Joint project since 2017

2017 жылдан бастап бірлескен жоба

Student Energy Challenge

INNOVATIVE IDEAS CONTEST
ИННОВАЦИЯЛЫҚ ИДЕЯЛАР БАЙҚАУЫ

Nur-Sultan City, 2021-2022 years

Нұр-Сұлтан қ., 2021-2022 жылдар

ORGANIZER

Within the framework of human capital development activities, the Association participates in the creation of a system of independent certification of qualifications of specialists; discussion of legislative initiatives related to the development of the education system in the Republic of Kazakhstan; supports initiatives in the field of social responsibility of business; organizes research on the needs of the oil and gas and energy complex in human resources; supports and participates in the implementation of youth projects.

Within the framework of the KAZENERGY Educational Program, efforts are taken to provide grants to undergraduates and graduates, college students at the expense of subsoil users (North Caspian Operating Company N.V., Karchaganak Petroleum Operating B.V.).

SPONSOR/ORGANIZER

Shell energy company has been present in Kazakhstan since the early 90s and is one of the largest investors in the country. Shell Kazakhstan aims to be a reliable partner of the Republic of Kazakhstan and a responsible company in the regions of its operating activities.

In addition to direct investments in key production projects, Shell contributes to programs and initiatives aimed at solving important social problems. To this end, the company implements a portfolio of voluntary social investments, one of the key areas of which is the development of the potential of young people through the promotion of STEM educational programs. In this area, the company implements four projects: «Student Energy Challenge», «Shell NXplorers», «Shell Eco-Marathon» and a pilot project to train specialists in oil and gas industry.

CONTENT

INTRODUCTION

In the modern world, the level of human resource development is a key factor in a country's competitiveness. Today, investments in education are as important as investments in the real economy. National and international energy companies are well aware that in order to stay competitive and ensure conditions for future development it is necessary to constantly develop and attract young professionals with such qualities as active thinking, the ability to find new solutions, and leadership potential. Without them it is impossible to ensure the future of companies.

It is no coincidence that special attention is paid to educational programs aimed at supporting and developing students.

That is why since the creation of KAZENERGY Association the support and development of young people has always been one of the priorities of the association. Thus, the KAZENERGY platform has become a unique collaboration of investors, educational institutions and young people.

At the 30th Plenary Meeting of the Council of Foreign Investors held in Astana in June 2017, the President stressed the need to develop renewable energy sources in Kazakhstan along with the development of huge deposits of the country's fossil fuel resources. For this purpose, coinciding with the EXPO-2017 exhibition in Kazakhstan, the KAZENERGY Association and Shell Kazakhstan joined forces to organize and conduct a contest "Student Energy Challenge" for students aimed at solving energy problems of the future.

Shell Kazakhstan actively participates in projects aimed at solving important tasks of the social area.

The company's approach to social responsibility is a contribution to the socio–economic develop-

ment of the country through the implementation of a portfolio of social investment initiatives in support of the tasks set by the state to address the needs of the country/communities.

The Student Energy Challenge intellectual team Cotnest has been held by the KAZENERGY Association since 2017 in partnership and with the financial support of Shell Kazakhstan.

2021 was the anniversary year for the Student Energy Challenge. Since its launch, 270 teams have participated in the Contest, and the best of the best winning teams have already made the history of the Contest.

The Student Energy Challenge Contest challenges students of Kazakhstani technical universities to present creative ideas for improving or creating a new technology/technological component, product or service that would help meet the global need to find more solutions for cleaner energy of the future.

For the first time, in 2021, the Contest became a platform for involving college students in teamwork within the framework of the Student Energy Challenge-Junior Contest with simplified stages.

In a broader sense, this initiative has the following objectives: to stimulate a deeper understanding and awareness of global energy challenges; to support the application of engineering, creative and entrepreneurial thinking; and to facilitate the exchange of experience and knowledge among students, which will certainly contribute to their professional development and personal growth.

1

1.1. ABOUT THE STUDENT ENERGY CHALLENGE CONTEST

The Student Energy Challenge Intellectual Team Contest (hereinafter referred to as the Contest) has been held since 2017.

The aim of the contest is to attract students from technical universities of Kazakhstan to develop innovative ideas that offer solutions to current energy problems.

2017 — 47 teams, 20 universities, 12 regions

2018 — 48 teams, 14 universities, 10 regions

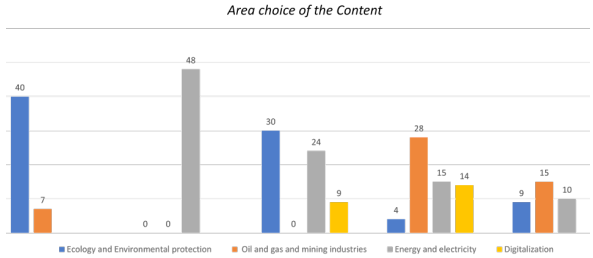
2019 — 70 teams, 27 universities, 15 regions

2020 — 60 teams, 18 universities, 9 regions

2021 — 45 teams, 23 colleges, 10 regions

41 teams, 23 colleges, 10 regions

For five years, 270 teams from 40 universities of the country took part in the Contest. Since its foundation, 1,048 students have participated in the Contest, of which 426 are girls and 622 are boys.



Over the past five years, the areas and topics of the Contest have been constantly updated. In 2017, during the EXPO-2017 international exhibition, which was dedicated to the topic of Future Energy, students showed the greatest interest in the field of ecology and environmental protection when choosing a project.

In 2018, the Contest was added with a new area «Energy and electricity».

In 2019, with the introduction of the Digital Kazakhstan State Program, the topic of Digitalization became relevant and joined the list of areas of the Contest, despite the fact that the most frequently chosen topic remained «Ecology and environmental protection». Oil and gas and mining industries are among the top most relevant topics in 2020.

The experience of the past years has shown that the Contest inspires and unites young people to create solutions for application in the industry.

The Contest consists of many components, such as: online webinars, trainings, workshops. One of them is Shell NXplorers, the author's training of Shell Concern on the development of critical thinking, scenario planning and solving complex problems. Over 5 years, about 300 participants, including more than 100 college students, have been trained.

The organizers improved the conditions of the Contest taking into account the opinions and wishes of its participants, as well as the current situation in the country and the world.

