy

One of the principles of the university's work is the principle of efficiency and economy in the use of budget funds. For this purpose, energy-saving technologies are used as a part of increasing the energy efficiency of the institution, which allows to significantly reduce the costs of utility payments, as well as to effectively manage the property complex, one of the main costs of educational activities.

The use of energy-saving technologies within the framework of increasing energy efficiency allows to significantly reduce one of the main expenses of the state education service - utility payments, as well as to effectively manage the property complex.

At the university, the main potential for saving electricity was identified when switching from conventional incandescent and fluorescent lamps to LEDs with efficient discharge lamps.

Also, automated systems of control and accounting of electric energy (ASCUE) have been introduced at the university.

ASCUE is the main tool for obtaining reliable and legal data on electricity metering both for the settlement period for mutual settlements in the wholesale and balancing market of electricity, as well as during the generation of its hourly data during production and consumption.

The university has installed 13 automated systems of control and accounting of electricity.

Between 2017 and 2023, the university was 100% upgraded to LED lights.

The production department of Yesenov University has approved a number of draft laws on saving electricity resources. Among them, the rules on energy saving have been renewed since 12.05.2017.

On 10.12.2020, changes were made to the energy saving rules.

"Geological and technological aspects of the development of deposits of hard-to-extract hydrocarbons", devoted to the Day of specialists related to geological sciences and specialties, as well as the Day of scientific workers.

The main goal: the opportunity to get acquainted with new developments in the field of geology, hydrogeology and oil and gas production, to exchange experience in obtaining, processing and practical use of information, to identify advantages and disadvantages, to justify the ecological and economic efficiency of water resources use and reuse.

Tasks:

1. Discussion of a wide range of hydrogeological issues and fresh water supply;
2. Discussion of topical issues aimed at ensuring qualitative economic growth, development of the fuel and energy complex and the oil and gas industry, geology;
3. Solving environmental problems in the Caspian region. Green technologies, innovations and affordable energy;
4. Exchange of relevant information, scientific knowledge and practical experience in the field of geology, oil production, oil refining and petrochemicals, as well as construction, transport and IT in order to improve production processes and increase production efficiency.

The work of the International scientific and practical online conference "Geological and technological aspects of the development of hard-to-extract hydrocarbon deposits" will be conducted in the following areas:

- Environmental and hydrogeological aspects of prospecting and oil and gas extraction works;
- Technical aspects and information technologies of the oil and gas industry.

In Yessenov University, a meeting of the university management with the general director of the company "Energy on Track" — professor Siegfried Ladnorg, expert J. Baydulla and director of LLP "Group Independent" Abitovoy G.A.

During the meeting, a Memorandum of Cooperation was signed and an agreement was reached on the opening of the Alternative Energy Center on the basis of Yessenov University. In the future, the center plans to train qualified specialists in the field of energy and create a unique business platform for complex solutions to the problems of popularization of renewable energy and eco-technologies in Kazakhstan, infrastructure development, attraction of foreign and domestic investments. On the site of the Center, in addition to educational events, it is supposed to organize conferences, seminars, and meetings of the international level aimed at the development of alternative energy technologies.

The link: <https://yu.edu.kz/ru/kezekti-memeorandum/>

Yessenov University and Mangistau Electricity Distribution Company JSC entered into a Memorandum of Cooperation. Within the framework of the Memorandum, cooperation will be carried out in the field of education and exchange of experience in development and scientific research in the following main areas:

- provision of industrial practice;
- creation of a branch of the department “Information Systems and Energy” on the basis of JSC “Mangistau Electric Distribution Grid Company” to train students in specialty 5B071800 “Electric Power Engineering” and conduct laboratory and practical classes directly at the production base of the enterprise;
- involvement of production specialists in the educational process of students through practical and laboratory classes;
- internship for University teachers;
- development of scientific mentoring on scientific research projects and promotion of the integration of science and innovative production in the interests of the socio-economic development of the country.

Also, a meeting was held with the delegation of the Institute of Oceanology named after P.P. Shirshov Russian Academy of Sciences. As a result of the meeting, a memorandum of cooperation was signed. In addition, members of the delegation got acquainted with the material and technical base of the Faculty of Oil and Gas and a round table was held on the topic “Current problems of the Caspian Sea and prospects for cooperation” with the participation of university scientists. The round table participants discussed specific issues of cooperation on the problems of the Caspian Sea.