Due to the global situation with the spread of COVID-19 coronavirus infection, the Organizers transformed all stages of the Contests into an online format in 2020 and 2021.

The evaluation of student projects within the framework of the Contest is carried out by independent experts with experience in both industries and expert activities. Each team can get acquainted with the expert opinion on their project passport. Since 2019, experts have presented conclusions on 46 student projects.

Every year, the judging of the Contests is conducted by competent invited specialists representing the oil and gas and energy industries, ecology and environmental protection, and the IT sphere.

From 2017 to 2021, the jury members determined 15 winner teams representing 8 universities from 5 regions of the Republic of Kazakhstan. About $70,000 has been paid to the winner teams since 2017.

The winners of the jubilee – fifth season of the Contest had the opportunity to have a 4-month paid digital internship, including a program of professional counseling, professional diagnostics and mentoring of recognized professionals.

Holding the final of the Contest and awarding the winners at the site of the KAZENERGY Eurasian Forum has become a good tradition, to which students and teaching staff of universities and colleges of the Republic of Kazakhstan are invited.

1.2. ABOUT THE SHELL NXPLORERS TRAINING

As part of the Contest, students pass a two-day Shell NXplorers online training.

The Shell NXplorers training is designed to develop innovative thinking by providing participants with tools and methodology to achieve positive changes. During the training, by the example of problem solving and cooperation, participants learn to study, create and implement changes. The two-day online program allows to develop a systematic approach to solving complex tasks, which will contribute to the development of full-fledged passports of team projects and their further presentation.

The training program includes interactive sessions in groups to familiarize themselves with systemic types of thinking, the concept of complexity of problems and to learn how to use tools to develop systemic thinking skills, scenario planning, as well as leadership qualities.

The NXplorers approach allows not only to positively influence students by developing STEM thinking (STEM - science, technology, engineering, mathematics), but also provides the necessary tools for future young professionals to implement their ideas.

1.3. THE FINAL OF THE STUDENT ENERGY CHALLENGE CONTEST

The final of the Contest was held from October 4 to 8, 2021 within the framework of the XIV KAZENERGY Eurasian Forum with the participation of 12 (twelve) university teams:

1 TOPIC: Processing food waste into fertilizer using EM technology, creating recycling conditions for distributors/retailers, restaurateurs, farmers

Gaukartas Zhuragat
Daulet Aubakirov
Yerbolat Yerzhanov

Team: GoGreen
Kazakh-British Technical University

2 TOPIC: Environmental protection/Ecology: problems of wastewater purification and recuse. Project Name: BioSu

Aidana Almazhanova
Aiganym Tebenova
Arman Dautov
Asem Zhaksylykova
Daniya Azizova

Team: Buketov Business School
Karaganda Buketov University

3 TOPIC: Environmental protection / Ecology.Project name - Qurtpa. Smart food waste management

Ilyas Darmen
Madiyar Aidabulov
Arman Li
Olzhas Sailaubekov

Team: ReLife
Nazarbayev University

4 TOPIC: Energy/electricity: digital and smart energy systems

Aliya Zhagiparova
Damira Dayrabayeva
Dias Bekeshov
Aishabibi Mukhangaliyeva
Shyngys Turarbek

Team: EcoQadam
Nazarbayev University

5 TOPIC: Measuring the amount of icing on high-altitude power lines using wireless sensors

Nurlybek Kattabayev
Ali Almaganbet
Ruslan Moldagazyev
Aimedet Taufik

Team: PowerX
Nazarbayev University

6 TOPIC: Environmental protection/Ecology: problems of wastewater purification and recuse. Project Name: BioSu

Zarina Dalabayeva
Madina Baibolatova
Irina Shtoda
Asan Abdykhamit
Sultan Kirgizbai

Team: Ecolution
Kazakh-British Technical University

7 TOPIC: Introduction of advanced technologies for monitoring the health condition of working personnel and minimizing the risk of harm to health in the mining industry

Dana Kanatkyzy
Anuar Kadyr
Nuraly Sarsembay

Team: Impulse
Nazarbayev University

8 TOPIC: Environmental protection/Ecology.
Disposal of lithium-ion batteries with the use of hydrometallurgy technologies

Asem Kushzhanova
Assylai Amangeldiyeva
Malika Mussatayeva

Team: Eco Harmony
Nazarbayev University

9 TOPIC: Environmental protection/
Ecology, disposal of batteries

Abdirakhym Asan
Nazerke Temirtai
Ulukbek Turganbek

Team: Stardust Crusaders
Al-Farabi Kazakh National University

10 TOPIC: Integration of BESS and solar panels to improve the performance of the energy system

Kalamkas Akmurzina
Tolegen Oraz
Yernar Biman
Davran Damkhan
Zhanel Kudaibergenova

Team: MUSTWIN
Nazarbayev University

11 TOPIC: Elimination of the formation of scales in wells

Farid Rakhmanov
Rakhat Suyungaliev
Ayat Turaliyev
Yessenei Yessimseit

Team: Oilmen
Satbayev University

12 TOPIC: AirFlux is the production of innovative compact, supply air ventilation of the Flux series (breezers)

Guldana Temirshot
Rustam Kabden
Moldaakhmet Togzhanov

Team: AirFlux
Toraighyrov University (Pavlodar)

1.4. STUDENT ENERGY CHALLENGE JURY MEMBERS

Mr. Kuralbek Keldjanov

Deputy Chairman of Shell Kazakhstan,
Chairman of the Jury

Mr. Kairgeldy Kabyldin

Deputy Director General
Caspian Pipeline Consortium-K JSC

Mr. Rustem Kabzhanov

Director General
Association of Regional Environmental Initiatives «ECOJER»

Mr. Khanim Kussayev

Freelance advisor to the
«Union of Veterans of the Oil and Gas Complex»

Mrs. Lyazzat Myltykbayeva

Director of the Department
of Corporate Development of "Science Fund" JSC

Mr. Baglan Isenov

Director,
Generation and Fuel Department, JSC Samruk-Energy

1.5. WINNING TEAMS

As a result, three winner teams were determined (without the distribution of prizes). All members of the prize-winning teams had the opportunity to have a paid digital internship, including a professional counseling program, professional diagnostics and mentoring.

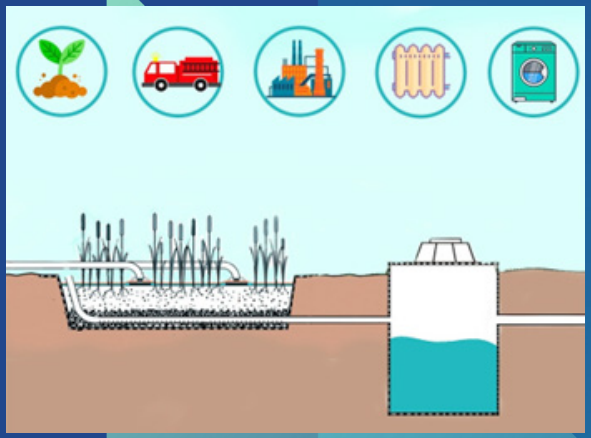
THE WINNERS OF THE FIFTH SEASON WERE:

1. «ECOLUTION»
KBTU

Team members:
Ms. Zarina Dalabayeva
Ms. Madina Baibolatova
Ms. Irina Shtoda
Mr. Asan Abdykhamit
Mr. Sultan Kirgizbai

Research advisor: Mr. Murat Dzhumgaziyev

Project topic: **Project topic - Problems of wastewater purification and reuse: BioSu**



2. «Power X»

Nazarbayev University

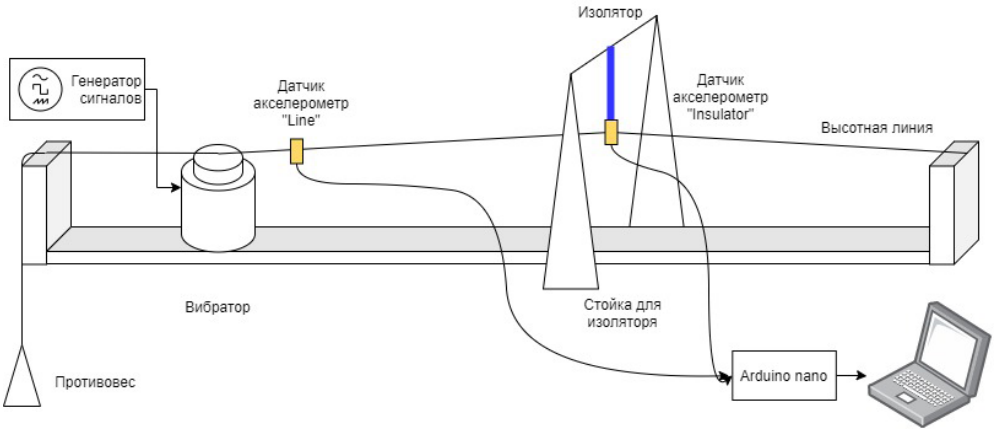
Team members:

Mr. Nurlybek Kattabayev
Mr. Ali Almaganbet
Mr. Ruslan Moldagazyev
Mr. Aimedet Taufik

Research advisor:

Mr. Aidar Alimbayev

Project topic: **Measuring the amount of icing on high-altitude power lines using wireless sensors**



3. «AirFlux»

Toraighyrov University

Team members:

Ms. Guldana Temirshot

Mr. Rustam Kabden

Mr. Moldaakhmet Togzhanov

Research advisor:

Ms. Rimma Ualiyeva

Project topic: **Production of innovative compact, supply air ventilation of the Flux series (breezers)**

1.6. DIGITAL INTERSHIP

BCPD

The prize fund of the Student Energy Challenge-2021 was determined as a paid digital internship, which took place during 4 (four) months – from November to December 2021 and from January to February 2022.

The implementing partner of the digital internship was the Bureau of Continuous Professional Development (BCPD Ltd.) at the Astana International Financial Center (AIFC). BCPD specializes in preparing for international professional certifications in the field of continuous professional development to enhance human potential and organize a group of internationally competitive AIFC professionals.

The internship program was developed in order to obtain and consolidate practical skills in real projects of companies, where participants met with mentors from among the heads of AIFC organizations, where they discussed the further development of team projects. Also, the teams took the Open Your Way course, which includes a program on self-determination, career guidance, development of flexible skills and entrepreneurship skills. In addition to everything, the participants got 1 (one) Year access to BCPD's Skillfolio platform, designed to build a digital profile of talents, skills and competencies.

As part of the digital internship at Connected Home company, participants from the PowerX team took an online course in electrical and radio engineering.

Students note the advantage of the course in that this topic is directly related to their professions and provides an opportunity to delve deeper into topics that were not covered during their studies. The course is directly related to the practical application of electrical circuits and electrical elements. The students have studied various projects of the Connected Home company and expect that the development of their own multisensor will be useful and accessible to the company's customers.

According to the results of the internship, the PowerX team received an offer to work in the Connected Home company.

The Ecolution team completed their internship at Caspian Oil Services Management Incorporated Kazakhstan (hereinafter referred to as COSMI). Students note that the company's activities are directly related to their specialization of oil industry.

During the internship, the students worked in CorelDRAW programs, performed calculations in Petrel, Petrel/ECLIPSE, DrillSim, KAPPA, TechLog software, digitized deposits, investigated the situation in oil industry of Kazakhstan and in foreign countries, prepared the found material and defended the work in the presentation format. The participants got acquainted in more detail with the Drilling Engineer profession, learned about the IWSF exam for engineers in the oil and gas sector and successfully passed the first two levels of certification.

COSMI Corporation, at the initial stage of approving internships, also provided an opportunity for the Ecolution team to become part of the company and be employed.

The participants of the AirFlux team completed their digital internship in companies: Teniz LLP, Parqour and BCPD.

Mr. Moldaakhmet Togzhanov, as a result of the internship, learned how to build complex mechanisms, work with microcircuits, microchips. The work implied no less responsibility on his part than that of the head of Teniz LLP, so Mr. Moldaakhmet felt like a full-fledged employee. During the internship, it was necessary to come up with non-standard solutions, eliminate potential risks and critical thinking helped him a lot. Thanks to the internship, the participant notes that he was able to feel like a real engineer working on a large-scale project.

Ms. Guldana Temirshot, who completed an internship at Parqour, highlights the peculiarity of this company by the fact that it is one of the most successful startups in the country. During the internship, Ms. Guldana conducted an audit of documents for further submission of tax reports. She notes that for her, as a future accountant, experience in the field of taxation and tax reporting is important.