The link:

<https://yu.edu.kz/ru/yintyima-tastyi-turalyi-memorandum-a-ol-oyyildyi/>



Yessenov University organized the International Scientific and Practical Online Conference “Geological and Technological Aspects of the Development of Hard-to-Recover Hydrocarbon Deposits”, dedicated to the Day of Specialists Related to Geological Sciences and Specialties, as well as the Day of Science Workers.

Main goal: an opportunity to get acquainted with new developments in the field of geology, hydrogeology and oil and gas production, exchange experience in obtaining, processing and practical use of information, identify advantages and disadvantages, justify the environmental and economic efficiency of using water resources and reuse.

Tasks:

-
1. Discussion of a wide range of issues of hydrogeology and fresh water supply;
 2. Discussion of current issues aimed at ensuring high-quality economic growth, development of the fuel and energy complex and the oil and gas industry, geology;
 3. Solving environmental problems in the Caspian region. Green technologies, innovation and affordable energy;
 4. Exchange of relevant information, scientific knowledge and practical experience in the field of geology, oil production, oil refining and petrochemicals, as well as construction, transport and IT in order to improve production processes and increase production efficiency.

The link:

<https://yu.edu.kz/ru/sizderdi-yessenov-university-haly%d2%9baraly%d2%9b-%d2%93ylymit%d3%99zhiribelik-onlajn-konferencziya%d2%93a-%d2%9batysu%d2%93a-sha%d2%9byrady/>

7.3 Energy use density

Total energy used - 80085,73 m³

University floor space - 22,154.7 m²

7.4 Energy and the community

There is a Department of Power Engineering and Automation at Yesenova University. The department annually organizes more than 2 conferences, round tables on energy use. It is also held at the department. The Minister of Ecology, Geology and Natural Resources of the Republic of Kazakhstan Mirzagaliev Magzum Maratovich paid an official visit to Yessenov University in order to discuss and explain the new environmental code of the Republic of Kazakhstan.

During the visit, the minister familiarize himself with the development strategy and material and technical base of the university.

In the walls of Yessenov University, a meeting was held under the chairmanship of Minister Magzumov Maratovich with the participation of Mangistau Oblast Governor Trumov Serikbay Utelanovych and general directors of the Mangistau Oblast Subsoil Users Company.

New approaches to environmental impact assessment and methods of implementing the best available technologies were discussed during the meeting.

The link: <https://yu.edu.kz/ru/ekologiya-ministrinin-is-sapary/>

Studying and mastering the basic concepts, categories and institutes of the science of ecological law, norms of ecological legislation, formation of ecological culture.

The course is aimed at basic ecological requirements for the implementation of economic and other activities.

Summary: natural environment as an object of protection and use. The form of interaction between society and nature.

Learning outcomes

— interprets the content of the main concepts, categories and institutions of the science of ecological law;

— explains the content of normative legal acts regulating relations in the field of environmental protection i

rational use of natural resources;

— applies the norms of environmental legislation, analyzes and evaluates various situations in the field of environmental protection and nature management, evaluates the legality of judicial practice

— analyzes, interprets and correctly applies norms of environmental legislation

In order to implement the memorandum of cooperation signed between Yessenov University and CASPI BITUM LLP, a working meeting with representatives of the LLP was held on the territory of the plant. From CASPI BITUM LLP, there were General Director Kozhabaeva Erbolat Omirserikovich, Deputy for Production Zhangabylov Rakhimzhan Zhadikbaevich - Deputy for Economic Affairs Ospanov Gabiden Bakitovich, Chief Technologist Mukanov Talgat Dyusenbievich, Head of the HR Department Baibakov Abilkair Zhanaevich. Present from Yessenov University were Rector Akhmetov Berik Bakytzhanovich, Vice-Rector for Scientific Work and Internationalization Nurmaganbet Ermek Talantovich, Head of the Department of Science and Entrepreneurship - Imanbaev Erzhan Imanbaevich, Dean of the Faculty of Engineering Dzhumagazieva Shara Kanievna, Deputy Dean of the Faculty of Engineering Akkenzheeva Anar Shynabaevna, Head department "Ecology and chemical engineering" Serikbaeva Akmaral Kabylbekovna.