At BCPD, Mr. Rustam Kabden participated in the organization of three seminars for teachers on the introduction of digital tools in the educational process, together with Microsoft Corporation. The seminar was attended by more than 1,000 teachers, school principals and employees of education departments from more than 10 regions of Kazakhstan. He helped the BCPD team to conduct analytics on the participants of the seminar.

The participants of the digital internship note the high level of training and thank the organizers for the opportunity.

1.7. WINNERS OF THE STUDENT ENERGY CHALLENGE 2017-2021

№	2017	2018	2019	2020	2021
I place	**Synergy** Team, Al-Farabi Kazakh National University Topic: Highly effective solar collectors with nanocarbon absorbing cover made of carbonized rice hulls	**KBTU United** Team, KBTU Topic: Alternative energy sources	**Wind of Change** Team, Nazarbayev University Topic: Use of air quality measuring portable sensors in urban areas and industrial premises	**Naizagai** Team, Nazarbayev University Topic: Improvement of oil and gas processing technological processes	**Ecolution** Team, KBTU Topic: Problems of wastewater purification and recues
II place	**NU Arlans** Team, Nazarbayev University Topic: Reduction of CO2 emissions during energy production through transformation of fuel from household wastes into energy and further CO2 catching and its sequestration to calcium carbonate	**NUSynGas** Team, Nazarbayev University Topic: Gasification of household wastes	**FEOGI** Team, KBTU Topic: Waste disposal through Cockroach farms	**Refillme** Team, Nazarbayev University Topic: Improvement of the quality of environment	**Power X** Team, Nazarbayev University Topic: Measuring the amount of icing on high-altitude power lines using wireless sensors
III place	**Creative Union** Team, Kozybayev University Topic: Energy efficient technologies of laser-plasma recovery and production of turbine blades using prothesis with the use of non-destructive inspection and integrative assessment of fatigue processes in materials	**Association of Innovators** Team, Almaty University of Power Engineering and Telecommunications Topic: Use of energy saving system in large commercial premises	**Innovation WKATU** Team, Zhangir Khan University Topic: Multistage electromagnetic polymer – ceramic pump for pumping composite medium	**AirFlux** Team: Toriaghyrov University Topic: Energy efficient technologies of laser-plasma recovery and production of turbine blades using prothesis with the use of non-destructive inspection and integrative assessment of fatigue processes in materials	**AirFlux** Team: Toriaghyrov University Topic: AirFlux is the production of innovative compact, supply air ventilation of the Flux series (breezers)

KAZENERGY

Joint project since 2017

Student Energy Challenge

Innovations and suggestions contest event

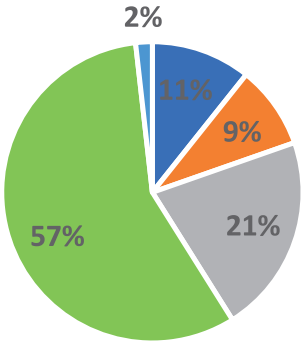
1.8. SURVEY AMONG SEMI-FINALISTS OF THE STUDENT ENERGY CHALLENGE

The organizers of the Contest conducted a survey among the Student Energy Challenge teams, participants of 2017-2021.

The survey was conducted anonymously and consisted of 14 questions, including such areas as motivation for participation, development of competencies before and after the Contest, the relevance of the Contest topics, the development of the project in the future, the connection of the Contest topic with current activities, etc. A total of 56 people took part in the survey.

The main purpose of the survey is to determine the level of motivation of students to participate in the Contest and make decisions to improve the conditions of the Contest.

How did you know about the Student Energy Challenge Contest?



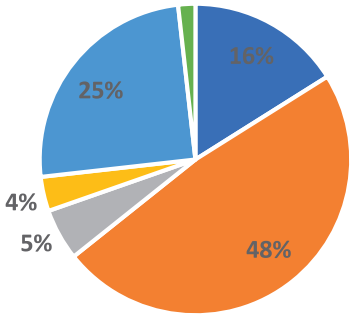
As in previous years, the survey showed that 57.1% of respondents are informed about the Contest by university teachers.

Such an interest of universities in the participation of student teams in intellectual contest contributes to the personal fulfillment of young people, the acquisition of new knowledge and experience of working in a team.

19.6% of participants used social networks (Facebook and Instagram) to get information about the Contest, and 23.3% found out through their friends and acquaintances.

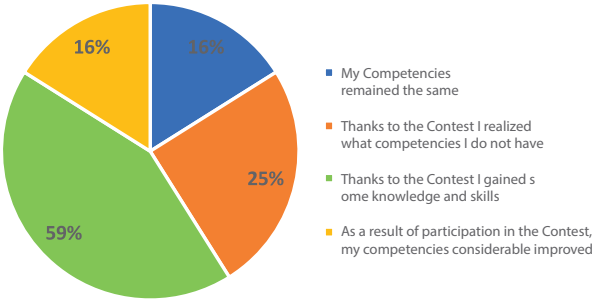
48.2% of respondents were motivated to participate in the Student Energy Challenge by assessing their own capabilities, 32.2% would like to develop their project and gain new knowledge, 19.6% of participants take part in all contests offered by faculties. Students' participation in contests is a good tool for their personal fulfillment. Participants are deeply immersed in a specific task and develop project management, collaboration and public speaking skills.

What did motivate you to participate?



The survey participants were asked to answer the question "Did the Contest contribute to the development of your competencies?", according to the results, 59% of respondents emphasized a significant increase in their competencies due to participation in the Student Energy Challenge, 25% revealed a lack of certain competencies for themselves .

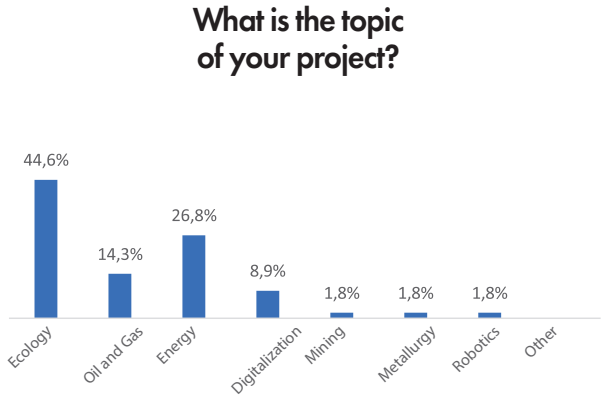
Did the Contest contribute to the development of your competencies?