At the meeting, the issues of creating a branch of the Department of Ecology and Chemical Engineering at CASPI BITUM LLP, conducting joint scientific research and implementing contractual research projects, the issue of jointly holding an International Scientific and Practical Conference dedicated to the 10th anniversary

of the opening of CASPI LLP were discussed BITUM." As a result of the meeting, joint agreements were reached on all issues considered.

The link: <https://yu.edu.kz/ru/caspi-bitum-men-yintyima-tastyi/>

As part of the 1st International Yessenov Readings at the Faculty of Engineering, sections continued on the following topics: "Current state and prospects for the development of the oil and gas industry in the Mangystau region. Geology and water desalination", "Digital Kazakhstan: information systems and energy"

At the sectional sessions, reports from teachers were heard, and the best speakers were awarded certificates. At section 1, Koibakova S.E., Karazhanova M.K., Taizhanova L.S. were recognized as the best speakers. In section 2, Professor Brzhanov R.T., Associate Professor M. Utebaev, Associate Professor B.B. Suleimenova were recognized as the best speakers. The conference platform gave participants the opportunity to present the results of scientific activities, receive useful information, exchange opinions, and find proactive directions for the further development of the university's scientific areas.

The link: <https://yu.edu.kz/ru/inzhenerler-esenov-o-ularyinda/>

Participants of the forum "Summer Energy School Baku-2023 at Yessenov University The program of this forum, which is regularly held in the capital of Azerbaijan, pays priority attention to the study of energy and environmental issues, especially the problems of the Caspian Sea. Therefore, the scale of the Baku Summer Energy School expanded and this year brought participants to Aktau for the first time. Research scientists and applicants will get to know the potential of the Mangystau region in the field of energy during three days.

In the event, held together with the consulate of Azerbaijan in Representatives of USA, Spain, Italy, Nigeria, Saudi Arabia, Japan, China, Hungary, Bulgaria, Czech Republic, Turkey, Azerbaijan, Kazakhstan took part in Aktau, public fund "Center of Azerbaijan", University of Ady and akimat of Mangistau region.

Among them are specialists of energy companies, representatives of various state institutions, embassies and international organizations, civil servants, as well as scientists studying energy and environmental issues, journalists.

During the visit to the campus, Kaiyrbek Makulov, vice president for academic work of Yessenov University, head of the international office Aigul Dosymbekova and specialist of this office Alisher Baltabai, head of the international project Aisulu Zhumyrova, head of the Azerbaijan Center Ilkin Orujov, dean of the Maritime

Academy Bolat Sarsenbaev and professor Zholdybay Zhumaev of the Academy told about our school and educational programs.

Kazakh-German Institute of Sustainable Engineering was opened and the project for the production of green hydrogen using renewable energy sources launched in Mangistau.

The link:

<https://yu.edu.kz/ru/baku-zhaz%d2%93y-energetikalyq-mektebi-2023-forumyna-qatysushylar-yessenov-university-ne-arnajy-keldi/>

The Department of Ecology and Chemical Engineering of the Faculty of Engineering organized the Republican Scientific and Practical Conference “Formation of Environmental Culture and Consciousness.” The purpose of the conference is to increase the knowledge of teaching staff and young scientists in the field of ecology, as well as the formation of environmental culture and consciousness.

As part of the Republican Scientific and Practical Conference, a plenary session was held, where O.A. Tokzhanov spoke. – Chief Specialist of the Department of Natural Resources and Environmental Management of the Mangystau Region.

The link: <https://yu.edu.kz/ru/yilyimi-t-zhiribelik-konferentsiya/>

The departments: “Oil and Gas Engineering” and “Geology” of the Faculty of Engineering organized the International Scientific and Practical Conference “Geological and Technological Aspects of the Development of Hard-to-Recover Hydrocarbon Deposits. The purpose of the conference is an opportunity to get acquainted with the latest developments in the field of geology and oil and gas production, obtain information and exchange experience in their setup and practical use, identifying advantages and disadvantages, as well as justification of economic efficiency.

As part of the International Scientific and Practical Conference, a plenary session was held, where the speakers were Doctor of Technical Sciences, Professor, Head of the Department of Computer Systems and Networks of the National University of Bioresources and Environmental Management of Ukraine, Kiev Lakhno Valery Anatolyevich, Deputy Director for Geology and Geophysics “KAZ-Waterhunters” LLP Murunov Turegali Dautbaevich, head of the Mangistau regional inspection of MD “Zapkaznedra” Kelbet Almagul Saliholakyzy. The speech of Murunov Turegali Dautbaevich aroused keen interest among the conference

participants. The report presented methods of remote sensing of the earth (ERS), and the results of the use of subatomic technology in Kazakhstan.

The link: <https://yu.edu.kz/ru/geologiyalyi-zh-ne-tehnologiyalyi-aspektiler/>

As part of the International Scientific and Practical Conference, organized at the Faculty of Engineering, intellectual games were held among students of petroleum specialties.

These games were organized by the head of the SPE student section, associate professor of the Department of Oil and Gas Engineering M.K. Karazhanova. Carrying out such games has an important role in the educational process, as it awakens interest in the study of scientific and educational literature; supports an emotional mood and positive motivation for learning, creates conditions for developing students' ability to creatively solve learning situations.

Objectives of the discipline: mastering theoretical and practical skills of future specialists in the effective use of renewable and non-traditional energy sources. The discipline is aimed at the study of modern renewable energy sources, the principle of their operation, the main criteria for the application of these or other sources. The course includes an introduction to the basic scientific principles of energy production using non-traditional methods.

Learning outcomes

A graduate student:

- defines traditional and non-traditional renewable energy sources (solar and wind energy), has an idea of the energy potential of renewable energy sources (solar and wind energy).

- applies the principles and methods of practical use of renewable energy sources (solar and wind energy), and also has the skills to analyze information on the technical parameters of power plants using renewable energy sources (solar and wind energy);

- evaluates current types of renewable energy sources (solar and wind energy) as applied to the conditions of a certain region.

- works in a group, offers new solutions

Newsletter:

On April 25, the akimat of the Mangistau region, Yessenov University and the West Kazakhstan branch of the international anti-nuclear movement “Nevada -

Semipalatinsk” organized an International conference on the topic “With a clean environment - in an age without nuclear weapons”

The conference discussed the peace initiatives of Kazakhstan, the leadership of the President of Kazakhstan in the matter of nuclear disarmament and non-proliferation, global challenges of our time and environmental problems of the Mangystau region associated with the consequences of the activities of the nuclear industry enterprise (PGMK, uranium quarries and the Koshkar_Ata tailings dump).

The conference was attended by Deputy Akim of the Mangistau Region Sakeev R.K., Director of the West Kazakhstan branch of the Nevada-Semipalatinsk movement Kobenov I.A., Deputy Director of the Institute of Oceanology named after. Shirshova RAS, Doctor of Geology, Corresponding Member of the RAS Zavyalov P.O., inspector of the Mangistau Department of Natural Resources Togzhan O.A., head of the Parasat movement Aralbaev D.A., doctor of the highest category, veteran of the Nevada movement -Semey" Makhimov G., coordinator of the military training ground "MB-5", poet-composer, veteran of "Nevada-Semey" Taldybaev Zh., deputy head of the health department of the Mangistau region Oralbaeva K.A., faculty of the university and students of Yessenov University.

As a result of the conference, a resolution was adopted that will be submitted to the central office of the public association “International Anti-Nuclear Movement “Semipalatinsk-Nevada” in Astana; the most pressing problematic issues will be raised before the government. Among them will be the issue of liquidation of the Koshkar Ata tailings dump.

After the conference, all participants took part in planting trees on the territory of the main building of the university.

The link:

<https://yu.edu.kz/ru/yessenov-university-de-halyi-aralyi-konferentsiya-tti/>

On May 15, Yessenov University, the Center for International and Socio-Political Research “Caspian Eurasia” and Astrakhan State Technical University held an international scientific online conference “Ecological aspects of the socio-economic development of the Caspian countries and problems of sustainable development of the region at the present stage.”

The link:

<https://yu.edu.kz/ru/kaspij-ma%d2%a3y-elderin%d3%99i-%d3%99leumettik-ekonomikaly%d2%9b-damuyny%d2%a3-ekologyaly%d2%9b-aspektleri->

[zh%3%99ne-%d2%9bazirgi-keze%d2%a3degi-ajma%d2%9bty%d2%a3-t%d2%b1ra%d2%9bty-damu/](#)