Thus, the following conclusions can be drawn: firstly, respondents who are highly motivated by the assessment of their own capabilities became participants of the contest, therefore, the assessment of the growth of their competencies is the result of such motivation. Secondly, the ability to assess their competencies and willingness to work for results, in particular, to take advantage of the opportunity to develop their project within the framework of the contest demonstrates a steady trend of satisfaction of participants with the conditions of the Contest.

Despite the difficulties that the participants of the Contest had at the stages (changing team members, developing a project passport), 64.3% of respondents would like to participate in the Contest again. Almost 3% of the total number of teams (270) repeatedly participated in the annual Contest (K.Zhubanov Aktobe Regional University - team "24 Element", Nazarbayev University - team "Naizagai", "Wind of Change" Kazakh-British Technical University - team "Feogi", "Dream Team", Al-Farabi Kazakh National

University - team "RedOx", Almaty University of Power Engineering and Telecommunications - team "Association of Innovators", Toraighyrov University - "Air Flux" team), some of them became prize-winners of the 2020 or 2021 contest.



More than 90% of the participants noted that they would like to take part in the Contest again. The most relevant topic choice of the teams for the last three years of the Contest (2019-2021) was the area of Environmental protection/Ecology - 44.6% of respondents, increasing energy saving and all topics related to energy are relevant for 26.8% of participants, oil and gas were chosen by 14.3% of participants, digitalization – 8.9%.

42.9% of respondents confirmed the connection of current activities with the topic of the Contest and 32.1% would like to continue developing their projects. Ecology, energy and digitalization have become the most popular among respondents who would like to develop these areas within the framework of other projects.

The popularity of the Contest was confirmed by 87.5% of participants who would recommend others to take part.

The survey is concluded with a question about the participants' vision of their future in the next five years. The analysis showed that 35.7% plan to work for hire in their specialty, 30.4% of respondents plan to engage in managerial and innovative activities, 21.4% plan to do their own business, only 10.7% want to do science, 1.8% in another field.

The opportunity to participate in contests is the strongest incentive for the hard work of both students and research supervisors and mentors of teams. The exchange of experience, impressions, support at all stages of the contest, joint experience gives additional strength and energy to the teams on the way to victory.

Summing up the results of the survey, we can draw the following conclusion.

The Contest is an example of constructive competition, healthy competitiveness, during which any participant-member of the team gets the opportunity to evaluate their own achievements and the successes of others.

Thus, our contests contribute not only to the development of the students potential and the stimulation of scientific and entrepreneurial activity, but also to the disclosure of positive personal qualities: the ability to reflect, analyze the positions of other teams, work skills in stressful situations, especially this is clearly manifested during the defense of the teams in the final of the Contest.

2

THE FIRST SEASON OF «STUDENT ENERGY CHALLENGE-JUNIOR»

In 2021, the anniversary season of the Student Energy Challenge contest was supplemented with a separate component, Student Energy Challenge-Junior, for college students.

College students aged 16 to 21 years of all courses of study were invited to participate in the Student Energy Challenge-Junior.

Student Energy Challenge-Junior consists of three stages. The Contest provides an opportunity for college students to present their innovative ideas in the field of environmental safety in energy; clean coal technology, the introduction of advanced technologies and digital solutions; raw gas processing; reduction of CO2 emissions, etc.

In the pilot season, 44 teams from 23 colleges from 10 regions of the country applied to participate in the Student Energy Challenge-Junior Contest.

College students who successfully passed the first stage of the Contest also took part in the Shell NX-plorers training.

The final of the Student Energy Challenge-Junior Contest was held in September 2021. 17 teams from 12 colleges of Nur-Sultan, Almaty, as well as from Almaty, Atyrau, Akmola, East Kazakhstan, West Kazakhstan regions took part in the final.

The winner teams among colleges became holders of a monthly scholarship during the 2021-2022 academic year in the amount of:

1st place	2nd place	3rd place
40 000 tenge	35 000 tenge	30 000tenge

The Contest jury included representatives of Shell Kazakhstan and winners of the Student Energy Challenge Contest of previous years.

2.1. STAGES OF THE STUDENT ENERGY CHALLENGE – JUNIOR

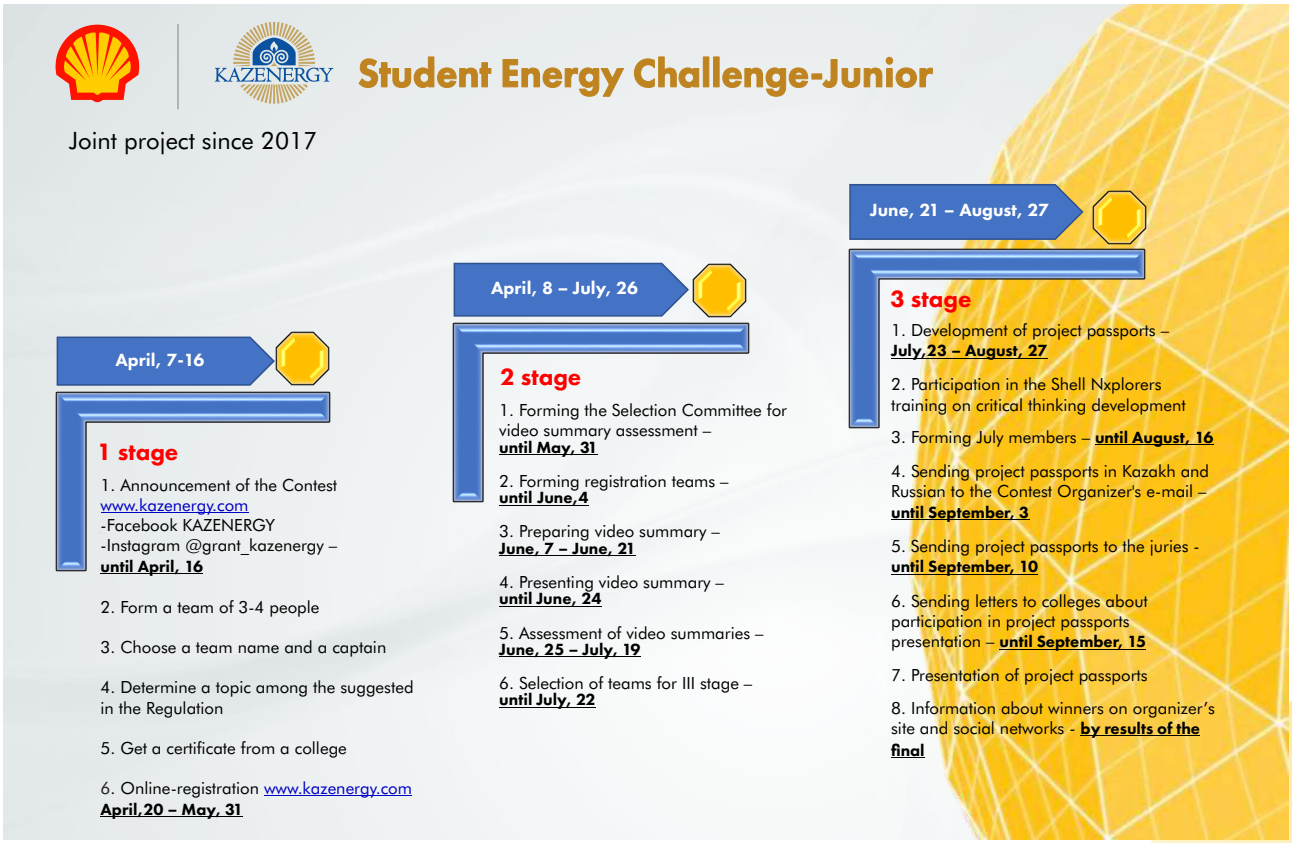
The Student Energy Challenge Junior Contest is also held in several stages. The winners of each stage are determined by a majority of the votes cast.

At the initial stage, students form a team of 3-4 people. Students can be of different majors and study at different faculties. Then they choose a captain, come up with a name for the team and register on the website, attaching a certificate from the college.

At the second stage, the teams that have successfully registered begin to develop a video summary.

The teams develop a 2.5- to 4-minute video summary introducing each member of the team, and providing justification for choosing a topic.

In the video summary, students explain the idea of the project, and the expected effect of the project. According to the results of the video summary, the finalists are determined.



2.2. AREAS AND CRITERIA FOR EVALUATING THE VIDEO SUMMARY

Along with the development of the video summary, the composition of the Selection Committee is being formed. The Selection Committee evaluates students' work according to the following criteria:

- The originality of the video summary
- Justification of the choice of the contest topic
- Introduction of the team and roles of team members (captain, team members, team name, college, major, year of study)
- Description of the project effect
- Expectation of participation in the contest

During two weeks, the Selection Committee selected and evaluated the video summary of 32 teams, representatives of 17 colleges from 9 regions of Kazakhstan. By the decision of the Selection Committee, it was decided to admit 20 teams that most meet the Contest criteria to the final stage.

1	«Ecochem project»	Pavlodar Chemical and Mechanical College;
2	"ShygysEnergo"	Electrotechnical College, East Kazakhstan region
3	"Polytech"	S. Mukashev Atyrau Polytechnic College
4	«Arbitrium»	Kazakhstan International Linguistic College, Nur-Sultan;
5	«Western Power»	Higher college APEC PetroTechnic, Atyrau region
6	«Clean path»	Kazakhstan International Linguistic College, Nur-Sultan;
7	«NewDay»	Polytechnic College, Nur-Sultan;
8	«S.A.S.»	Higher college APEC PetroTechnic, Atyrau region
9	«Zhansugurov college»	Zhansugurov College, Almaty region;
10	«Spark»	Higher College of Transport and Communication, Nur-Sultan
11	«Smart students»	Higher Agrarian and Technical College, West Kazakhstan region;
12	«Voltage step»	Pavlodar College of Information Technologies;
13	"Altyn kurek"	Higher college APEC PetroTechnic, Atyrau region
14	«Pipe up»	Kazakhstan International Linguistic College, Nur-Sultan;
15	«Energy»	Pavlodar Chemical and Mechanical College;
16	«IT ZH»	Zhansugurov College, Almaty region;
17	«Safety first»	Burlinskiy College, West Kazakhstan region
18	"Polytech Atyrau"	S. Mukashev Atyrau Polytechnic College
19	"Ecogroup"	Mining Engineering College, Stepnogorsk
20	TMNT	Almaty State College of Energy and Electronic Technologies.

The teams that have passed the third stage of the Contest begin to prepare project passports on the selected topics.

2.3. ABOUT THE SHELL NXPLORERS TRAINING

"Shell NXplorers" training for college teams of the Student Energy Challenge-Junior contest was held from July 27 to 28, 2022 in the online format.

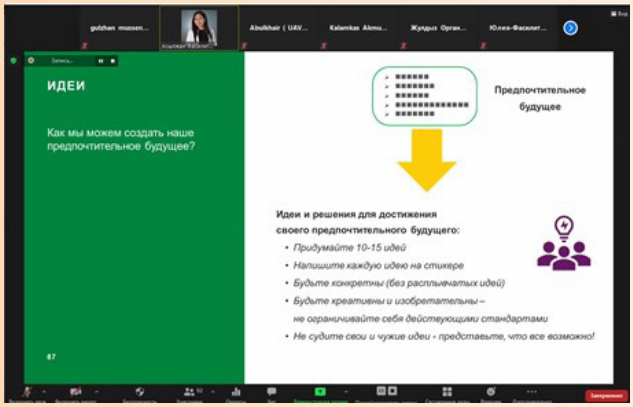
The training was organized within the framework of the "Student Energy Challenge" with the participation of 20 teams from 7 regions of Kazakhstan, which successfully successfully passed the selection process based on the results of the first stage.

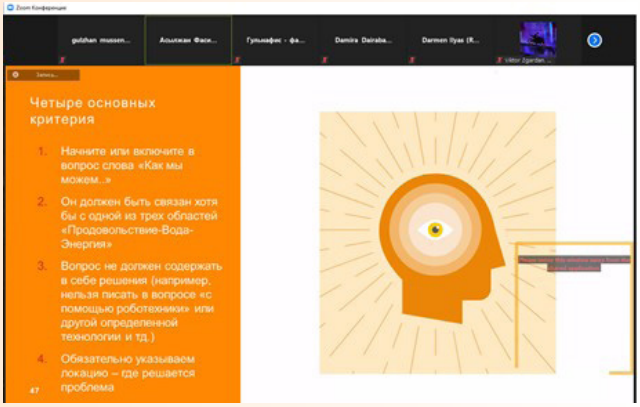
The training program was developed by Shell to help young people develop a new way of thinking.

As part of the Shell NXplorers program, participants learned new types of thinking, considered global and local challenges, and identified problems to further address through the use of NXplorers tools.

The two-day training was accompanied by interactive sessions, work on collaborative platforms and homework assignments.

Teams were awarded 5 points each and all participants received a Shell NXplorers certificate.





2.4. JURY MEMBERS

Mr. Dinmukhamed Nurgali

Mechanical engineer for maintenance of static equipment, Shell Kazakhstan

Ms. Sanim Paritova

Oil and Gas Field Development Engineer, Shell Kazakhstan

Mr. Asset Baysalov

Researcher at Nazarbayev University, Captain of the «Wind of Change» team of Nazarbayev University, 1st place, 2019

Mr. Dias Argimbayev

PhD student of KBTU, Center of Alternative Energy and Nanotechnology, major in nanomaterials and nanotechnology, Captain of the «Synergy» team Al Farabi Kazakh National University, 1st place, 2017

Ms. Dana Uzakbayeva

Manager for work with Development Institutions Association of Electrical Engineers of Kazakhstan, Captain of the team «Association of Innovators» Almaty University of Power Engineering and Telecommunications, 3rd place, 2018

Mr. Aysultan Dulatbayev

Master Builders Solutions Central Asia Product Development Engineer, KBTU United Team Captain, 1st place, 2018

Ms. Zhuldyzai Zhumabayeva

Metal accounting technician of the smelting shop (PC) #2 Aktobe Ferroalloys Plant - a branch of TNC Kazchrome JSC, a graduate student of Zhubanov University, a member of the 24Element team, Zhubanov University, 2019-2020

2.5. FINAL AND WINNERS OF THE STUDENT ENERGY CHALLENGE- JUNIOR CONTEST

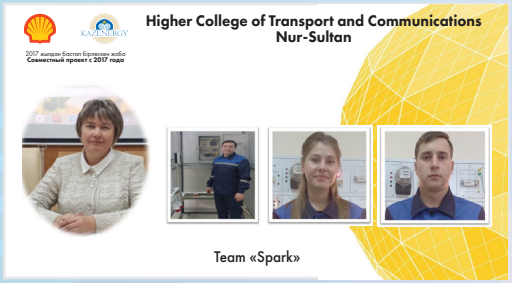
Based on the results of the discussion, the following winner teams were identified for the first season of the Student Energy Challenge-Junior with a monthly prize scholarship fund during the 2021-2022 academic year:

1st place – team «Zhansugurov college»

Team members:
Ms. Adeliya Khassanova
Ms. Leila Bramtai
Ms. Sholpan Omirserik

Research advisor:
Erik Beisenbekov

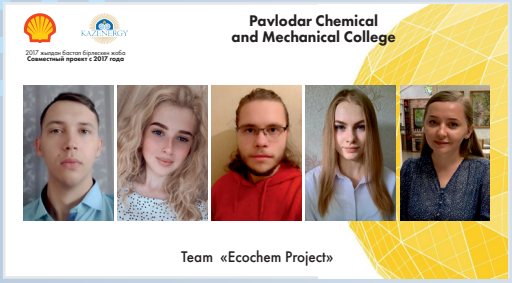
2nd place – team «Spark»



Team members:
Mr. Dmitriy Gunya
Ms. Nadezhda Shatunova
Mr. Vitaliy Shlyk

Research advisor:
Ms. Svetlana Muraviyeva

3rd place – team «Ecochem project»



Team members:
Mr. Roman Dudnik
Mr. Alexander Vikhlyayev
Ms. Elizaveta Cherenkova
Ms. Kristina Tarasenko

Research advisor:
Ms. Tatyana Gavrilyuk

3

3. XII KAZENERGY YOUTH FORUM

"PERSONNEL TRAINING IN NEW REALITIES: FROM RETHINKING TO REFORMING"

The issues of personnel training became the topic of the next XII KAZENERGY Youth Forum "Personnel training in new realities: from rethinking to reforming", which took place within the framework of "KAZENERGY WORLD ENERGY WEEK 2021 LIVE "ENERGY FOR BETTER LIVES/ENERGY FOR THE BENEFIT OF HUMANITY" in digital format.

The future of energy in the hands of young people is not just a slogan, but the reality of today. Human development has always been associated with an energy transition; from fire to hydrocarbons and cleaner alternatives such as renewable energy sources. This process has always been connected with people's lives and the evolution of society. Energy has been moving society forward for thousands of years[1].

With rapidly changing world, the training of future personnel in the education system is of particular importance, especially taking into account the solution of lifelong learning tasks; employment with newly emerging various types of labor relations, including platform employment; promotion of the so-called "lifelong career guidance" so that graduates of universities and colleges are among the "extra people".

Today, work has begun in the country to develop a concept on professional qualifications, all interested parties should take an active part in this issue to train qualified specialists, offering certification programs recognized in the labor market to confirm the readiness of a future specialist for work.

Within the framework of the Youth Forum, the following thematic sections were organized for discussion:

«A new look at career guidance».

We are all witnessing that many familiar things and concepts are becoming a thing of the past. And along with them, it includes a number of professions that were considered prestigious yesterday. In this regard, it is necessary to completely change the approach to vocational guidance of schoolchildren, to help them become in demand in life.

This year, a decree of the Government of the Republic of Kazakhstan was issued on the approval of the Concept of lifelong learning, pushing the age boundaries of professional orientation.

1 Dr. Angela Wilkinson, Secretary General and Chief Executive Officer of the World Energy Council.

«Personnel training in universities of new realities».

The situation that has occurred in the labor market due to the outbreak of coronavirus has shown the urgent need for systemic changes in personnel training. Building a digital university and switching to blended learning, which until recently was the main tool of the world's leading universities, has become a given in the educational environment. Questions about the importance of owning digital competencies, about universities, teachers and students of the future will be discussed with experts.

«New approaches in personnel internships».

Human capital has been considered one of the factors of economic and innovative growth relatively recently. In many countries, training programs are being implemented for young people – students, postgraduates and researchers. The purpose of all these programs is to provide young people with new knowledge and experience in leading countries of the world for their further application for the benefit of their state.

Experts from government agencies, leading companies in the oil and gas and energy industries, heads of educational organizations, youth movements and initiatives were invited to participate in the Forum.

3.1. GREETINGS TO PARTICIPANTS OF THE XII YOUTH FORUM

Mr. KENZHEBEK IBRASHEV

Director General of KAZENERGY Association

I am glad to welcome you at the XII KAZENERGY Youth Forum "Personnel training in new realities: from rethinking to reforming"

The idea of the Youth Forum is to open a dialogue between young people, employers, experts and government representatives. Only dialogue can achieve a balance of interests and mutual trust is a key factor.

We live in a world of rapidly changing new technologies. They are created in order to make life better. But they can also bring problems that you need to anticipate and be ready to overcome. The crisis caused by COVID-19 has become a point of no return in educational technologies and ensured the transition of education to the digital age.In the rapidly changing modern world, the labor market is also changing rapidly. Some professions arise and become popular, other specialties turn out to be less in demand and become a thing of the past.Support and development of young talents is one of the priorities of the KAZENERGY Association. The tradition of involving young people in innovative projects continues and strengthens its position every year.

In 2021, the Student Energy Challenge Anniversary Contest is being held in partnership and with the financial support of Shell Kazakhstan. The Contest for five years was able to gather 270 teams from 40 universities of the Republic of Kazakhstan. For two years, the Student Digital Fest Contest has been held by the KAZENERGY Association with the financial support of Karachaganak Petroleum Operating. Over two years, 94 teams from 25 universities of the Republic of Kazakhstan took part in the Contest.

The finals of the contests will be held at the site of the XIV Eurasian Forum KAZENERGY WORLD ENERGY WEEK 2021 LIVE "ENERGY FOR BETTER LIVES".

For the first time, this year, the Student Energy Challenge-Junior Contest is being held among college students with a simplified stage, in which 41 teams from 9 regions of Kazakhstan took part. The final of the Contest was held in September this year.In honor of the celebration of the 30th anniversary of Kazakhstan's Independence, 30 young specialists - members of the KAZENERGY Association will be awarded letters of thanks and certificates of honor.

I wish the participants of the XII Youth Forum interesting discussions, fruitful work and creative achievements!

3.2. SPEAKERS OF THE XII YOUTH FORUM

"Personnel training in new realities: from rethinking to reforming"

MARATBEK GABDULLIN

Acting Rector, Chairman of the Board of
JSC "Kazakh-British Technical University"

Quote:
"One of the problems that many countries are currently facing in their quest for large-scale use of renewable energy sources is the lack of highly qualified personnel for the manufacture and maintenance of renewable energy technologies".

SAULE SAGINTAYEVA

Rector of Daukeyev Almaty University of Power Engineering and Telecommunications

Quote:
"The success of the development of our entire socio-economic system depends on the quality of education and training".

GULZADA SHAKULIKOVA

Rector, Chairman of the Board of Atyrau Oil and Gas University named after S. Utebayev

Quote:
"Addressing today's youth, I would like to say that the world's population is already approaching the mark of 8 billion people, and the success of a person, a country and the world as a whole depends on what goals the youth in particular sets for themselves".

AINUR KARBOZOVA

President of "Center for International Programs "Bolashak" JSC

Quote:
"According to the results of PISA 2018, the program for assessing the knowledge of foreign secondary school students conducted by the Organization for Economic Cooperation and Development, More than 80% of students who complete the upper grades of secondary schools do not know how to determine their future profession, and then there is a process of "chain reaction" in the subsequent stages of a student's life".

ASSEL DZHUMASEITOVA

Provost for Academic Affairs of Kazakh-British Technical University JSC

Quote:

"We are facing a challenge to change the corporate culture of the company so that all generations (X, Y, Z) are a synergistic effect for each other, and bring profit for the company".

ELMIRA OBRI

Acting Chief Executive Officer of the Bureau of Continuous Professional Development of the Astana International Financial Center (BCPD Ltd.)

Quote:

"Atlas is a forecast map of promising industries and professions for the next 10-15 years. It will help us understand which areas will be actively developed, which new technologies, products, management practices will be born in them, and which new specialists employers will need".

SAYASSAT NURBEK

General Director of BTS Education LLP

Quote:

"We need to look for new formats of education. Often in schools, students do not have teachers, mentors, think critically, they have the right to choose, they manage their own motivation and discipline. The responsibility for the student's success lies with the student himself".

LYUDMILA PAK

Director of "VISTA Training Center" LLP of Pavlodar Petrochemical Plant

Quote:

"A person who has grabbed a cat by the tail at least once knows much more about cats than someone who has only read and never seen them".

LYAZZAT KOZHAKHMET

HR Director of "NAC "Kazatomprom" JSC

Quote:

"Providing a unique opportunity for talented young people of the country to express themselves and realize their potential is the goal of the IZBASAR program at NAC Kazatomprom JSC".

3.3. KAZENERGY EDUCATIONAL GRANTS

In December 2006, the KAZENERGY Association developed the KAZENERGY Educational Program. This is a unique example of the joint work of the Association's members with young people and an indicator of the active participation of private business in the development of Kazakhstan by supporting social and educational projects, training highly qualified personnel.

Since 2007, the Association has been providing grants and scholarships to university and college students.

Over 7 years of the project implementation, more than 9,000 applications for tuition fees for university and college students have been received. The total number of grants approved for payment amounted to over 4,000, of which 54% belong to socially vulnerable segments of the population (orphans, disabled children, children from large families, children from low-income families, single-parent families).

Acceptance and registration of documents for admission to participate in the competition were carried out in the period from July 15 to August 31, 2021.

According to the results of the competition for tuition fees at the expense of funds allocated by Contractors, a total of 1923 people applied, of which 1207 applications were registered (62.77%).

Thus, for the 2021-2022 academic year,

tuition fees were approved for 617 students from different regions of Kazakhstan.

The most popular majors are oil and gas, energy, IT, security system, chemical technology of inorganic substances, etc.

http://ww.kazenergy.com/ru/operation/educational-program/